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HW-10378-DEL

HAN-16926

~~HW-10378~~

#1 - H. A. Winne, Schenectady
#2 - Zay Jeffries, Pittsfield
#3 - C. G. Suits, Schenectady
#4 - R. C. Muir
#5 - C. N. Gross
#6 - A. B. Groninger
#7 - F. R. Creedon
#8 - Office of Hanford Directed Operations
Attention: C. Shugg, Manager
#9 - Office of Hanford Directed Operations
Attention: C. Shugg, Manager
#10 - Office of Hanford Directed Operations
Attention: C. Shugg, Manager
#11 - Office of Hanford Directed Operations
Attention: C. Shugg, Manager
#12 - Office of Hanford Directed Operations
Attention: C. Shugg, Manager
#13 - 700 File
#14 - 700 File
#15 - 700 File

July 26, 1948

HANFORD WORKS

MONTHLY REPORT

JUNE 1948

This Document Consists of

258 Pages. No [redacted]

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GENERAL SUMMARY
JUNE 1948

Continuation of flood stages of the Columbia and Yakima Rivers into June did not affect Manufacturing operations. At month end the rehabilitation work necessitated by the flood waters was under study with indications that assistance from Transportation, Maintenance, and Electrical Divisions would be required in handling certain of the smaller jobs.

The ruptured slug mentioned in last month's report was removed June 4, and resumption of operation occurred June 16 following disposal of contaminated effluent water to a specially constructed trench and clean-up of the retention basin. Although considerable contamination was encountered, successful clean up has been effected and there was no over-exposure of personnel. In an effort to determine the cause of failure, study of the slug has been initiated.

Preliminary examination of the 4" lead-dipped alpha rolled slug which ruptured in 100-F pile on May 30 indicates that the welded end-cap had separated from the slug, due possibly to poor cap and braze-line wetting during canning.

The reactivation of the 100-B Area proceeded throughout the month, and start-up on July 1 is expected as planned. Foil counts showed no change in reactivity since April 1947. Analysis, jointly with the P Division, of factors affecting the startup of the DR Pile indicated the advisability of continuing the D Pile in service as long as possible. Operation of the present piles was found to be limited by the control system to present power levels; modification of the controls would permit operation at higher levels. Analysis of this situation is continuing. The graphite power coefficient of the D Pile has not changed since January, despite the addition of carbon dioxide to the pile atmosphere in the interim. Since this effect accompanies a decrease in the rate of overall vertical expansion, its significance is being sought.

The carbon dioxide concentration in the D Pile atmosphere was maintained at 25% and plans were laid to raise it to 40%. It is still not clear what fraction of the decrease in rate of expansion can be credited to this experiment. Experiments on pile annealing via electrical heating have been delayed by failure of the first Calrod heater.

Production uranium rolling for Hanford continued at Ft. Wayne, Ind., and Lockport, N. Y., with all runs being followed by 300 Area Plant Assistance personnel. The bronze dip conditions required to assure complete transformation of this metal to the beta phase, with attendant randomization of crystal orientation, were investigated. Bath temperature was increased in an attempt to maintain the standard time cycle, but results are not yet consistently satisfactory.

Tests of the reel-and-spline method of segmented discharge on tubes of irradiated metal demonstrated that this method operates satisfactorily and produces no hazard even when gross operating errors are made. A plan for converting the present piles to segmented discharge without loss of metal has been evolved, and plans to put this procedure into operation on a production scale are maturing rapidly.

General Summary

Design, procurement, and construction of scrubbing facilities for removing contaminated particles from the 200 Area stack gases was continued. At the same time evaluation of other approaches, notably a sand filter and an electrostatic unit, was continued.

A major decision with respect to the Redox program was reached during the month. Following a review of the program with the Redox Advisory Committee, and in line with their recommendations, attention will henceforth be centered on the mixer-settler type of contacting equipment in order to expedite both process development and the design and construction of the test plant and the full scale production units. Work will continue for the next two - three months on the sixteen-inch scale-up column to develop basic information on the height of a theoretical stage in full scale columns. Procurement of both full scale and small scale mixer-settler equipment has already been initiated, however, and emphasis will be shifted to this type of equipment in both the Scale-Up and Demonstration Unit studies as soon as it is available on the site. One result of this change in program will be to reduce the importance of the anomalous mass transfer rates which have been experienced with different types of uranium feed, since those anomalies have not appeared in the mixer-settler equipment. Continued studies during the past month with small packed columns have not established the cause of this peculiar behavior, and it is difficult to predict at the present time to what extent it would be a factor in operations with larger columns or different types of packing.

In the H.I. Operational Section, work loads and survey findings were normal, except for events arising from a ruptured slug in the 100-F Pile. The Pile Building exposures and contamination were satisfactorily limited at this time. Much effort was spent in avoiding the release of abnormally radioactive water, algae and mud to the Columbia River. The need for efficient algae screens was demonstrated. The active particle deposition in the 200 Areas appeared to increase in severity. Measurable concentrations were noted in Richland. Many air samples in the Metal Fabrication area indicated uranium concentrations above proper limits. This is a condition requiring attention as the consensus of Project opinion is that the limit should be lowered.

There was one lost time injury this month. This increased the total number of lost time injuries for the year to five. Minor injury rate remained the same as the previous month.

[redacted]

STAFF

General Manager	R. C. Muir
Assistant General Manager	R. S. Neblett
Assistant to the General Manager (Technical and Educational Matters)	W. I. Patnode
Assistant to the General Manager (Budgets and Expense Control)	J. R. Rue
Assistant to the General Manager and Manager of Service Divisions	G. G. Lail
Department Comptroller	F. E. Baker
Counsel	L. F. Huck
Community Manager	E. L. Richmond
Manager, Design and Construction Divisions	F. R. Creedon
Manager, Manufacturing Divisions	C. N. Gross
Manager, Technical Division	A. B. Greninger
Manager, Health Instrument Division	H. M. Parker
Manager, Medical Division	W. D. Norwood, M.D.

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Hw-10378-D

FORCE REPORT
JUNE 1948

	Non-Exempt		Exempt		Total		
	5-28-48	6-30-48	5-28-48	6-30-48	5-28-48	6-30-48	
GENERAL	7	14	6	5	13	19	
LAW	-	2	-	2	-	4	
DESIGN & CONST. DIVISIONS							
Administrative	34	37	6	6	40	43	
Construction	358	435	264	276	622	711	
Design	216	245	142	145	358	390	
Procurement	42	46	59	63	101	109	
No. Richland Realty	-	303	-	23	-	326	
MANUFACTURING DIVISIONS							
Admininstrative	-	-	3	3	3	3	
"P" Division	248	276	55	57	303	333	
"S" Division	245	225	57	59	302	284	
Power	400	400	85	85	485	485	
Maintenance	629	625	79	78	708	703	
Project Engineering	70	75	50	51	120	126	
Electrical	223	235	40	41	263	276	
Instrument	152	152	44	44	196	196	
Transportation	683	683	62	63	745	746	
Accounting	-	-	-	1	-	1	
TECHNICAL DIVISION	391	412	205	208	596	620	
MEDICAL DIVISION	402	427	84	92	486	519	
H. I. DIVISION	191	180	82	84	273	264	
ACCOUNTING DIVISION	239	243	35	35	274	278	
SERVICE DIVISIONS							
Employee & Comm. Rel.	74	80	20	19	94	99	
Plant Security & Serv.	935	1001	115	114	1050	1115	
Labor Rel. & Wage Rates	4	5	4	5	8	10	
Purchasing & Stores	169	166	21	21	190	187	
COMMUNITY DIVISIONS	885	640	144	130	1029	770	
TOTAL	6597	6907	1662	1710	8259	8617	
					1121	1579	
					7138	7038	

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PERSONNEL DISTRIBUTION - JUNE 1948

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
GENERAL DIVISION										
	-	-	-	-	-	-	-	-	5	5
Clerical	-	-	-	-	-	-	-	-	14	14
Total	-	-	-	-	-	-	-	-	19	19
LAW DIVISION										
	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	4	4
DESIGN & CONSTRUCTION DIVISION										
ADMINISTRATIVE										
Supervisors	-	-	-	-	-	-	-	-	6	6
Clerical	-	-	-	-	-	-	-	-	36	36
Others	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	43	43
CONSTRUCTION										
Supervisors	51	-	-	16	-	2	128	36	43	276
Clerical	26	-	-	6	-	-	86	78	12	207
Others	32	-	-	14	-	-	99	56	27	228
Total	109	-	-	35	-	2	313	170	82	711
DESIGN										
Supervisors	-	-	-	-	-	-	-	-	145	145
Clerical	-	-	-	-	-	-	-	-	124	124
Others	-	-	-	-	-	-	-	-	121	121
Total	-	-	-	-	-	-	-	-	390	390
PROCUREMENT										
Supervisors	-	-	-	-	-	-	3	-	60	63
Clerical	-	-	-	-	-	-	-	-	46	46
Others	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	3	-	106	109

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	100-B Area	100-D Area	100-F Area.	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
NORTH RICHLAND REALTY										
Supervisors	-	-	-	-	-	-	-	23	-	23
Clerical	-	-	-	-	-	-	-	28	-	28
Others	-	-	-	-	-	-	-	275	-	275
Total	-	-	-	-	-	-	-	326	-	326
MANUFACTURING DIVISIONS										
GENERAL	-	-	-	-	-	-	-	-	3	3
"P" DIVISION										
Supervisors	10	11	12	-	-	16	-	-	8	57
Operators	27	33	35	-	-	167	-	-	-	262
Clerical	1	2	2	-	-	5	-	-	4	14
Others	-	-	-	-	-	-	-	-	-	-
Total	38	46	49	-	-	188	-	-	12	333
"S" DIVISION										
Supervisors	-	-	-	24	25	-	-	-	10	59
Operators	-	-	-	105	102	-	-	-	-	207
Clerical	-	-	-	4	10	-	-	-	4	18
Others	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	133	137	-	-	-	14	284
POWER										
Supervisors	17	18	17	5	9	2	4	1	12	85
Operators	84	79	79	24	31	8	-	12	48	365
Clerical	1	2	2	-	1	-	1	-	1	8
Others	5	5	5	3	3	4	-	-	2	27
Total	107	104	103	32	44	14	5	13	63	485

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MAINTENANCE										
Supervisors	2	7	8	6	16	6	12	-	16	73
Engineers	-	-	1	2	1	2	-	-	6	12
Mechanics	33	23	62	44	93	54	86	-	108	503
Clerical	1	1	2	1	4	1	2	-	10	22
Others	2	1	10	7	18	11	30	-	14	93
Total	38	32	83	60	132	74	130	-	154	703
PROJECT ENGINEERING										
Supervisors	-	-	-	-	1	-	-	-	12	13
Engineers	-	-	-	-	5	1	-	-	30	36
Drafting Personnel	-	-	1	-	6	3	-	-	39	49
Clerical	-	-	1	-	1	-	-	-	9	11
Others	-	-	1	-	2	-	-	-	14	17
Total	-	-	3	-	15	4	-	-	104	126
ELECTRICAL										
Supervisors	2	2	3	2	3	2	18	-	6	38
Electricians	10	10	14	11	11	11	58	-	34	159
Clerical	-	-	1	1	1	1	3	-	3	10
Others	1	2	1	2	3	4	39	-	17	69
Total	13	14	19	16	18	18	118	-	60	276
INSTRUMENT										
Supervisors	1	3	5	2	4	6	-	-	7	28
Engineers	-	-	-	1	-	10	-	-	8	19
Mechanics	6	14	14	12	15	33	-	-	5	99
Clerical	-	1	2	1	2	3	-	-	5	14
Others	1	2	3	2	4	14	-	-	10	36
Total	8	20	24	18	25	66	-	-	35	196

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
TRANSPORTATION										
Supervisors	8	2	2	2	3	1	6	-	39	63
Drivers (Based on Areas Served)	14	20	28	27	44	32	24	-	66	255
Mechanics	12	2	1	-	3	-	1	-	77	96
Trainmen	6	5	5	5	5	-	-	-	3	28
Laborers	6	10	11	3	25	3	2	-	59	119
Clerical	-	1	1	1	-	1	1	-	25	30
Others	12	11	10	7	23	3	8	-	81	155
Total	57	51	58	45	103	40	42	-	350	746
MFG. ACCOUNTING										
Supervisors	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	1	1
TECHNICAL DIVISION										
Supervisors	-	6	-	6	11	29	-	-	8	60
Chemists-Engineers-Physicists-Jr. Technologists & Metallurgists	-	8	19	9	13	137	-	-	16	202
Laboratorians & Analyst	9	17	26	29	62	95	-	-	-	238
Clerical	-	2	-	1	2	28	-	-	22	55
Others	-	2	-	5	9	49	-	-	-	65
Total	9	35	45	50	97	338	-	-	46	620
MEDICAL DIVISION										
Physicians	-	-	-	-	-	-	7	13	20	40
Dentists	-	-	-	-	-	-	-	-	12	12
Technicians	-	-	2	-	-	-	-	9	26	37
Clerical	1	-	-	2	-	1	-	37	88	129
Others	9	1	8	4	3	2	15	22	237	301
Total	10	1	10	6	3	3	22	81	383	519

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
H. I. DIVISION										
Supervisors	1	1	3	3	8	14	-	-	7	37
Engineers	5	3	5	16	10	9	-	-	-	48
H. I. Inspectors	4	4	10	13	15	12	4	-	-	62
Clerical	-	-	1	-	1	2	-	-	4	8
Others	2	12	4	15	35	25	8	-	8	109
Total	12	20	23	47	69	62	12	-	19	264
ACCOUNTING DIVISION										
Supervisors	-	-	-	-	-	-	-	-	33	33
Clerks	-	-	-	-	-	-	-	-	95	95
Others	-	-	-	-	-	-	-	-	150	150
Total	-	-	-	-	-	-	-	-	278	278
SERVICE DIVISIONS										
EMPLOYEE & COMMUNITY RELATIONS										
Supervisors	-	-	-	-	-	-	-	-	19	19
Clerical	-	-	-	-	-	-	-	-	71	71
Others	-	-	-	-	-	-	-	-	9	9
Total	-	-	-	-	-	-	-	-	99	99
LABOR RELATIONS & WAGE RATES										
Supervisors	-	-	-	-	-	-	-	-	5	5
Clerical	-	-	-	-	-	-	-	-	5	5
Total	-	-	-	-	-	-	-	-	10	10

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
PLANT SECURITY & SERVICE										
Supervisors	16	9	7	10	9	12	20	0	34	117
Telephone Operators	-	-	-	-	-	-	-	-	48	48
Inspectors	4	3	3	3	3	3	5	2	1	27
Patrolmen	48	104	64	69	110	90	45	-	41	571
Firemen	44	-	-	-	-	11	3	-	21	79
Janitors	2	5	5	8	11	12	-	-	44	87
Laundry Operators	-	-	-	-	2	-	-	-	3	5
Clerical	-	-	-	-	-	-	23	-	73	96
Others	1	1	1	3	26	2	2	-	49	85
Total	115	122	80	93	161	130	98	2	314	1115
PURCHASING & STORES										
Supervisors	-	-	-	-	-	-	-	-	21	21
Clerical	-	1	-	1	-	-	-	-	164	166
Others	-	-	-	-	-	-	-	-	-	-
Total	-	1	-	1	-	-	-	-	185	187
COMMUNITY DIVISIONS										
Supervisors	-	-	-	-	-	-	-	-	130	130
Others	-	-	-	-	-	-	-	-	640	640
Total	-	-	-	-	-	-	-	-	770	770
GRAND TOTAL	516	446	497	536	804	939	743	592	3544	8617

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MANUFACTURING DIVISIONS

JUNE 1948

SUMMARY

The ruptured slug mentioned in last month's report was removed June 4th, and resumption of operation occurred June 16th following disposal of contaminated effluent water to a specially constructed trench and clean up of the retention basin. Although considerable contamination was encountered, successful clean up has been effected and there was no over-exposure of personnel. In an effort to determine the cause of failure, study of the slug has been initiated.

The reactivation of the 100-B Area proceeded throughout the month, and start up on July 1st is expected as planned.

Design, procurement, and construction of scrubbing facilities for removing contaminated particles from the 200 Area stack gases was continued. At the same time evaluation of other approaches, notably a sand filter and an electrostatic unit, was continued.

Continuation of flood stages of the Columbia and Yakima Rivers into June did not affect Manufacturing operations. At month end the rehabilitation work necessitated by the flood waters was under study with indications that assistance from Transportation, Maintenance, and Electrical Divisions would be required in handling certain of the smaller jobs.

C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

P DIVISION

JUNE - 1948

I. GENERAL

The D and F Piles operated at 275 M.W. throughout June except for the outages listed under Area Activities in this report. The B Pile was maintained in standby condition, preparations being made for a start-up on July 1, 1948. The 100 Area discharge rate continued at 60 tons per month.

The 300 Area canning production amounted to 103 tons of acceptable slugs. The canning yield was 91.3 percent.

All 100 Area personnel were placed on a six-day a week work schedule on June 14. The entire division is now on the six-day schedule with the exception of four people.

The ruptured slug, reported last month as occurring in Tube No. 1165-F on May 30, was discharged June 4. Following this, all contaminated water and sediment in the 107-F Retention Basin was pumped to a specially constructed disposal ditch. The pile was returned to normal operation on June 16.

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - June	
Beginning of Month -	302
End of Month - - -	332
Net Increase - - -	30

Twenty-two operators were transferred from the S Division, 16 going to the 300 Area and 6 to the 100 Areas. Five new operators were hired and one was transferred from the Realty group of the Construction Division, all being assigned to the 300 Area. Two operators terminated voluntarily from the 300 Area.

One stenographer and one male clerk were hired and assigned to 100-B Area.

John R. Young and Joseph H. Hoage were employed during the month and commenced a period of training preparatory to assuming supervisory duties in the 100 Areas.

Several transfers of supervisory personnel were made on June 14 as follows:

L. H. Wallace, W. P. Nicklason, Area Supervisors, and J. W. Baker, H. T. Lewis, E. J. Filip, and D. L. DeNeal, Shift Supervisors, were transferred from 100-F Area to 100-B.

S. L. Nelson, Senior Supervisor, was transferred from 100-F Area to 100-D.

K. T. Perkins, Shift Supervisor, was transferred from Construction liaison work to 100-F Area.

G. B. Carlton, Area Supervisor, from special assignment in Richland to 100-B Area.

E. W. O'Rorke, Area Supervisor, and E. A. Wegener, Shift Supervisor, from 100-D Area to 100-B.

R. G. Clough, Shift Supervisor, from 100-D Area to 100-F.

The above changes were occasioned by the preparations being made for starting up B Pile. Seven complete shift crews now cover the work schedule at B and D Piles, three being assigned permanently to each area and one alternating between areas. At 100-F, seven half-crews rotate on schedule to cover the work in that area, two crews being on duty at any given time. These schedules result in the minimum possible number of operating personnel required for these areas.

III. AREA ACTIVITIES

PILE SUMMARY	PILE B	PILE D	PILE F
Time Operated (%)	-	91.1	43.1
Operating Efficiency (%)	-	89.5	42.2
*Power Level (M.W.)	0	275	275
*Inlet Water Temperature (°C)	17.2	17.2	16.4
*Outlet Water Temperature (Maximum °C., 10 tubes, .240" Zone)	17.3	59.1	63.2
Number of Scrams	0	0	0
Number of Purges	1	2	0
Helium Consumption (cu. ft.)	74,161	57,168	68,481
Metal Discharged (tons)	0.5	36.3	27.5
Inhours Gained (this month)	0	14	5
*Inhours Poisoned	-	392	320
*Inhours in Rods	-	43**	45

*Month end figures.
**25 inhours attributed to presence of carbon dioxide in gas circulating system.

PILE BUILDING

Outage Breakdown

Date of Outage	Scheduled Metal Discharged	Scheduled Maintenance	Unscheduled	Length of Outage (Hours)
*6-1-48			F	369.4
**6-6-48	D			22.8
**6-20-48	D			19.8
**6-20-48	F			21.3
6-29-48	D			21.5
6-30-48	F			19.3

*Pile was down for discharge of ruptured slug and decontamination of retention basin. During this time a normal metal discharge was made, and extensive maintenance work scheduled for later in the month was carried out.

**These outages were scheduled on Sunday to permit special tests of the Bonneville electrical system.

Operating Experience

A number of special request samples were processed during June; details of their irradiation may be found in the Technical Section of this report.

Production Tests having operational significance during the month are reported below:

105-103-P (Corrosion Rates at Elevated Temperatures)
On June 6, the orifice in Tube No. 0960-D was changed from .200" to .175" and that of Tube No. 4473-D from .175" to .140" to develop higher than normal outlet water temperatures.

105-168-P (Replacement of Pile Helium Atmosphere with Carbon Dioxide)
The percentage of carbon dioxide in the gas circulating system at D Pile was maintained at 25 percent (nominal) throughout the month. No significant change in operating conditions was observed.

105-197-P (Segmented Discharge of Pile Tubes)
On June 20 an attempt to discharge the downstream half of Tube No. 1866-F, using the steel tape segmented discharge equipment, was unsuccessful when the tape broke while pulling the slug column back into position. The failure was probably due to improper attachment of the "gripper" slug. On June 30, the equipment was used successfully in discharging Tubes No. 1881-F and 2863-F. No operating difficulties, excessive contamination, or radiation were experienced.

105-202-P (Sensitivity of Process Tube Ion Chambers)
The neutron sensitive ion chamber installed last month in air-filled fringe Tube No. 0353-F functioned satisfactorily. Further testing is in progress at new locations.

Four bismuth columns were established at the B Pile, and five additional columns at F Pile. The total bismuth loading, (57 pieces per stringer), is now:

Location	Stringers
B	4
D	30
F	35

In conjunction with the start-up preparations at 100-B, a total of 269 tubes was charged with regular 4-inch canned uranium slugs.

Effective in June, standard practice at all retention basins is to pass effluent process water through one-half the basin, the other half being held in reserve as a diversionary measure in the event of a ruptured slug. Calcium hypochlorite treatment of these basins is continuing as a control measure for algae growth.

Tubes No. 2173-D and 2773-D, containing 4-inch slugs of the alpha-rolled, lead dipped type were discharged at half normal concentrations and examined for end cap condition. All the slugs were found to be in good condition.

The ruptured slug which required a shutdown of F Pile on May 30, 1948 was discharged on June 4. All pile effluent water contaminated by this slug was pumped to a specially constructed disposal trench near Retention Basin 107-F, this work being completed June 9. Following this, all algae and sludge in the east half of the basin were removed to the same trench to insure that no fission products would pass to the Columbia River. This work was completed on June 16, permitting use of the east basin for normal operation. The pile was started up on the same day. (For a detailed account of the work done incident to the above program, reference should be made to Classified Document No. HW-10234). The west basin at 107-F is being cleaned in a similar fashion, the work being 90 percent complete at the end of the month.

Mechanical Experience

All vertical and horizontal rods are in satisfactory operating condition. During the month, deposits of iron rust were removed by a vacuum cleaner from the bottoms of Vertical Rod Thimbles No. 10 and 11-D and No. 10, 11, 15, 21, 27, 32, 33, and 38-F. This completes this program at F Area; some 20 thimbles remain to be serviced at D Area.

Excavation is essentially done and about 20 percent of the installation has been completed on the new 105-107 effluent sewer at F-Area. During the period June 1 to 15 a temporary downcomer by-pass line was installed. This line will be used when the new sewer is being connected to the downcomer.

A program begun in April to allow free outward movement of pile shields was completed in June, the following work being done:

The vertical neoprene strips at front and rear of the far side of B Pile were replaced.

The rebricking of the wall on the far side at B Pile was completed and appropriate shielding installed.

The vertical neoprene at the rear-far corner at F Pile was replaced. The layer of cork between the far side and the adjacent concrete wall was removed.

During a test and inspection of the B Pile downcomer on June 9, it was discovered that the 12 foot vertical baffle had dropped to the cushion chamber at the foot of the downcomer. The baffle was lifted out but not replaced. Instead, a reinforcing plate was welded to the outside of the downcomer. This plate extends downward 9 feet from the point where water leaving the crossheader impinges upon the downcomer, and extends half-way around the downcomer. (An inspection of the D-Area downcomer on June 20 revealed that its vertical baffle had dropped down too, and it was left off).

Other inspections of the sewer system revealed the following deficiencies:

a) Several loose and damaged steel liner plates in the cushion chamber and two loose ceiling timbers. These were repaired.

b) A large crack between the cushion chamber and the first section of sewer line required caulking. It was reinforced on the outside with a steel band.

c) The 6-inch tile vent line between the pile building and the junction box was found leaking in several places and was replaced.

d) An effluent leak was observed at the point where the sewer enters the Retention Basin wall. This was refilled from the inside with grout. A second crack was observed in the third section from the basin end. This section is partially enclosed in a concrete block. The portion outside the block was reinforced with a steel band.

The "A" Test Hole Thimble at B Pile was replaced on June 29 because the shield plug ahead of the chamber used with the pile control galvanometer was stuck and could not be removed.

The following process tubes were replaced in June:

Tube	Deficiency
3671-B	Damaged during discharge, March, 1946.
1970-B	Damaged during segmented discharge development.
4570-B	Damaged during segmented discharge development.
0865-F	Stuck slug in May, 1948.
1165-F	Ruptured slug, May, 1948.

The PC Chamber used in B Pile start-up operations was relocated in the front of Tube No. 0453-B to permit positioning without requiring entry to the discharge area. Previously, the chamber had been located in the rear end of the tube.

Pile Development

Nine test nipples were installed on the B Pile downcomer to facilitate future study of pressure and flow characteristics.

A new oil trough was fabricated and installed on the discharge face at F Area. The trough is suspended from the ceiling with cables, and is

counter-balanced for ease of handling. The new design allows free access for decontamination and for placing of tip-off hoses.

As discussed in Document No. HW-10284, several pieces of equipment were designed and fabricated for removal of a ruptured slug from a process tube. This equipment will be improved and held for future contingencies.

GAS PROCESSING BUILDING

Operations were normal.

Work was continued by construction personnel on the gas tunnel from Building 105-DR to 115-D. On the outages of June 6 and 29, Maintenance personnel worked on the necessary tie-in lines.

SPECIAL HAZARDS

No over-exposure of personnel was experienced during the removal of the ruptured slug at F Pile; although considerable contamination was spread about, a successful clean-up of the building was effected.

Cask No. 94 was returned to the plant with what appears to be the container for the original sample of irradiated material still inside, apparently jammed while attempting its removal. No personnel exposures resulted, although no prior notice of unusual conditions had been received.

300 AREA - METAL FABRICATION

Production Statistics

Production for the month of June was as follows:

Billets Produced	85 Tons
Rods Machined	154 Tons
Acceptable Pieces Canned	103 Tons

Melt Plant

The casting yields were as follows:

	% Yield		
	May	June	To Date 1948
Billet	75.5	73.5	72.9
Solid Metal	92.8	88.8	89.1

Operation was continued on a three-shift, seven-day week schedule in June. With the assurance of an adequate supply of graphite crucibles and molds, mixed charges of approximately 40% briquetted turnings and 60% solid scrap were used beginning June 10 for a combined weight of 535 pounds in each crucible charge. A power input of 108 KWH is used for melting.

On June 2 the No. 3 coil in "A" furnace arced as a result of a broken crucible. The coil was not damaged and it was necessary only to replace the brick beneath the coil which had been covered with molten metal.

On June 10 the stopper rod broke in the No. 2 crucible of "B" furnace, allowing the entire crucible charge to empty onto the turntable. The molten metal cut a small hole through the turntable and solidified in a large cake on the furnace bottom. In order to remove the metal it was necessary to raise one side of the turntable and cut the cake of metal into small sections. A patch was welded over a small indentation approximately $\frac{1}{4}$" deep and 2" wide in the furnace bottom that had been cut away by the molten metal.

A 32-mesh stainless steel flash screen was installed at the exhaust flange of the north Stokes roughing pump on June 10 as a possible means of preventing backfires in the exhaust line. Upon returning the pump to service it was not possible to obtain a vacuum of less than 500 microns because of pressure build-up and the screen was removed on June 11. To date no solution has been reached in the elimination of backfiring except for draining the drip leg in the exhaust line daily to prevent excessive accumulation of oil. In addition, the flow of cooling water was increased to reduce the temperature of oil in the pumps. The manufacturer of these pumps will be contacted relative to the problem.

Difficulty was encountered in holding the desired vacuum on both "A" and "B" furnaces during the month. The chief causes were leaks which developed around the lids over the turntables and through the packing glands on the turntable shafts. The lids did not appear to be seating properly on the gaskets and the face of the seating rings had become slightly rough in spots from handling. The lid on "A" furnace was machined on June 17 and "B" furnace lid was machined on June 19. To prevent damage to these lids, they are set on 2" x 4" wood supports when removed from the furnaces.

The leaks around the turntable shafts were corrected by applying cello-grease to the packing and tightening the follower rings on the packing glands. The packing was so badly galled on the "A" furnace turntable shaft that it was necessary to tighten the follower ring on the shaft completely in order to stop leaks on June 17. This furnace was shutdown and the packing replaced on June 23. To reduce wear on the neoprene packing rings, cello-grease is applied once per month.

Annealing and Machining

Machining yields were as follows:

% Yield (4" A's)		
May	June	To Date 1948
67.1	69.1	67.5

Machining yields showed a slight gain as the result of improved surface quality of rolled rods. Rolled rods continue to be generally more porous

than extruded rods. During the month it was necessary to reject approximately four tons of machined slugs because of pipes and the general porous condition of the metal.

The annealing of alpha rolled rods for thirty minutes at a temperature of 1020 ± 30° was discontinued on June 8 in line with a recommendation from the Technical Division. The last lot of rods to be annealed was 684-B. All other lots preceding this lot were annealed except 681-Y. Annealing was found to be unnecessary to gain the desired grain structure if the bronze bath temperatures in canning were controlled

Approximately three tons of duplexed rods were annealed for sixteen hours at a nominal temperature of 1150° F on June 24 in conformance with Production Test No. 314-55-M, "Uranium Rod Fabrication by Duplexing". The duplexed rods covered by this test currently are being machined.

Chip Recovery and Oxide Burning

The Chip Recovery yield was as follows:

% Yield		
May	June	To Date 1948
90.1	88.9	89.5

Chip Recovery operated 12 eight-hour shifts and processed 49,736 pounds of briquettes in June.

The material burned in the oxide burner was as follows:

Weight Out - Lbs.		
May	June	To Date 1948
9973	3069	41126

The oxide burner was shut down on June 12 for complete replacement of all exhaust ducts, the cyclone separator, and for major repairs on the burner. It is expected that all work will be completed and the burner returned to daily operation the first week in July.

Canning Operation

The canning yield was as follows:

% Yield (4")		
May	June	To Date 1948
91.0	91.3	88.5

Canning rejects, by cause, were:

P Division

	% Total Canned (4")		
	May	June	To Date 1948
Non-Seating	3.4	2.7	4.5
Marred Surface	1.5	1.4	1.3
Al Si on Outside of Can	1.4	.5	1.3
Frost Test	.9	1.0	1.4
Bad Welds	1.3	1.6	1.4
Miscellaneous	.5	1.5	1.6
	9.0	8.7	11.5

Non-seating remains the major cause for rejects. Further study is being made of controls on temperature and canning bath composition in an effort to reduce non-seating. Bad welds increased during the month. This can be attributed partly to poor bonding between the cap and can and partly to inspection standards more severe than those previously in effect. It is thought that insufficient rinsing of the caps after washing in Duponal may account for some of the poor wetting (and thus poor bonding). A more thorough method of rinsing is being established and will be evaluated.

On June 8 the temperatures of the bronze baths was increased from [redacted] in accordance with Document No. HW-9949, "Authorization for Process Change". The higher temperature was found necessary to assure complete transformation of slugs into the beta phase and to obtain a more randomly oriented crystalline grain structure. No difficulty was encountered in maintaining the higher temperatures on the [redacted] canning cycle except on June 14, 15, and 16. It was necessary at that time to skip cycles to hold temperatures within the standard range because of sub-standard power conditions when the 110 voltage dropped to 100 and the 440 circuit dropped proportionally. It was later reported that slugs canned and sampled for metallographic examination on these dates showed incomplete recrystallization of the metal at the center of the slugs. There was no apparent reason for this condition since temperatures and dipping times were controlled in the standard ranges, even though it was necessary to slow down production to maintain temperatures.

The thermocouple lead wires were replaced on five additional furnaces with chromel-alumel wire. The lead wires have now been changed on a total of twelve furnaces and the remaining six will be changed as the furnaces are shutdown for overhaul.

Thirty-four capsule slugs and fifty papoose slugs were canned. In addition, 7218 lead slugs and 2372 poison slugs were canned in June.

Recovery Operation

	% Recovered		Average Wt.- Lbs.	
	June	To Date 1948	June	To Date 1948
Z Slugs	60.8	70.8	3.897	3.906
X Slugs	32.1	21.2	3.854	3.853
Rejects	7.1	8.0	--	--
	100.0	100.0		

The recovery of the remaining 48 tons of gamma extruded 8" canned pieces was completed June 16. Two-shift operation was discontinued on June 21 since it was feasible to complete the recovery of this material on a one-shift schedule.

Inspection and Testing

Autoclave rejects were as follows:

May	June	To Date 1948
0.18/M	0.13/M	0.37/M

There were a total of seven autoclave failures in June. Six pieces failed as a result of poorly bonded caps and pinholes in the weld bead. The other piece apparently failed due to insufficient bonding between the can and slug.

The "As Received" quality of cans, caps, and sleeves inspected during the month was as follows:

	% Useable (4")		
	May	June	To Date 1948
Aluminum Cans	94.2	93.9	90.0
Aluminum Caps	98.1	99.0	98.3
Steel Sleeves	86.1	92.1	80.7

305 Area Test Pile

This unit was operated on a one-shift, six-day week schedule in June. A total of 90 tests were run on canned slugs, 119 on billet eggs, 588 on graphite bars, and the following on a special work request:

Request Number		Number of Tests
25	To determine the reactivity of electrolytically plated analine dye on aluminum plates.	10

In view of the possibility of using colored aluminum cans in the canning of Special Request pieces for positive identification in processing, five samples of colored aluminum plate received from the Aluminum Company of America were tested to determine effects of the coloring on reactivity. Each plate was tested with the surface coloring and then again after the coloring had been removed with nitric acid. It was found that the coloring had no appreciable effect on reactivity. In addition, the dih values of the aluminum plates after the color was removed compared favorably with the calculated dih for pure aluminum.

In addition to the above tests, one and one-half days were spent on Production Test No. 305-11-P, Supplement A, "Irradiation of Uranium Hydroxide". This test required an operating level of 20 watts; its

purpose was to test the operation of a special slug containing uranium and thorium hydroxide as a generator of Xe^{135}.

Development Work

A zirconite mold wash consisting of a 1:1 mixture with water by volume was used on a trial basis in the Melt Plant beginning June 16. Twelve new molds were treated with the wash by painting the inner surface for a distance of eight inches above the bottom and preheating for sixteen hours prior to use. This was repeated after each use until each mold was discarded because of a rough inner surface or was cracked. The test was completed on June 29 with two of the original molds remaining in service after having been used nine times. The average mold life was 5.5 runs as compared to 2 runs previously. Observation of the molds indicated that the Zirconite wash was of value in preventing undercutting of the molds and could be expected to prolong mold life. As soon as additional quantities of zirconite can be obtained, the application of the wash to molds will be adopted as a standard procedure.

One of the chief causes for frequent overhaul of bronze furnaces has been the corrosion of terminal leads on the elements. Analysis of material around the leads has indicated that chlorides, originating from flux penetrating through or rising over the edge of the crucibles, are present. Presumably, the high temperature of the elements converts the liquid chlorides in the flux to a gas which settles to the furnace bottom around the leads. In an attempt to prevent corrosion, the leads on a complete set of elements were coated with ceramic cement and installed in 1A furnace on June 11. One section of elements burned out in this furnace on June 23 as a result of arcing. The leads showed very little evidence of corrosion and the cement had only spalled off slightly. The leads have now been treated in two other furnaces, 3A and 4A, to gain additional information on the value of the coating.

Two bronze furnaces, 2A and 3A, have been connected to electrical circuits using a delta connection rather than the conventional Y connection. The delta connection increases the amperage to the elements; consequently, the furnaces can be brought to the desired temperature more rapidly. Sufficient information is not yet available to establish the effect of the delta connection on element life.

S DIVISION

JUNE 1948

OPERATING SECTION

I. GENERAL

Fifty-two plutonium batches were started in the Canyon Buildings during June, and thirty-nine batches were processed through the Concentration Buildings and the Isolation Building. The average purity for the completed batches was 98.6 percent.

The material balances for T and B Plants averaged 98.4 percent and 105.7 percent, respectively, for a combined average of 101.4 percent. Waste losses for the two plants averaged 2.7 percent.

Canyon and Concentration Building Production Performance Data — (6/1/48 — 6/30/48, inclusive)

	B Plant	T Plant	Combined
Number of charges started	27	25	52
Number of charges completed	16	23	39
For completed charges:			
Percentage of starting product in waste			
This month	3.0(a)	2.6(a)	2.7
Last month	2.8(b)	2.4(b)	2.7
Cumulative to date	5.2(c)	5.0(c)	5.1
Percentage of starting product recovered			
This month	102.7	95.9	98.7
Last month	95.7	95.8	95.7
Cumulative to date	97.1	95.6	96.4
Percentage of starting product accounted for			
This month	105.7	98.4	101.4
Last month	98.5	98.2	98.4
Cumulative to date	102.3	100.6	101.5
Gamma decontamination factor (log.)			
This month	7.50	7.75	7.64
Last month	7.52	7.65	7.59
Cumulative to date	7.32	7.28	7.30

(a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.027%—T Plant; 0.017%—B Plant. (b) 0.025%—T Plant; 0.026%—B Plant. (c) 0.15%—T Plant; 0.006%—B Plant.

Isolation Building Performance Data (6/1/48 – 6/30/48, inclusive)

	% of Incoming Product			
	Prepared for Shipment	Recycle	Losses	Material Balance
Average for this month	94.9	6.08	0.06	101.0
Average for last month	92.0	7.96	0.13	100.1
Average to date	96.3	4.15	0.11	100.5

Forty-eight Hour Work Week

Due to an increase in activity in the canning operations and the activation of the100-B Area, it was necessary for the S Division to adopt a forty-eight hour per week work schedule on June 28 1948, to provide the P Division with urgently needed personnel (22) and to avoid the necessity of hiring additional people (17) in the S Division as a result of the activation of 100-B Area.

II. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	301
End of month	281
Net decrease	20

Remarks: The changes which occurred in the S Division during the month are listed below:

27 transfers to other divisions (1 Monthly Roll, 26 Weekly Roll)
3 transfers from other divisions (1 Monthly Roll, 2 Weekly Roll)
4 new hires (1 Monthly Roll, 3 Weekly Roll)

Changes in supervisory organization:

V. D. Donihee, Senior Supervisor, Records Group, was transferred to the Accountability Section of Management on May 17, 1948.

R. W. Harvey was transferred from the Health Instrument Division to the S Division as a Supervisor-in-Training on June 1, 1948

A. R. Bradway, a new employee, joined the organization as a Supervisor-in-Training on June 21, 1948.

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants

Volume Reduction 221-T-13

Evaluation of Production Test 221-T-13, involving the reduction of process volume at the end of the extraction step, was continued at T Plant. After

the satisfactory completion of a 10 percent volume reduction test (reported last month), ten runs were processed through the canyon with a 20 percent volume reduction with no adverse results on waste losses or decontamination. A single 30 percent volume reduction run was being processed at month-end. The test will proceed on the basis of incremental reduction, with thorough evaluation at each stage.

F Cell Waste Loss Study – T Plant

In an effort to improve the efficiency of the rework of the metathesis wastes which are normally reduced from an average of 0.33 percent to an average of 0.14 percent, the precipitator in Cell F, which contains a 5 to 8 percent heel, was flushed on runs T-8-06-D1 and T-8-06-D3 prior to the introduction of the metathesis wastes. On these runs the resultant rework wastes ran 0.03 and 0.04 percent, respectively. The indicated product savings (0.10 percent) will be further explored during July.

WASTE DISPOSAL

T and B Plants

Metal Waste Sludge Samples

Four samples of metal waste sludge were obtained from X-101-T tank on June 25, 1948, using equipment designed and fabricated at K-25 in Oak Ridge. The work was accomplished without incident and the samples are awaiting shipping instructions.

241-TX Tank Farm – Project C-163

Work in the sub-contractor's phase progressed satisfactorily during the month. X-ray inspection has been completed on seventeen tanks and Gunite has been applied to twelve tanks. The concrete for the walls and domes of nine tanks has been poured, and the concrete forms for the walls and domes of tanks 10 through 13 are in place. Backfilling of tank X-100-TX has been started and work is in progress on the 153-TX diversion box and tie lines.

In the General Electric phase the tie lines from the 221-T Building and the 155-TX diversion box, and from the 155-TX diversion box and the 241-U Area are essentially complete and are being hydrostatically tested. The backfill is approximately 80 percent complete.

The base to the 154-UX diversion box has been poured and approximately 700 feet of the seven line encasement between the 155-UX and 155-TX diversion boxes has been poured.

Approximately 500 feet of the three line piping encasement between the 155-TX diversion box and the 241-T Area has been poured.

Crib and Tile Field — 221—B Cell Drainage Water

Work on Project C—225, which covers the installation of a crib and tile field for the handling of cell drainage water from the 221—B Canyon Building, was continued during the month. Work remaining to be done on the project consists of backfilling the crib and inlet line, making the inlet line tie—in, and drilling the required test wells. The completion date for this work is estimated to be August 2, 1948.

Waste Status

The status of the Waste Storage Areas on June 30, 1948, is shown in the following table:

B Plant

Bldg. 241 Tanks	Waste	Percentage Full			Reserve Capacity In Batches to Process			
		B	C	BX	B	C	BX	Total
x101,2,3	Metal	100	100	40.4	0	0	160	160
x104,5,6	Metal	—	100	0	—	0	269	269
x201,2,3,4	Metal	0	100	—	—	0	—	—
x107,8,9	1st Cycle	100	84.8	0	0	51	338	389
x110,11,12	1st Cycle	—	100	—	—	0	—	—
x104,5	1st Cycle	—	—	—	—	—	—	—
x104,5,6	2nd Cycle	100	—	—	0	—	—	—
x110,11,12	2nd Cycle	76.0	—	0	109	—	454	563
x106	2nd Cycle	—	—	—	—	—	—	—

T Plant

Bldg. 241 Tanks	Waste	Percentage Full			Reserve Capacity In Batches to Process			
		T	U	TX	T	U	TX	Total
x101,2,3	Metal	100	100		0	0	—	—
x104,5,6	Metal	—	78.7		—	62	—	62
x201,2,3,4	Metal	0	0		—	37	—	37
x107,8,9	1st Cycle	100	0		0	338	—	338
x110,11,12	1st Cycle	—	100		—	0	—	—
x104,5	1st Cycle	85.8	—		32	—	—	32
x104,5,6	2nd Cycle	—	—		—	—	—	—
x110,11,12	2nd Cycle	84.1	—		72	—	—	72
x106	2nd Cycle	100	—		0	—	—	—

MECHANICAL PERFORMANCE

F—22 Centrifuge — T Plant

After having been out of service for repairs to the skimmer and plow, the F—22 centrifuge in T Plant was returned to service and the F—2 centrifuge shut down for repairs to the Teflon plow scrapers. Operation of the F—22 centrifuge is now satisfactory.

Process Leak – Section 6 – B Plant

Erratic performance of the conductivity meter led to the discovery of two small process leaks in the 6–1 to 6–3 tank transfer assembly in Section 6 on June 16, 1948. The jet assembly on the 6–1 tank and the cell wall to tank jumper on the 6–3 tank were immediately replaced. Loss of product was inconsequential.

Agitator Failure – B Plant

The agitator on the product solution tank in Section 8 of the B Plant Canyon Building failed on June 15, 1948, and was replaced. Although this agitator was a part of the original installation (Section 6), it was not put into active operation unitl March 25, 1948. A check of the circuit prior to removal indicated a short within the motor assembly. Further inspection is prohibitive because of the high level of radiation.

HF System – T Plant

In order to complete the recommendations made concerning the anhydrous hydrofluoric acid system (Project Engineering Recommendation Report No. 80), the unloading line from the car spot to the storage tank, SY–181, was replaced with Schedule 80, 1–1/2 inch iron piping. In conjunction with the line replacement, the storage tank was cleaned, inspected and pressure tested and found to be in good condition.

Filter Replacement – 231 Building

C.W.S. Type 6 filters were installed in the exhaust air system over Room 44 of the Development Section, and over Room 6–C without incident. This completes the replacement of the rock wool filters over the Development Section (Rooms 38 through 45) which is being used in the Project C–198 development program. The replacement of the filter over Room 6–C was necessitated by the partial plugging of the old rock wool filter. The C.W.S. Type 6 filter in the E position over Cell 3, which was installed in December of 1947, continues to give excellent performance with no indication of break–through.

SPECIAL HAZARDS

Stack Gas Contamination

Development of design and detailed consideration of construction contingencies of the proposed stack gas purification facilities (Building 293–T, mentioned in last month's report) having indicated a period of nine to fifteen months necessary for completion, the proposal was tabled in favor of a simplified and much more immediate installation to be made at T Plant.

This installation, already well along on design, and on which preliminary construction work is starting at month–end, provides a 4–unit water scrubbing system to be interposed in the ventilation system directly prior to one of the large fans at 291–T. The four units will operate in parallel as 8 foot diameter columns with Raschig ring packing and de–entrainment sections. The water supply will be from the T Plant process vessel jacket water effluent retention basin, and disposal will be made in a system of underground cribs.

Several consultations with gas purification authorities have been held, and a test installation of a proposed sand filter bed was agreed upon at month-end. This experimental unit will be installed and evaluated during July.

The status of other work on the stack gas contamination problem follows:

Stainless steel duct work for the steam driven fan at 291-T was installed, thereby affording stainless steel ducts for all ventilation fans in B and T Plants.

For further evaluation, the Type 6, C.W.S. filters were removed from individual cell ventilation outlets in the 221-B canyon. This has resulted in an increase in activity and number of particles in the stack discharge gases, but complete evaluation has not yet been made. Consideration will be given to the addition of a rough pre-filter to the Type 6, C.W.S units before their re-installation.

Operation of dissolver off gas scrubbers was continued throughout the month. Some difficulty has been encountered in the mechanics of operation of one unit, but test data continue to indicate satisfactory performance. Investigations leading to more quantitative evaluation are currently in progress.

Installation of the small experimental electrostatic precipitator was completed during the month. Equipment check-up and test runs were made by Technical Division personnel in company with representatives of the Air Reduction and Western Precipitation Companies. All data proved satisfactory and operation of the unit is scheduled to begin early in July.

Restriction of the air flow through the process cells in the 221-T canyon and 224-T process vessels was continued. The balance damper in the ventilation system was utilized, and a minimum air flow of 24,000 cubic feet per minute through the process buildings obtained. Investigation of this problem is continuing.

The twelve inch diameter packed column, described in last month's report, was installed and operated on a centrifuge catch tank vent line at Building 224-B. Preliminary evaluation of the unit indicated a removal of 97 percent of alpha activity in the ventilation air. This efficiency will be more positively determined in July.

DESIGN AND CONSTRUCTION CONSULTANT'S SECTION

Redox Development

Of prime interest to the S Division was the shift of emphasis during the past month from the vertical column type of contactor to the mixer settler contactor developed by the Standard Oil Development Company. This redirection of effort has resulted in an active procurement and installation program to provide experimental mixer settlers at Hanford since the majority of work here to date has been with vertical columns. The change to mixer settlers does not mean, however, a complete abandonment of vertical columns at this time. This decision will rest on the results of scale-up column runs in equipment now under construction in the 321 Building.

The Redox Layout Group of the Design Engineering Division has been active in preparing a tentative test plant layout and has submitted the completed floor plan and preliminary ventilation prints for comment and approval. These are currently being investigated from an S Division standpoint. The revised prints will form a firm design basis for the Test Plant.

Additional Laundry Facilities

The revised proposal for Additional Laundry Facilities has been expanded to include the cost of the Health Instrument monitoring equipment for the laundry. This proposal has now been resubmitted to Management for approval.

Main Area Gate and Badge House

A Type A Work Authority is being issued for the design and construction of a larger Main Area Gate and Badge House at a new location in the 200 West Area. The need for this facility is based on an expected 30 percent increase in personnel in the West Area and the existence of the present badge house in a zone of low level contamination which constitutes a potential health hazard to personnel stationed at the badge house.

Additional Waste Storage Facilities – 200 East Area

As a result of a survey of waste storage space available in both the East and the West Areas, a request for a Project Proposal has been prepared for the design and construction of twelve 758 gallon waste storage tanks in the East Area. This new storage area will be connected to the existing 241-BX tanks via the overflow lines provided on the last tank of each cascade series of the BX tank farm.

These new facilities are required for use by September, 1949.

POWER DIVISION
JUNE 1948

GENERAL

Prevailing Columbia river flood water conditions throughout the month caused abnormal power operations in the 100 and Village areas.

In preparation for the reactivation of the 100 B Area on July 1, the Power Division adopted a 48-hour overtime weekly schedule in the 100 Areas on June 21, and in the 200 Areas on June 28. The adoption of this schedule made available the additional personnel necessary for the operation of B Area.

PERSONNEL AND ORGANIZATION

Number of employees on payroll	May
Beginning of month	486
End of month	485
Net decrease	1

The indicated decrease of one employee is the result of the termination of three operators, inter-departmental transfer of four employees into the Power Division, the transfer of three employees out of the division, and the hiring of one operator.

100 AREAS

Flood stage Columbia river water with attendant high turbidity caused considerable difficulty in process water quality in the D and F Areas. Coagulant feeds up to 65 ppm were required prior to the river's crest on June 11; however, since this date the feed has gradually been reduced to an average of 27 ppm at the month's end.

Repairs to roads, backfill replacement, and repairing of sagging stairways at all river pump houses, caused by high waters were made during the month.

During the period June 9 to June 13, inclusive, the water pressure in the process water pump room in F Area was varied between 350 pounds and 25 pounds for intervals ranging from two hours to twenty-four hours at the "P" Division's request.

The motor for No. 6 process water pump in F Area was rewound and returned to service June 11.

Power Division

The South clearwell in the B Area filtration plant was drained and inspected June 8. A few minor leaks were located and repaired.

The 10 MM gallon side of the storage reservoir in B Area was drained and inspected on June 17. On the same date screens were installed on the sluice gates to the filter supply pump suction flume.

On June 18, No. 4 process water pump in D Area was returned to service after replacement of motor, which had been removed to shops last month for rewinding.

All work on power buildings and equipment in connection with B Area reactivation, including all equipment laid up in 1946 and Class "A" overhauls necessary for normal operation, were completed, making water and steam facilities available June 30.

200 AREAS

Relocation of raw and sanitary water mains near the "B" plant, necessary for the erection of a new decontamination building at this location, were completed June 12.

Construction work on the power house extension in the West Area was started on June 1.

300 AREA

An electrical power outage, affecting all Power Division electrical driven equipment for 17 minutes, occurred at 11:58 A. M. on June 30.

It was necessary to reduce the water output of the new No. 3 well approximately one-half due to overload imposed on motor.

700 AREA

An electrical power outage of 50 minutes duration occurred at 12:20 A. M. June 16, and another of 17 minutes duration at 11:58 A. M. on June 30, affecting all electrical driven Power Division equipment.

1100 AREA

Flood conditions prevalent during the entire month, and cresting at 357.10 feet at Lee Boulevard June 12, caused continued abnormal operations of the Village water and sewerage systems.

In addition to dikes protecting the sewerage lift station and disposal plant, sand bags were placed around all sanitary supply wells on Wellsian Way and pump motor starters raised on No. 4 and No. 13 wells, as a precautionary measure against rising flood waters.

On June 1 the sanitary water chlorine residual was increased from 0.2 ppm to 1.0 ppm.

Power Division

On June 6 one side of the sewerage plant chlorine retention basin raised several inches, caused by the buoyant effect of ground water. Some damage was done due to cracking of concrete between basin and Parshall metering flume.

On June 18 flood waters had receded sufficiently to permit returning the No. 3 Village irrigation system to service.

All Village irrigation systems were out of service on June 1 and 2 due to flood damage to the main irrigation ditch. The Nos. 1, 2, 4, 5, and 6 systems were again out of service June 21 to 23, inclusive, while alterations were made to provide highway crossings over the flume near the airport.

Two new wells, the "C" well and the "E" well on the Richland-North Richland domestic water supply systems were in service on June 23 and June 30, respectively.

PASCO STORAGE DEPOT

The river pumping station was out of service from 2:00 A. M. on June 27 to 4:00 P. M. on June 28, when the wooden water main ruptured near the pump house. Temporary service was provided through connections to the Pasco water system until repairs were completed.

WHITE BLUFFS

Operations normal.

POWER DEPARTMENT STATISTICS

From June 1, 1948

Through June 30, 1948

			AREAS		
			100-B	100-D	100-F
RIVER PUMP HOUSE (Building 181)					
River stage	Feet above sea level	(max)	415.3	402.9	391.0
		(min)	407.3	396.1	382.9
		(avg)	412.7	400.4	387.2
River temperature	avg. °F.		54.8	54.9	54.8
Water pumped to Reservoir	gpm avg. rate		11,960	40,732	26,000
Water pumped to Refg. Condensers	gpm avg. rate			0	0
RESERVOIR (Building 182)					
Water pumped to Filter Plant	gpm avg. rate		10,825	34,228	21,822
Water pumped to Condenser System	gpm avg. rate		1,067	3,863	2,704
Water pumped to Export System	gpm avg. rate		68	2,641	1,474
	gpm normal rate		4,183	4,183	4,183
Chlorine added at #1 inlet	pounds		6,784	23,291	9,250
FILTER PLANT (Building 183)					
Filtered water to Power House	gpm avg. rate		112	288	184
Filtered water to Process	gpm avg. rate		10,672	29,503	19,932
Filtered water to Fire & Sanitary	gpm avg. rate		111	184	150
Chlorine used in Water Treatment	pounds		3,162	3,209	6,350
	ppm avg.		2.4	1.85	1.80
Lime used in Water Treatment	pounds		57,262	162,070	97,700
	ppm avg.		14.7	13.1	12.4
Coagulant used in Water Treatment	pounds		158,735	370,000	282,000
	ppm avg.		40.6	30.0	35.9
Raw Water pH	pH avg.		7.50	7.69	7.8
Finished Water pH	pH avg.		7.47	7.38	7.40
Alkalinity, M. O. - Raw	ppm avg.		48	51.4	47
Finished	ppm avg.		45	46.0	44
Residual Chlorine - Settled	ppm avg.		.23	.14	.27
Finished	ppm avg.		.02	.08	.10
Iron - Raw	ppm avg.		.98	1.36	1.47
North Clearwell	ppm avg.		.02	.023	.02
South Clearwell	ppm avg.		.02	.028	.02
Hardness - Finished	ppm avg.		64	68.0	68
Turbidity - Raw	ppm avg.		55	53.4	55
Filtered	ppm avg.		.04	0	0
REFRIGERATION (Building 189)					
Refrigeration produced	Tons per day			0	0
Temperature, Process Water In	avg. °F.			-	-
Temperature, Process Water Out	avg. °F.			-	-

From June 1, 1948

Through June 30, 1948

POWER HOUSE (Building 184)

Steam generated - Total	M pounds	32501	96966	64512
Average rate	lbs./hr.	45140	134675	89600
225 psi Steam to plant (est.)	M pounds	28600	85208	56660
15 psi Steam to plant (est.)	M pounds	0	122	110
Coal consumed	Tons	2257	6734	4480
Coal in storage (est.)	Tons	30175	38812	35855

DEAERATOR PLANT (Building 185)

Water flow	gpm avg. rate	10422	29253	19682
Chemicals consumed:				
Dichromate	pounds	7013	21300	14000
Sodium Silicate	pounds	72325	215670	159500
Chemical Analysis:				
pH	pH Avg.	7.70	7.67	7.72
Dichromate	ppm avg.	2.01	1.93	2.0
Silica	ppm avg.	5.5	5.8	5.5
Dissolved Iron	ppm avg.	.03	.026	.03
Free Chlorine	ppm avg.	.04	.076	.07

PROCESS PUMP ROOM (Building 190)

Total water pumped	gpm avg. rate	10387	29078	19507
	gpm normal rate	10387	31785	31230
Water temperature	avg. °F.	62.9	58.1	58.2

VALVE PIT (Building 105)

Chemicals consumed:						
Solids		pounds		3875	4050	0
Chemical analysis:						
A, B, C, & D Headers						
	Standard limits					
pH	7.5-7.8	pH	(max)	7.80	7.70	7.70
			(min)	7.60	7.55	7.60
			(avg)	7.69	7.64	7.66
SiO_2		ppm	(max)	6.0	6.5	6.0
			(min)	2.5	5.5	5.0
			(avg)	4.8	5.8	5.6
$Na_2Cr_2O_7$	1.8-2.2	ppm	(max)	2.4	2.1	2.1
			(min)	.5	1.8	1.9
			(avg)	2.0	1.9	2.0
Iron		ppm	(max)	.08	.04	.05
			(min)	.01	.01	.01
			(avg)	.04	.023	.03
Chlorides		ppm avg.		2.0	2.1	2.0

From June 1, 1948

Through June 30, 1948

	Unit	200 Areas	
		200-E	200-W
RESERVOIR (Building 282)			
Raw Water Pumped	gpm avg. rate	2026	2152
Filter Plant (Building 283)			
Filtered Water Pumped	gpm avg. rate	443	470
Chlorine Consumed	lb.	346	341
Alum Consumed	lb.	6550	6310
Chlorine Residual - Sanitary Water	ppm	.62	.60
POWER HOUSE (Building 284)			
Steam Generated - Total	M lb.	13998	22251
Steam Generated - Ave. Rate	lb./hr.	19441	30905
Coal Consumed (Est.)	tons	1096	1376
Coal in Storage (Est.)	tons	9190	11812

		300, 700, 1100 Areas		
		300	700	1100
POWER HOUSE (Buildings 384 and 784)				
Steam Generated - Total	M lb.	5848	11402	
Steam Generated - Avg. Rate	lb./hr.	8122	15836	
Coal Consumed - Total (Est.)	tons	593	969.5	
Coal in Storage (Est.)	tons	1361	5642	
Sanitary and Fire System (1100)				
Well Water Pumped - Total	gal.			224,007,000
Well Water Per Day	gal/day			7,467,000
Well Water	gpm avg. rate			5,185
Chlorine Residual	ppm			.7
SEWAGE TREATMENT PLANT (1100 Area)				
Total Sewage Treated	gal.			128,800,000
Sewage Treated Per Day	gal/day			4,293,000
Sewage Flow	gpm avg. rate			2,981

GENERAL:

A sub-major injury occurred on June 9, in the 700 Area when a mechanic fractured the middle finger of his right hand, while operating a jointer.

During the flood stage of the Columbia River the Maintenance Division rendered substantial assistance to the operating divisions by the installations of emergency pumps, pipe lines, and other emergency facilities. In the Richland Combined Shops, motors and other equipment were dismantled and moved to levels higher than the anticipated flood water. By the end of the month all equipment and materials so moved had been returned to normal locations.

ORGANIZATION AND PERSONNEL:

Employees on roll	June
Beginning of month	699
End of month	696
Net decrease	3

WORK ORDER SUMMARY:

Area	Backlog Mandays 7-1-48	Men On Roll	Backlog Days 7-1-48
100	3560	132	27
200	5247	166	32
300	2317	66	35
700	3258	96	34
M.C.	9472	126	75
TOTAL	23854	586	41 (Avg.)

The total backlog decreased from 27003 to 23854 during the month; the average number of days to complete all work dropped slightly from 43 to 41 days.

100 AREAS:

There were two layers of concrete brick removed from the shield wall on top and at the rear of the 105-B unit. This is for vertical movement of the unit There was no cork joint in this wall. The opening where the

brick was removed was covered on one side with a canvas bellows expansion joint; and on the other side with a one-inch thick steel plate fastened on edge but free to slide over the opening with any movement of the unit. The veritcal wall shield on the far side and the rear of the unit was removed to the minus three level and was rebuilt, leaving a two-inch space or opening next to the unit wall. The opening was shielded with specially cast lead brick 3" X 4" X 24". These bricks were placed on end with two 1/2" X 1 1/2" Zee clamps retaining each brick and welded to the unit. Both front and rear vertical seals on the far side were replaced. Deflector plates were installed on the rear elevator load beam on the side next to the unit. These plates were welded in place on a 45° angle. All tube nozzles on the front and rear of the unit were aligned using the standard nozzle aligning bar.

Work was started on removing a part of the baffle inside the downcomer at the point where the cross header ties into the downcomer. After cutting an 18" inspection hole in the downcomer pipe, it was found that the vertical baffle had previously been broken out and was lying on the bottom of the cushion chamber. A stainless steel plate was welded into the 18" hole with a 1/4" stainless steel reinforcing plate welded onto the outside of the downcomer. The reinforcing plate covers one-half the circumference of the downcomer and its length is from the center of the cross header downward a distance of nine feet. Upon inspection of the cushion chamber it was found that all the 1/4" stainless steel plates were loose; two had broken loose from the walls at the bottom of the pit. These plates were placed in their original positions and anchored by welding where broken, and additional lag screws were installed.

The 48" process sewer from the cushion chamber 105-B to 107-B was inspected on the inside for approximately 100 feet. A crack was found where the line leaves the outside wall of 105 Building. The pipe was repaired by clamping a stainless steel band with rubber gasket over the crack.

The 6" vitrified tile vent line that runs approximately 18" above the parallel to the 48" effluent line from the cushion chamber to the first junction box was found to be leaking in several places. The line approximately 60' in length was replaced with 6" cast iron soil pipe.

The north wall and thirty feet on the east and west end of the 107-B basin were raised 18" by means of two rows of standard size concrete blocks and with one layer of concrete brick for the header.

Approximately 3/4" was cut off the end of the "I" beam supporting the walkway to the top of the 105-D unit to allow free sideway expansion of the far side. The 12" vent pipe connection at the top of the downcomer was disconnected for inspection of the baffles. It was found that the horizontal baffle was intact, and that the vertical baffle was partially gone. Two Work Area cranes were removed from the Work Area and delivered to 105-DR. The cranes were from one upper and one lower position.

The installation of two 10,000 c.f.m. desert cooler units on the roof

of the 182-D Building was completed.

The vertical cork seal on the far side of the 105-F unit was removed and retaining brackets were welded to the side of the unit to hold the column of concrete block shield in place. Material assistance was given the "P"Division in the removal of a ruptured slug in tube #1165. New equipment was developed to remove the tube and the slug from the unit at the same time. A small pile of contaminated material was spilled on the transfer basin floor and was removed by the following method:-Metal plates eight inches square with a pipe handle attached on the top side were fabricated; the bottom surface of the plates were coated with a one-inch layer of Copaltite. This material will stick to dry metal surfaces and not to wet metal surfaces. The plates were then lowered into the water directly over the granular material to be picked up and were pressed down vertically on the material to imbed it in the plastic Copaltite. The back up plate was then pressed on to a previously prepared second plate; thus, forming a sandwich which prevented the contaminated material from moving along the transfer are floor. Four of these sections were used in the basin clean up and were removed to the burial ground.

Because of abnormal contamination, it was found necessary to clean 107-F retention basin. On June 5, 600 feet of 8" pipe and 600 feet of 12" pipe was installed from 107-F basin to an open trench approximately 60' X 500 ' X 15' in depth for seepage disposal of the contaminated effluent. The lines were temporarily connected to the 2-12" electric pumps located in the 107-F Pump House. A 6" line was run from the sluice water header in 184-F to 107-F basin to permit high pressure water flushing of the basin. After preliminary washing, a small tractor was equipped with a shop - made scoop to move the silt in the bottom of the basin to the pumping equipment which is located in the north end. A gas driven eight-inch pump was set up on the basin floor and all the sludge that could be moved by this method was pumped into the pit. The heavier silt was picked up with a clam shell and hauled to the open trench with a truck.

200 AREAS:

In order to permit the back flushing of cell jets, the exhaust manifolds on seven control panel gang valves were revised in "T" and "B" Canyon Buildings. This revision included installation of a globe and a check valve, and a connection of the manifold to a water supply.

The installation of the stainless steel inlet and exhaust duct to the "T" Canyon steam driven exhaust fan was completed. All exhaust fans in service at "T" and "B" areas are now so equipped.

The HF acid storage tanks at "T" Canyon have been inspected and given a hydrostatic test, along with the connecting pipe system. The unloading line and equalization line to the car spot are being replaced with 1 1/2" seamless pipe with welded and flanged connections.

The replacement centrifuge made ready in the 200 East shop has been installed in the 7-2 position of the "T" Canyon.

The concrete floors around the solution make-up tanks and in the pipe gallery of the Canyon Building have had surface damage from acid leaks and spills. In "T" Canyon the repairs were made using "Basolite" (an acid resisting mortar) and in "B" Canyon the repairs were made with "Amercoat #13", (an acid resisting plastic) recently available. As a guide for future work of this nature the service from these two materials will be observed.

Three additional improved type filter housings equipped with the special chemical warfare type media have been fabricated and installed in the Isolation Building exhaust system.

The East Area shop completed 13 cell piping assemblies for replacement installation in the Canyon Building.

300 AREA:

Vacuum leaks in the 314 Melt Plant furnaces were reduced by machining the surfaces of the small furnace lids and by replacing the packing around the turntable shaft on the north furnace. An additional exhaust fan was installed in the Melt Plant. The bridge crane in the Melt Plant has now been installed and is in operation.

A laboratory scale model "Redox Demonstration Unit" was installed in Room No. 55, Building 3706.

Experimental work and changes to the 321 Demonstration unit included:- Modification of the two-inch and three-inch columns; installation of an interface detector in the five-inch column; installation of auxiliary head tanks; elevation of the Displacement pots and packing the two-inch column with Raschig rings.

700 AREA:

The annual check and repair of the fire alarm sprinkler system at the Kadlec Hospital was completed.

The dismantling of the high steel water tower in 200 East Area was completed and the steel delivered to the construction forces at site 234-5.

The floor of the 760 Building Blue Print Room was reinforced with additional footers and shoring to support the new equipment and covered with linoleum.

PROJECT ENGINEERING DIVISION

JUNE 1948

GENERAL

The Project Engineering Division has as its responsibility design, studies, project proposals and related engineering duties connected with authorized requests for work emanating from the Hanford Works Plant.

Engineering items of major importance actively progressing in the various Areas for the month of June are as follows:

100 Area

Project C-172. Alterations to Buildings 186 and 185-"D" Area

An inventory of excess equipment and materials in 186-D was virtually completed during the month.

Building 105-B - 107-B Effluent Sewer Line

An inspection of the 105-B downcomer, cushion chamber, and effluent line was made and verbal recommendations for repairs given to the "P" Division.

Project C-238. Building 105-F - 107-F Effluent Sewer Line

Special effort has been put forth to complete this project to the point where the line can be placed into service at an early date.

The Project Engineering Division cooperated with the "P", the Maintenance, and the Transportation Divisions in establishing an emergency ground disposal arrangement for diverting 107-F effluent water.

Project C-184. Animal Farm

Overall design is now approximately 80 percent complete with electrical drawings 60 percent, special laboratory equipment about 50 percent and plumbing and ventilation 75 percent finished. All plans and specifications are scheduled for completion about July 15, 1948.

200 Areas

E. R. 2309. Meteorological Station, Building 622-A

The project covering additional facilities for Building 622-A was prepared and submitted for approval.

Project C-133. Special Test Wells

Difficulties have arisen concerning the procurement of pipe for the special test well job. About half the necessary pipe was recently located and delivered to the job.

E. R. 2377. Stack Gas Decontamination

Emergency design work has been reoriented in line with recent thinking on the stack gas problem. The 293 Building design work has been set aside to give top priority to the recently proposed temporary installation consisting of four scrubbing units for the 221 T Area. Initial drawings have been approved, and field work will start June 28.

300 Area

Project C-223. Building 3703

A subcontract was let for construction of a major portion of this job.

Project C-227. Conversion of Office Labs, Building 3706

This project has progressed at a normal rate considering the manpower available for the work.

Project C-142. Metal Casting Facilities

This project is nearing completion. The main delays in finishing are caused by lack of shutdown time to make the necessary installations.

E. R. A-3050. 300 Area Rolling Mill

Two representatives of this group completed a three week tour of the midwest and east gathering firsthand information on rolling mill facilities, furnaces and extrusion presses. Engineering work is progressing slowly on account of manpower being diverted to other work with higher priority.

E. R. A-3056. 3706 Distilled Water System

A proposal covering this project was prepared and submitted this month.

Project Engineering Division

700 - 1100 Areas

Project C-138. Richland Telephone Exchange

The new addition to the telephone building is practically complete with the exception of heating and ventilating equipment. Design is 100 percent complete for all phases of the new and existing buildings.

Project C-177. 115 KV Power Transmission Line

The design for the entire project is about 70 percent finished. Work is progressing (25 percent) on the design for the modification of the Richland distribution lines and construction has begun on this part of the work. Bids have been received for the construction of the 115 KV line and substation.

Project C-214. Rehabilitation of Plant Railroad

The new fill at the Prosser Road crossing was completed this month. Design and field survey work is somewhat ahead of construction for the realignment and leveling of the tracks. About 12 miles have been re-layed to date. Design for the cut-off track east of the 100-B Area is nearly finished.

E. R. A-452. Expansion of Main Plant Telephone System

Design work for the entire project is about 25 percent complete and about 90 percent complete for the underground conduit system in the 1100 Area. Construction is progressing on the Williams Boulevard conduit system. The project proposal will be submitted in the next few days.

PRESENT STATUS OF WORK

Projects, Suspense Codes Authorized and Under Construction

100 AREAS

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-172	Dismantling of Equipment in Demineralization and Deaerating Plants	5	8-19-47	$ 486,000
C-184	Experimental Animal Farm	0	10-27-47	286,000
C-213	Fire Protection Riverland Shop	1	1-13-48	8,200

Project Engineering Division

Projects, Suspense Codes Authorized and Under Construction (Cont'd)

100 AREAS

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-222	Dismantling Unoperated Equipment in 105 Valve Pits	5	2-10-48	$ 4,000
C-238	Effluent Sewer Line 105 F to 107 F	22	3-26-48	207,000
	TOTAL Estimated Cost 100 Area Projects			$ 991,200

200 AREAS

C-120	Divert Second Cycle Waste From X-110	100	1-15-47	134,200
C-133	Special Test Wells 200 E & W	74	1-30-47	180,600
C-163	Additional Waste Storage and Tie Lines - 200 W (G.E.Portion Only - Subcontract not included)	56	7-25-47	500,000
C-171	Alterations to Six Periscope Assemblies	80	8-6-47	7,200
C-216	Addition to Building 2707 EL	100	2-2-48	4,170
C-225	5-6 Waste Disposal to Ground	35	- - - -	34,000
C-255	Temporary Technical Office Bldg.2707Z (Transferred to D & C Divs.)	0	5-19-48	13,800
SC 10155	Physical Testing Equipment	65	- - - -	- - - -
SC 10225	Stack Filtration Facilities 200 E & W. Additional phases contemplated	33	- - - -	- - - -
	TOTAL Estimated Cost 200 Area Projects			$ 873,970

300 AREA

C-127	300 Area - Increased Capacity of Telephone Exchange (Elect. Div. will procure and install equip.)	0	5-12-47	30,000

Projects, Suspense Codes Authorized and Under Construction (Cont'd)

300 AREA

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-142	Metal Casting Facilities Parts I and II	98	4-7-47	$ 188,000
C-189	Building 3745-A. X-Ray Fac.	91	8-20-47	22,000
C-207	Fire Alarm System for Bldg. 3706 and 3717	90	11-19-47	5,450
C-219	Construction of Additional H. I. Instruments	4	1-27-48	97,200
C-220	Optical Building and Elect. Shop 3708 - 300 Area	25	1-30-48	81,900
C-227	Conversion of Offices to Labs. Bldg. 3706 & 3707-C Change House	13	3-15-48	429,000
C-237	Nine Tube Mock Up Bldg.	89	4-12-48	106,000
	TOTAL Estimated Cost 300 Area Projects			$ 959,550

700 - ADMIN. & GENERAL PLANT AREAS

C-138	Bldg. 702 - Automatic Dial Exchange (Elec. Div. will Procure & Install Equip.)	3	5-12-47	$ 470,500
C-144	Additional Telephone Cables - Richland (Material partly received, but no installation work started)	0	5-12-47	45,000
C-148	Combined Maint. Shops 700 Area Parts I and II	94	6-25-47	188,000
C-175	Bldg. 703 Freight Elevator	100	7-29-47	9,400
C-177	115 KV Power Line Through Richland Parts I and II. (Subcontract work transferred to Construction Div.)	0	8-14-47	1,167,000
C-195	Radio Communications for R. R. Dispatching	36	10-15-47	34,000

5.

Project Engineering Division

Projects, Suspense Codes Authorized and Under Construction (Cont'd)

700 - ADMIN. & GENERAL PLANT AREAS

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-196	Electrical Distribution Hdqts. Bldg. & Conversion of 2713 E to Garage	0	10-10-47	$ 162,400
C-202	Gate House & Parking Lots - 700 Area at Stevens Dr. & Swift Blvd.	98	11-7-47	31,500
C-209	Two Story Addition to Bldg. 703	96	12-3-47	140,000
C-214	Rehabilitation of Plant Railroad	10	2-18-48	3,214,000
C-229	Office Machine Repair Shop Hut 722L	20	3-26-48	3,700
C-243	Painting & Improved Lighting Bldg. 721	100	4-5-48	5,200
C-256	Seal Coating of 36 Miles of Plant Highway	0	5-18-48	75,000
	TOTAL Estimated Cost for 700 Admin. & General Plant Areas			$5,545,700

1100 AREA

C-134	Richland Village Dust Control & Landscape Program 1947 to June 1948 (Grass Planting to be Subcontracted)	53	12-19-46	$ 250,000
C-146	Irrigation Extensions - Village	86	3-28-47	90,000
C-158	Air Conditioning All Dorms Except W-4 and W-13	50	7-28-47	136,800
C-186	Overhead Doors - 1131 Garage	100	8-26-47	5,500
C-218	Patching & Seal Coating of Village Streets (Transferred to D & C Divs.)	0	5-13-48	78,600
C-242	Installation of Mail Boxes - All Dorms	30	4-5-48	5,600

6.

Project Engineering Division

Project, Suspense Codes Authorized and Under Construction (Cont'd)

1100 AREA

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-245	Remodeling of Tract House L-859	0	4-15-48	$ 7,000
C-254	Painting of 514 Permanent Type Houses	0	5-13-48	96,000
	TOTAL Estimated Cost 1100 Area Projects			$ 669,500
	TOTAL Estimated Cost for Active Approved Projects - All Areas			$ 9,039,920

Projects Being Routed for Authorization

E. R. No.			
A-453	(C-253)	Roof Replacement - Domestic Water Reservoir - Richland	35,500
A-492	(C-)	Additional Telephone Cable - Richland to Kennewick	30,000

PROJECT ENGINEERING - AREA REPORTS

Status of Engineering Study & Design Work in Progress During Month of June

100 AREAS

E. R. No.		% Engineering Complete
A-1004	Downcomer Design 105-F	20
A-1012	Physical Bend and Tension Testing Machine	82
A-1034	Alterations to Bldgs. 186 and 185	17
A-1044	Outlet Charging Device	55
A-1046	Spectrometer Mount	60
A-1048	Revise Gas Circulating System Bldg. 105	50
A-1051	Remove Equip. in Valve Pits Bldgs. 105 B&F	52

Status of Engineering Study & Design Work in Progress During Month of June (Cont'd)

100 AREAS

E. R. No.		% Engineering Complete
A-1052	Study 2nd Effluent Sewer Line 105 F to 107 F and Recommend New Installation	90
A-1054	Design Roller Flanging Device for Van Stone Joints	50
A-1055	Design and Estimate a Radiation Shield for Top Far Side of 105 D and F	90
A-1057	Prepare Project for Earth Crib 100 B & F	20
A-1058	Study and Est. Cost of Prepering "B" Area for Operation-Devise Charge Code System	90

200 AREAS

2279	Prepare Project for Regasketing Facilities 221-T & B	72
2285	"B" Jet Assembly	75
2288	25 Additional Special Test Wells (Part II of Project C-133)	85
2287	Study Rail Alignment of 200 N. Cranes	70
2305	Study and Recommend Facilities & Procedure for Working Diversion Boxes	95
2309	Water Supply & Plumbing - 622 Bldg. (Project Being Prepared)	95
2326	Mark Grade on Steam Line Supports 200 W	0
2327	Study Possibility & Redesigning Connector Head to Simplify Gasket Changing	70
2333	Study and Recommend Outer Roller Bearing for 30 Ton Crane - Report Prepared	90
2343	Design Equipment Decontamination Station for Small Items 221B	95

Project Engineering Divi[illegible]

Status of Engineering Study & Design Work in Progress During Month of June (Cont'd)

200 AREAS

E. R. No.		% Engineering Complete
2344	Design Equipment Decontamination Station for Small Items 221T	95
2353	Crane Alignment & Rail Elevation 221T	70
2355	TX Waste Storage (Field Engr. for Project C-163)	60
2363	Revise Trombone Type Sampler 221-B (Cancelled)	40
2368	Study & Recommend a Means of Preventing Steam Cell Piping from Creeping Through a Concrete Wall	50
2369	Prepare Project to Install Manifold Outlet Piping Tank Baffles to Permit Future Use of Remaining 3-200 Series Tanks for 224-T and B Waste	80
2371	Design Canyon Decontamination Sink & Piping 221 T and B	95
2372	292-B Annex to Scrubber Facilities	70
2374	Estimate Cost of Providing Parallel Operation of Cell "B" & "E" & "G" & "F" in 224-T(Cancelled by "S" Div.)	40
2376	Cathodic Protection to Underground Waste Lines (Survey Work and As-Built Drawings)	95
2378	Design Precipitator Tanks with Longer Life Jackets 221 T & B	70
2381	Design Acid Supply Tanks & Piping for 222B	80
2387	Piping Changes E-I-Y Tank 224-T	20
2389	Air Conditioner - 622 Building	100
2393	Steam Jet with Remotely Removable Features	0
2395	Designs for Bismuth Subnitrate Preparation Facilities (Project C-262)	100

9.

Status of Engineering Study & Design Work in Progress During Month of June (Cont'd)

200 AREAS

E. R. No.		% Engineering Complete
2397	Specify 1-1/2" Pipe from Car Spot to 181 Tank 211T	60
2398	Industrial Burial Ground 221 T & B	50
2400	Maintenance Hoist for Cranes 221 T U B	5
2401	Maintenance Hoist for Cranes 212 N P R	5
2403	Revision of 222 T & B Control Labs.	10
2406	Provide and Erect Temporary Office Bldg. Near 231 W (Bldg.2705-Z)(Project C-255)	100
2408	Seeding, Irrigating and Blacktopping Contaminated Ground - Held Pending Results of Other Work	20
2413	Study & Recommend Relief From Congested Conditions in 2723-W	15
2414	Separation & Control of 231-W Process Wastes	75
2415	Air Filtration, Cooling & Heating Facilities for 2701-W, 2709-W, and 2720	5
2416	Plant Mounting Press Design	90
2417	Location Determination for Zone Signs & Directional Markers over BX Lines	10

300 AREA

A-3019	Housing for X-Ray Machine	98
A-3036	Designs for Construction of Optical Instrument Building 300 Area (Project C-220)	96
A-3042	Design Air Filters for Building 3706	98
A-3044	Designs for Conversion of Bldg. 3706 Offices to Labs. (Project C-227)	95

Status of Engineering Study & Design Work in Progress During Month of June (Cont'd)

300 AREA

E. R. No.		% Engineering Complete
A-3050	Make a Design Study of Rolling Mill for 300 Area	6
A-3051	Make a Design Study of New Extrusion Press for 300 Area	10
A-3052	Prepare Recommendation for Permanent Office Space in 300 Area (Transf.to D.E. Div.)	0
A-3053	Prepare Project for Bldg. to House Meters Group and Records (Transf.to D. E. Div.)	0
A-3056	Prepare Project for Bldg. 3706 Distilled Water System and Water Softener	50

700 ADMIN. & GENERAL PLANT AREAS

828	Bldg. 702 - Automatic Dial Exchange	95
872-R	Improvement to Area Administration Bldgs.	15
925	Combined Maintenance Shops - Bldg. 722	99
941	Designs for Experimental Animal Farm (Project C-184)	70
962	Designs for 115 KV Power Line Through Richland (Project C-177)	69
973	Designs & Engr. for Elec. Dist. Hdqts. Bldg. Sub-Station 251 & Conversion of Bldg. 2713 E to Garage (Project C-196)	28
990-R	Fencing & Fence Lighting all Areas	10
997	Deodorizer for Building 705	5
A-401	Telephone Cable Layout - Bldg. 720	20
A-409	Telephone Cable Layout for Bldgs. 703, 705 760 and 770	0
A-420	Engineering Work for Rehabilitation of Plant Railroad (Project C-214)	27

11.

Status of Engineering Study & Design Work in Progress During Month of June(Cont'd)

E. R. No.		% Engineering Complete
A-428	Design for Office Machine Repair Shop Hutment 722-H (Project C-229)	95
A-429	Electrical Work - Bldg. 3708	100
A-438	Design for Badge Assembly Machine for Construction Security	100
A-445	Electrical Design for Bldgs. 3706, 3703 and 3707	80
A-451	Layout for Concrete Work 321 Bldg.	95
A-452	Prepare Project for Expansion of Main Plant Telephone System	25
A-459	Lighting of Maintenance Shops Bldg. 3722	100
A-463	Electrical Drawings for Charging Device	45
A-464-R	Metering of Power - All Process Areas	5
A-468	Illumination Tests - 716 Garage	0
A-470	Engineering for Seal Coating of 36 Miles of Plant Highway	95
A-477	Electrical Work For Precipitator 200 Area	100
A-482	Roof Drainage - 723 Bldg.	100
A-483	Electrical Work - Building 271 E & W	0
A-484	Electrical Work - Building 301 Addition	100
A-485	Study for Sidewalks - 700 Area	35
A-486	Ventilation - Building 706	100
A-487	Study of Lighting - Building 703	5
A-488	Study of Lighting - Building 723 Laundry	0
A-489	Study Road Improvement Between Midway and Priest Rapids	5

12.

Status of Engineering Study & Design Work in Progress During Month of June (Cont'd)

700 ADMIN. & GENERAL PLANT AREAS

E. R. No.		% Engineering Complete
A-490	Project for Columbia Camp Rehabilitation	0
A-492	Preparation of Project Additional Telephone Cable - Richland to Kennewick	40
A-493	Improvements to Offices No. 2126-30, 703 Bldg.	40
A-496	Prepare Project for Temporary Biological Laboratory Facilities - 100 F Area	5
A-497	Study for Remodeling Windows - Guard Towers - All Areas	10
A-498	Designs for Addition to Fire Station - 200 W Area	10
A-499	Lighting Study - Room 2240-1-2-3 - 703 Bldg.	0

1100 AREAS

812	Design Work Irrigation Exetnsions - Village	90
841	Design Work for Richland Dust Control & Landscape Program (Project C-134)	78
896	Designs for Construction & Expansion of Parking Compounds Village (Transferred to Construction Divisions)	100
A-411	Oil Burner for Hospital Incinerator	100
A-416	Engineering for Patching & Seal Coating of Village Streets (Project C-218)	95
A-426	Electric Heating - Wiring - M. S. Warehouse	25
A-453	Designs & Specifications for Replacement of Roof - North Reservoir-Richland (Project C-253)	50
A-455	Design for Renovation of Tract House L-859	30
A-462	Alterations to 3 Drawer Fish Box - Rec. Hall	100

Status of Engineering Study & Design Work in Progress During Month of June (Cont'd)

1100 AREAS

E. R. No.		% Engineering Complete
A-472	Study of Improvement for Richland Airport (Transferred to D & C)	20
A-473	Fire Alarm Connection at Jefferson and Sacajawea Schools (Transferred to D & C)	0
A-494	Revise Village Map	5
A-495	Sketches for Installation of Evaporative Cooler in New Houses & Apartments	20

ENGINEERING STUDIES GROUP REPORT

Studies Completed This Month

E. R. No.		Date Completed
4340	Warehouse Renovation	6-1
4310	J. I. Use of Abrasives	6-11

Studies Added This Month

None

Active Studies		% Complete
4296	Oil Reclamation Survey	95
4318	Packing and Gasket Standards	10
4324	Lubrication Survey - 300 Area	80
4326	Inhibited Oil Usage - 190 Bldg.	75
4327	Maintenance of Pitched Roofs - 700 Area	80
4330	J. I. Penn & Worthington Compressors	40
4333	Stainless Steel Control J. I.	95
4336	Oil Coding System	0

Project Engineering Division

Active Studies (Cont'd)

E. R. No.		% Complete
4337	Village Survey	95
4338	Tire Recapping & Repairing	20
4339	Sign Standardization & Control	85
4341	Transportation Division Consolidation	60
4342	Analysis of Heavy Duty Lacquers	20

BACKLOG SUMMARY

	Work on Hand 5-31 Estimated Man Days	Work Completed During June Estimated Man Days	Work on Hand 6-31 Estimated Man Days
Studies	233	73	187
Proj. & Design	9,845	1,483	10,725
TOTAL	10,078	1,556	10,912

ELECTRICAL DIVISION

JUNE, 1948

GENERAL

Work Order Summary - Estimated Mandays:

Area	Work on Hand May 23 Estimated Man Days	Work Completed to June 27 Estimated Man Days	Work on Hand June 27 Estimated Man Days
100-B	187.7	223.1	241.3
100-D	254.7	233.0	297.5
100-F	188.6	259.3	268.2
200-E	331.8	284.8	260.8
200-W	323.6	255.4	303.0
300	168.8	173.0	193.1
700	222.5	237.6	215.4
Telephone	1,238.0	420.0	954.5
Minor Const.	761.4	374.0	534.5
Distribution	3,725.0	753.0	3,725.0
Totals - Electrical	7,402.1	3,213.2	6,993.3

The above backlog report is on a new basis and therefore the data are not continuous in reference to the previous month's report. The above data include Routine Work Requests and Project construction work in addition to the regular work orders. This basis presents a more complete summary of the total work backlog involved.

The attached load chart for the Hanford Works shows a peak of 48.3 MW which occurred on June 21. This peak includes a demand of 14.5 MW for the 66 KV system which is lower than last month and indicating construction load has not increased during this period.

We are informed that bids have now been received on Project C-177, 115 KV transmission line, and recommendation has been submitted to the Atomic Energy Commission for awarding the contract to the low bidder. Work has been started on certain re-routing and cutover of distribution feeders to connect into new 115 KV substation locations.

ORGANIZATION AND PERSONNEL

During the month of June there were two terminations, one Electrician's Helper and one Substation Operator. New hires during the month totaled 10, including three Helpers, four Groundmen, one Lineman, one Assignment Engineer and one Stenographer. Six employees were transferred from other divisions providing a net increase of 14 employees.

C. B. Wagner, Assignment Engineer, was appointed Acting Assistant Area Engineer for the 100-D Area, replacing E. J. O'Black who was transferred in the same capacity to the 100-B Area. The additional Assignment Engineer mentioned above

is W. R. Varner who is a Professor of Electrical Engineering on sabbatical leave from the Oregon State College. He will devote his time to special studies which will be of mutual advantage.

The application for a partial 48 hour week covering 132 employees plus supervision in the Electrical Division has been approved and the planned 48 hour work week is now in effect for the following sections:

Line Maintenance
Substation Operation
100 Areas
Telephone Section
300 Area Shift Coverage

The planned overtime will total approximately 1200 hours per week for the above group. Reversion to a 40 hour week will be at the earliest possible date, consistent with reduced backlog and increased personnel.

Number of employees on payroll:	June Exempt	Non-Exempt
Beginning of month	40	223
End of month	41	236
Net Increase	1	13

AREA ACTIVITIES

1. 100 Areas

A. General

Preparations for 100-B start-up were completed with shift coverage provided for Substation A-2, utilizing maintenance Electricians as Substation Operators. Three Electricians were also transferred to 100-B from other areas to provide adequate area coverage. Personnel was also increased in 100-D to aid in carrying out work incidental to the 100-DR construction program.

B. 100-B Area

The 25 HP Westinghouse air compressor motor in the 184 Power House Building grounded out in the stator laminations. The laminations were burned to such an extent that a new stator is being ordered. A spare motor has been installed and, when the new stator is received, the old motor will be reassembled and returned to spare parts.

A new solenoid was installed on the control valve of the 750 KW emergency turbine generator at the 184 Power House Building. A thorough inspection was made of the equipment and operational test was made.

The No. 10 Deareator Panel in the 185 Water Treatment Building was rebuilt to conform with present operating practices. Several unused relays and instruments were removed and the entire panel was rewired. The tests made on the revised panel proved very satisfactory.

The safety circuit instantaneous undervoltage relays in the cubicle rooms in the 190 Process Water Building were tested and adjusted to trip at 70 volt At the same time, the time delay undervoltage relays on the 800 HP process pump motors were set at 70 volts. This change makes Building 190-B conform with Buildings 190-D and 190-F.

During an inspection of Station A-2 on Monday, June 28, it was found that the horizontal supporting staves of the wave traps on the A-4 side of the station had collapsed allowing the coils to sag and rest on the top of the stack insulators. From the discoloration of the staves, damage had occurred sometime previous but trap had remained in its normal position until Monday morning, at which time a railroad locomotive entered the yard and vibration from same probably caused horizontal staves to disintegrate and fall apart. The wave trap was removed from service and emergency repairs were made, replacing the broken staves with dried season oak which had been grooved to maintain separation of the coils. The wave trap was placed back in service on June 30 and normal power to the area was restored.

105 Pile Building

All vertical safety rods were inspected and checked. Recording ammeter records were made of all operations. These records have been found valuable in spotting trouble in the rod assemblies such as sticking rods, defective clutches, etc.

Complete inspection and tests were made on the shim rods. All were found in good condition.

New condensers were installed on the safety circuit time delay relay to allow it to be adjusted to 15 cycles delay.

Conduit and wiring were installed for the Instrument Division from the machinery room to the top of the unit and from the front of the unit along the near side to instruments at the near side zero level.

C. 100-D Area

The Westinghouse 800 HP, 1800 rpm Process Pump Motor No. 4, which failed in Building 190 on May 21, was rewound and restored to service on June 17.

The 75 HP Fan Motor No. 1 in the 115 Gas Treatment Building was disconnected and removed to allow construction work to proceed on the 105-DR tunnel. The 115 Building office was also stripped of wiring to allow for construction work.

A weed killer was spread in all the 100-D Area Substations, except C4-S6, which will be done in the near future. This should control the weed growth in the substations for three to four years.

Lines L-4 and L-5 feeding Building 190 were temporarily rerouted around the west and north sides of the Building to allow construction work to proceed on the 190 addition.

A temporary spur was tapped in from line L-3 to Substation C4-S2 at Building 182 and lines L-16 and L-17 were opened. This was done to allow the relocation and raising of a section of L-16 and L-17 over a new railroad spur to the 183 Filter Plant Building.

The electrical equipment in the three silos at the south end of Building 186 was disconnected and removed so the silos could be demolished to make room for some new construction.

Considerable time was consumed in supplying standby service for construction forces operating cranes and heavy equipment in the operating area.

Fifty-three distribution poles in the 100-D Area were Osmose treated during the month. None of these poles were found to be in bad order. This completes pole treatment in the 100-D Area.

In order to dead end circuits over the new railroad crossing in the 100-D Area, it was necessary to construct temporary 13.8 KV line to the 182 Building. This work is completed and arrangements for outage on lines C4-L16 and C4-L17 will be made in the near future.

In order to provide clearance for the extension to the 190 Building, the two 13.8 KV lines C4-L4 and C4-L5 were rerouted to the west and north side of the 190 Building. These lines were cut into service and the two original lines de-energized.

Project C-10210 covering the relocation of the 230 KV line around the 100-DR Area is now 100 percent complete. This work was tied up awaiting counterpoise wire until this time.

At the request of the 100-D Electrical Section, taps were lowered on the 230/13.8 KV transformers so as to raise the voltage up to normal.

105 Pile Building

A Thymotrol control unit was removed from the valve pit in the 105 Building and sent to the 300 Area.

A special tube heater was constructed and tested for the Technical Division.

The slow speed motor (1 HP) on "A" control rod failed and had to be rewound. A spare unit was installed so there was no delay in production.

An upper and a lower work area crane was removed for use in the 105-DR Pile Building.

A fan damper solenoid burned out and was rewound. These solenoids are a continuous source of trouble due to the arm mechanism binding and not allowing the solenoid plunger to seat properly. This trouble can be eliminated by the installation of an air operated mechanism with a solenoid pilot valve. A trial installation has been made in the 100-F Area and is very satisfactory. A recommendation has been made to the "P" Division that all the automatic fan dampers in the 105 and 115 Buildings in the 100 Areas be changed, using the air operated mechanism.

D. 100-F Area

Electrical work on Project C-238, Effluent Line to Building 107-F, is approximately 25 percent complete.

4

The 800 HP Process Pump Motor No. 6 in Building 190 which failed on May 19 was returned to service on June 10 after having been rewound in the 100-D Area.

Work was started on conversion of the basement of the White Bluffs Ice House Storage Building into a chlorine repair shop. There was no electrical service into this section of the building. Work is about 25 percent complete.

On June 10, a transformer pole in the northwest corner of the area fell over due to being undermined by flood waters. This interrupted the service to the monitor shack at this corner of the area. Due to the flooded condition, this building was left out of service for about a week.

Two hundred and seventy-three poles were treated in the 100-F Area, and seventy-seven of these poles were found to be bad order. This also completes treatment of poles in the 100-F Area.

At the request of Construction, three spans of primary were removed at the 101 Building in order to provide clearance for construction activities.

At the request of Construction, the new 66 KV line and substation feeding the 100-H construction load was energized on June 16.

105 Pile Building

A three inch conduit carrying instrument wiring along the far side of the unit was moved so the Maintenance Division could remove the cork seal.

All horizontal shim rods were checked. A chattering brake on "A" rod low speed motor was repaired.

All vertical safety rods were checked and drop-out readings were taken. Clutches numbers 27 and 28 were not holding properly and were cleaned with carbon-tetrachloride and readjusted.

A fire at the rear face on June 10 caused considerable damage to electrical circuits in the vicinity. Eight thermocouple pairs and nine wires in the motion indicator circuit were replaced.

Damper solenoids on No's. 4 and 5 fans were burned out due to attempts to operate the dampers in an intermediate position. The solenoids were rewound and returned to service.

2. 200 Areas

A. General

Experimental work on cathodic protection was continued during the month and additional tests are being planned. Checks of potential levels were made on all protected pipe systems, indicating protection continues on all sections in a satisfactory manner. These were reported to the "S" Division on June 8, 1948.

The blackout procedures were reviewed and a revised schedule is being prepared and several modifications of existing facilities were noted to

improve and simplify the procedure.

B. 200-E Area

A 37.5 KVA transformer was installed at the 293 Building location for the Minor Construction Division. The primary was tapped off of feeder L-53 at the east end of the 224-B Building. The transformer was energized on June 11, 1948. The construction of the 293 Building as originally planned has been cancelled; therefore, all the Minor Construction personnel was transferred out of the area.

There was a planned power outage on feeder C8-14, which feeds from Substation A-8 and supplies half the power to the 200-E Area, on June 19, 1948. This outage was necessary in order for the Distribution Section to tighten the hardware and to do other preventive maintenance work. The bus tie breaker E8-X55 was closed and the entire East Area was fed from C8-L5 line. Therefore, production was not interrupted.

There was a planned power outage on feeder E8-L41 feeding from C8-S2 substation on June 9 and 23, 1948. The reason for this outage was to allow the Distribution Section to tie in the new line extension which will supply power to Honey Hill.

Due to the heavy rain on June 13, there were approximately two inches of water in the electrical gallery of the 221-B Canyon Building and one inch in the cubicle room of the 271-B Building. This water ran in from the big pit on the west side of the 221-B Canyon Building. The wall of this pit will be raised to keep the water out of the above places.

The 5 HP motor on the Freon compressor in the 222-B Laboratory Building failed due to a flashover on the motor coils on May 29, 1948. The motor was rewound in our 200-E Area Motor Shop and put back in service.

The spray pump motor on the C-15 carrier unit in the 271-B Building failed on June 1, 1948. This failure was caused by condensation in the motor windings. This motor was rewound in the 200-E Area Motor Shop and put back in service.

The resistor grids on the bridge travel motor of the crane in the 221-B Canyon Building burned out on June 14. This trouble was caused by operating the motor against the hydraulic brake. A study is being made to determine preventive measure necessary to eliminate this condition.

The 8-4 agitator motor in the 221-B Canyon Building grounded out on June 15. This cable is subject to a twisting action in normal operation which over a period of time causes the conductor to break.

All other maintenance work was done in accordance with the "Preventive Maintenance Schedule".

There were ten motors and one coil rewound in the 200-E Area Motor Shop during the month.

The well drilling crew has established headquarters just outside of the 200-E Area Badge House, making it necessary to extend both power and lighting service to their buildings.

Poles in the 2.3 KV line between the 200 North Areas and 213 Area were straightened during the month. These poles had been loosened due to Osmose treatment and were blown out of line during heavy wind storms.

In order to provide service to the 293 Building, five spans of primary were extended and a 37.5 KVA transformer erected.

The Distribution Section inspected and tested one hundred forty distribution transformers for the Construction Division.

C. 200-W Area

The stack light and pole on the southeast corner of the 284 Power House Building was removed on June 1. This pole was removed in order to expand the Power House. On June 19, all conduits in the 284 Power House Building that would interfer with the removal of the east wall were removed or rerouted. This included a push-button and an emergency stop switch for the No. 4 conveyor.

The thermoguard on the 14-2 centrifuge motor in the 221-T Canyon Building relayed this motor off the line on June 9. An investigation revealed that the "S" Division had taped the openings between the coil and coil block, thereby restricting the flow of air and causing the motor to overheat.

The telephone cable over the new railroad spur to the 234-5 Building was raised on June 21, 1948. This cable was raised to conform with the standard clearance for railroad crossing. To facilitate this work, a new disconnect (E8-X18) was installed in the E8-L11 line at the intersection of Third and D Street.

On June 23, Pole No. 167 along the west fence of the 200-W Area was replaced by a new pole. The old pole was broke off by the high winds below the ground level.

A limit switch for the impact wrench on the 75 ton crane in the 221-T Canyon Building was installed during the month. An additional work order has been received to install similar switches on the other cranes.

In order to provide clearance for extension of 284 Building, it was necessary to remove poles and guys. Temporary service was also provided to guard house at this building. Also, in order to provide clearance for the new railroad crossing at the 234 Building, it was necessary to change out five poles with higher poles.

3. 300 Area

The 66 KV power to the 300 Area was supplied from Pasco from 2:30 p.m. on June 10 until 10:46 a.m. on June 15. A low voltage condition resulted which lowered the temperature on furnaces used for the canning operation in the Material Preparation Building (313). Production was lowered during this time with the loss running as high as 40 percent on Monday, June 14. Other effects in the area were of a minor nature.

7 The normal operating temperature of the type "A" canning furnaces in the Material Preparation Building has been increased from 710°C to 725°C at the

request of the "P" Division. This was accomplished by a change in transformer connections from "Delta" to "Star", with the lowest tap in use.

A general power outage occurred in the area on June 30 between 11:58 a.m. and 12:16 p.m., caused by trouble on the Washington Water Power System. No serious results were observed from this outage.

Electrical work during the month of June on Project C-187, Scale-up Tank Farm, consisted largely in disconnecting and reconnecting equipment for alterations and repairs by other crafts. Additional wiring is now in progress on interlocking circuits arranged to close down all ventilating equipment in the event of operation of the automatic CO_2 system.

A 75 KVA transformer bank was installed to provide service for the 305-A Building.

4. 700-1100 Areas

The flood conditions in Richland and vicinity accounted for most of the special work performed during the month. This covered removal, raising and replacement of motors and switchgear in the irrigation and deep well pump houses and disconnecting various electrical services in flooded areas. A total of 220 manhours were utilized on this work.

At the request of the Construction Division, a 6900 volt primary was extended four spans to the west of Thayer in order to provide service to Nettleton Sound barracks just south of the prefab area. A 75 KVA transformer setting was constructed and six spans of 1/0 secondary was constructed to serve the barracks.

Extensive tests and repairs were made to the underground series lighting system at the Richland Airport due to failure of conductor and splices. The original installation at the Airport was made by the Army Engineers.

In order to provide vertical clearance over the new Richland by-pass highway, several 7.2 KV lines and telephone circuits had to be raised by setting higher poles. Also, two spans of primaries were removed and later rerouted in order to provide clearance for the new Marcus Whitman School. In order to provide clearance over new highway at Van Giesen Street, it was necessary to set seven new forty foot poles in order to raise telephone cable.

At the request of Construction, a service was extended to the Central Heating and Service Shop located at Lee and Wright Streets. Also, two spans of No. 6 conductor for Circuit D1-L12 was replaced with 2/0 conductor in order to carry additional load.

As of June 30, 4,773 poles have been treated, both Plant and Richland. Three hundred and eighty-one poles were found to be in bad order.

5. Transmission and Distribution

Line crew personnel provided escort for the movement of cranes, drag lines and other heavy equipment in all areas to protect overhead equipment and personnel. In spite of such measures, equipment continues to move without clearance and hazards to personnel during the construction program are a matter of serious concern. A near electrocution occurred in the 200 Areas this month.

Thirteen 7.2 KV circuit breakers for the new 115 KV substations were received and stored.

Considerable work was performed by the Distribution Section in connection with the flood control program. Miscellaneous services and lines were disconnected, poles braced and anchors reset. At the Hanford Substation, it was necessary to remove all controls, relaying and cabling to a new temporary building on higher ground. An extensive dike approximately 1200 feet in length was constructed around the substation by Construction forces. Oil circuit breaker control mechanisms were also raised three feet and in the case of oil circuit breaker 94, it was necessary to raise the entire unit. The trip coil on oil circuit breaker 174 at Hanford burned out and was replaced.

The Ringold line from Hanford failed during the flood due to collision by Atomic Energy Commission tug with river crossing span. The clearance had been reduced to only a few feet by high water. Assistance was given to ranchers in Ringold area to disconnect services to flooded housing and pumping stations.

The radio service work during the month included servicing 91 mobile units, overhauling 35 units and removed 11 units, installing 7 units. Ten stationary units were serviced and eight overhauled.

6. Telephone Section

One hundred and twenty manhours were spent on removing telephones and supplying emergency telephone service in connection with flood control.

Telephone cable damaged by moving equipment was repaired at the following locations:

(a) Fifty pair cable crossing Symons near Kimball, broken by power shovel.

(b) Twenty-five pair cable crossing Lee Blvd. near Thayer Drive, broken by "A" frame on line truck.

(c) Ten pair cable on Gowan Avenue, broken by dump truck working on river dike.

The apartments at Williams Blvd. and George Washington Way have been wired for telephone service and essential telephone service has been provided.

Inspection was completed covering the 36,000 feet of damaged 27 quad telephone

Two rubber covered 26 pair cables are being installed from the Richland exchange to the "A" housing area as a temporary means of providing telephone service on a curtailed basis. This has been installed to Van Giesen Street by operating personnel. Service will be available when Construction forces complete the installation of the cable from this point, as well as installation of the permanent cable within the area.

An additional foreign exchange line was established to Seattle, making a total of four in use.

The number of lines and sides vacant on the Richland switchboard as of June 29 is as follows:

	Lines Vacant	Sides Vacant
"1500" series	11	27
Resident numbers	16	328
Office numbers	44	--

Six additional trunks were connected from the White Bluffs exchange to the Richland exchange, making a total of twelve in service. Five magneto circuits were placed in service between the Hanford No. 101 Building and the Richland exchange. The installation of twenty additional lines on the 100-D Area exchange was completed which fully equips this exchange for 100 lines.

A PBX (100 line) switchboard was installed in the North Richland Medical Center. This is provided with five trunks to the North Richland dial exchange and one direct trunk to the Richland exchange.

The Medical Center telephone cable was inspected and the following faults discovered and reported by letter to the Construction Division:

Terminals No's. 1, 4, 5, 6, & 7 improperly grounded
Terminals No's. 2 and 3 ungrounded
Terminal No. 4, cable pairs split

During the month, the following telephones were moved:

	Installed	Removed
All work areas	45	35
Richland	413	348
North Richland	130	65
White Bluffs	61	5
Totals	649	453

7. Power Supply Interruptions

Date	Area	Circuit Affected	Duration	Remarks
		230 KV	-	
June 9	100-F	Fence light circuit	5 hrs. 1 min.	Pole down
June 28	100-B	OCB A-326	45 hrs. 38 min.	Bad wave trap

Electrical Division

Power Supply Interruptions (Cont'd.)

Date	Area	Circuit Affected	Duration	Remarks
June 7	3000	66 KV Substation ~~B1-S4~~	56 min.	Blown fuses
June 8	Richland	207 Benham	20 min.	Truck hit pole
June 9	Richland	Line D1-L7 from OCB D1-X7	1 hr. 1 min.	Pole blown down
June 9	Richland	Line D1-L7 from OCB D1-7X57	4 hrs. 1 min.	Pole blown down
June 9	Richland	Line D1-L7 from Pole No. 114	6 hrs. 26 min.	Pole blown down
June 9	Richland	705 Building	2 hrs. 18 min.	Fuse blown
June 10	Col. Camp	REA line, single phase	2 hrs. 15 min.	Cause unknown
June 15	Hanford	Ringold line from D5-X8	30 min.	Refuse
June 16	Richland	B1-S1 and B1-S2, OCB 204 opened at Pasco	42 min.	Lightning broke insulator at Pasco pump
June 21	Richland	D1-L7 from D1-7X60, Murray Ranch	10 hrs. 35 min.	Crane pulled line down
June 25	Richland	D1-L12, 1610 Perkins	1 hr. 52 min.	Construction left secondaries untied to racks
June 30	Richland	300 series lights	1 hr. 34 min.	Cause unknown

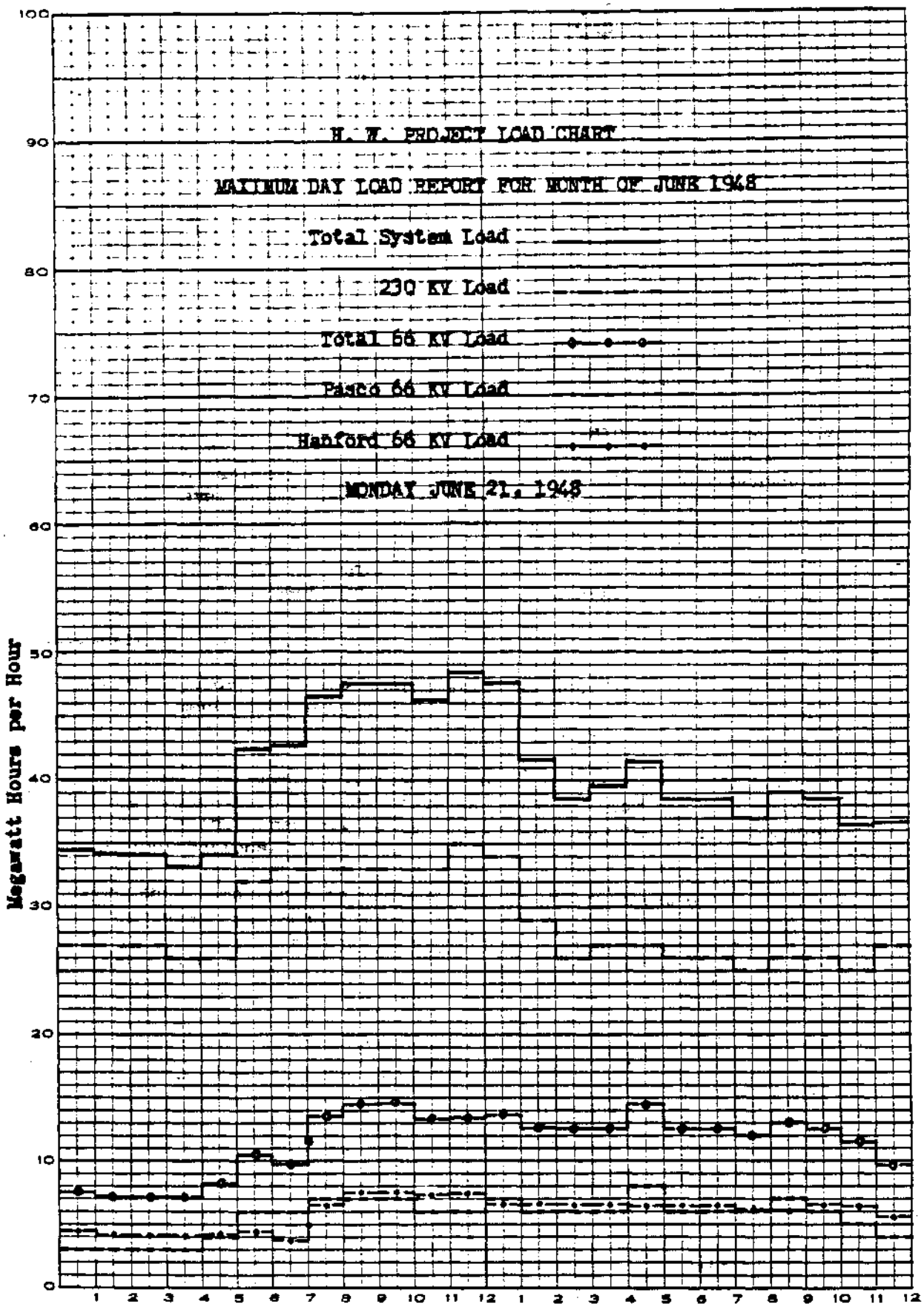
POWER STATISTICS - ELECTRICAL DIVISION
FOR MONTH ENDING JUNE 30, 1948

ITEM		ENERGY - MW HRS. May	ENERGY - MW HRS. June	MAX. DEMAND - KW May	MAX. DEMAND - KW June	LOAD FACTOR - % May	LOAD FACTOR - % June
230 KV SYSTEM							
A-2 Out	(100-B)	2,760	2,150	4,800	10,000	77.3	29.9
A-4 Out	(100-D)	6,810	7,360	12,400	12,000	73.8	85.2
A-6 Out	(100-F)	6,740	4,270	11,700	11,400	77.4	52.0
A-8 Out	(200 Areas)	2,250	1,960	3,800	3,400	79.6	80.1
TOTAL OUT		18,560	15,740	32,700**	36,800**	–	–
MIDWAY IN		18,666	16,051	30,000*	35,200*	83.6	63.3
Transm. Loss		106	311	–	–	–	–
Per Cent Loss		0.6	1.9	–	–	–	–
66 KV SYSTEM							
B1-S1 Out	(Richland)	2,050	1,252	4,400	2,600	62.6	66.8
B1-S3 Out	"	2,001	1,155	4,800	3,300	56.0	48.6
B1-S2 Out	"	2,611	2,232	5,491	4,392	63.9	70.6
B3-S4 Out	(300 Area)	250	174	816	384	41.2	62.9
B3-S5 Out	"	476	588	1,360	1,280	47.0	63.8
B1-S4 Out	(North Richland)	1,474	1,440	2,765	2,707	71.6	73.9
B7-S10 Out	(White Bluffs)	408	321	1,080	900	50.8	49.5
Hanford Out		300	218	500	500	80.6	60.5
TOTAL OUT		9,570	7,380	21,212**	16,063**	–	–
Hanford In		5,070	3,689	10,400*	20,000*	65.5	25.6
Pasco In		4,720	3,691	15,200*	12,800*	41.7	40.0
TOTAL IN		9,790	xx 7,380	25,600**	32,800**	51.4	31.2
Transm. Loss		220	–	–	–	–	–
Per Cent Loss		2.2	–	–	–	–	–
PROJECT TOTAL							
230 KV (Item 5)		18,560	15,740	32,700**	36,800**	–	–
66 KV (Item 15)		9,570	7,380	21,212**	16,063**	–	–
TOTAL OUT		28,130	23,120	53,912**	52,863**	–	–
230 KV (Item 6)		18,666	16,051	30,000*	35,200*	83.6	63.3
66 KV (Item 18)		9,790	7,380	25,600**	32,800**	51.4	32.3
TOTAL IN		28,456	23,431	49,900*	48,300*	76.6	67.4
Transm. Loss		326	311	–	–	–	–
Per Cent Loss		1.1	1.3	–	–	–	–

Hanford meters out of order. 6.9 load estimated. 18,000 Kwh to Pasco 6/1/48.

* Coincidental Demand
** Non-Coincidental Demand
xx Estimated, meters out of order.

Average Power Factor - 230 KV System--99.4
Average Power Factor - 66 KV System--92.9



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INSTRUMENT DIVISION

MONTHLY REPORT

JUNE, 1948

July 5, 1948

GENERAL

The start-up of 100-B provided an opportunity to revise our supervisory organization in all of the 100 Areas. The net effect is to reduce the number of supervisors required. If the plan works as anticipated, the rest of the areas will follow suit.

At the request of the AEC, we have agreed to issue a monthly report jointly with the Health Instrument Division describing all development design or re-design of radiation detection instruments and related auxiliaries. Similar information from all sites will be coordinated and issued for information purposes.

The Instrument Division plans to issue a Measurements Digest periodically describing special services it is prepared to provide. The first series is to cover Leak Testing, Portable Dynamic Balancing, Sound Level and Vibration Measurements. This material is to be purely informative and slanted toward acquainting the many Divisions with local facilities.

Work Order Summary:

	Work on Hand June 1		Work Completed in June		Work on Hand June 30	
Area	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
100-B	18	48.4	3	209.1	17	27.5
100-D	12	271.9	3	350.5	11	263.5
100-F	19	112.7	10	376.1	12	123.7
200-E	5	9.2	5	364.2	8	35.7
200-W	7	12.5	4	468.5	15	13.8
300	101	811.7	94	1301.1	88	829.0
700	25	36.6	23	212.5	23	29.9
Totals	187	1303.0	142	3282.0	174	1323.1

Organization and Personnel

Number of employees on payroll:

	June
Beginning of Month	196
End of Month	196

100 AREAS (Reference Report No. HW-10314)

Considerable damage was caused to instrument wiring at 105-F. Eight pairs of BGST thermocouple leads were replaced as a result of damage incurred during repair activities in the region. There was similar damage to the Brown motion indicator leads.

On June 16, 1948 at 2:55 A.M., before full power was reached on start-up the 105-F unit was deliberately "scrammed". This action was deemed advisable because of erratic readings noticed on Nos. 2 and 3 Beckman units. Subsequent investigation seemed to indicate trouble in chambers or cables. As a precaution the chamber under No. 4 riser was connected to No. 2 RXG in place of the chamber under No. 7 riser. By the time this switching was completed the No. 3 RXG (on No. 2 riser chamber) had settled out and the start-up proceeded normally.

During June 20th start-up at 105-F the No. 4 RXG acted in much the same manner as indicated above and had to be by-passed. A complete check of all chambers and cables beneath the unit has been tentatively scheduled for July 6, 1948. It is believed that in some manner moisture is collecting on cable connectors.

200 AREAS (Reference Report No. HW-10315)

During a routine H. I. survey of panel boards in Building 221-B it was found that some instruments on sections 12 and 13 were contaminated. These instruments include the Beckman amplifier and multiple point switch and its associated recorder. The contamination exits on both the inside and outside of instrument cases but to a higher degree on the inside. Since the only opening to the canyon common to these instruments is the conduit, it is being sealed off inside the canyon and at the opening at the panel board. These instruments will be replaced by those on an unused cell and an attempt made to decontaminate them.

By joint request of the Power and Maintenance Divisions the overhaul of controllers for air conditioning equipment has been started in 200 West Area.

Project C-163 -- Waste Line Thermocouples

Installation of thermocouples is about 40% complete.

300 AREA (Reference Report No. HW-10316)

Project C-141 -- Addition to 3717 Building

As agreed by the Central Safety Council, one shop in the 300 Area will be painted with three dimensional painting on all machine tools. By agreement between the Maintenance and Instrument Divisions, the shop in the 3717 Building will be painted. This shop will serve as an example to the Nucleonics Safety Council to determine whether other shops should follow this pattern.

Project C-219 -- Additional Health Instruments

A contract to produce 30 CP Survey Meters and 30 Juno Meters was awarded to the Technical Associates of California. Twenty each of the above instruments are being made in 3717 to meet urgent H. I. requirements. One Vac Sniff has been completed and delivered to the field. The four Standard Alpha

300 AREA (Cont.)

Project C-219 (Cont.)

Counters are approximately 50% complete. Detailed progress on this project report semi-monthly in the 300 Area Instrument Work Status Report.

Project C-220 -- Optical Shop, Building 3708

Progress on this job has been delayed by the transfer of Minor Construction men to more urgent projects.

Design Section

Major work completed by Design:

Preliminary prints of Neutron Survey Meter.
Design of motor mount and gear reduction for Test Block.
Design of cut-off wheel and motor drive.
Design of Poppy Probe for pipe survey.
Supression Cam Adjustment indicator for ring balance.
Design of Spectrometer Sample Venting Punch.
Work is progressing on details of Neutron Beam Spectrometer.

Development Section

Development Section Assignments for June include:

1. C.P. Meter Revisions and Prototype Juno Survey Meter.
2. Photoelectric Position Indicator for Slug Marking.
3. Canned Slug Counting Device for 100 Areas.
4. Power Level Indicator for 100 Areas.
5. High Frequency Oscillator for Titrations.
6. Modification of Beckman RXG-2 for Power Interruptions.
7. Cover Motion Recorder for 100 Areas.
8. Survey of Automatic Temperature Monitor for use with IBM System.

Survey of Automatic Temperature Monitor for use with IBM System

A survey is being conducted at the request of the Technical Division to determine the feasibility and cost of modification of the 100 Area Automatic temperature monitor to permit the use of an IBM machine to record the differential temperatures and tube data on punched cards. The equipments concerned have been inspected and the required modifications are under study.

Sweep Type Differential Energy Analyser

A summary of the function, operation, description and estimated cost of construction of the Sweep Type Differential Energy Analyser was prepared and forwarded to the Technical Division, 300 Area.

700 AREA (Reference Report No. HW-10317)

Tube Shop Production Report

15 Mica window tubes
25 Thin wall glass tubes
5 Mica window gas cells

Instrument Division

DESIGN AND CONSTRUCTION

General

By agreement between the Design and Construction Divisions and the Manufacturing Divisions the Instrument Division assumes a fuller responsibility in the Construction program. All personnel concerned with instruments formerly assigned to the Construction Division have been turned over to the Instrument Division.

100 Areas (Reference Report No. HW-10318

The Pressure Monitor Panel and Valve Rack was received and placed in the 105 DR Control Room. This was left crated to prevent damage until the copper tubing from the process tubes can be installed. Gages are being shipped separately and to date 500 have been received. The balance are promised by July 15, 1948.

The Main Control Desk has been received and placed in the fabrication shop. Work of mounting equipment has begun and wiring will start when this has been completed.

The difficulty with the Brown Multipoint Recorders has been eliminated by the Instrument Division in the 100 Areas.

REDOX (Reference Report No. HW-10319)

Demonstration Unit

By agreement with the Operating Group, the promotion of the Scale-Up Construction program is being advanced at the expense of normal maintenance for the Demonstration Unit.

Scale-Up Unit

The Morrison-Knudsen Company finished their allotment of work in the tank farm area, at the beginning of this period, and turned the job over to the operations-maintenance crafts for completion. Instrument tubing has been inspected, tested and repaired where necessary. The self-acting temperature controllers for the several tanks have been installed and adjusted for operation. Dial thermometers have been mounted and checked. Brackets are being made for proper support of the capillary tube systems. Recorders and accompaging resistance elements for tank farm temperatures have been tested and are now in service. Installation of the heat-exchanger systems for the four process feed streams is completed. Adjusting and testing of the controller applications are in progress.

Liquid level and specific gravity indicators and records have been calibrated, functionally-tested and the equipment put in operation. The specific gravity recording systems show a tendency to be over-responsive. Snubbers are being supplied to eliminate this snesitivity to minor system fluctuations.

Redox-Kellex

A pressure control system has been installed on the discharge of the General Electric tubine pump being tested for application to the Redox program. As typical process solutions are being used in the test, it was necessary to use a sealed-liquid system for the actuation of the Taylor recorder controller. The pump has been in operation for several weeks, and during this time, has displayed satifactory characteristics for proper control.

Instrument Division

REDOX (Cont.)

Redox-Kellex (Cont.)

Latest information on instrumentation developments of the Kellex Corporation include:

1. Approved sub-contracts for the crane optical system is proceeding satisfactorily.

2. Design of a test model induction type meter is progressing and component parts are on order.

3. Studies are being made and test methods are being developed for caloric meters.

4. Preliminary tests indicate the feasibility of proper liquid level and interface control by electric induction methods.

5. Barium titanate is being studied for possible use as an alpha detector. Initial tests are being conducted at Columbia University. Investigational work is under way on improved instrumentation for low level gamma detection. Emphasis is being placed on sensitivity and adaptability to remote monitoring.

6. Sub-contracts are being negotiated to study effects of radiation on pH measurement and oxidation potentials.

Project 234-5

Best quoted delivery on a 2Kg Chainomatic Balance was one year. The need for this equipment is being met by the transfer of a Balance from the 3706 Building Counting Room to the Construction program.

Results of the Instrument Division's stability checks on the Alphatron Vacuum Gage indicate that since there is a possibility of radon liberation from the activating capsule, the use of this equipment is not recommended for plant applications.

The instrument items for this project are being accumulated in the White Bluffs Warehouse. For security reasons these items will get special handling. All panels for this project will be fabricated in the White Bluffs instrument shop.

TRANSPORTATION DIVISION

MONTHLY REPORT

JUNE 1948

GENERAL

Absenteeism in the Transportation Division for the month of June was 3.25%. This was an increase of 1.28% over the month of May.

Following is the June Work Order Summary for the Mechanical and Labor Sections.

Groups	Work on hand May 23 No.of Orders	Work on hand May 23 Estimated Man Days	Work Completed June 27 No.of Orders	Work Completed June 27 Estimated Man Days	Normal Work on hand June 27 No.of Orders	Normal Work on hand June 27 Estimated Man Days
All Area Labor and Repair	66	1,475.7	61	3,679.8	40	545.3
700-1100 and Railroad Labor	78	1,768.2	91	5,451.9	62	683.8
Riverland Railroad Repair	9	75.5	2	331.0	17	130.9
700-1100 Repair	63	187.6	60	3,015.6	80	339.9
Total Labor and Repair	216	3,507.0	214	12,478.3	199	1,699.9

ORGANIZATION AND PERSONNEL

Isaac Moore, Shift Foreman, reported for work June 3 and was assigned to the Railroad Section at Riverland.

Force of the Transportation Division was increased by one and the total force as of June 30 was 746.

Number of employees on payroll			June
Beginning of month			745
End of month			746
Net increase			1
Terminations	8		
Transferred to other Divisions	8		
Removed from roll	1		
		17	
New Hires	17		
Transferred from other Divisions	1		
		18	
Net Increase			1

Force of Morrison-Knudsen, Track Maintenance Subcontractor, was increased by 64 and their total force as of June 30 was 219.

OPERATIONAL ACTIVITIES

1. Railroad Operations

Railroad operations continued in a routine manner with all train movements being effected as scheduled. Commercial tonnage was near the normal level as a total of 4,555 cars were handled during June compared with 4,639 in May. The June commercial tonnage would have exceeded that of May had it not been for the suspension of service between Beverley, Washington and Riverland which was caused by a washout of the Milwaukee Railroad's connecting line on June 9. A shoo-fly track was constructed around the washout restoring service to Riverland on a limited basis June 12. Men material and equipment were furnished to the Milwaukee Railroad upon their request during the construction of this track.

Service remains on a limited basis as slow orders are still in effect which limits tonnage over the temporary track to 25 or 30 cars as compared with normal trains of 50 to 60 or more cars. This results in somewhat unsatisfactory arrival times at Riverland causing some delay in handling loads to their various destinations on the Plant.

The Richland run continued to operate at night in order to avoid delaying track maintenance crews relaying rail on the day shift. This program should be completed early in July at which time normal operations will be resumed.

2. Repairs

Locomotive 39-3721 was completely overhauled and returned to service on June 14. A new cast aluminum type fan was installed on locomotive 39-3721.

Work is proceeding on the repairs to passenger coaches that are being refitted for railroad transportation of construction workers.

3. Track Maintenance

Railroad track maintenance continued in a routine manner throughout the Areas by Transportation Division forces and outside the Areas by Subcontractor's forces with the following items of interest.

a. Approximately 2,200 feet of U Building track in 200-West Area was raised to a new level and 50% of the ties were replaced.

b. The Railroad Track Maintenance Subcontractor was engaged in the following work in addition to that of a more routine nature.

   1) Approximately 155,000 ties have been received completing the shipment for Project C-214.

   2) Grading of Prosser road revision was completed.

   3) Engineers are running profile on the new F Revision west of 100-B Area.

AUTOMOTIVE OPERATIONS AND REPAIRS

I. Automotive Operations

a. Northern Pacific Railway established temporary passenger train shuttle service between Pasco, Kennewick and Kiona, Washington, for the benefit of all Hanford Works employees isolated by flood conditions. Service was performed for the #2 Shift personnel to and from work. Arrangements were made with a subcontractor to establish temporary bus service between the Northern Pacific Passenger Depot at Kiona, Washington, Hanford Works Areas, and Richland 1131 Bus Terminal for transfer to 700, 1100 and 200-East and West Areas. This service was discontinued May 24, 1948.

b. Ferry Service was established as a flood emergency measure across the Columbia River on June 22 at the Richland Landing which was constructed just east of the Commercial Bus Depot.

Bus service to operate in conjunction with Ferry Service was established between the Richland Ferry Landing and the 700 Area and the Richland Bus Terminal at Shift change periods for Area workers. Shuttle bus service to and from the Richland Ferry Landing was discontinued on June 30.

c. Area and Village Local bus systems operated during the month as scheduled.

Effective June 1, north and south bound bus stops were established at the North Richland Hospital for service via the 700-300 Area shuttles, which gives direct passenger transportation between the two Plant hospitals.

Effective June 20, intra-Area bus stop at the 151 sub-station in 100-B Area was re-established.

Effective June 21, intra-Area shuttle route in 100-B Area was changed to correspond with the established shuttle routes in 100-D and 100-F Areas.

Effective June 7, inter-Area shuttle dispatch of passenger and mail service from the Richland Administration Building to the Areas at 12:30 p.m. was changed to 12:00 noon in order to facilitate an earlier delivery of mail.

Effective June 18, the Longfitt bus route was changed and extended to provide better service to the new subcontractor's barracks in the extreme southwest section of Richland.

d. The extent of Automotive equipment usage is indicated by the monthly total mileage of 1,272,270 for all types of vehicles. The total mileage for June 1947 was 964,729.

e. The extent of Area bus traffic is indicated by the monthly total passenger count of 110,984 and the extent of Village Local bus traffic is indicated by the monthly total passenger count of 64,209.

Total passenger count for June 1947 was 77,667 for Area traffic and 55,927 for Village Local traffic.

f. Off-the-Plant special automobile trips (company business and official visitors) totaled 275.

g. Miscellaneous automotive operations services including (a) Motor Pools (b) Inter-Area Shuttle Service (c) Inter-Area Freight, Mail and Express Services (d) Towing and Wrecker Service were rendered during the month in a routine manner.

2. Repairs

The Repairs Section received 183,185 gallons of gasoline, 56,682 gallons of Diesel fuel and 9,345 gallons of kerosene during the month for Project use.

The Pasco Repair Shop operated with a stand-by crew because of flood conditions until June 21 when normal operations were resumed.

LABOR ACTIVITIES

1. Road and Street Maintenance

Construction of parking lot at Swift and Stevens was completed.

Extensive street repairs were necessitated by flood conditions.

Five hundred miles of fire breaks were bladed throughout Project Areas.

2. Areas

Work in the Areas continued on a routine basis with the following items of interest.

a. 100-B

Removal of cement bricks and concrete from 105-B Area is now 100% complete.

Excavation was completed on the process sewer line to 107 at 105. Three hundred cubic yards of earth were removed. Backfilling is 20% complete.

b. 100-F

Project C-238 (Effluent Sewer Line 105-F to 107-F) Two thousand eight hundred and fifty cubic yards of earth were excavated for rectangular footings, 72" and 42" pipe trenches, underground lines and valve pits at 105-F. Ten thousand cubic yards of earth were excavated for the drainage ditch from 107 Basin. One thousand cubic yards of earth were backfilled on the 107-F Effluent Line.

Three thousand and five hundred cubic yards of earth were excavated for the flood emergency dike.

c. 200-East

Project C-100 (Precipitator Building) Fifty per cent of the Transportation Division work is complete.

Project C-100 (Scrubber Building) Approximately 1,800 cubic yards of earth were excavated for the building, 3,100 cubic yards for a change in the water line, and 2,900 cubic yards of earth were backfilled on the water line. Excess dirt was removed to the 5-6 Crib Line. Project has been closed down until further notice.

Project C-112 (Additional Underground Waste Tank Facilities) Finish grading within 241-BX Tank Farm was completed.

Project C-133 (Special Test Wells) Wells 45-69.5, 60-60, 54.5-42.5, and 55-50 were completed at depths of 368, 128, 210 and 108 feet respectively. Wells 55-70, 46-42.5, 35-40-A, and 35-40-B were started and completed during the month at depths of 205, 195, 130 and 115 feet respectively. Wells 50-30 and 49-79 were started and have present depths of 285 and 260 feet respectively. Footage on all wells drilled to date totals 10,786.

Project C-225 (5-6 Waste Disposal Near 361-B Tank and Dry Well) Excavation for pipe line, crib and tile field is 95% complete. Approximately 3,500 cubic yards of earth were hauled for backfilling on the tile field.

d. 200-West

Project C-163 (Additional Process Waste Storage) An additional 1,000 cubic yards of earth were excavated from the trench extending from Diversion Box 155 to 154-U. Excavation for Diversion Box 154-U was completed to fine grade. The over-all backfilling is 25% complete as 20,000 cubic yards of earth were backfilled during the month. The encasement phase of this Project is 50% complete as 1,240 man-hours were expended in placement of concrete, handling forms and essential work.

e. 300

Project C-220 (Optical Building and Electrical Shop) One hundred and sixty-two man-hours were expended in mixing mortar and helping block layers.

Excavation was completed on the retaining wall for the 321 Building.

f. 700-1100

Project C-138 (Automatic Dial Exchange, 702 Building) Transportation Division phase continued and is approximately 90% complete.

EQUIPMENT CONTROL

1. Twenty-four units were transferred to the Design and Construction Division on P.I.T.'s making a grand total of 441 vehicles transferred to date.

2. Technical Inspections were completed on 118 old units of automotive equipment. These inspection reports were turned over to the AEC Transportation Section for the future excessing of this equipment.

3. A new 120 ton Alco Diesel Electric locomotive 39-3729 was received on June 28 and should be placed into service early in July.

4. There are 262 units of equipment presently on order as 22 units were requisitioned during the month. Forty-six units were received on orders placed prior to June 1 and 21 units were received on requisitions placed during the month.

TRAFFIC SECTION

1. Effective 7:00 a.m. June 2, 1948, until July 1, 1948 at 7:00 a.m. the Interstate Commerce Commission by their Service Order No. 816 have ordered that no railroad or express common carrier should compute time for detention of railroad and express cars, loaded or empty, held or delayed because of floods, high water or conditions resulting directly therefrom at points in the proximate vicinity of the Columbia River and its tributaries in Washington.

2. Effective June 1, 1948 the railroads increased Bedroom, Compartment, Drawing Room and Seat rates approximately 10 to 25 per cent.

3. As a result of rate reductions secured from the carriers, there was a total savings in freight charges for the month of June amounting to $29,853.89.

TECHNICAL DIVISIONS

JUNE 1948

July 1, 1948

SUMMARY

Pile Technology Division

Preparations for startup of the B Pile were completed. Foil counts showed no change in reactivity since April 1947. Analysis, jointly with the P Division, of factors affecting the startup of the DR Pile indicated the advisability of continuing the D Pile in service as long as possible. Operation of the present piles was found to be limited by the control system to present power levels; modification of the controls would permit operation at higher levels. Analysis of this situation is continuing. The graphite power coefficient of the D Pile has not changed since January, despite the addition of carbon dioxide to the pile atmosphere in the interim. Since this effect accompanies a decrease in the rate of over-all vertical expansion, its significance is being sought.

The carbon dioxide concentration in the D Pile atmosphere was maintained at 25% and plans were laid to raise it to 40%. It is still not clear what fraction of the decrease in rate of expansion can be credited to this experiment. Experiments on pile annealing via electrical heating have been delayed by failure of the first Calrod heater.

It was discovered that the rate of expansion of the C-axis in graphite exposed in capsules (high fast flux) decreases at high exposures, and that the decrease in this axis in pre-exposed graphite is independent of the atmosphere in which subsequent exposure occurs. This suggests that the temperature effect predominates over the chemical effect, a supposition which is further confirmed by the observation that virgin graphite exposed at 220-230°C. shows much smaller changes in physical properties than does graphite exposed in the range 25-150°C.

The quality of the 90 heats of purified graphite tested during the month for the DR Pile remained very high. Experimental heats demonstrated that chlorine is an adequate substitute for carbon tetrachloride, and that freon must be used to obtain high purity. The quality of KS graphite remained low, and the resulting shortage of graphite for the White Zone is being alleviated by diverting KC stock from the purification process and by reclaiming additional KC stock from the 1944 production. All present production is of the CS and CSF grades. Improvements in the method of coating control rods with boron-aluminum promise to bring these rods within specifications.

Tests of the reel-and-spline method of segmented discharge on tubes of irradiated metal demonstrated that this method operates satisfactorily and produces no hazard even when gross operating errors are made. A plan for converting the present piles to segmented discharge without loss of metal has been evolved, and plans to put this procedure into operation on a production scale are maturing rapidly.

Inspection of the downcomers of the B and D Piles showed that the baffles had torn loose. These will not be replaced, but the downcombers will be strengthened.

Separations Technology Division

A major decision with respect to the Redox program was reached during the month. Following a review of the program with the Redox Advisory Committee, and in line with their recommendations, attention will henceforth be centered on the mixer-settler type of contacting equipment in order to expedite both process development and the design and construction of the test plant and the full scale production units. Work will continue for the next two-three months on the sixteen-inch scale-up column to develop basic information on the height of a theoretical stage in full scale columns. Procurement of both full scale and small scale mixer-settler equipment has already been initiated, however, and emphasis will be shifted to this type of equipment in both the Scale-Up and Demonstration Unit studies as soon as it is available on the site. One result of this change in program will be to reduce the importance of the anomalous mass transfer rates which have been experienced with different types of uranium feed, since these anomalies have not appeared in the mixer-settler equipment. Continued studies during the past month with small packed columns have not established the cause of this peculiar behavior, and it is difficult to predict at the present time to what extent it would be a factor in operations with larger columns or different types of packing.

Agitation difficulties in the Scale-Up unit feed tanks have been corrected and preliminary operation will start during the coming month. Feed clarification studies have continued and promising results have been obtained in the evaluation of a special "hot" service pump.

The Research group has continued its studies of zirconium and ruthenium decontamination, plutonium distribution ratios, and the effects of various hexone impurities on the Redox process.

Preliminary results have been obtained with a water scrubber installed on a 224 Building vent line. These results have been much better than those obtained previously with filters, but additional tests are required to establish the efficiency of this method of decontaminating the exhaust air from 224 Building. A small electrostatic precipitator test unit has been received and installed. Preliminary tests with a synthetic fog indicates that this unit is highly efficient in removing particles in the range of 0.2 to 2.0 microns. Further tests with process ventilation air from the plant are planned.

Metallurgy & Control Division

On June 16-17 a meeting of metallurgists and physicists from all interested AEC sites was held at Hanford to discuss recent developments on uranium blistering, and to program future experimental work in the light of these findings. It was agreed that a grain growth inhibitor should be of great

assistance in achieving the desired fine grain, randomly oriented structure, and a cooperative search for an effective additive was initiated. Battelle is to begin work on uranium alloys immediately.

Production uranium rolling for Hanford continued at Ft. Wayne, Ind., and Lockport, N.Y., with all runs being followed by 300 Area Plant Assistance personnel. The bronze dip conditions required to assure complete transformation of this metal to the beta phase, with attendant randomization of crystal orientation, were investigated. Bath temperature was increased in an attempt to maintain the standard time cycle, but results are not yet consistently satisfactory.

Metallurgical evaluation of the "duplexed" uranium rods fabricated in May under PT 314-55-M gave rather discouraging results, in that rod area reductions sufficient to yield consistent recrystallization appeared to give a preferred orientation. However, plant annealing and machining of this material was completed, and canning for pile trial is scheduled.

Preliminary examination of the 4" lead-dipped alpha rolled slug which ruptured in 100-F pile on May 30 indicates that the welded end-cap had separated from the slug, due possibly to poor cap and braze-line wetting during canning.

By month-end, all of the Metallurgy Laboratory Section, and the General Chemical and Analytical Development groups of the Analytical Section, had been placed on a 6-day work week as required to handle the increased work load with limited laboratory space and manpower. A contract for analytical consultation was completed with Professor H. H. Willard, University of Michigan.

VISITORS & BUSINESS TRIPS

A number of visitors were here for varying periods during the month of June in connection with the installation and initial tests of an electrostatic precipitator which is being evaluated as a part of the Stack Gas Disposal studies. These included C. S. Wynn, F. E. McKenna and A. H. Neeley of the Air Reduction Sales Company, and H. H. Healand of the Western Precipitation Corporation.

A conference held here on June 16 - 17 to discuss recent developments and future program in the field of uranium metallurgy was attended by the following visitors:

D. Harker, G.E. Research Laboratory, Schenectady.
J. P. Howe, " " " "
C. S. Barrett, Institute for the Study of Metals, Chicago.
L. Kelman, Argonne National Laboratory.
A. R. Kaufmann, M. I. T.
H. R. Nelson, Battelle Memorial Institute
H. A. Seller, " " "
W. A. Johnson, Oak Ridge National Laboratory
S. Siegel, " " " "
A. V. Peterson, A.E.C., Washington, D. C.
E. M. Velten, A.E.C., New York City.

Dr. Howe spent the entire week of June 14 - 18 at Hanford.

C. G. Giessl, of the Applied Research Laboratory at Berkeley, California, spent June 17 - 18 with the Analytical Section checking and adjusting the 2-meter grating spectrograph recently purchased from them for 234-5 work.

Dr. French Hagemann of Argonne National Laboratory visited here on June 22 - 24 to discuss proposed special irradiations.

A. A. Abbatiello of the Carbide and Carbon Chemical Corporation spent June 22 - 25 at Hanford in connection with sampling of the metal waste storage tanks to provide further material for the metal recovery studies being carried out at Oak Ridge.

The initial meeting of the newly-formed Redox Steering Committee was held June 24 - 25. Visiting committee members from other sites included J. Marsden of the General Electric Research Laboratory, F. W. Schumacher of the Standard Oil Development Company, and S. Lawroski of the Argonne National Laboratory. M. D. Peterson of the Oak Ridge National Laboratory attended the final session of the committee, in connection with a proposal to carry on certain phases of the program at Oak Ridge.

Dr. W. C. Dunlap of the G.E. Research Laboratory, Schenectady, visited here on June 28 - 30 for consultations on electrical and magnetic measurements on graphite.

Business trips of Technical Divisions personnel during June were as follows:

L. M. Knights spent June 1-4 in Detroit, Michigan, consulting with Giffels & Vallet, Inc., on 234-5 Project laboratory design problems.

P. F. Gast spent June 2-4 at Los Alamos in consultation on critical mass problems; June 24-26 at Pasadena and June 28 at Berkeley recruiting personnel.

R. Teats and W. T. Kattner supervised the rolling of uranium rods for Hanford at Ft. Wayne, Indiana, on June 4-7, and 16-19. Teats stayed at Ft. Wayne for the finish of this run, on June 24. Kattner and T. S. Jones covered the June 21-24 rolling run made at Lockport, N. Y.

Mrs. E. C. Swiger attended a meeting of the Special Libraries Association, and in particular the Science-Technology section of the Association, in Washington, D. C., June 7-12.

O. H. Greager, R. B. Richards, F. W. Albaugh, V. R. Cooper and J. G. Bradley attended a general Redox conference at the Argonne National Laboratory on June 7-8, and Greager, Richards and Cooper spent the remainder of that week at Bayway, N. J. reviewing the Redox work being carried out by the Standard Oil Development Company.

J. W. Hall and E. W. Christopherson spent the week of June 7-11 at Knolls Atomic Power Laboratory, Schenectady, in consultation with analytical personnel and in the exchange of Redox analytical data of mutual interest. J. W. Hall spent June 11 in North Bergen, N. J. interviewing prospective technical personnel.

C. W. J. Wende returned on June 10, after having been on loan to the Atomic Energy Commission since May 24.

W. M. Harty accompanied F. P. Ingalls of the Design Engineering Division to Giffels and Vallet, Inc., Detroit, Michigan, for technical consultation on 234-5 Project during the period June 14-25.

L. F. Kendall made a 2-week study of 234-5 Project spectrochemical analytical methods at Los Alamos, on June 14-26.

J. T. Carleton spent June 15 at Pittsfield, Massachusetts, and June 16 at Schenectady arranging for the fabrication of special heaters for pile annealing experiments.

R. E. Curtis spent June 21 in Chicago in consultation with Professor N. H. Nachtrieb on 234-5 Project spectrochemical techniques.

O. H. Greager attended a meeting of the Redox Advisory Committee in New York City on June 21.

O. F. Hill and C. F. Callis spent June 21-22 at the Argonne National Laboratory attending a special meeting on chemistry of ruthenium.

J. S. Stoekes spent June 21-24 in Detroit attending the annual convention of the American Society for Testing Materials. June 25 was spent in Chicago, Illinois, interviewing prospective technical personnel.

C. A. Bennett attended a West Coast Regional Meeting of the Institute of Mathematical Statistics at Berkeley, California, June 22-24, and presented a paper entitled, "A test of the hypothesis that a sample of three came from the same normal distribution". A second paper, "A note on the

application of the abbreviated Doolittle solution to non-orthogonal analysis of variance and covariance", was presented by him by title.

On June 30, A. R. Maguire left for an extended visit to the Standard Oil Development Company at Bayway, N. Y., in order to expedite procurement of mixer-settler equipment for the Redox program here.

ORGANIZATION & PERSONNEL

Personnel totals in the Technical Divisions may be summarized as follows:

	May 31	June 30
100 Technical Division		
Pile Physics Section	24	27
Pile Engineering Section	14	14
	38	41
200 Technical Division		
Process Section	19	19
Development Section	87	94
Research Section	21	21
	127	134
300 Technical Division		
300 Area Plant Assistance Group	10	10
Metallurgy Laboratory Section	17	18
Analytical Section	370	379
Statistics Group	10	9
Information Group	15	19
	422	435
Administration	9	12
	596	622

The increase of 26 in total personnel resulted from net additions of 5 and 21 to the monthly and weekly salary rolls, respectively.

New hires were as follows: Pile Physics added three physicists, two exempt and one non-exempt. The Redox Development Section employed four chemical engineers (one exempt and 3 non-exempt), and four clerical. Sign-ups for the Analytical Section totaled 12 chemists (one exempt and 11 non-exempt), four laboratorians, five analysts, and one clerical. Two office helpers and one stenographer were employed for the Information Group. Terminations and miscellaneous transfers accounted for the rest of the changes in personnel, with the former totaling 8 (4 laboratorians and 4 clerical). One of these terminations was due to lack of housing.

At month-end there were 4 exempt and 47 non-exempt personnel on the Technical rolls awaiting security clearance for classified work. Most of the latter were laboratorians and analysts in the Analytical Section.

PILE PHYSICS

Graphite Quality

Ten experimental heats of purified graphite, prepared by using chlorine gas in place of carbon tetrachloride and nitrogen during the heating portion of the process, gave excellent Test Pile results. Ten additional heats, in which the chlorine replaced the Freon also, were of lower quality. It thus appears that chlorine could be used satisfactorily in place of carbon tetrachloride but that the use of Freon is necessary in order to achieve the present high quality of purified material.

Three experimental heats of purified graphite were prepared from KS stock by low temperature graphitization (estimated 2275°C) and a normal purification cycle. Test Pile results on these heats were lower than those of standard purified material. This may possibly be due to the raw materials rather than the method of preparation since a previous heat, prepared by gas baking only and then purifying, was of high quality. The three recent heats had the same machinability as normal graphite.

The quality of regular production purified graphite continues high. The ninety heats tested during the month had an average quality superior to that of any previous month. Only one heat of unusually low quality was discovered during the month. The reason for these occasional lapses is still unknown.

The quality of unpurified KC and CS heats was up slightly during the month, but KS material continued to be of low quality. As a result, there is a shortage of material of quality suitable for the White Zone of DR Pile. To alleviate this, KC graphite has been diverted from the purification process and only CS material will be purified. Some 1200 KC bars which were surplus stock from 1944 production for the B, D, and F Piles are being functionally tested to salvage any possible White Zone material.

Graphite Monitoring - Production Test 105-1-F

Additional X-ray work has shown that for cooled test hole exposures, the C-axis expansion is linear with exposure up to 1803 MD/CT. The slope of the expansion vs exposure curve is 4.5×10^{-4} Å/MD/CT. For capsule exposure a slope of 5.4×10^{-4} Å/MD/CT was found. There are indications from the capsule data that the rate of expansion decreases at high exposure.

Dimensional recovery of graphite samples exposed in various atmospheres in process tubes is accompanied by a contraction of the A_3 lattice space which is independent of the atmosphere in which the samples are exposed. A previously unexposed sample, when exposed in the helium filled process tube, had an A_3 spacing expansion rate of one-half that of samples exposed in a test hole at ambient pile temperature.

Data for samples exposed for 114 MD/CT in a test hole at ambient pile temperature (220-230°C) show that the changes in electrical conductivity, thermal conductivity and physical dimension are much lower than at 25-35° or at 150°C. X-ray data indicate that expansion of the C-axis does not vary appreciably with exposure temperature, at least at low exposures. This suggests that at low exposures, holes in the lattice and not interstitial atoms are responsible for the C-axis expansion.

With the assistance of Dr. W. C. Dunlap of the G.E. Research Laboratory, apparatus for studying the Hall effect in graphite has been set up and preliminary measurements of the Hall coefficient and the effect of magnetic fields on electrical resistance are in progress.

Higher Power Levels

Investigation of the control problems which would arise from operation at higher levels indicates the following: The control power of the present vertical safety rods limits the level of operation of the piles. However, replacement of the present rods by rods filled with a neutron moderator would allow the level to go to 400 MW. This is also the limit set by control requirements for normal operating shutdowns and startups. The heat removal and other engineering aspects of higher operating levels are being considered by the Pile Engineering Section.

Reactivity Coefficients - Production Test 105-188-P

A test at the D Pile failed to show the increase in the graphite coefficient which was expected from the addition of carbon dioxide to the pile atmosphere. This confirms the results of a previous test performed in April. There has been no increase in the graphite coefficient of the D Pile over the value measured in January with no carbon dioxide in the pile. These results are puzzling in view of the reactivity increase observed at the time of carbon dioxide addition. Since the vertical expansion rate of the pile decreased significantly during this same interval, the unexpected behavior of the coefficient is of considerable interest. Further measurements, to determine the statistical reliability of the results, will be made at the earliest opportunity.

General

Samples of magnesium oxychloride cement, a possible shielding material, are undergoing exposure in a pile to determine their stability under neutron and gamma bombardment. A comparison sample of masonite was included.

In preparation for the startup of B Pile, its reactivity was determined by indium foil irradiations. No significant change was observed since the last irradiations in April 1947.

The generator designed to produce fission product xenon for neutron absorption studies was tested. An unexpectedly high yield of 75% was obtained. However, poor separation of the xenon and krypton was found.

Reactivity

At month-end the reactivity status of the two operating piles was as follows:

	D Pile	F Pile
In rods	43 inhours	45 inhours
In xenon	512	519
In over-all coefficient	-110	-118
Total cold, clean reactivity	812	766

The D Pile gained 15 inhours during the month and the F Pile lost 5 inhours.

Status of Special Irradiations

The status of the Special Request program on June 30 is given below. Those items which were active during the month are marked with an asterisk. Items listed as completed last month will receive no further mention. The number under P.T. indicates the Production Test, series 105-P. The letter suffix after a tube denotes the pile. Under "Quantity" the number of pieces, if given, will indicate that the material has been received. Under "Tube and Pile" the initials BTHD, BTHF, DTHF mean the piece is charged into the "B" test hole at the D or F Pile or into the "D" test hole at the F Pile. The suffix T will denote a tentative schedule which may be changed. The abbreviations ORNL and ANL after the request number refer to Oak Ridge National Laboratories and Argonne National Laboratories, respectively; KAPL refers to the Knolls Atomic Power Laboratory, UCRL refers to the Radiation Laboratories at the University of California.

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
*303(ORNL)	Thorium	24 Slugs	120 days	7-2-47	2082F	12-2-47	6-2-48	49F	
*		24 "	120 "	7-2-47	1579F	12-2-47	6-2-48	49F	
*		16 "	120 "	8-5-47	2066D	1-6-48	6-2-48	49F	
*		20 "	120 "	8-10-47	3274F	1-11-48	6-2-48	49F	
*		22 "	120 "	9-2-47	2666D	1-6-48	6-2-48	49F	
*		27 "	120 "	9-2-47	2682D	1-6-48	6-2-48	49F	
*		32 "	120 "	9-16-47	3179D	2-16-48	6-2-48	49F	
*		27 "	120 "	9-9-47	2082D	2-3-48	6-2-48	49F	
*		18 "	120 "	10-21-47	1579D	3-2-48	6-2-48	49F	
*		18 "	120 "	10-21-47	3274D	11-18-47	6-2-48	49F	
		20 "	120 "	12-2-47	2082F	5-12-48	—	49F	
		20 "	120 "	12-2-47	1579F	5-12-48	—	49F	
		18 "	120 "	12-8-47	3274D	5-4-48	—	49F	
*		11 "	120 "	1-8-48	2066D	6-6-48	—	49F	
*		11 "	120 "	1-8-48	2666D	6-6-48	—	49F	
*		27 "	120 "	1-8-48	2682D	6-6-48	—	49F	
*		16 "	120 "	1-8-48	3169D	6-6-48	—	49F	
*		13 "	120 "	3-2-48	1579D	6-29-48	—	49F	

Req.No. & Source	Material	Quantity	Exposure	Charged	Tube& Pile	Dis-charged	Shipped	P.T.	ih absorbed
*12-B(UCRL)	Pu^{239}	1 slug	1 year	5-25-48	1769D	—	—	200	5**
		**Tube 1769D also contains 1 pc. SR-64, 4 pcs. SR-63, UCRL-100-105, 1 pc. SR ANL-111, and 2 cobalt slugs.							
*13-4(ORNL)	Be_3N_2	35 slugs	6 mo.	2-12-47	1474F	8-10-47	6-2-48	70-C	
*13-5(ORNL)	Be_3N_2	38 "	6 mo.	9-9-47	3169D	11-18-47	6-2-48	70-D	
		30 "	6 mo.	11-4-47	2374D	5-12-48	—		
		30 "	6 mo.	11-4-47	1569F	5-12-48	—		
		19 "	6 mo.	2-2-48	1569D	—	—		12
*		19 "	6 mo.	1-18-43	2374D	6-29-48	—		
		53 "	6 mo.	5-12-48	2374F	—	—		21
		53 "	6 mo.	5-12-48	1569F	—	—		21
*		38 "	6 mo.	6-6-48	3169D	—	—		17
*15-15(ANL)	LiF	19 "	3-4 wks.	12-24-47	1569D	2-3-48	6-2-48	55F	
*		23 "	3-4 wks.	12-24-47	2374D	1-18-48	6-2-48		
*		8 "	3-4 wks.	12-23-47	3179F	1-27-48	6-2-48		
*		18 "	3-4 wks.	12-2-47	3169F	1-27-48	6-2-48		
*		8 "	3-4 wks.	12-23-47	2682F	1-27-48	6-2-48		
*		11 "	3-4 wks.	1-27-48	3179F	2-24-48	6-2-48		
*		11 "	3-4 wks.	1-27-48	3169F	2-24-48	6-2-48		
*		11 "	3-4 wks.	1-27-48	2682F	2-24-48	6-2-48		
*		15 "	3-4 wks.	2-3-48	2082D	3-2-48	6-2-48		
*		11 "	3-4 wks.	2-24-48	2682F	3-24-48	6-2-48		
*		8 "	3-4 wks.	2-24-48	3169F	3-24-48	6-2-48		
*15-16(ANL)	LiF	3 "	3-4 wks.	2-24-48	3169F	3-24-48	6-2-48	55F	
*		11 "	3-4 wks.	2-24-48	3179F	3-24-48	6-2-48		
*		15 "	3-4 wks.	3-2-48	2082D	4-4-48	6-2-48		
*		11 "	3-4 wks.	3-24-48	3179F	4-11-48	6-2-48		
*		11 "	3-4 wks.	3-24-48	3169F	4-11-48	6-2-48		
*		11 "	3-4 wks.	3-24-48	2682F	4-11-48	6-2-48		
*		18 "	3-4 wks.	3-19-48	3179D	4-11-48	6-2-48		
		11 "	3-4 wks.	4-11-48	3179F	5-12-48	—		
		11 "	3-4 wks.	4-11-48	3169F	5-12-48	—		
		11 "	3-4 wks.	4-11-48	2682F	5-12-48	—		
		18 "	3-4 wks.	4-11-48	3179D	5-10-48	—		
*		15 "	3-4 wks.	5-4-48	3274D	6-6-48	—		
*		11 "	3-4 wks.	5-12-48	3179F	6-6-48	—		
*		11 "	3-4 wks.	5-12-48	3169F	6-6-48	—		
*		17 "	3-4 wks.	5-12-48	1579F	6-6-48	—		
*		15 "	3-4 wks.	5-10-48	3179D	6-6-48	—		
*		11 "	3-4 wks.	6-6-48	3179F				16
*		11 "	3-4 wks.	6-6-48	3169F				16
*		17 "	3-4 wks.	6-6-48	1579F				21
*15-17(AM)	LiF	11 "	3-4 wks.	6-6-48	2066D	6-29-48			
*		11 "	3-4 wks.	6-6-48	2666D	6-29-48			
*		19 "	3-4 wks.	6-6-48	2682D	6-29-48			
*		19 "	3-4 wks.	6-6-48	3179D	6-29-48			
*		11 "	3-4 wks.	6-6-48	3274D	6-29-48			

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
*15-17(AM)	LiF	10 slugs	3-4 wks.	6-29-48	2066D				15
*		12 "	3-4 wks.	6-29-48	2666D				16
*		15 "	3-4 wks.	6-29-48	2682D				18
*		22 "	3-4 wks.	6-29-48	3179D				24
*		22 "	3-4 wks.	6-29-48	3274D				24
*		19 "	3-4 wks.	6-29-48	1579D				22
*		35 "	3-4 wks.	6-29-48	2374D				33
*28-3(ORNL)	Iron	1 casing	2 mos.	4-27-48	BTHD	6-29-48	7-6-48T	87B	
*28-4(ORNL)	Iron	1 casing	2 mos.	6-29-48	BTHD			87B	0
28-5(ORNL)	Iron Enriched	1 casing	Indef.	4-4-48	BTHD			87C	0
28-6(ORNL)	Iron Enriched	1 casing	6 mos	4-4-48	BTHD			87C	0
29-5-10(ORNL)	P_2O_5	6 casings	60 da.					96B	
*40-4(KAPL)	Pu	3 slugs	4 mos.	1-18-48	3177D	5-25-48	7-6-48T	148	
40-5(KAPL)	Pu	3 slugs	4 mos.	5-25-48	3177D			148	5
47(ANL)	BeO	4 slugs	1-15 da.	12-21-47	3169D	1-6-48	1-14-48	127	
			1-30 da.	Has not been rec'd.					
			1-90 da.	12-23-47	2666F	4-4-48	4-14-48		
			1-180 da.	Has not been rec'd.					
48(ANL)	BeO	4 slugs	1-15 da.	12-21-47	3169D	1-6-48	1-14-48	128	
			1-30 da.	Received 6-14-48					
			1-90 da.	12-23-47	2666F	4-4-48	4-14-48		
			1-180 da.	Received 6-14-48					
49(ANL)	Graphite-U Oxide	4 slugs	1-15 da.	12-21-47	3169D	1-6-48	2-11-48	129	
			1-30 da.	Has not been rec'd.					
			1-90 da.	12-23-47	2666F	4-4-48	5-3-48		
			1-180 da.	Has not been rec'd.					
*53(ANL)	Te	1 casing	4 mo.	1-27-48	BTHF	5-26-48	6-16-48	134	
55(ORNL)	Stainless Steel	4 slugs	6 mo.	2-16-48	1774D 1666D			130	~1
56(ORNL)	Be-Cu Alloy	2 slugs	6 mo.	1-27-48	1368F			136	0
57(ORNL)	$CaCO_3$	3 casings	6 mo.	1-27-48	BTHF			137	0
58(ORNL)	Zinc	1 casing	6 mo.	1-27-48	BTHF			138	0

Technical Divisions

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
59(ORNL)	Antimony	1 casing	6 mo.	1-27-48	BTHF			139	0
60(ORNL)	KCl	7 casings	1-2 wks.	2-16-48	BTHD	3-9-48	4-14-48	140	
			1-1 mo.	2-16-48	BTHD	4-4-48	4-14-48		
*			1-3 mo.	3-2-48	BTHD	6-29-48		140	
			1-6 mo.	2-16-48	BTHD				
			3-1 yr.	2-16-48	BTHD				
61(ORNL)	Co_3O_4	1 casing	6 mo.	1-27-48	BTHF			141	0
*62(ORNL	Al-U^{235} Stainless Be, U, Al	10 slugs	5-1 mo.	7 pcs. 2-16-48 1 pc.	1774D 3179D	4 pcs. 3-15-48	2 pcs. 4-14-48 2 pcs.	145	
			5-5 mo.	4-25-48	2382F		5-3-48		
*63(ORNL)	Al-U^{235} Alloy	21 slugs	7-3 mo.	4-11-48	1671D			146	5
			7-6 mo.	4-25-48	2382F				5
			7-12 mo.(4)	5-25-48	1769D				
64(ORNL)	Cu-Au Alloy	5 slugs	1-15 da.	4-11-48	2382F	4-25-48	5-3-48	142	
			1-30 da.	2-16-48	3179D	3-15-48	5-3-48		
			1-60 da.						
			1-150 da.	2-16-48	1774D				
			1-300 da.	5-25-48	1769D				
66(ORNL)	U^{234}	2 casings	2-4 mo.	1 casing 3-9-48	BTHD	5-10-48	5-19-48	160	0
67-76(ORNL)		Charged 2 samples of 68 and one of each of the other requests on 4-4-48							~1
79(KAPL)	U^{235}	Experiment being carried out by J. B. Lambert.							
80(ORNL)	HgO	2 casings	6 mo.						
81(ORNL)	Zn	3 casings	1 yr.	4-25-48	DTHF			164	0
82(ORNL)	Ni	1 casing	1 yr.	4-25-48	DTHF			165	0
		1 casing	1 yr.	5-12-48	DTHF			165	0
83(ORNL)	TiO_2	1 casing	6 mo.	4-25-48	DTHF			166	0
84(ORNL)	NO_3	1 casing	1 yr.	4-25-48	DTHF			167	0
85(ORNL	Se	1 casing	1 yr.					181	0
86(ORNL)	$Ti(NO_3)_3$	1 casing	1 yr.					181	
87(ORNL)	WO_3	1 casing	6 mo.	4-25-48	DTHF			181	0
88(ORNL)	Sn	1 casing	1 yr.	4-25-48	DTHF			181	0
89(ORNL)	Cd	1 casing	6 mo.	4-25-48	DTHF			181	0

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube& Pile	Dis-charged	Shipped	P.T.	ih ab-sorbed
ANL-100	Be	5 casings	6-12 mo.	3-24-48	BTHF			176	0
ANL-101	U^{238}	1 receptacle	4-6mo.		Slug is being canned				
*ANL-102	Cobalt	1 casing	2 wks.	5-12-48	DTHF	5-26-48	6-2-48	192	
ANL-103	Rare earth oxides	1 casing	3 mo.	5-12-48	DTHF			186	
ANL-104	Gd	1 casing	3 mo.	5-12-48	DTHF			187	
*ANL-106	Graphite	2 casings	1 mo.	5-10-48	BTHF	6-29-48	7-6-48T	199	
ANL-107	Bi	1 slug	6 mo.						
ANL-110	PuO_2	1 slug	6 mo.						
ANL-111	PuO_2	1 slug	1 yr.	5-25-48	1769D			200	
UCRL-100	Pu	1 slug	1½-5 yrs.	5-25-48	1769D			200	
UCRL-101	Pu	1 slug	1½-5 yrs.	5-25-48	1769D			200	
UCRL-102	Pu	1 slug	1½-5 yrs.	5-25-48	1769D			200	
UCRL-103	Am	1 slug	2 yrs.	5-25-48	1769D			200	
UCRL-104	Pu	1 slug	1-3 yrs.	5-25-48	1769D			200	
UCRL-105	Am	1 slug	2 yrs.	5-25-48	1769D			200	
ORNL-102	Zr	1 slug	6 mo.						
HW-100	Cu	1 casing	1 wk.						

The following requests have been approved but the samples have not been received:

ANL-105, ANL-108, ANL-109, ORNL-100, 101, 103, 104, UCRL-106.

PILE ENGINEERING

Corrosion and Blistering of Slugs

Normal corrosion and blistering behavior was observed during the routine inspection of slugs from regular production. Two tubes of four-inch, alpha-rolled, lead-dipped slugs at half normal concentration gave no indication of distortion which might cause can failure.

The ruptured slug reported last month was removed from the F Pile by freeing the tube of all pieces except the ruptured piece, and then pushing tube and slug together. During attempts to crimp a central portion of the tube so that it would fit into a cask can the tube and enclosed ruptured slug broke in two. All components were sent to the 200-N storage area, where observations are in progress by members of the Metallurgy and Control Division.

Corrosion of Van Stone Flanges

Tests on anodized aluminum specimens are being conducted in process water for the purpose of evaluating anodizing as a method of protecting Van Stone flanges. Measurements of current between these specimens and a stainless steel electrode show that the best coating produced to date furnishes complete protection for approximately four days. Efforts to produce better anodized coatings are continuing. The search for a magnesium alloy which will act as a sacrificial anode is also in progress.

Further examination of the mechanical defects in the experimental Van Stone flanges described in last month's report indicates that these defects frequently are caused by voids or impurities in the base metal, and that in these cases no improvement in corrosion resistance could be expected if the Alclad layer were omitted.

Graphite Expansion

A 25% carbon dioxide concentration was maintained in the D Pile atmosphere. The effect on the rate of expansion cannot be demonstrated conclusively although there are some indications that it is beneficial.

The 6 KW Calrod heater for use in annealing studies in the pile failed during preliminary tests. New heaters are being procured.

Segmented Discharge

Segmented discharge was demonstrated on three tubes of irradiated slugs during the month. Operation was very satisfactory in two cases, except for an undesirable accumulation of activity on the gripper slug and its attached cord. In the third case the equipment was tested under extreme circumstances when the gripper slug was inadvertently installed upside down on the tape, resulting in breakage of the tape when an attempt was made to pull the hot slugs back into the active zone of the pile; these slugs were thereupon discharged from the tube without incident.

It was realized during the month that conversion to segmented discharge operation can be effected without the discharge of any metal at less than nominal exposure and with immediate savings in metal consumption by making an initial discharge of two-thirds of a column from a tube which is ready for discharge at normal exposure. Thereafter the downstream half of the tube will be discharged every time the upstream half receives 65% of normal exposure.

Downcomer Studies

Inspection of the B Pile downcomer and cushion chamber showed that the 12 foot long vertical baffle had torn loose from the downcomer and fallen into the cushion chamber. The stainless steel plates lining the cushion chamber were loose and two of the plates were torn or broken. After inspection the baffle was removed from the cushion chamber and the stainless steel lining repaired.

Inspection of the D Pile downcomer after the 12 inch vent line had been disconnected showed that the vertical baffle had torn loose from this downcomer also. Because operation of the D Pile without a baffle in the downcomer had not resulted in damage to the piping, it was recommended that the baffles be left out of both downcomers. It was agreed that some strengthening of the downcomers would be advantageous to reduce the possibility of failure of the downcomer and other piping in the discharge area.

Can Opener Facility

The can opener facility was used for the opening of three alpha experiment slugs and removal of the enclosed capsules. The capsule receptacles were swabbed and the swabs and capsules returned to Schenectady.

Beta Experiment

Irradiation of the second beta slug has continued without incident.

Assistance to New Construction

Allocation of graphite in the DR Pile has been completed for all except layers 65 to 78. At present there is a shortage of White Zone material for these layers.

A magnetic vibrator feeder for boron-aluminum powder used in flame spraying of control rods has been constructed and is being used for fabrication of new rods.

Initial tests show that an improvement in boron content of the control rods for the DR Pile can be obtained by painting the sprayed rods with a water slurry of powdered boron. Further tests of methods of wet-coating of control rods are in progress.

200 AREAS PLANT ASSISTANCE

Canyon Buildings

Starting with Runs B-8-06-D-2 and T-8-06-D-3 the extraction waste has been sampled prior to cake solution. Waste sampling at this point permits an extraction time cycle of approximately eighteen hours, a reduction of two hours over that possible in recent runs.

Runs have been processed under Production Test 221-T-13, at T Plant, with volumes adjusted to 80% of those considered standard for the past two years. No process difficulties have been experienced.

The caustic coating removal waste of dissolver Run B-8-06-Dd-25 was inadvertently jetted into the metal solution from dissolver Runs B-8-06-Dd-22 and Dd-23. The contaminated metal solution was blended into normal runs in ratios up to 30%. Extraction waste losses were normal.

Concentration Buildings

The neptunium recovery runs were completed at B Plant. The average product content of the eight charges shipped was 1.2% of a normal run. The activity level of the shipping containers was less than 0.5 mr/hr. in all cases.

Prior to Run B-8-06-D-1 at B Plant the process solution transfer dip tube in the B Cell (lanthanum fluoride product) precipitator tank was replaced with one of greater length to reduce the heel size remaining in this tank after transfer. Product losses in B Cell have been approximately equal to those of E Cell since this dip tube was replaced.

Isolation Building

The process piping between the still receiver vacuum tank (SR-1) and the adjustment tank (AT) became plugged during the processing of Run T-8-06-D-9. The plug was loosened after several attempts by reducing the pressure on the receiver tank, and the run was drained out. The entire run was recovered.

REDOX DEVELOPMENT

Demonstration Apparatus

Studies in the Demonstration Unit during the month have been directed toward further clarifying the effect of feed source on uranium mass-transfer along with the recently encountered trend toward higher uranium waste losses in the 2-inch IA column after column packing has been in a stand-by condition in contact with scrub solution containing small amounts of chromium.

Five runs have been completed in the 1-inch IA column at 55% of flow sheet throughputs for the purpose of determining the efficiency of transfer resulting when IAF feeds are prepared from canned uranium slugs versus C. P. crystalline UNH. The studies varied from 31 to 165 hours in length and changes in types of feed were carried out instantaneously with no disruption of operation. Below are tabulated the essential data from this series of runs.

DEMONSTRATION UNIT RUNS - ONE-INCH IA COLUMN

Run No.	Duration, Hrs.	Feed Source	U Waste Losses, % of Feed U	H.E.T.S., Ft. (Extrac. Section)
10	165	Canned U	< 0.1	0.7
11	45	Canned U	1.2	0.8
12	43	C. P. UNH	0.2	0.7
13	38	Canned U	0.1	0.7
14	31	C. P. UNH	0.1	0.7

The high value for uranium waste losses in the case of Run 11 is believed to be without significance since a lower than normal scrub/feed ratio prevailed during most of the run. The H.E.T.S. value has been corrected for the resulting lower NH_4NO_3 concentration in the extraction section and appears to reproduce the other values of the series. Previous runs in the 1-inch column have indicated the same extraction efficiency with both canned and uncanned uranium feeds. The above data further confirm that mass-transfer in the 1-inch column appears to be independent of feed source. This behaviour indicates that significant extraction is probably taking place along the wall and is obscuring any effects that might prevail due to differences in the surface characteristics of the packing.

Three runs have been completed in the 2-inch IA column at 55% of flow sheet throughputs to further clarify the effect of allowing the column packing to stand for prolonged periods of time in contact with scrub solution containing small amounts of residual acid and chromium. The pertinent data are summarized below.

DEMONSTRATION UNIT RUNS - TWO-INCH IA COLUMN

Run No.	Duration, Hrs.	Feed Source	U Waste Losses, % of Feed U	H.E.T.S., Ft. (Extrac. Section)
22(1)	183	Canned U	10.0(2), 0.43(3)	1.2(3)
23	40	Uncanned U	13.4	3.1
24	70	Canned U	1.7	1.4

(1) Column packing had been in contact approximately 10 days with aqueous scrub solution prior to H.E.T.S. study.
(2) Average waste losses during first 16 hrs. of operation.
(3) H.E.T.S. values after 109 hrs. of operation.

By instantaneous switching of feed source after Runs 22 and 23, continuity of operation was maintained throughout the series. The response to feed change was instantaneous in all cases. The effect of prolonged contact with scrub between runs has been noted in previously reported data. The period of time required to recondition the packing to produce low waste losses appears to be roughly proportional to the time the column is in a stand-by condition. At the conclusion of the above runs, the scrub section packing was removed and the Fenske packing in the extraction section replaced by 1/4" x 1/4" stainless steel split raschig rings. Studies will be conducted to monitor proposed Scale-Up procedures.

During the month, the 3-inch IA column has been revised to include an enlarged (4-inch) feed mixing tee and a conical Elgin-type distributor containing 66 inlet nozzles each 0.04" i.d. The unit is now in operation, but efficiency results have not been correlated. The 6 ft. by 4-inch auxiliary Pyrex head tanks have been installed and calibrated. These tanks will enable flow rates to be measured to ± 2% or better. Approximately 5500 pounds of sodium uranate has been recovered from high IAW wastes. Displacement pots (55 gal. capacity) with bottom outlets to facilitate draining and flushing have been installed so that the present 5-inch IC column pots may be used as 3-inch IA column feed pots, thus permitting greater running periods between pot changes. Moore pressure transmitters have been installed in the 1-inch IA and 5-inch IC columns for the measurement of interface position.

Equipment Development

The 155 sq. in. Type G sintered stainless steel filters on Demonstration Unit IAF feeds continue to pass solution at an average rate of 0.4 gal./min./ft.^{2} at a pressure drop of about 18 Psi. Backwashing with water appears to be required after passage of 75-100 gal. of feed. The filter test unit is undergoing modification for evaluation of filter aid materials which are currently being studied in a small scale in the laboratory.

The effect of total throughput on uranium stage efficiency has been studied in the 1-inch, 3-stage UNH Horizontal Extractor under the following conditions: flow ratio (org./aq.) = 1.3 - 1.45, agitator speed = 1600 Rpm., continuous aqueous phase (interface high). At total throughputs of 80 ml./min., a stage efficiency of 66% is obtained. This increases sharply to about 93% at 200 ml./min. and falls off very gradually to 90% at a throughput of 450 ml./min., which is very nearly the flooding point. Below throughputs of 100 ml./min, significant backmixing has been detected by the interjection of copper nitrate into the aqueous stream at an intermediate point. Phase hold-up studies have indicated that the organic phase occupies 14% of the stage volume at a total flow rate of 100 ml./min, a flow ratio of 1.0 (org./aq.), an agitator speed of 1600 Rpm., and operating with a continuous aqueous phase (high interface). This value increases to 26% at a total throughput of 400 ml./min.

The G. E. Turbine Pump No. 1 continues to function satisfactorily after 500 hours of operation with water at 25 psig., 3450 Rpm., and 1.5 Gpm. Bearing leakage has increased to 26 ml./min. during this period. Equipment testing Report No. 3 (Doc. HW-10175) describing progress to June 15 was issued June 21. Two revised turbine pumps have been received from Schenectady for testing. The

Design Engineering Double Diaphram Pump No. 1 has failed by virtue of polythene (1/16" thick) diaphragm rupture after 2200 flexures in one case and 900 in another. Diaphrams composed of 3/64-inch MFP-10 are currently under study.

Application of Stalpic protective coating (phenol-formaldehyde) to concrete portions of the Scale-Up tank farm by the Chemical Proof Construction Company failed because of inability to properly cure the furfural undercoat. It has been observed that polythene tubing becomes excessively brittle after four weeks of immersion in IAW solution. Flame sprayed polythene (Glaspray Co.) on concrete and steel appears to be porous - resulting in penetration of process solutions.

The dynamic corrosion testing equipment has been assembled and is currently being tested for leaks.

Scale-Up Studies

Activities during the month centered around the calibration of canyon orifice meters, recorders, and rotameters; securing adequate agitator performance in the tank farm by the use of split oilite bushings and single 10" x 10" shaft propellers; painting of the tank farm piping and walk ways; testing of the automatic CO_2 fire protection system; the shipment of 12,000 pounds of NH_4NO_3 from the Umatilla Ordnance Depot; lagging of tank farm piping; final flushing of 3000 and 5000 gallon tanks; and the trial dissolution of solid NH_4NO_3 in water. Calibration of feed and receiver tanks and adjustment of all auxiliaries should be completed by July 20 and will be followed by the first HNO_3 shakedown run.

Process Laboratory

Exploratory laboratory studies have been conducted to determine the performance of diatomaceous earths as filter aids. Johns-Manville Hyflo Super Cel, Celite 521, and Analytical Grade Celite when supported on a Type H sintered stainless steel filter increase the photometric clarity of IAF solutions from 59% to 90%. Without the filter-aid the clarity increases to only75%. These materials are now being evaluated as centrifugation scavengers. Equilibrium data for the IA system under Scale-up conditions ($Al(NO_3)_3$, no dichromate, water washed hexone) are being procured in the laboratory. The feasibility of the use of dichromate in Scale-Up feeds is also being studied. Neutralization of $Al(NO_3)_3$ IAW wastes to a pH of 11 is followed by hydrolytic precipitation of the aluminum if the solutions are allowed to age. It also appears that $Al(OH)_3$ does not redissolve unless the neutralization with NaOH is carried out rapidly. An aged precipitate undergoes a phase change to a form only partially soluble in excess NaOH.

REDOX RESEARCH

Ruthenium Chemistry

Evidence for the production of RuO_4 in Redox systems has been obtained. A slow volatilization of ruthenium from H_2SO_4-$Cr_2O_7^=$ and HNO_3-$Cr_2O_7^=$ solutions was observed by bubbling a stream of air through the solution at room temperature and collecting the ruthenium in a 3 N HNO_3 - 3% H_2O_2 solution. In the absence of dichromate no volatilization was found to occur from concentrated HNO_3 solution at room temperature, but volatilization did occur at elevated temperatures.

Additional evidence was obtained by observing the characteristic ozone odor of RuO_4 on storing an aqueous solution of ruthenium nitrate, HNO_3, UNH, $Al(NO_3)_3$ and $Na_2Cr_2O_7$ at room temperature.

Adsorption tests using various absorption media indicate that tracer ruthenium is present as an anion in the presence of dichromate and UNH. Both cationic anionic species appear to be present in the absence of dichromate.

On standing there is a decrease in the specific activity of ruthenium in separated hexone extracts of $Al(NO_3)_3$- HNO_3- $Cr_2O_7^=$ solutions. In the absence of dichromate the activity of the hexone phase remains constant.

A study of the oxidation of lower valence states of ruthenium to the ruthenate ion by permanganate in slightly basic solution using a potentiometric end point indicates that the establishment of equilibrium is slow and an undesirable drifting of the potential occurs.

Zirconium Chemistry

Pre-treated and highly fractionated hexone have been compared in respect to increase in the distribution of zirconium into the hexone phase when either dichromate or methyl isobutyl carbinol or both are added to a salted two-phase system. Using fractionated hexone the maximum E_a^h value was obtained when both $Cr_2O_7^=$ and MIBC were present, as has been reported from other sites. Using near water-white pre-treated hexone, however, the maximum effect was noted when $Cr_2O_7^=$ alone had been added, addition of MIBC producing no further effect. Both the pre-treated and fractionated hexone contained very little MIBC - about .02% - but mesityl oxide contents were 0.17 and 0.04%, respectively. The increase in E_a^h caused by $Cr_2O_7^=$ was more pronounced in $Al(NO_3)_3$ than in NH_4NO_3 systems.

Experiments using cesium tracer (essentially no hexone solubility) have shown that the increase in E_a^h caused by $Cr_2O_7^=$-MIBC is real and not an apparent behavior resulting from dispersion of small amounts of aqueous phase in the hexone phase.

Dependence of Pu(VI) Distribution Ratios upon Pu(VI) Concentration

The distribution ratio (hexone/aqueous) for Pu(VI) in simulated IA extraction section systems has been found to decrease as Pu(VI) concentration increases when pre-treated hexone is employed. Differences observed in going from 1% to 100% of production plant concentration were 15 to 25%. This effect does not occur using redistilled hexone, a constant value equal to the maximum obtained with pre-treated hexone being obtained. The concentration dependence parallels higher mesityl oxide contents in the pre-treated hexones employed. No concentration effect was observed when the dichromate concentration was reduced from 0.1 to 0.0024 M.

Semi-Works Feed Solution Problem

The experimental column designed for study of this problem has been put into operation. This column is 1-1/2" in diameter and contains 4.71 ft. of 3/16" stainless steel packing. A high stage height of 1.75 ft. was observed in the first run with IAFS solution derived from unjacketed slugs. A stage height of only 0.49 ft. was obtained for HNO_3 transfer using 8 M NH_4NO_3- 1 M HNO_3 and pre-treated hexone at equal flow rates.

By means of an annular take-off at the top of the column it was found in the run with IAFS solution that the rates of hexone flow from the central and peripheral regions of the column were 6.05 and 3.34 ml/cm^2/min., respectively. Composition of the two streams was identical.

Static and dynamic hold-up volumes of hexone were determined using a 1/2" diameter glass tube packed with 1/16" o.d. stainless steel helices. IAFS solution was employed as a static phase and equilibrated hexone was bubbled through at various rates. Four runs were conducted using IAFS derived from dissolver metal and UO_3 and with the packing pretreated to give a hydrophilic and a hydrophobic surface. Dynamic hold-ups were constant in all four runs at a given throughput rate. Static hold-up volumes were the same for UO_3 and dissolver metal systems when the packing surface was initially hydrophobic but lower for UO_3 systems when the packing was initially hydrophilic. These results may have a qualitative meaning in terms of semi-works column behavior. Although dynamic hold-up volumes increased with hexone throughput rate, static hold-up volumes were found to decrease.

Physical Data

Physical data on hexone aqueous systems containing UNH, $Al(NO_3)_3$ and HNO_3 are being correlated and organized in report form. Distribution coefficients of uranium in the low UNH range must still be reported with reservation pending elimination of analytical inconsistencies and study of the effects of impurities in the pre-treated hexones used.

Comparison of redistilled hexone with two batches of pre-treated hexone (obtained from Chemical Development Section) showed disengaging times to be as much as five times as long when using pre-treated material as when using redistilled material. Significant deviations in distribution coefficients of UNH were also observed at the lower UNH concentrations when using pre-treated hexone.

Stability of Pu(IV) in Redox Systems

The distribution ratios (aqueous/hexone) of Pu(IV) in simulated IA column systems lacking dichromate have been found to increase almost prohibitively with time, as previously reported from other sites. Use of redistilled hexone, containing only 0.01% mesityl oxide, instead of pre-treated hexone does not lead to improvement. Other variables are being investigated.

Hexone Studies

The mesityl oxide content of a number of Shell hexone samples has been determined spectrophotometrically using the adsorption at 231 mμ. Samples from two different drums of raw hexone contained 0.055 and 0.078% MO by volume. On the other hand, a number of samples of pre-treated hexone have all contained larger amounts of MO - 0.12 to 0.16%. It was felt that the apparent increase occurred primarily during the caustic wash following steam distillation, condensation of hexone followed by dehydration resulting in a homologue of mesityl oxide absorbing at the same wave lengths as MO and presumably having similar chemical properties. This has been checked by performing a caustic wash under simulated process conditions, starting with pre-treated hexone. MO-homologue contents before and after the wash were 0.078 and 0.113%. In another experiment starting with redistilled hexone the MO-homologue content was increased from 0.007 to 0.129%. The caustic solution was added hot in this case.

STACK GAS DISPOSAL

Filtration tests on dissolver off-gas made at both plants with the water scrubbers in operation indicate the scrubbers to be operating more efficiently at B Plant. A single test at B Plant, in which a sample of dissolver off-gas was passed through a laboratory scrubber filled with caustic solution, indicated that approximately 98% of the radio-iodine calculated to have been present was removed by the plant water scrubbers. Further similar tests are planned.

Filterable activity in the Canyon ventilation air at B Plant was found to be consistent with the operations performed in the Canyon during the early part of the month. An increase in filterable activity was observed at B Plant coincident with the removal of the C.W.S. Type 6 filters recently installed between the operating cells and the ventilation tunnel. It is planned to replace these filters after a test period with all cell filters removed if air samples continue to show high level contamination.

Filterable activity in the T Plant Canyon ventilation air has increased and become stabilized at a higher level than that previously experienced. Further reduction in air flow through the cells, however, resulted in a slight decrease of activity.

The small electrostatic precipitator was installed and tested separately with a synthetic fog and a smoke made up of particles in the range of 0.2 to 2.0 microns. Precipitation of 99.99% of these particles was found possible. Plant tests with process ventilation air are planned.

A water scrubber, designed to decontaminate air from one Concentration Building tank vent has been installed in the lanthanum fluoride product precipitation (E Cell) centrifuge and catch tank vent system at B Plant. Tests of this unit have given conflicting data. It appears that 95% of the alpha activity may have been scrubbed out of the air. Additional tests are required to establish this.

300 AREA PLANT ASSISTANCE

Uranium Melting and Casting

Tests with Zirconite mold wash (Titanium Alloys Mfg. Co.) have shown that this material improves the cast billet surface and reduces the tendency for billets to stick in the molds. In addition, this wash shows promise of extending the mold life. The use of Zirconite has been recommended to the P Division, and a quantity has been ordered for production use.

Alpha Phase Rolling of Uranium

About 275 tons of billets were rolled at Lockport and Ft. Wayne during the month under the supervision of 300 Area Plant Assistance personnel.

A check on facilities at the Northwest Steel Rolling Mill in Seattle, and the Northern Pacific R.R. shops in Tacoma, showed neither to be suited to the rolling of uranium.

Since metallurgical studies on triple-dip canned slugs indicated that no advantage was gained in annealing rolled rods, the P Division was advised that the rod

annealing operation could be discontinued. This was put into effect in the 300 Area on June 8.

Duplexing of Uranium

Duplexed uranium rods fabricated under PT 314-55-M have been machined into 4" slugs. Canning and inspection of this material will be completed shortly.

Slug Machining

Rod-to-slug yield data accumulated for one month on Types Y and S (Mallinckrodt) and Type C (Electromet) billets rolled at Lockport and Ft. Wayne indicated that rods of comparable quality were obtained from each billet type. However, the 65.4% yields obtained from rods rolled at Lockport was 3.1% less than the yield obtained from Ft. Wayne rods (68.5%). This lower yield is believed due to rod imperfections caused by the widely varying billet preheat temperatures at Lockport. A recommendation has been made to the AEC to procure suitable billet preheating furnace equipment for Lockport (Doc. HW-10066).

Preliminary rod-to-slug yield data on 4 lots of rods rolled at Ft. Wayne from Hanford billets (Type B) showed yields of 71 to 74.5%. These higher yields are attributed to improved operating technique during rolling, coupled with better rolling conditions (1000F billet preheat; 1050°F rod finishing temperature).

Slug Canning

An authorization for process change (Doc. HW-9949, dated June 2) was approved to change the operating temperature limits in the bronze bath for triple-dip canning . This change was intended to assure complete transformation of the slug into the beta phase during canning, and thereby to take full advantage of the orientation randomizing effect of this type of heating on the alpha rolled metal structure. Metallurgical examination of canned slugs randomly selected indicated, however, that slugs heated to are not always completely transformed in the It appears that the degree of agitation in the bronze bath markedly effects the rate at which slugs are heated, and hence the depth of transformation for a fixed time at temperature. To insure complete transformation, the bronze bath is being operated at minimum until the amount of agitation required to effect complete transformation at can be determined.

Test Pile results with Type B material for the month of June (this is the first such test of metal remelted from uranium scrap at Hanford) showed that the reactivity of this material (dih = -0.072) was significantly higher than the reactivity of types C and Y material (Electromet and Mallinckrodt) cast from virgin metal. The latter showed a dih of -0.268.

METALLURGY LABORATORY

General

Meetings of representatives from various laboratories who are actively interested in the metallurgy of uranium were held June 16-17 at Hanford. Discussion of the immediate Hanford problem and a survey of the work in progress on uranium metallurgy at sites other than Hanford occupied the June 16 session. A committee

formed of one representative from each laboratory met on June 17 to discuss the best direction of future effort. It was agreed that an intensive search for a grain growth inhibitor should be undertaken, and preliminary arrangements subsequently were made whereby Battelle will give this problem special attention. Detailed minutes of the June 16-17 meeting are being prepared for distribution.

Effective June 14, the Metallurgy Section was placed on a 6 day work week, as required to handle the increased process and development metallurgy load with the limited available laboratory space and manpower.

Alpha Rolled Uranium

Examination of the remaining sixty alpha rolled triple-dipped uranium slugs were completed for determination of bronze-dip time and temperature required for complete transformation to the beta phase. No change of conditions, as indicated on the basis of incomplete results in last month's report, was noted. Nineteen production slugs were selected at random and examined for beta phase penetration; three of these were incompletely transformed. Routine examination of five slugs selected at random from each day's production was set-up as a control check.

Inconsistent structures resulting from the triple-dipping of alpha-rolled uranium slugs were noted, with the formation of a columnar structure in some slugs and the absence of this structure in others. Slugs obtained from annealed alpha rolled metal appeared to produce columnar grains consistently while those slugs obtained from rods not annealed previous to machining were inconsistent. Preliminary investigation indicates that this columnar structure may be avoided by giving the slugs a stress relief anneal following the machining operations.

Twisting of alpha rolled rods to produce a worked structure within the rod without a reduction of cross section produced inconsistent results. Examination of a one-half inch rod showed complete recrystallization after repeated bending and then annealing at 600°C; however, a 1½ inch rod showed only a small amount after the same treatment.

Duplexed Uranium

Annealing treatments on gamma extruded rods rolled at Ft. Wayne, on April 11, to a reduction of 31 percent and at temperatures of 204°C (400°F) and 343°C (650°F), showed recrystallization beginning at 425°C (800°F) and complete at 600°C (1112°F) after one-half hour. No difference was noted between the rods rolled at different temperatures. From metallographic observations only, orientation appeared to be preferred in all samples.

Gamma extruded rods rolled at Lockport on May 26-27 at reductions of 6.2 to 33.3 percent .. gave less consistent recrystallization results over this reduction range. Examination showed that, for reductions over 20 percent, heating for two hours at 550°C (1022°F) will give complete recrystallization; however, rods rolled less than 20 percent require approximately 16 hours at 600°C (1112°F) for consistently complete recrystallization. Rods rolled to less than 10 percent reduction only partially recrystallize. Grain growth studies show that only those rods reduced small amounts gave any degree of grain growth.

The recommended plant annealing treatment for these rods was made to suit the rods of low reductions, and was specified as 16 hours at 625°C (1157°F). Orientation appears preferred in all samples.

Quick Quenched Gamma Extruded Rod

Laboratory tests indicate that alpha rolled samples quick quenched from the gamma phase exhibit a relatively fine grain structure, which is quite different from the normal gamma extruded material. However, simulated lead-dip and triple-dip canning caused rapid grain growth to grain sizes approaching those found in normal gamma extruded material. It appears, therefore, that quick quenched gamma extruded material may be quite unstable even though relatively small grain sizes are first obtained.

Examination of Irradiated Uranium

The four-inch lead-dipped, irradiated uranium slug that ruptured in tube 1165 of F pile on May 30 was examined in the 200-N Area in an attempt to learn the cause of failure. Photographs of the ruptured slug and the separated welded end-cap were made but the radiation intensity prevented close examination of either piece. Values of 1 R/hr and 0.2 R/hr was observed at 10 feet in air from the slug and the end-cap, respectively. Cleaning the cap in nitric acid did not reduce the radiation sufficiently to determine the actual point of failure, but did show that the cap had not been completely wetted by the Al-Si in canning. Examination of these parts is being continued.

A photographic, fluorescent study of a 3/8" wafer from blistered slug #258, using activated zinc sulphide, did not indicate any obvious dissimilarity in emissivity from the periphary to the center of the wafer. An over-exposure was obtained after 5 minutes exposure at f4.5 on Super Pancro-Press, Type B film in the macro-camera.

Consideration is being given to providing a temporary hot metallurgy laboratory building in the 200-N Area for use until permanent facilities can be obtained.

Crystallographic - X-ray

Most of this work was concentrated on developing effective X-ray diffraction techniques for uranium. The tracings obtained with the light nitric acid etch suggested by Dr. Harker gave unusual results. It was found that a 5 minute electrolytic etch was necessary to remove the worked surface, and thereby to obtain the usual tracing results.

Uranium Electropolishing

Experiments were continued on the polishing of uranium for microscopic examination. The solution currently under investigation contains glycerine, sulphuric acid and water. Varying proportions of the constituents are being used in an attempt to reduce the time now necessary to produce a good polish.

Dilatometric Studies

Dilatometric data are again being obtained with the preliminary dilatometer which now is automatic in operation. Qualitative results will be obtained upon

duplexed material that will allow at least a comparison between the various structures. It is planned to recalibrate this equipment with a standard sample as soon as possible, so that quantitative measurements may be possible.

Redox Corrosion Tests

Two of the ten proposed dynamic corrosion testing units have been completed and are undergoing shakedown trials.

Stainless Steel Weld Tests

A project to evaluate the shielded arc method of welding stainless steel pipe was initiated by the Design Division. This study will consist in making of welds of various stainless steels with varying electrode compositions, purging, and heat treating practices, and then examining them microscopically. Corrosion, tensile and U-bend tests will be made by the Design Division.

ANALYTICAL LABORATORIES

General

By month-end, all personnel in the General Chemical and Analytical Development groups had been placed on a 6-day work week, as required to keep pace with the increased work load under existing limitations in laboratory space and manpower.

A contract for analytical consultation was completed with Prof. H. H. Willard, University of Michigan. Negotiations are in progress with Dr. N. H. Nachtrieb also who had Los Alamos analytical experience of value to the 234-5 Project before going to the Institute for the Study of Metals, in Chicago.

Work Volume Statistics

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

	May		June	
	Samples	Determinations	Samples	Determinations
Routine Control - 200	1995	3545	2080	3562
Routine Control - 300	1106	5939	1411	7786
Water Control - 100, 700	9950	18853	10793	21557
Redox Control	1667	5228	2025	7493
Process Reagents	965	1773	948	1675
Essential Materials	120	559	128	684
Special Samples	2502	4028	1588	3307
Totals	18305	39925	18973	46064

200 Area Process Control

Routine measurements of the geometry of the methane proportional alpha counting instruments (accepted value 50.50%) in the 200 Area Control Laboratories were as follows:

Laboratory	Ave. Geometry (%)	No. Tests
B & T Plant (222-B)	50.54	145
Isolation Bldg. (231)	50.54	101

The precision of the analytical results of the canyon starting solution (8-1-MR), the Isolation Bldg. starting solution (P-1), and the final product solution (AT), may be sumcrized as follows:

	May		June	
Sample	Precision (±%)	No. Out of Control	Precision (±%)	No. Out of Control
8-1-MR	1.33	6	1.46	14
P-1	1.64	3	1.79	3
AT	1.29	8	1.34	8

The standard iron solution used in the Isolation Building Laboratory to check the chemical titration of plutonium was analyzed a total of 110 times during the month. There were 59, 37 and 14 results inside ± 1%, ± 2% and outside ± 2% of the assay value, respectively. The average precision for duplicate titrations was ± 2.39% as compared to ± 2.04% for May. A summary of the results are as follows:

Assay Value	Group Ave.	% Diff.	No. Determinations	Precision (±%) Single	Precision (±%) Duplicate
13.57	13.55	- 0.05	40	3.52	2.49
13.57	13.67	+ 0.7	24	3.29	2.33
10.18	10.25	+ 0.7	30	4.04	2.86
11.51	11.57	+ 0.5	16	2.69	1.90

The synthetic 8-1-MR was analyzed seven times in the B & T Plant Control Laboratory (222-B). The standard precipitation was used with the percent recovery based on 2.077×10^6 c/m/ml. The results were:

Month	Ave. Results ($\times 10^6$)	No. Assays	% Recovery
May	2.026	16	96.5
June	2.026	7	97.5

Bldg. 222-T in 200-W Area, which has been in Redox Analytical Service, was placed in control service for T Plant Concentration Building samples. In addition, certain Redox samples will continue to be evaluated in this building. The Canyon Bldg. samples from the T Plant are still being sent to the 200-E Area Laboratory (222-B).

300 Area and Essential Material Control

Analysis of a control sample from one heat of uranium metal indicated a boron concentration of approximately 50 ppm. These results were substantiated (chemically and spectrochemically) by repeat analyses on the same sample. Samples taken from the same stock after fabrication produced analyses in the normal range. It is assumed that the original values were caused by a non-representative sample.

Graphite Analyses

Analyses of regular graphite samples for rare earth components demonstrated the feasibility of the proposed methods. The only difficulty encountered occurred in the reduction of cerium, and an alternative method is being investigated. As they become available, bombarded samples will be analyzed by these procedures.

Redox Process Control

Routine analytical control for the Redox program continued without incident. At month end, 157 personnel were assigned to these laboratories, as follows: 69 in Bldg. 3706, 54 in Bldg. 222-T (200-W Area), and 34 being trained for this work in the 100 Area laboratories.

The forecast of analytical requirements for the Redox Semi-Works Bldg. (321) is being reviewed in order to predict the effect of the proposed process changes (e.g., introduction of aluminum nitrate systems, and installation of mixer-settler units) upon the analytical laboratory group.

Analytical Development - Redox

The oxine method now in use for the determination of aluminum is not satisfactory for solutions containing iron. A literature search indicated that this interference might be eliminated by complexing the iron or by electrolytic separation of the iron with a mercury cathode. Of the various complexing agents tested to date, the best results were obtained with a mixture of tartaric acid and potassium cyanide. In order to obtain good separation in the presence of these reagents, it is necessary to increase the oxine concentration to about twice the theoretical amount. Under the conditions necessary to obtain a pure precipitate, it is difficult to prevent mechanical losses. At present, recoveries on synthetic samples range from 95.2 to 99.8%.

The apparatus used in the vacuum distillation of nitric acid was modified to include a McLeod gauge. Recoveries of 90-98% were obtained using 100 lambda samples of synthetic IAF solutions to which ammonium nitrate had been added to prevent hydrolysis of UNH. The distillation was conducted at room temperature until a pressure of ca. 200 microns was reached, after which the temperature was raised to 100°C. The low recoveries are believed due to mechanical entrapment of acid in the salt residue.

Preliminary determinations of UNH by the fluorometric method indicate that good recoveries can be obtained with pure solutions, but that samples obtained from the Redox columns are subject to excessive quenching. The spectrographic technique used in the analyses of U_3O_8 was adapted to the determination of trace amounts of metallic impurities in Redox uranium solutions.

A study was made of the applicability of theoyl trifluoro acetone (TTA) as a chelating reagent in the benzene extraction of tetravalent plutonium from solutions containing metal in other valence states. Under the conditions required for a quantitative separation of Pu(IV), about one-half the Pu(III) was oxidized and transferred into the benzene layer. In an experiment designed to minimize the oxidation of the lower valence state, extraction of the Pu(IV) was incomplete.

Analytical Development - Miscellaneou

Analysis of a neutralized canyon waste for U, PO_4, SO_4, CO_3 and Pu was completed. No difficulties were encountered, but evidence of variation in the composition of successive samples was noted.

Methods for the determination of trace impurities in calcium metal are being investigated.

Special Hazard Control

Several items of remote control metallographic equipment were designed and/or fabricated for the Metallurgy Laboratory.

The door design of the Hanford Stainless Steel Hood was altered to insure smoother operation and to provide greater rigidity.

A permanent metal panel board for uranium analysis is being fabricated. It will include several modifications suggested by the operation of the wooden trial model.

STATISTICAL STUDIES

Product Accountability

In the program to eliminate differences in plutonium measurements at Hanford and Los Alamos, the errors in weighing the AT solution prior to evaporation were studied and found to be negligible (Doc. HW-10291). Changes in AT sampling procedure were recommended to provide a measure of the over-all analytical error in plutonium measurements.

Slug Blistering

Blistering, warp, and dimensional data for irradiated slugs from Production Test 105-119-P were analyzed statistically (reported in Doc. HW-10180). Alpha rolling of rods minimizes slug blistering, but causes the slugs to shrink in length, swell in diameter, and warp during irradiation. Gamma extruded slugs blister during irradiation, but are not particularly prone to other dimensional changes. The triple-dip canning process inhibits the tendency of alpha rolled slugs to shrink, swell, and warp; these slugs, however, are no longer completely free from blisters. The lead-dip canning process exaggerates the tendency for gamma extruded slugs to blister. Outgassing enhances the blistering of alpha rolled slugs, but slightly inhibits the blistering of gamma extruded slugs. It had no significant effect on shrinkage, swelling, and warpage. Slugs from UM and G billets did not differ significantly in blistering tendency. The slugs from UM billets, however, were significantly shorter and more warped after irradiation.

A statistical analysis was made of the warp, length, and diameter of 120 four-inch alpha rolled lead-dipped slugs prior to irradiation (reported in Doc. HW-10169).

Graphite Quality

A significant correlation was found to exist between the boron content of the index rods and the Test Pile reqctivity of the corresponding graphite sample bars. The relationship, however, would not permit the prediction of dih results with sufficient precision to replace the functional test. This study is reported in Doc. HW-10143.

Miscellaneous

In cooperation with the Pile Engineering Section and the P Division, an inspection procedure was recommended to permit an estimate of the extent and trends of Van Stone flange corrosion in 100 Area piles.

Additional hexone-aqueous viscosity, density, and solubility data were treated for the Chemical Research Section.

LIBRARY AND FILES

Plant Library

Work on the acquisition, cataloging, and circulation of books proceeded routinely.

The second issue of the INFORMATION BULLETIN was assembled and distributed. In addition to listing the new books added to the Library's collection, and including the survey of current periodical literature on nuclear energy, a section on incoming MDDC and other unclassified reports was added. These three main sections will be standard in future issues of the publication.

Abstracting and indexing of the Hanford Technical reports is proceeding on a current basis and gathering momentum. Production of catalog cards was begun with the mimeographing of the first sets. In order to conserve file spade in the Library, excess copies of early MDDC reports were transferred to the Permanent File Storage.

Library statistics were as follows:

	May	June
Number of books on order received	317	237
Number of books fully catalogued	313	317
Number of bound periodicals processed but not fully cataloged	263	10
Pamphlets added to pamphlet file	209	354
Miscellaneous material received, processed and routed (includes maps, photostats, patents, etc.)	57	44
Books and periodicals circulated	632	787
Reference services rendered	501	730

Technical Divisions

Present book collection is as follows:

	Main Library	W-10 Branch	Total
Number of books	2565	937	3502
Number of bound periodicals	1665	89	1754

300 Area Classified Files

Handling of documents proceeded routinely, with a marked increase in the number of documents issued due to the increase of Technical personnel in the area.

Series B of the Hanford Technical Manual was completed, and a backlog of requests for it which have been outstanding for some time were taken care of. A second disposition summary of Technical reports as requested in the confidential memorandum from John E. Gingrichs, Director of Security and Intelligence, AEC, Washington, D. C., was prepared for the months of May and June and submitted to the Central Document Control Office in Washington, D. C., thus establishing this monthly report on a current basis.

Space in Bldg. 3702 was made available for the Office Services Unit, which has been set up with a Ditto duplicating machine and a mimeographing unit. Current requests for reproduction are being fulfilled as submitted. Work statistics indicate that about 80% of this work is for the Technical Divisions. In addition, equipment for sorting the 300 Area mail has been installed and the number of mail deliveries and pickups increased to three per day.

File document statistics were as follows:

	May	June
Documents routed	3791	3140
Documents issued	865	1187
Reference services rendered	3476	3427

Office Services statistics were as follows:

Ditto masters run	--	752
Mimeograph stencils run	--	189
Ditto master copies prepared	--	36,240
Mimeographed copies prepared	--	12,448

MEDICAL DIVISION

JUNE 1948

General

The Medical Division roll increased by 33, largely due to North Richland operations. There were 6 clinic physicians and one dentist added during the month.

There was no evidence of occupational disease or injury as a result of exposure to radiation.

Flood waters to date have caused no serious medical problems. The mosquito control and inspection of private water supplies as a direct result of the unusually high water has greatly increased the activities of the Sanitation Department. Several tract house wells have been contaminated necessitating a supply of sanitary barrel water.

Absenteeism due to sickness continued to decline to a low of 1.06%.

Employee physical examinations increased by 2,031, two-thirds of the examinations being done at North Richland. A total of 382 annual examinations were done on General Electric employees at Kadlec Hospital.

Two first aid stations began operation during the month, one in 100-H area, and one in 200-W area. The average daily first aid treatments for all stations were 619. There were 14 major injuries during the month, and 55 sub-major injuries, an increase of 36% over May. Of these, one major and 6 sub-majors were obtained by G. E. employees.

The health topic of the month dealt with "Common Sense Summertime Recreation", and material on this subject was distributed throughout the plant.

Daily clinic visits remained approximately the same as for May, but were increased 76% over June, 1947. The average daily hospital census was 20% above a year ago.

Communicable diseases continued to decline.

The social service department doubled its usual case load in the month of June because the Columbia River flood caused displacement of many families who were connected with the project. With this disruption of normal home conditions, innumerable problems resulted. Complete cooperation and use of physical facilities were offered to the Red Cross.

MEDICAL DIVISION

JUNE 1948

Plant Medical Division

	May 1948	June 1948	Year to date
Physical Examinations			
Pre-employment (G. E.)	567	469	2595
Annual	13	382	397
Sub-contractors & food handlers	1333	2399	19428
Rechecks	563	579	3840
Interval Rechecks (area)	662	608	4649
Terminations & Transfers, (G. E.)	960	1678	3114
Army & Government	15	29	112
Assist to A. & H. Ins., Clinic, etc.	0	0	0
Total	4113	6144	34135
Laboratory Examinations			
Clinical Laboratory			
Pre-employment, terminations, transfers	17650	15142	100761
Annual	69	2305	2398
Rechecks (area)	3333	3291	23887
First Aid	48	48	207
Plant Visitors	0	0	12
Clinic	2583	2534	14430
Hospital	2804	2860	17737
Public Health (Inc. food handlers)	811	881	4171
Total	27298	27061	163603
X-Ray			
Pre-employment, terminations, transfers	3085	2540	17963
Annual	12	384	396
First Aid	252	296	1459
Clinic	322	337	1782
Hospital	208	235	1338
Public Health (Inc. food handlers)	174	252	1140
Total	4053	4044	24078
Electrocardiographs			
Industrial	21	149	188
Clinic	12	15	57
Hospital	17	16	102
Total	50	180	347
Allergy			
Skin Tests	9	17	210

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JUNE 1948

First Aid Treatments	May 1948	June 1948	Year to date
Occupational Treatments	2953	3378	14938
Occupational Retreatments	9037	9537	44728
Non-Occupational (Welfare) treatments	5735	5664	33941
Total	17725	18579	93607

Absenteeism Investigation Report

Total No. calls requested	9	5	157
Total No. calls made	9	5	157
Number absent due to illnes in family	0	0	1
Number not at home when call was made	0	0	2

General

Two new first aid stations began operation during the month, one in 100-H area and one in 200-W area. These small stations were built on skids so that they can be moved to other construction areas when necessary.

Employment and termination examinations increased from 4113 in May to 6144 in June. Most of the examinations were done in North Richland. First aid treatments also increased from 17,725 in May to 18,579 in June.

The lead lining of the walls of the North Richland X-ray room proved to be unsatisfactory, and re-leading of the north and south X-ray rooms was completed on June 23rd. Survey by H. I. Division has indicated complete safety for all employees in the department.

Major and sub-major injuries during the month were as follows:

	Major	Sub-Major
General Electric	1	6
Atkinson-Jones	8	32
Morrison-Knudsen	2	6
Nettleton-Sound	4	4
McNeil Construction	1	0

The health topic for the month dealt with commonsense summertime recreation. Material on this subject was distributed throughout the plant.

MEDICAL DIVISION

JUNE 1948

Absenteeism was as follows:

	5-3-48 to 5-31-48
Total absenteeism weekly employees all causes,..	1.76%
Total absenteeism weekly employees sickness only..	1.06%
Total No. days lost due to sickness by male employees.....	839
Total No. days lost due to sickness by female employees.....	500
Total days lost due to illness.....	1339

Village Medical Division				May 1948	June 1948	Year to date
Clinic Section	Men	Women	Children			
First Visits	903	549	308	1497	1760	7819
Retreatments	2326	2518	909	6032	5753	31703
		Total.....		7529	7513	39522
Clinic Visits						
Medical.....				1132	1648	6907
Pediatrics.....				863	698	4261
Surgical.....				772	897	4859
Gynecological.....				491	526	2725
Obstetric (new).....				88	86	473
Obstetric (recheck).....				628	663	3770
Venereal Disease.....				821	584	4175
Ear, Nose & Throat.....				320	338	1958
Eye.....				340	289	1705
Visits handled by nurses (hypo, dressings, etc).				1040	1009	4220
Night clinic visits.....				1034	775	4469
		Total.....		7529	7513	39522
Total Clinic Visits per day.....				243	250	217
Seen-in-well Baby Clinic.....				213	265	1246
Home Visits						
Doctors.....				228	291	1395
Nurses.....				236	318	1063
		Total.....		464	609	2458

MEDICAL DIVISION

JUNE 1948

Kadlec Hospital Section Census	May 1948	June 1948	Year to date
Admissions	447	483	2967
Discharges:-			
Surgical	134	124	724
Medical	93	83	596
Obstetric & Gynecologic	84	100	556
Eye, Ear, Nose & Throat	48	53	407
Pediatrids:			
Children	58	32	321
Newborn	56	71	358
Total Discharges	473	463	2962
Patient Days	2407	2470	16230
Average Stay	5.3	5.3	5.4
Average Daily Census	77.6	82.3	89.3
Discharged against advice	1	3	13
One-day cases	94	84	487
Operations			
Transfusions	25	42	192
Eye, Ear, Nose & Throat	23	43	184
Dental	0	1	5
Casts	20	21	112
Minors	57	51	353
Majors	46	53	275
Vital Statistics			
Deaths	1	2	17
Deliveries	49	82	365
Stillborn	1	0	3
Physio-therapy Treatments			
Clinic	121	110	758
Hospital	25	45	390
Industrial:-			
Plant	490	310	2517
Personal	50	50	294
Total	686	515	3959
Pharmacy			
No. of Prescriptions Filled	2825	3238	16844

MEDICAL DIVISION

JUNE 1948

Patient Meals	May 1948	June 1948	Year to date
Regulars	3174	3003	21058
Lights	41	22	281
Softs	1456	1346	10095
Surgical Liquids	29	115	538
Tonsils & Adenoids	100	115	541
Specials	661	889	3928
Liquids	276	195	2531
Total	5737	5685	38972

Cafeteria Meals			
Noon	2459	2565	14882
Night	350	391	1928
Total	2809	2956	16810

Nursing Personnel		
First Aid Nurses	49	48
Clinic Nurses	19	17
Public Health Nurses	15	15
Hospital general nurses	84	85
Aides & orderlies	53	60
Total	220	225

General

Clinic visits remained about the same as in May; however they increased in North Richland which means there was a slight decrease in Richland.

The hospital average census increased from 77.6 to 82.3. A new record was established in the obstetrical section with 82 births. The previous high was 72.

Six clinical doctors were added to the staff; two of these were assigned to North Richland.

Public Health Section Administration	May 1948	June 1948	Year to date
Newspaper Articles	19	22	103
Committee Meetings	2	5	18
Attendance	20	20	101
Staff Meetings	2	8	19
Lectures & Talks	4	0	31
Attendance	201	0	2126
Conferences	9	6	67
Attendance	30	39	197
Radio Broadcasts	0	0	3

MEDICAL DIVISION

JUNE 1948

Immunisations	May 1948	June 1948	Year to date
Cholera		3	3
Diphtheria	1184	74	1478

MEDICAL DIVISION

JUNE 1948

	May 1948	June 1948	Year to date
Total Number Nursing Field Visits	1602	1280	9250

General

During the month of June, there was a sharp decline in minor communicable diseases. Morbidity calls have remained the same as last month. One case of malaria has been reported and investigated.

Dental Division	May 1948	June 1948	Year to date
Patients Treated	2767	2472	15954

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MEDICAL DIVISION PERSONNEL SUMMARY

June, 1948 Areas	Physicians	Dentists	Nurses	Aides & Orderlies	Technicians	Office Workers	Others
100-B						1	
100-D			4		2*		
100-F					2*		
200-E			3		2*	2	
200-W			3		2**	1	
300			2		2**		
100-DR			3				
100-H			1				
234-5			2				
White Bluffs	[illegible]		3				
Pasco			1				
101			1				
3000	13		14	5	9	37	8
700-1100	20	12	113	55	26	88	68
Plant General	7		15				
Total	40	12	165	60	37	129	76

Grand Total 519

Number of employees on payroll:-
Beginning of month 486
End of month 519
Net increase 33

* 1 day per week
** 2 days per week

HEALTH INSTRUMENT DIVISION

JUNE 1948

Summary

The force decreased by six. There were six Class I Special Hazards incidents, none with serious consequences. Other exposures of personnel were within limits.

In the Operational Section, work loads and survey findings were normal, except for events arising from a ruptured slug in the 100-F Pile. The Pile Building exposures and contamination were satisfactorily limited at this time. Much effort was spent in avoiding the release of abnormally radioactive water, algae and mud to the Columbia River. The need for efficient algae was demonstrated. The active particle deposition in the 200 Areas appeared to increase in severity. Measurable concentrations were noted in Richland. Many air samples in the Metal Fabrication area indicated uranium concentrations above proper limits. This is a condition requiring attention as the concensus of Project opinion is that the limit should be lowered.

Responsibility for monitoring in the Laundry was transferred to the Services Divisions.

In the Control and Development Section, samples of water, air and vegetation showed the normal pattern for environmental hazard. High uranium contamination in the 300 Area wells was an exception. The bioassay program showed no confirmed plutonium excretion. Uranium content of four samples exceeded 10 µg U/liter. Biological monitoring of mammals and fish proceeded without special incident.

The portable proportional counters continued to be disappointing, apparently due to high humidity.

HEALTH INSTRUMENT DIVISION

JUNE 1948

Organization

The composition and distribution of the force as of 6/30/48 was as follows:

	100-B	100-D	100-F	200-W	200-E	300	700	P.G.	Total
Supervisors	1	1	3	8	3	14	7	0	37
Engineers	5	3	5	10	16	9	0	0	48
Clerical	0	0	1	1	0	2	4	0	8
Others	6	16	14	50	28	41	8	12	175
Total	12	20	23	69	47	66	19	12	268

Number of Employees on Payroll	June
Beginning of Month	274
End of Month	268
Net Decrease	6

The decrease is artificial in that the force of 10 people engaged in laundry monitoring was transferred to the Service Divisions, when responsibility for this operation was so transferred. In addition, a senior physical chemist and an inspector were transferred to the Technical Divisions, and an engineer went to the "S" Division. One engineer and one inspector terminated. One senior supervisor for design liaison, one engineer (Radiobiology), one engineer (Physics), two inspectors, a laboratorian and a stenographer were added to the force.

General

Although the numerical evidence is incomplete there appears to be a general belief that the number of detectable active particles deposited per month on the ground in the 200 West and 200 East Areas is increasing. In round figures, 100 million such particles fell in each area during June. Preliminary measurements of particle size within the exhaust system showed that much of the total emitted activity was concentrated in particles below 2 to 3 μ diameter. These are the potentially dangerous ones with respect to inhalation, and none of this size-range is being currently measured in the atmosphere. Possibly 10^{10} particles above 3 μ diameter, and 10^{13} below this size were emitted during the month.

No fewer than six Class I Special Hazards incidents occurred. Three arose from excessive beta ray exposures in Metal Fabrication. This was presumed due to the increased work load in these operations, and corrective measures are being discussed at length. One incident concerned unsuccessful shoe decontamination, and possible spread to

another area. There is some doubt in this assignment, as it may be connected with a possible new type of particle contamination tentatively reported in the Pile Areas. In another case, tank liquid level measurements were made without Special Work Permit controls. The sixth incident concerned personnel contamination from laboratory operation of a faulty stirrer. None of the exposures in these incidents was such as to cause concern for the safety of the individuals involved.

There was no other high exposure in the routine pencil and badge program.

An additional incident not reported in the regular series arose from contamination of hands and clothing of a visitor from another site. This was readily shown to be due to alpha-contaminants foreign to Hanford operations. It was therefore introduced by the visitor, whose suitcase, hair brushes etc. were also found to be contaminated.

OPERATIONAL SECTION

100 Areas

General Statistics

	May				June				1948
	B	D	F	Total	B	D	F	Total	To Date
Special Work Permits	174	739	874	1787	335	614	1250	2199	11,804
*Routine & Spec. Surveys	35	316	299	650	61	350	363	774	4,511
*107 Effluent Surveys	0	55	52	107	0	70	35	105	715

Retention Basin Effluent

The activity of the water leaving the Retention Basins was as follows:

		100-D	100-F
Power level	(MW)	275	275
Average beta dosage rate	(mrep/hr)	1.1	0.7
Average gamma dosage rate	(mr/hr)	2.0	2.2
Average total dosage rate	(mrep/hr)	3.1	2.9
Average integrated dose in 24 hrs.	(mrep)	74	70
Maximum integrated dose in 24 hrs.	(mrep)	115	84
Maximum integrated dose in 24 hrs. (1948)	(mrep)	115	84

*These data have not been reported previously.

100-B Area

Extensive maintenance work to the Pile continued in preparation for start-up. Exposure levels were generally low, but dosage rates up to 1500 mr/hr at 1½ inches were encountered during inspections of horizontal rods. A sample of dirt and algae collected from the bottom of the Retention Basin showed a beta concentration of 5×10^{-3} μc per kg.

100-D Area

Following a purge and flush of the process tubes prior to discharge operations, effluent water readings at the 107 Retention Basin exceeded the tolerance rate for a period of seven hours. The maximum dosage rate reported was 5.6 mrep/hr; the average, 5.1 mrep/hr. The high activity was due partly to the fact that only one side of the basin was operating. The condition was alleviated by directing the flow into the other side which was empty. The purge was very effective in reducing contamination levels in the discharge area during the subsequent shutdown.

A box car loaded with empty returned casks was wrecked about one mile east of the area. The cask boxes were completely wrecked and some of the casks slightly damaged. Contamination was spread to the floor of the car but was easily removed by washing.

An H. I. Engineer left the 105-F Area for work in 105-D. Before leaving the 105-F Building he found his shoes contaminated and decontaminated them until he felt that the remaining contamination was fixed. Upon arrival at 105-D he checked his shoes again and discovered contamination on his feet, socks and trouser legs. His feet were decontaminated and the clothing confiscated. Following this several small, highly radioactive specks were found on the floor near the five-fold counter and in the H. I. office. The specks were too small to be seen with the naked eye but were picked up on masking tape. Several other cases of shoe contamination were then detected at the five-fold counter but were easily removed.

Radioargon was still prevalent on top of the Pile, but attempts to locate the source were unsuccessful. Surveys with the Vac-sniff showed increased activity at the base of the bumper plates for rods 31 and 36. A pressure test of the #31 thimble showed no leak. The high background on top of the Pile makes any positive tracing for leaks very difficult. High gas activity was also reported again in the gas analysis cell of the inner instrument room. This gas is likewise radioargon.

Several sections of six inch hose and one pump were released to Hanford for pumping water from flooded areas. The equipment was contaminated and was released under conditions that it be used only by the 100 Area Maintenance group and returned to the 100-D Area upon completion of the work.

The Technical Division removed cans from special samples with the special equipment in the transfer area. Personnel exposure was limited to 6 mr/hr but dosage rates from the samples and on the beams from the casks were very high. Alpha contamination, presumably plutonium, was detected on several pieces of equipment and on one glove. One piece of equipment, a rubber suction tip, showed 20,000 d/m on the outside surface. Steps were immediately taken to prevent spread of this contamination.

The flow in the south side of the 100-D Area Retention Basin was diverted to the north side in preparation for the bombing of the South basin with calcium hypochlorite (to remove algae). Considerable leakage was observed along the walls of the North basin and readings as high as 25 mrep/hr were reported. Effluent dosage rates did not exceed tolerance.

A catch box consisting of muslin cloth, wire screen and angle iron was placed over the outlet flume at the 100-D Retention Basin for a 24 hour period. Approximately one third of the basin flow passed

through this box for the entire period. At the completion of the run the muslin was removed and allowed to dry. A surface dosage rate of 500 mrep/hr including 7 mr/hr at 1½ inches was observed. Efforts to identify this activity are in progress.

A maximum fast neutron flux of about 50 mrem/hr was observed on the far side of the Pile at the #4 seam in the beam emerging from the step arrangement of the biological shield. Other readings in this beam reflected no change from previous results.

Technical Division personnel manipulated samples in the "B" experimental hole and ran several tests in process tubes. Exposure rates to personnel were maintained at very low levels. Dosage rates of about 100 mr/hr were encountered during removal of rust from the bottom of the #10 vertical rod thimble. The tip of the rod read 1.8 roentgens per hour at 4 inches and the first water filter, 2 roentgens per hour at 1 foot. Time limits were fairly short, but no overexposures were reported.

100-F Area

The "P" Division shut down the Pile when the pressure drop across tube 1165 and the exit water activity of the 11½ header exceeded operating limits. Investigation immediately confirmed the suspicion that a process metal slug had ruptured. A dosage rate of 600 mr/hr was found at the nozzle of tube 1165 and 1300 mr/hr at the pigtail. The Pile effluent water was immediately diverted to the east side of the Retention Basin while the water was pumped out of the west side. The effluent water was then diverted back to the West Basin before the hold-up period in the East Basin was completed. The water flow through tube 1165 was then stopped and the effluent water from the Pile diverted directly into the flume leaving all of the contaminated materials confined to the basin.

The position of the ruptured piece in the tube was determined by means of a spline which could be inserted only 22 feet from the front face of the Pile. The front and rear dummy charges were removed from the tube and auxiliary equipment used in an unsuccessful attempt to move the charge. Exposure rates during the dummy removal were as high as 1 roentgen per hour. The bottom of the gun barrel showed 7 roentgens per hour after the tube had been drained into a bucket. The slug was finally removed by pulling out all of the other slugs in the tube and then pushing out the tube itself. The other slugs in the tube were pulled out by means of splines and suction cups and some high radiation levels resulted. Two pieces were removed on the discharge face at the ten foot level; the rest were removed remotely. Several persons received total doses very near the daily tolerance but no overexposures were reported.

All equipment used during this work became highly contaminated and all but a few items were removed and buried. Gross spread of contamination throughout the 105 Building required complete work stoppage on two occasions, and several instances of personal contamination were experienced. Thorough surveys of all unrestricted portions of the building were necessary to eliminate further spread of the contamination.

After the section of tube containing the ruptured piece was cut off and dropped into the storage basin it was taken to the viewing pit for inspection and segregation. Before the piece could be loaded into a cask for shipment to the 200 Area it was necessary to crimp one end of the tube. When this was attempted, the tube fractured and a large amount of metal dust spilled out on the stainless steel floor of the viewing pit. This dust was picked up using a putty-like substance and was later taken to the burial grounds. A dosage rate of 12 roentgens per hour was encountered. Some contamination spread was observed in the storage basin but this was relieved by flushing to the 107 Retention Basin.

The water in the Retention Basin was found to contain fission products and was pumped into a large burial trench east of the basin. Some seepage was noticed in lower surrounding areas but little activity could be detected. After the water was pumped out, the sides were hosed down and all of the dirt and algae hauled out and buried. Samples of algae and sediment showed about 40 μc/kg with about 15% of the activity due to fission products.

After startup a screen lined with muslin was installed over about 1/3 of the wire portion of the flume and allowed to stay in position for 24 hours. Readings on the muslin filter were as high as 200 mrep/hr. A second filter plugged up considerably in 36 hours and read 290 mrep/hr when removed.

The strip of cork running vertically along the far side of the Pile in the wall between the discharge area and the far side of the Pile was removed during the shutdown. While this work was in progress, a spark from a welding torch ignited a pile of the removed cork and burned off about six feet of the neoprene seal. The Kanne chambers for the 105 exhaust air and for the stack air jumped off scale and did not return to the scale for 15 minutes. Witnesses reported that gas escaping from the ruptured neoprene seal was sufficient to deflect the flames of the fire. Air samples taken immediately after the fire showed negative results. Fire fighters entered the discharge area without proper protective clothing and shoes became contaminated. Some small amounts of contamination were detected in soot from the fire.

Nine vertical safety rod thimbles were emptied of rust with a maximum radiation field of 3.3 roentgens per hour reported. A sample of the rust showed the activity to be Fe^{59} with a half life of 46.3 days. This was substantiated by chemical analysis.

Technical Division personnel removed samples from the "B", "D", and "E" experimental holes and encountered some high exposure rates. One sample removed from the "E" hole gave a momentary reading of 5.5 roentgens per hour, during manipulations. Contamination was well controlled. A test of a section of a DR control rod required the opening of a hole in the "B" experimental hole device. Beam readings of 7 roentgens per hour were reported.

Excavation for the new effluent line to the Retention Basin was continued. A dosage rate of 275 mr/hr was reported on the old line during the operation of the Pile and 5 mr/hr during shutdown. The readings were taken at the point where the line leaves the 105 Building.

Badge packets placed outside at various locations in the 105-F Area showed results of 0.5 mrep/hr. The packets showed exposures similar to those which have been recorded at 100-DR.

Health Instrument Division

200 Areas, T and B Plants

General Statistics

	May			June			1948
	T	B	Total	T	B	Total	To Date
Special Work Permits	283	359	642	417	406	823	4390
Routine & Special Surveys	215	291	506	277	339	616	3583
Air Monitoring Samples	309	503	812	447	495	942	5211
Thyroid Checks	159	105	264	169	93	262	1935

Canyon Buildings

In the T Plant, 89 special air samples were taken to study canyon air conditions after the cell block cracks were taped and the cell ventilation air flow reduced, and none showed significant results. An air sample result of 2.5×10^{-5} μc f.p./liter and 1.6×10^{-11} μg Pu/cc was obtained when cell 8-R was opened in order to make a connector replacement. With the cells sealed it required about 36 hours to obtain sufficient air changes to reduce the concentration to about 5×10^{-7} μc f.p./liter. This compares with previous conditions where 5 to 8 hours were required for correction.

In the "B" Plant, most of the cell filters were removed. A maximum dosage rate of 11 roentgens per hour at 16 inches was reported on a filter from 8-R. The filters were loaded into a box on a flatcar for transport to the burial grounds and extensive contamination was subsequently found on the flatcar. Dosage rates as high as 3 rep per hour were reported on removed planks.

On one occasion when the samplers entered the canyon, fumes were noted emitting from around the 15-R cell blocks. Immediate exit was made. An air sample taken near 15-R showed about 2.5×10^{-6} μc f.p./liter and another sample, 2 hours later, showed 4.5×10^{-7} μc f.p./liter. Both samples showed particle deposition when radioautographed. The cause was attributed to an unusually small volume of waste solution being neutralized in the 15-B tank which fumed excessively, coupled with the cell filter which reduced air flow through the cell.

An air sample taken after connector replacement and observed jetting in Section 6 showed 7.4×10^{-5} μc f.p./liter and 2.6×10^{-10} μc Pu/cc. Two air samples taken at Section 6 of the Operating Gallery showed significant results with no apparent cause. Several instances of contaminated Electrical and Instrument equipment were noted in the Operating and Pipe Galleries when lines were broken. This is apparently due to mist backing up from the cells.

Control Laboratories

A total of 406 items, not regulated with respect to handling, was found contaminated on surveys by Technical and Health Instrument Division personnel. In addition, 34 contaminated floor locations were reported. Thirty-one cases of fission product and four cases of product hand contamination were reported and all were successfully reduced.

Three composite samples were prepared for off-plant shipment. The maximum dosage rate was 40 rep per hour including 1.9 roentgens per hour at four inches, but less than 1 mr/hr when ready for shipment. Maximum exposure rate during preparation was 250 mrep/hr.

Concentration Buildings

In the T Plant, it was necessary to replace orifices in tank vent lines in connection with the reduced air flow experiments. No spread of contamination was noted during this work.

In the B Plant, the E Cell vent line scrubber assembly has been installed and operated, with an indicated efficiency of about 97%. During centrifuging there was an average of about .01 µg Pu per cubic foot of air scrubbed out. The maximum reading on flanges when opened for maintenance work was 50,000 d/m. During replacement of a section of the E-2 overflow line, neck contamination of 1000 d/m and shoe contamination of 800 and 2000 d/m was noted and subsequently successfully cleaned.

Stack Areas

In the T Plant, the steam driven fan ductwork was replaced with stainless steel equipment. High dosage rates were encountered, and correspondingly short time limits imposed. Manometer installation on the off-gas line in the stack pit was done in a maximum exposure rate of 60 mrep/hr. A high air sample result of 1.4×10^{-5} µc fission product per liter was obtained when positive rather than negative pressure was encountered during sample filter installation in the line from the stack in the 292-T Building. The building was cleared and later reentered with masks.

In the B Plant, sample filters in the inlet tunnel have shown about a ten fold increase in activity since most of the cell filters were removed from service.

Waste Disposal Areas

In the T Plant, contamination was again evident around the 361-T crib vents with maximum reading of 1950 mrep/hr surface including 60 mr/hr at 2 inches. Sludge samples removed from the 101-T tank for off-plant shipment showed maximum of 40 rep per hour surface with 300 mr/hr at 2 inches on the sample bottle, but maximum exposure rate was only 400 mrep/hr. Tie-in welding of new waste lines to present facilities was done with a

maximum exposure rate of 3 roentgens per hour, and hydrostatic testing of lines was done with a maximum exposure rate of 500 mr/hr reported. Slight personnel and clothing contamination occurred in both areas in connection with sampling and liquid level measurements.

North Areas

A section of a process tube from the 105-F Pile containing two four-inch uranium slugs was transferred by cask car to 212-N Building. Maximum exposure rate during photographing operations by Technical Division personnel was 1.5 roentgens per hour at about ten feet from one of the slugs. A loose aluminum cap removed from a slug was decontaminated in the 222-B Laboratory from about 4 roentgens per hour at 2 inches to a final activity of 1 rep per hour at one foot.

General

In the T Plant, 7349 Martindale filters were surveyed with a G.M. probe and a particle found on one filter showed activity of about 3.3 millimicrocuries. A total of 3564 filters was surveyed with film, and showed a total of 339 particles on first filming.

A truck from another project location was surveyed before use, and showed general alpha contamination which proved to be due to polonium as determined by laboratory analysis.

In the B Plant, 8812 Martindale filters were surveyed with a G.M. probe and no contamination was detected. A total of 11,388 filters was filmed and showed a total of 937 suspected particles. On the 2,244 filters which have been refilmed, 143 confirmed particles were noted

All thyroid checks were below the conservative warning level.

The Isolation Building

Air Monitoring

There were 340 spot air samples taken, of which one was above 10^{-11} µg Pu/cc. This was taken in Cell 3 during normal operation, and showed 2.2×10^{-11} µg pu/cc. Fifty-two Little Sucker samples, run continuously by shifts, showed one sample above 4×10^{-12} µg Pu/cc. This was taken in Room 34, on the 12 - 8 shift of 5/29/48 through 6/4/48, and showed 5×10^{-12} µg Pu/cc. Thirteen samples of the 903 exhaust system air had as a high result, 2.7×10^{-12} µg Pu/cc.

Surface Contamination

A total of 313 items, not regulated with respect to handling, was found contaminated on surveys by Technical, Health Instrument, and "S"

Division personnel. Five items above 20,000 d/m and one above 80,000 d/m were reported. In addition, a total of 62 contaminated floor locations were reported, 27 in the laboratories, 7 in cells, and 28 in the corridors. The maximum location involved about 2 μg Pu in Cell #4. There were thirteen instances of hand contamination, all of which were successfully reduced. Two cases involved visitors, and thorough survey of the rooms visited, led to the conclusion that the contamination was most likely present upon entering the 231 Building. The hands were decontaminated.

Filter changes were made for several of the rooms, with maximum contamination encountered of about 1000 d/m. Work is in progress to replace the damper assembly in the 903 system, which necessitates using the steam engine tied in to a temporary stack.

Gamma Radiation

P. R. Container	14 mr/hr (maximum)
Process Hood	2 mr/hr (maximum)
S. C.	4 mr/hr (maximum)

The 300 Area

General Statistics

	May	June	1948 To Date
Special Work Permits	299	252	1586
Routine & Special Surveys	120	110	895
Air Monitoring Samples	88	93	672

Metal Fabrication Plant

Forty-one out of sixty-six air samples taken were above the tolerance concentration as summarized below:

Location	No. Taken	No. Above 1.5×10^{-4} μg U/cc	Maximum Concentration μg U/cc
Chip Recovery	20	9	*1.9×10^{-3}
Extruder Building	3	1	**1.6×10^{-4}
Machining Room	3	1	***3.1×10^{-4}
Oxide Burner	3	1	#1.9×10^{-3}
Melt Plant	37	29	##2.7×10^{-3}

*First Sorting
**Discharge end of straightener
***Facing Lathe
#Operator's position
##Furnace Room - burnout door open

A large number of air samples was taken in the Melt Plant to evaluate the effectiveness of the new exhaust fan. The results showed that the additional fan had little effect in reducing the air contamination.*

Three operators in the Melt Plant received exposures of 630, 650 and 680 mrep respectively for 6 days work, as recorded by film badges. Ten film badges, including nine at the Melt Plant, were found contaminated.

Technical Building

One air sample taken in front of the hood in the Chemical Research laboratory during high level product work showed a concentration of 4.7×10^{-11} µg Pu/cc. No apparent contamination spread occurred, and subsequent samples under similar conditions were low.

A visitor from the University of Chicago reported a high hand count after a tour through the area escorted by a physicist in the Technical Division. Further checks revealed that the man's shoes, clothing and personal effects were all grossly contaminated with alpha and beta emitting materials. A later survey of the man's room at the Desert Inn in Richland showed contamination on a clothes brush and suitcase handles. Laboratory analysis of the contaminated items proved the absence of plutonium, and showed alpha-emitters not in use at Hanford.

A chemist working in the Chemical Research laboratory spilled about 900 µg of Pu solution in the hood where he was working. The equipment was discarded and the hood decontaminated without spread of the contamination. An air sample taken during the clean-up was below the tolerance concentration.

Groups in this building are still using the Retention Basin for dumping waste uranium and hexone solutions.

Laundry Decontamination and Hand Counting

A total of 129,256 items was monitored in the Plant Laundry, including 50,333 alpha checks. Included were 27,262 coveralls, 42,041 gloves, 39,919 overshoes, and 4,490 slacks and jackets.

Forty-three spot air samples and 34 Big Sucker air samples were taken in the Laundry, and had as a high result, 1.4×10^{-10} µg Pu/cc on a Big Sucker run behind washer #2, during the washing of clothing from the 100 Areas and the 200 East Area.

*Experience at some other Project locations has led to a reduction of the permissible concentration of uranium in air by a factor of 3. The expected application of the same policy here would aggravate the existing poor condition.

There were 38,851 alpha hand checks, and 45,921 beta hand checks recorded. About 0.36% of the alpha and about 0.3% of the beta checks were above the warning level.

Again most of the high scores were recorded in the 300 Area. Where decontamination was attempted it failed in one case of alpha and 10 cases of beta contamination, all in the 300 Area. No attempt at reduction was recorded for 59 high alpha scores and 51 high beta scores.

Plant General

Frames exposed in the 200 East and 200 West Areas for the month of May indicated a deposition of 2.7×10^8 particles in the East Area and 1.9×10^8 in the West Area for the month. The highest deposition rate noted was 2 to 4 p.s.f. per week in both areas.

Films of air sample filters in the areas indicated average monthly particle inhalation rates varying from one in the TX Area to 7 at the West Area and U Plant gatehouses. In construction sites the averages were 3 per month south of U Plant and 6 at B-Y. Off-plant surveys indicated about 1 particle breathed per month at Benton City and Richland.

PERSONNEL METERS

Pencils	100-B 100-D	100-F	E&N 200	200-W	300	Total	1948 To Date
Total Pencils read	11,849	15,173	30,869	42,117	37,160	137,168	770,568
No. single readings (100 to 280 mr)	46	80	76	76	118	396	2,575
No. paired readings (100 to 280 mr)	1	2	0	1	1	4	22
No. single readings (Over 280 mr)	133	232	104	184	412	1,065	4,593
No. paired readings ((Over 280 mr)	1	4	0	0	10	15	60
Paired readings lost	0	1	2	3	1	7	31

No significant pencil result was confirmed by the badge result. Investigation of lost readings showed no possibility of an overexposure. Pencil results of 100-130 mr and badge result of 90 mr. for one day for an H. I. supervisor in a 100 area resulted when a planned exposure of 100 mr was calculated.

Badge Resume, Construction Areas

	105-DR	241-TX	384	Total	1948 To Date
Badges Processed	11,917	5,063	325	17,305	83,044
No. of readings (100 to 500 mrep)	40	41	0	81	172
No. of readings (Over 500 mrep)	0	21	0	21	69
Lost readings	5	7	0	12	55

Results of over 500 mrep in the TX Area were due to use of x-ray in the field and represent a two-week period, one result was over 1 roentgen for the period.

Lost readings were due to:

Badge lost in area	7
Wet Badge	2
Stuck film	1
Light Leak	1
Recovered lost badge, but impossible to read	1

Health Instrument Division

Badges	100-B	100-D	100-F	200-E	R.R.T 200-N	200-W	300	Total
Badges Processed	1,455	3,234	2,384	2,556	539	3,279	6,418	19,865
No. of readings (100 to 500 mrep)	0	2	41	11	5	17	224	300
No. of readings (Over 500 mrep)	0	0	1	0	1	0	4	6
Lost readings	2	0	1	0	0	2	3	8

Total 1948 badges to date, operations	144,930
Total 1948 badges to date, construction	83,044
Grand Total	227,974

Lost readings were accounted for as follows:

Badge lost in area	3
Badge dropped in liquid	2
Wet badge	1
Lost in processing	1
No packet in badge	1

Investigation of lost readings where required showed no possibility of an overexposure.

The results of over 500 mrep in the 200-N Area was not confirmed by pencil results and investigation showed it was not due to radiation. The result of over 500 mrep (520 mrep) in the 100-F Area was for a two-week period, pencil results totaled 135 mr. Ten results from 100 to 500 mrep and one above 500 mrep in the 300 Area were due to contaminated badges. The other three results above 500 mrep in the 300 Area were borderline B ray overexposures from exposure to uranium. (See Special Hazards Incident Investigations #84, 85 and 86).

In addition 2,143 items of non-routine nature were processed, 1948 total to date 7,645.

Health Instrument Division

CONTROL AND DEVELOPMENT SECTION

Water Monitoring

Three hundred and twelve samples of drinking water were taken during the month. The maximum alpha contamination of 240 dis/min/liter was found by ether extraction of 300 Area Well #1. The maximum values in the other wells in this area range from 100 to 200 dis/min/liter. The average values range from 64 to 96 dis/min/liter. These values are, in general, confirmed as uranium by fluorophotometer analyses. The total amount of water used in the 300 Area for the month of June as reported by the Power Division was approximately 26,000,000 gallons. This would amount to 12 - 13 pounds of uranium pumped from the wells. Sporadic results of 2.0 - 3.5 dis/min/liter of alpha emitters were found in the Benton City water, Kennewick, Pistol Range, and several Richland wells. These were not duplicated by any other samples during the month. No sample of drinking water gave a value of beta activity as high as 5×10^{-5} μc/liter.

Fifteen test well samples were taken with no detectable alpha or beta contamination.

Fifty-three samples of Columbia River water were taken. One sample from Hanford and two from Richland showed trace amounts of 2 - 5 dis/min/liter of alpha activity. It was impossible to resample the Richland location because of the flood. The maximum beta reading was 2×10^{-4} μc/liter from a Hanford sample. A series of fifty samples taken from the banks of the Columbia River in Richland, 300 Area, and Hanford after the ruptured slug at 100-F gave less than 5×10^{-5} μc/liter. Six samples of Yakima River water were taken with no positive result for either alpha or beta activity.

Atmospheric Monitoring

The integrons and "C" Chambers indicated average dosage rates as follows:

Location	Integrons (mrep/24 hours)		C Chambers (mrep/24 hours)	
	May	June	May	June
100-B	<0.1	0.2	0.3	0.3
100-D	0.2	0.8	0.3	0.3
100-F	0.6	0.9	0.3	0.3
200-W	0.4	0.7	0.3	0.3
200-E	1.0	1.1	0.5	0.5
Riverland	2.0	3.3	---	---
Hanford	0.6	0.4	---	---
300 Area	1.0	1.4	0.5	0.5
700 Area	<0.1	<0.1	---	---
Kennewick	<0.1	<0.1	---	---
Pasco	0.2	0.2	---	---
Benton City	0.8	0.9	---	---

Detachable chamber readings in Hanford, TX, DR, and White Bluffs construction areas were 0.63, 0.43, 0.65, 0.74 mrep/24 hours respectively. The maximum eight hour reading on a CI Unit was 2.0 x 10-7 μc/liter at Gable Mountain. The highest average concentration for the month was 1.8 x 10^{-9} μc/liter at the 200 East Area. Air filters at the Hanford White Bluffs, and 105-DR areas indicated average concentrations of 1.3 x 10^{-10}, 3.5 x 10^{-10}, and 3.9 x 10^{-10} μc/liter respectively. Ninety-two rain samples were collected. The maximum rain sample was 7.5 x 10^{-3} μc/liter from the 200 East Area. The maximum off-area rain sample was 4.1 x 10^{-4} μc/liter from Richland.

Land and Vegetation Contamination

The average vegetation contamination was as follows:

Location	Average for May	μc I^{131} per kg. June	
		Maximum	Average
North of 200 Areas	<0.04	0.08	<0.04
Near the 200 Areas	0.08	0.40	0.07
South of 200 Areas	0.04	0.13	<0.04
Richland	<0.04	0.07	<0.04
Pasco	<0.04	0.11	<0.04
Kennewick	<0.04	0.11	<0.04
Benton City	<0.04	0.04	<0.04
Richland "Y"	<0.04	<0.04	<0.04
Hanford	<0.04	0.06	0.04

Samples of vegetation from areas formerly covered by the flooded Columbia River indicated little activity. Twenty-nine samples from Rattlesnake Mountain gave a maximum value of 0.11 μc/kg and an average 0.04 μc/kg. Forty-five samples were taken around Goose Egg Hill and between the 300 Area and Hanford. The maxima were 0.14 and 0.12 μc/kg while the averages were 0.08 and 0.08 μc/kg respectively. A series of soil samples were collected from vegetation sampling spots and counted for beta emitters. The values to date are consistent with former measurements of the K^{40} activity.

Geology

Wells 361-B-1, 3 and 4 continue to give positive indications of beta activity in samples from the water. While there is considerable variation in individual results a definite trend to lower values is observed when the data is plotted. The observed times for a reduction by a factor of two vary from about 40 days in Well #361-B-3 to 160 days in Well #361-B-1. This reduction in activity is probably mostly due to dilution in the water table and only slightly to radioactive decay.

Health Instrument Division

Two of the nine wells scheduled for drilling in the vicinity of the "5-6" tile field were spudded in on 6/25/48. It is planned to use two rigs for drilling the wells. Each 5 foot interval sediment sample will be checked in the field for contamination.

Well 241-T-361 was inspected and found to contain no water. It was planned to obtain water samples from the well to determine if the ground water in this area had been contaminated. (This well was originally to be used as a waste disposal unit, however, the well was abandoned after it was drilled 2 feet into the water table).

Sediment samples were obtained from the three accessible blanks in the H. I. shaft and analyzed in 222-U laboratory. All blanks are located 18 feet from the center of the crib.

Distance Beneath Crib	222-U Analysis	
	µg Pu/kg	uc f.p./kg
5 feet	$< 4 \times 10^{-2}$	Approx. 0.20
18 feet	$< 4 \times 10^{-2}$	Approx. 0.13
29 feet	$< 4 \times 10^{-2}$	Approx. 0.22

The following table shows the 222-U laboratory results of the analysis of one gram of the sediment samples which were obtained with the soil sampler in 241-T Area.

Well No.	Depth	Sample Size	µg Pu/kg	uc f.p./kg
241-T-2	45'	10.4 grams	10	Approx. 13.70
241-T-3	45'	(no sample)	--	--
241-T-3	45'	1.9 grams	Approx. 0.48	Approx. 0.40
241-T-3	40'	5.6 grams	Approx. 0.26	Approx. 0.06

The sampler would not operate after taking the last sample and has been taken to the Maintenance Shop for repairs.

The following table shows the status of the wells on Project C-133 as of 6/25/48 with four drilling rigs now being used.

Well No.	Final Depth On 6/25/48
60-60	Completed at 128' on 6/1/48
55-50	Completed at 108' on 5/29/48
54.5-42.5	Completed at 209' on 6/4/48
55-70	Completed at 205' on 6/16/48
45-69.5	Completed at 368' on 6/22/48
46-42.5	Completed at 189' on 6/22/48
*35-40	Completed at 130' on 6/24/48
49-79	Completed at 255' on 6/24/48
50-30	315'
47.5-60.5	20'

*Well #35-40 was abandoned before reaching the water table after the casing was deflected so sharply that a 6-inch drilling bit with shortened stem could not be used. The action of the bit at this depth indicated a bed of large gravel on top of basalt. Two 500 ml water samples from each of the completed water wells were analyzed in 222-U laboratory. All results were $<2 \times 10^{-5}$ uc/kg and <10 d/m/liter.

The geologic and graphic logging of the observation wells are being kept up to date.

Three men from the U.S.G.S. are now following the drilling of the observation wells. Each man is at a different drilling machine and is inspecting all sediments removed from the wells. Their work is proceeding satisfactorily.

Meteorology

The weather for June, 1948, was featured by the unusually stormy period from the 8th to the 16th inclusive.
In this 9-day period:

1. Precipitation totaled 1.37 inches. This was more than three times the normal amount for the entire month and this amount, by itself, was sufficient to establish this as the second wettest June on record in this locality.

2. Rain fell on all but two days with daily amounts varying from .01 to .49 inches.

3. One or more thunderstorms occurred on all but two days.

4. There was a high wind and duststorm in which the velocity at the 400 foot level reached 84 mph, the highest wind yet recorded at that level.

5. Fog occurred for a short time during the early morning of one day. Fog in the summertime is practically unknown in this locality.

6. One tornado occurred, the first such storm yet observed from Building 622 and one of the very few ever to be observed in the State of Washington. The tornado occurred on the 16th and was observed for 12 minutes (1000 to 1012). It was located southeast of Building 622 near the east end of Rattlesnake Mountain. The bottom of the funnel raised and lowered, but appeared to remain continuously above the surface of the ground and there was no known damage resulting from the storm.

Mean temperature for the month of June 1948, was 72.5, or 2.9 degrees above the normal. This was the warmest June yet experienced at 622 Building and broke a chain of four consecutive months in which temperatures have averaged below normal. An examination of Hanford records from 1912 to 1942 inclusive shows that on only four occasions was the mean temperature as high as, or higher than, the mean for June, 1948, at 622 Building. The highest was 75.4 in 1922.

Precipitation for June, 1948, totaled 1.47 inches - all but 0.10 inch of which came during the previously mentioned 9-day stormy period from the 8th to the 16th. The wettest June during the period of Hanford records (1912-1942 incl.) was in 1938 when precipitation totaled 1.78 inches.

Precipitation for the first six months of the year 1948 totals 6.25 inches, which is more than the normal for an entire year in this locality. Precipitation during the past 12 months (July 1, 1947 to June 30, 1948) totals 12.74 inches. This is the wettest 12-month period in the 34 year history of precipitation records in this locality.

Bioassay

Four hundred and thirty-eight urine samples were analyzed for plutonium. Nineteen resamples were necessary this month because of high results obtained on several groups of samples. Three of the resamples from last month have been completed and found to fall below the detection limit. The others are in process.

Forty-seven urine samples, one hundred and eight water samples, and fifty-four hexone samples were analyzed on the fluorophotometer. Four urine samples showed greater than 10 μg U/liter.

Two urine samples were analyzed for polonium by plating on a silver foil. Test runs indicated a yield of sixty-four percent. The two samples indicated less than 0.8 d/m excreted with a spike yield of seventy-four percent.

Nine samples were obtained from men exposed to fumes from the burning of a neoprene seal in the 100 Areas. An analysis of a portion of the seal indicated that the activity was mainly S^{35} with some C^{14}. The samples were analyzed for S^{35} and C^{14} by combustion and collection of the gases. Some high values were obtained but were shown to be due to a 1 Mev. beta particle. It is believed that these results are due to K^{40} but a closer check is being made to set the limits accurately.

Biological Monitoring

Rabbits at liberty in the vicinity of the 221 Building and in the area

between 200 West and 200 East were found to have more radioactive thyroids than animals fed controlled rations.

Organ	Litter mates after 7 weeks exposure Vicinity 221 Bldg., μc/kg		Wild Jackrabbits Area Between 200-W & 200-E	
	Animal in Cage	Animal at Liberty	Caught 5/19/48	Caught 6/21/48
Thyroid	$< 4 \times 10^{-2}$	3	1	1
Blood	$< 7 \times 10^{-3}$	$< 1 \times 10^{-3}$	2×10^{-3}	$< 9 \times 10^{-3}$
Muscle	$< 5 \times 10^{-3}$	$< 8 \times 10^{-3}$	$\sim 3 \times 10^{-3}$	$\sim 4 \times 10^{-3}$
Spleen	$< 1 \times 10^{-2}$	$< 2 \times 10^{-2}$	---	---
Liver	$< 3 \times 10^{-3}$	8×10^{-3}	$< 4 \times 10^{-3}$	$< 2 \times 10^{-3}$
Kidney	$\sim 4 \times 10^{-3}$	1×10^{-2}	$\sim 4 \times 10^{-3}$	---
Lung	$< 6 \times 10^{-2}$	Negative	$< 3 \times 10^{-3}$	---
Bone	$< 2 \times 10^{-3}$	1×10^{-2}	1×10^{-3}	$< 5 \times 10^{-3}$
Feces	$\sim 1 \times 10^{-3}$	8×10^{-2}	3×10^{-3}	8×10^{-3}
Embryo-thyroids				7,11,12 & 23 μc respectively

Two wild rats were monitored with the following results:

Caught At	Activity in μc/kg bone and muscle
200 West	3×10^{-3}
200 East	3×10^{-2} (slow decay rate)

Aquatic Biology

Observations on young chinook salmon being exposed to varying concentrations of area effluent water generally continue to confirm those reported last month. However, mortality among fish held in the 1:10 dilution increased considerably during the last two weeks, possibly due to increased water temperature.

The young trout fry propagated from adult rainbow trout which had been held in Retention Basin water have been pooled into six groups.

Female crayfish bearing eggs, collected from the Columbia River last fall, have been maintained in straight river water and in 1:10 and 1:4 dilutions of Retention Basin water. Hatching of the eggs during the past few weeks has shown no evident influence of effluent concentrations on their viability.

The high water of the Columbia River has made it impractical to collect field samples during this month. Collections can probably be started again in July.

Experimental Animal Farm

In continuation of the pilot experiment to test procedures for use on the Animal Farm, one sheep and six rabbits have been fed daily doses of I^{131}. To the sheep, receiving 10 μc per day, a total of 490 μc has been fed to

date. Radioactive excrement has been used to test whether rubber matting may be employed as floor covering on the Animal Farm. It has been found that simple washing with cold water removes activity from the matting even after drying. Of interest to waste disposal problems, I^{131} activity concentrates three to four-fold in the sludge of mixed excrement. Although activated carbon was observed to adsorb 80-90% of the activity from a solution of I^{131} as the iodide, in the presence of urine the adsorption properties rapidly failed. Filtering urine through soil was unsatisfactory in removing activity.

The six rabbits were divided into two groups of threes. One group received 3 μc/day and the other 5 μc/day. On June 29 one of the rabbits in the 5 μc group expired from the heat and beta activities in muscle, soft tissue, and thyroid were determined. To date the five rabbits have been on I^{131} for three weeks. Complete blood count and weight records are being kept.

For both the sheep and rabbits, activities in urine and feces are being determined.

Methods Development

A series of thirteen 24-hour runs was made on the "T" Plant stack effluent using small asbestos filter papers backed up with a scrubbing column of dilute sodium hydroxide. The aliquot sampled was 0.2-0.3 CFM. The filter paper appears to catch the long lived activity nearly quantitatively while the scrubber catches the I^{131}. The efficiency of the filter paper for collection of I^{131} was 3-4% for the thinner paper currently being used and 12-20% for a thicker paper being used by the Technical Division. The total activity discharged from the stack was estimated to vary from 0.17 curies per day of which an average of 47% was iodine. Individual values of the I^{131} percentage varied from 30% to 70%.

The caustic extraction procedure for analysis of I^{131} in vegetation has been modified to allow use of a 5 gram sample. An additional aluminum hydroxide precipitate has been added to remove most of the colloidal vegetation. Consistent yields of 75-80% have been obtained on several groups of samples spiked with a known amount of I^{131} as the iodide.

Samples were taken of the 100-F gas stream during a shutdown and after startup. The sample during shutdown gave 0.31% CO_2 and 0.024% CO with 2.9×10^{-2} μc/liter as $C^{14}O_2$ and 5.5×10^{-4} μc/liter as $C^{14}O$. The sample while the pile was operating gave 0.29% CO_2 and 0.054% CO with 4.0×10^{-2} μc/liter as $C^{14}O_2$ and 4.8×10^{-3} μc/liter as $C^{14}O$. This increase tends to indicate the N(n,p)C reaction to be the one mainly responsible for the C^{14} activity. The 100 Area Technical group submitted a sample from 30 liters of gas from the 100-F Pile. This sample showed 1.6×10^{-3} μc/liter as $C^{14}O_2$ and 4.9×10^{-4} μc/liter as $C^{14}O$. The analysis of the precipitates indicated 2.1% CO_2 and

0.6% CO, although the orsat analysis showed 0.1% CO_2 and 0.3% CO. Two samples were submitted by Technical from the analysis of CO_2 and CO in an experiment in which they canned active and inactive graphite with various gases. The total activities were 4.9 x 10-2 μc as $C^{14}O$.

Two rotameters are now available with ranges to 5 CFM and 20 CFM for standardizing air flow measurements in the group. Several spare tubes and floats are being turned over to the Alternate group for assembly as secondary standards.

Methods Control

A piece of an A.E.C. truck roofing was submitted for alpha emitter analysis. The contamination was found to be nearly all polonium. Some specks found near the miscellaneous storage building in the 100 Areas were shown to contain radio-iron. A sample of white powder from the inner rod room at 100-F was shown to contain radio-calcium. Some rust-like material from the #30VSR thimble at 100-F was shown to be mostly iron with the activity due to radio-iron. Several contaminated particles found early in the month in 105-F were examined and the activity was found to be about 85% from iron and about 5% from calcium. The remaining 10% had a 1 to 3 day half-life had has been tentatively identified as germanium or arsenic. A series of analyses for F.P's and iron were run on samples of water and crud from 107-F. Traces of F.P.'s were found. Eighteen air filters from 231 were counted directly and analyzed for total alpha emitter by ether extraction. An average factor of 1.5 or a yield of 65% was found for the direct counting method.

A circular calculator has been designed for a scale of 64 to allow subtraction of the background, calculation to c/m, and calculation of the reliable error in one operation. Several of these units are now being drawn for reproduction. Other calculators are being designed to provide conversion of counting room results to microcuries with all known correction factors added. Effective June 30, 1948, all alpha analyses on water samples will be done by ether extraction. An investigation into counter calibrations indicated that some of the machined sample holders are inaccurate. Since a vertical displacement of 0.001" in the sample position on the first shelf changes the geometry by 2%, plans are now being made to obtain very accurate sample holders and shelves.

A total of 5172 measurements were made on samples in the counting room. In addition, 11 absorption curves, 318 decay points, and 921 control points were measured.

Health Instrument Division

Instrument Development

Portable Poppy operation was generally unsatisfactory because of surface leakage caused by high humidity. Work is in progress to determine whether coating, wax enclosure or complete sealing of the high voltage system is needed.

The pulse analyzer was built into a relay rack and tested electronically while awaiting a precipitated sample containing plutonium.

Alpha probe studies were hindered by humidity and some work was done with insulating coatings to minimize that interference. A progress report covering all work to date was begun.

A portable alpha counting chamber and amplifier, for emergency service was completed. Microphonic response is not as satisfactory as stationary instruments, but geometry is 50%.

A Simpson proportional counter was adapted to count beta particles by increasing the high voltage to about 3500. Approximately 50% Geometry results, and background is about 100 c/m, comparing favorably with the Nucleometer.

A Berkeley Scientific Company "Decade Scaler", scale of 1000, was tested and found to perform satisfactorily up to 430,000 uniformly spaced counts per minute, at which rate its register failed. Attempts to test the scaler with random G.M. tube counts showed that at rates in the order of 100,000 c/m, the thin walled glass tubes exhibit a "memory", which invalidates the test. However, this phenomenon is probably as worthy of study as mica window fatigue. Some further work will be done in this group.

Physics

The fast neutron film exposed at the "B" experimental hole and the associated calibration films were completed this month. The value for the fast neutron flux density at the open "B" hole given by these measurements is 10^5 neutrons per second per square centimeter, subject to the uncertainties in the calibration mentioned last month. The remaining backlog of microscope work amounts to about 20 hours, and even with vacations it should be possible to complete this in the coming month.

The work on the new neutron sources reduced the time available for the extrapolation chamber. There appear to be only two major questions still to be answered; the different current values obtained by collecting positive and negative charges, and the matter of obtaining the beta dose in the presence of alpha radiation. Some work has been done with absorbers this month and is being continued.

Considerable time has been spent on the problems connected with the transfer of the new high flux neutron sources to new capsules and new shield containers, a job made necessary because polonium contamination was found inside the shield in which the sources were shipped. Working in collaboration, the Instrument Development group, members of the Technical Division and the Physics group have designed and had built new capsules into which the sources will be placed, a stringer for the calibration pile so that the new sources may be compared to the old radium-beryllium sources, and have refined a procedure for transferring the sources to the new capsules. Design for the shield containers will be completed shortly and considerable experimentation has been done in an attempt to arrive at the optimum amount of boron in a boric acid-paraffin mixture for filling the shield container.

Calibrations

The routine calibrations were:

RADIUM CALIBRATIONS	Number of Calibrations May	June
Fixed Instruments		
Gamma	539	480
Portable Instruments		
Alpha	53	53
Beta	80	94
Gamma	389	429
X-Ray	5	0
Neutron	45	3
Total	572	579
Personnel Meters		
Beta	885	861
Gamma	8,210	9,560
X-Ray	7,651	9,155
Neutron	---	---
Total	16,746	18,776
GRAND TOTAL	17,857	19,835

ACCOUNTING DIVISIONS

JUNE 1948

GENERAL

During June, considerable time was devoted to working out problems in connection with the decentralization of the Accounting Divisions. Detailed procedures are being prepared.

A revised plan effective January 1 1948, covering the payment of increased vacation allowances to employees, who have been working overtime, was covered by H. W. Instruction Letter No. 23, Supplement No. 1, Revision No. 1, dated June 22, 1948.

The Monthly, Weekly and Subcontractors' Payroll Divisions were placed on a 48 hour week in order to handle the increased volume of work.

Government reimbursements are current and following is comparison of unreimbursed charges as of June 30, 1948 with May 31 1948.

	May 31, 1948	June 30, 1948
Billed on Public Vouchers	$ 8 020 563	$ 5 289 709
Submitted on Pre-Billing Audit Vouchers	2 036 746	3 288 586
Unbilled	8 508 475	3 269 362
Total	$18 565 784	$11 847 657

Unbilled charges for May 31, 1948 includes accrued liabilities which had not been paid. Effective with this report, as reflected in the figures for June 30, 1948, unbilled charges include only items disbursed.

STATISTICS

Employees and Payrolls	Total	Monthly Payroll	Weekly Payroll
Employees on payroll at beginning of month	8 274	1 680	6 594
Additions and transfers in	515	66	449
Removals and transfers out	(131)	(19)	(112)
Transfers from Monthly to Weekly Payroll	--	(1)	1
Transfers from Weekly to Monthly Payroll	--	11	(11)
Employees on payroll at month end	8 658	1 737	6 921
Gross amount of payroll - June (5 weeks)	$3 312 408	$805 173	$2 507 235
Gross amount of payroll - May (4 weeks)	$2 604 788	$777 695	$1 827 093
Annual going rate of payroll - June	$36 512 519	$9 715 377	$26 797 142
Annual going rate of payroll - May	$33 479 123	$9 363 845	$24 115 278
Average salary rate per hour - June	$1.820	$2.515	$1.648
Average salary rate per hour - May	$1.862	$2.554	$1.666

Overtime payments	May	June
Weekly Payroll		
Number	6 294	14 153
Amount	$111 975	$273 337
Monthly Payroll	$ 45 232	$ 50 480
Number of changes in Salary Rates and Job Classifications and transfers between Divisions	1 022	813

Employee Plans

Pension Plan	May	June
Number participating at beginning of month	4 510	4 615
New participants and transfers in	131	174
Removals and transfers out	(26)	(35)
Number participating at month end	4 615	4 754
% of eligible employees participating	97.6%	97.4%
Employees Retired	June	Total to Date
Number	5	27
Aggregate Annual Pensions including Supplemental Payments	$1 260	$4 477
Amounts contributed by employees retired	$ 350	$1 220

Group Life Insurance	May	June
Number participating at beginning of month	5 403	5 540
New participants and transfers in	230	142
Cancellations	(19)	(18)
Removals and transfers out	(74)	(70)
Number participating at month end	5 540	5 594
% of eligible employees participating	75.1%	74.2%

Employee Plans (continued)		
Insurance Claims	**June**	**Total to Date**
Number of deaths	--	13
Amount of Insurance	--	$73 023
Amount contributed by employees	--	$ 603

Group Disability Insurance - Personal	**May**	**June**
Number participating at beginning of month	6 511	6 684
New participants and transfers in	251	192
Cancellations	(8)	(7)
Removals and transfers out	(70)	(84)
	6 684	6 785
% of eligible employees participating	91.4%	90.6%

Group Disability Insurance - Dependent		
Number participating at beginning of month	4 021	4 079
Additions and transfers in	110	99
Cancellations	(15)	(10)
Removals and transfers out	(37)	(37)
Number participating at month end	4 079	4 131

Group Disability Insurance - Claims		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	78	80
Daily Hospital Expense Benefits	76	79
Special Hospital Services	72	77
Surgical Operations Benefits	51	50
Dependent Benefits Paid		
Daily Hospital Expense Benefits	93	104
Special Hospital Services	91	107
Amount of claims paid by insurance company:		
Employee Benefits	$8 291	$8 474
Dependent Benefits	3 496	3 814
Total	$11 787	$11 288

Group Disability Insurance - Premiums		
Personal - Employee Portion	$11 310	$11 559
- Company Portion	6 848	7 021
- Total	18 158	18 580
Dependent - Employee Portion	3 671	3 717
- Company Portion	405	404
- Total	4 076	4 121
Grand Total	$22 234	$22 701

Annuity Certificates (For du Pont Service)	**June**	**Total to Date**
Number issued	3	50

Employee Plans (continued)

U. S. Savings Bonds

	May	June
Number participating at beginning of month	2 622	3 450
New authorizations	864	310
Voluntary cancellations	(25)	(43)
Removals and transfers out	(11)	(16)
Number participating at month end	3 450	3 701
% participating	41.7%	42.5%
Bonds issued - maturity value	$153 600	$222 175
- number	3 911	5 786
Refunds issued	24	39
Revisions in authorization	502	278

Suggestion Awards

	June	Total to Date
Number of Awards	18	155
Total amount of Awards	$195	$1 585

Security Slogan Awards

Number of Awards	--	7
Total amount of Awards	--	$175

Employee Sales Plan

	June		
	Total	Major Appliances	Traffic Appliances
Certificates issued	246	38	208
Certificates voided	11	2	9

Salary Checks Deposited

	May	June
Weekly	1 023	1 037
Monthly	827	830
Total	1 850	1 867

Special Absence Allowance Requests

Number Submitted to Pension Board	4	5

Absenteeism (Weekly Paid Employees)

	1947	1948
January 1 to June 30	1.87%	2.42%

4.

Subcontractors' Payrolls Number of Subcontractors' Employees on Payroll At End of Month	May	June
Cost-Plus-A-Fixed-Fee Subcontractors		
Guy F. Atkinson Company and J. A. Jones Construction Company	9 643	9 704
Sub-subcontractors		
Newbery-Neon Company	709	723
Urban, Smyth, Warren Company	1 106	1 057
*Newport, Kern & Kibbe	12	13
*Mehring & Hanson	83	33
*W. S. Jenkins	26	24
*Graysport Construction Company	123	130
*E. L. Knight Electric Company	28	13
*Rust Engineering Company	0	7
The Kellex Corporation	465	456
Giffels & Vallet, Inc.	160	179
National Carbon Company	232	274
C. C. Moore & Company, Engineers	1	63
J. A. Terteling & Sons, Inc.	585	587
Sub-subcontractors		
*Graysport Construction Co.	44	33
*Estep Electrical Co.	16	9
*J. P. Head Plumbing Co.	15	25
Morrison-Knudsen Co., (Tank Farm)	707	770
Sub-subcontractors		
Trowbridge & Flynn Electric Company	16	17
Morrison-Knudsen Co., (Track Maintenance)	147	232
McNeil Construction Company	395	568
Sub-subcontractors		
*Holert Electrical Co.	0	10
*Arnold & Jeffers	0	27
*Fox Metal Products	0	6
Lump Sum Subcontractors		
C. C. Moore & Company, Engineers	3	3
John L. Hudson	59	5
Sub-subcontractors		
Payne Plumbing	5	0
E. L. Knight Company	1	0
Permawall Construction Company	17	0
B.K.V. Heating Company	1	0
J. P. Head	6	0
L. D. Reeder	5	0
J. Gordon Turnbull, Inc.	45	80 **
Curtis Gravel Company	1	8
DeWitt C. Griffin & Associates	3	3 **

Subcontractors' Payrolls (continued)	May	June
Nettleton, Baldwin, Sound Construction Co.	345	564
Sub-subcontractors		
Paul Thorgnard Plumbing Co.	52	72
Curtis Gravel Co.	33	27
Holert Electrical Co.	8	13
Chris Berg	8	30
Pacific Roofing	0	13
Central Service	0	8
Charles Swanson	0	9
Taylor Bros.	0	7
Builder's Insurance Co.	0	3
X-Ray Products Co.	38	1
Kelly Wells Co., Inc.	5	4
Strasser Drilling Co.	4	4
Raymond Pile Co.	15	0
Total	15 167	15 814

* Lump Sum Sub-subcontractor operating under a Cost-Plus-A-Fixed-Fee Subcontractor.

** Estimated

SUMMARY OF PAYROLL REIMBURSEMENTS TO SUBCONTRACTORS

Subcontractor	Payrolls		Taxes & Welfare Plans (Employer's Portion)	
	This Month	Total To Date	This Month	Total To Date
Atkinson-Jones	$3 277 084.18	$22 323 347.08	.00	$474 120.87
Newbery-Neon	314 398.10	1 575 223.48	.00	27 066.74
Urban, Smyth and Warren	425 566.16	2 704 171.41	.00	48 390.15
Morrison-Knudsen	302 041.83	1 541 916.70	.00	19 355.58
Trowbridge & Flynn	12 463.15	49 857.35	.00	818.30

Subcontractors' Payrolls (continued)

Subcontractor	Payrolls This Month	Payrolls Total To Date	Taxes & Welfare Plans (Employer's Portion) This Month	Taxes & Welfare Plans (Employer's Portion) Total to Date
J. A. Terteling	$225 947.40	$453 652.26	$ .00	$1 452.00
C. C. Moore	3 871.58	54 864.98	.00	.00
Mc Neil	178 782.74	222 620.34	.00	.00
Kellex	(1) 79 181.16	549 990.72	3 893.11	27 062.87
National Carbon	1 474.00	7 882.00	2.08	120.00
Giffels & Vallet	(2) 79 309.68	315 814.92	.00	.00
Totals	$4 900 119.98	$29 799 341.24	$3 895.19	$598 386.51

(1) Vacation Accrual amounting to $19 583.36, previously reported as Taxes and Welfare Plans (Employer's Portion) transferred to payrolls on this report.

(2) Overhead Charges (60% of Gross Technical Payroll) amounting to $9 504.85, previously reported as Taxes and Welfare Plans (Employer's Portion) transferred to Payrolls this report.

Subcontractor	SUBCONTRACTOR'S PAYROLLS AUDITED Period This Month	Covered Total To Date	Gross This Month	Amount Total to Date
Atkinson-Jones	5/2/48 to 6/5/48	7/25/47 to 6/5/48	$4 059 377.52	$20 988 145.72
Newbery-Neon	5/2/48 to 6/5/48	10/7/47 to 6/5/48	357 699.59	1 448 304.62
Urban, Smyth and Warren	5/2/48 to 6/5/48	10/8/47 to 6/5/48	634 098.28	2 525 209.06

Accounting Divisions

Subcontractors' Payrolls (continued)

Subcontractor	SUBCONTRACTOR'S PAYROLLS AUDITED Period Covered This Month	 Total To Date	Gross Amount This Month	 Total To Date
Morrison-Knudsen	5/23/48 to 6/19/48	12/4/47 to 6/19/48	$305 068.14	$1 552 144.57
Trowbridge & Flynn	5/16/48 to 6/19/48	1/14/48 to 6/19/48	12 589.15	52 481.98
J. A. Terteling	5/17/48 to 6/20/48	3/1/48 to 6/20/48	224 458.69	474 772.46
C. C. Moore	5/20/48 to 6/23/48	12/17/47 to 6/23/48	4 263.13	61 626.47
Mc Neil	5/24/48 to 6/27/48	4/23/48 to 6/27/48	180 655.90	224 997.97
Kellex (1)	5/1/48 to 5/15/48	9/15/47 to 5/15/48	98 764.52	549 990.72
National Carbon (1)	5/1/48 to 6/30/48	8/1/47 to 6/30/48	1 474.00	7 882.00
Giffels & Vallet (1)	5/9/48 to 6/5/48	10/2/47 to 6/5/48	89 922.52	322 696.10
Total			$5 968 371.44	$28 208 251.67

(1) Audited by Atomic Energy Commission

Accounting Divisions

General Accounting

Payments Made to Subcontractors thru June 30, 1948

		Contract No.	Commitment To Date	Amount Paid To Date	Amount Withheld 6-30-48
Morrison-Knudsen Co., Inc.		G-110	$1 807 394.25	$1 807 394.25	Retainer Pd.
X-Ray Products Corp.		G-115	59 238.40	59 238.40	Retainer Pd.
Atkinson-Jones	CPFF	G-133	59 211 123.58		
Payrolls				27 152 319.73	$499 182.22
Other (1)				21 150 133.43	-0-
Lone Pine Roofing Co.		G-134	52 875.13	52 875.13	Retainer Pd.
National Carbon Co., Inc.	CPFF	G-135	1 661 500.00		
Payrolls				8 002.00	-0-
Other (2)				1 893 300.48	-0-
Graybar Electric Co.		G-136	422 981.00	70 228.40	-0-
G. A. Pehrson and Associates		G-137	18 700.00	15 895.00	-0-
John S. Villesvik		G-138	3 013.50	3 013.50	-0-
H. Brandt Gessel and Associates		G-139	10 766.50	2 787.50	-0-
DeWitt C. Griffin and Associates		G-141	205 524.00	183 121.88	20 346,88
John L. Hudson and Associates		G-142	4 896 736.21	4 780 903.16	-0-
Catlow Transport Co.		G-143	313 640.92	310 840.92	Retainer Pd.
Northwest Hauling Co.		G-144	155 403.07	155 403.07	Retainer Pd.
Sperry Products Co.		G-147	1 875.00	1 875.00	-0-
The Kellex Corp.	CPFF	G-148	1 158 915.41		
Payrolls				577 053.59	-0-
Other (3)				557 027.18	-0-
Catlow Transport Co.		G-149	25 426.00	25 426.00	Retainer Pd.
J. Gordon Turnbull, Inc. Graham, Anderson, Probst and White as Joint Venturers		G-150	497 245.00	-0-	-0-
Giffels and Vallet, Inc.	CPFF	G-151	414 341.44		
Payrolls				315 814.92	6 881.18
Other (4)				86 177.96	-0-
Fixed Fee			270 000.00	63 860.40	7 095.60
D. A. Whitley Co.		G-152	27 046.76	27 046.76	-0-
Roy L. Bair Co.		G-153	34 447.00	34 447.00	-0-
Sturm Elevator Co.		G-155	4 145.00	4 145.00	-0-
C. C. Moore and Co. Engineers		G-157	61 626.47		
Payrolls	CPFF			54 864.98	6 761.49
Lump Sum			304 287.00	92 523.87	10 280.43
Sturm Elevator Co.		G-158	2 218.00	2 218.00	-0-
Curtis Sand and Gravel Co.		G-159	305 000.00	55 947.06	6 216.34
Morrison-Knudsen Co., Inc.	CPFF	G-160			
Payrolls			)	1 611 947.93	12 852.50
Others			) 2 672 343.94	728 339.70	-0-
Fixed Fee			95 000.00	47 025.00	5 225.00
J. A. Terteling and Sons Inc. (5)		G-161	450 000.00	200 000.00	-0-
Haughton Elevator Co.		G-165	338 304.00	-0-	-0-
Chicago Bridge and Iron Co.		G-166	35 454.00	31 908.60	3 545.40

General Accounting

Payments Made To Subcontractors Thru June 30, 1948 (continued)

	Contract No.	Commitment To Date	Amount Paid To Date	Amount Withheld 6-30-48
Great Lakes Carbon Corporation	G-167	$300 970.56	$300 970.56	-0-
Nettleton-Baldwin-Anderson and Sound Construction Co.	G-172	9 731 210.00	580.824.90	64 536.10
J. A. Terteling and Sons, Inc. CPFF	G-173	769 227.39		
Payrolls			455 104.26	21 120.20
Others			114 820.61	-0-
X-Ray Products Corporation	G-175	107 550.00	73 657.82	8 184.20
Morrison-Knudsen Co., CPFF	G-178	979 727.00		
Costs (Track Maintenance)			942 427.00	-0-
Fixed Fee (6)			33 670.00	6 270.00
Pacific Telephone and Telegraph CPFF	G-186	11 906.51	4 156.51	-0-
Graysport Construction Co.	G-187	20 500.00	14 429.70	1 603.30
McNeil Construction Co. CPFF	G-190	570 782.13		
Payrolls			222 620.34	2 377.63
Others			26 834.41	-0-
		$88 008 445.17	$64 932 621.91	$682 478.47

(1) Amount Paid includes Provisional Reimbursement in the amount of $18 400 417.49 of which $17 752 158.05 was liquidated by audited Atkinson-Jones billings.

(2) Amount Paid inclused $1 000 000.00 in advances

(3) Amount Paid includes $350 000.00 in advances

(4) Amount Paid includes $50 000.00 in advances

(5) Amount of Commitment estimated.

(6) Amount withheld includes $2 640.00 withheld by du Pont Company prior to September 1, 1946.

Construction Commitments and Expenditures	Commitments	Expenditures
July 1, 1947 to May 31, 1948	$103 545 107	$68 225 011
July 1, 1947 to June 30, 1948	$115 254 543	$78 255 587

Number of Accounts Payable Vouchers Entered	May	June
General Electric	5 650	5 892
du Pont	5	6
	5 655	5 898

10.

Accounting Divisions

General Accounting

	May	June
Amount of Accounts Payable Vouchers Entered		
General Electric	$11 756 397.71	$12 463 959.08
du Pont	258.65	103.59
Total	$11 756 656.36	$12 464 062.67
Amount of Checks Issued		
General Electric	$11 692 156.70	$12 519 542.00
du Pont	1 778.34	1 152.31
Total	$11 693 935.04	$12 520 694.31
Number of Checks Issued		
General Electric	3 853	3 882
du Pont	4	6
Total	3 857	3 888
Public Vouchers (1034) Submitted to AEC		
Vouchers not reimbursed at beginning of month	$ 7 414 396.25	$ 8 020 563.12
Vouchers submitted for reimbursement during month	15 485 187.39	16 221 511.14
	22 899 583.64	24 242 074.26
Vouchers reimbursed during month	14 879 020.52	18 952 365.66
Vouchers not reimbursed at end of month	$ 8 020 563.12	$ 5 289 708.60
Public Vouchers (1034) Submitted to AEC		
Number of vouchers not reimbursed at beginning of month	161	182
Number submitted during month	434	478
	595	660
Number reimbursed during month	413	530
Number of vouchers not reimbursed at end of month	182	130
Public Vouchers not Submitted to AEC		
Pre-Audit Vouchers (1035) Issued	$ 2 036 745.83	$ 3 288 586.28
Pre-Audit Vouchers (1035) not Issued	8 508 474.67	3 315 812.65
Total Unbilled Items	$10 545 220.50	$ 6 604 398.93
Number of Pre-Audit Vouchers Issued Awaiting AEC Approval	124	112

Accounting Divisions

General Accounting

Items Over 60 Days Old Not Billed to AEC on Public Voucher (1034)	May	June
Accounts Payable	$814 222.33	$639 524.34
Accounts Receivable	278.05 Cr	5.60 Cr
Freight	25 617.84	50 089.82
Payroll Deductions - F.O.A.B. Taxes	5 077.71	30 844.71
Subcontractor's Payrolls	210 842.99	250 045.06
Subcontractor's Retainers - Accrued	55 011.76	53 630.57
Continuity of Service - Accrued	195 103.85	353 951.12
Total	$1 305 298.43	$1 378 080.02

Cash Receipts - General Electric		
Accounts Receivable		
U. S. Government	$14 879 020.52	$18 952 365.66
Rents	82 045.85	81 887.39
Hospital	55 017.52	59 472.94
Telephone	4 736.71	5 532.67
Miscellaneous	2 120.10	2 421.56
Employee Sales	1 685.94	1 781.09
Bus Fares	7 481.15	9 201.20
Educational Program	461.35	204.65
Sale of Furniture	57 352.83	9 741.40
All Other	11 899.66	18 645.53
Total	$15 101 821.63	$19 141 254.09

Cash Receipts - du Pont		
U. S. Government	681.47	3 025.23
Hospital	47.50	60.00
Vendor's Refunds	682.29	45.78
	$1 411.26	$3 131.01

Cash Advances and Expense Accounts		
Cash Advance Balance at end of Month	$45 320.90	$38 556.12
Cash Advance Balances Outstanding over one month	3 895.90	3 272.10
Traveling and Living Expenses		
Paid Employees	$54 537.15	$53 245.48
Billed to Government	55 712.76	52 574.77
Balance in Variation Account at end of month	14 764.36 Cr	14 093.65 Cr

Accounting Divisions

General Accounting

Hospital Accounting	May	June
Accounts Receivable Balance at Beginning of Month	$52 008.74	$47 897.57
Total Invoices During Month	76 200.11	82 111.53
Total	$128 208.85	$130 009.10
Less Cash Received and Payroll Deductions	80 311.28	82 368.89
Accounts Receivable Balance at end of month	$ 47 897.57	$ 47 640.21

Property		
Number of Transfer Notices Received	469	464
Number of Items Affected	1 978	1 482
Number of Receiving Reports Classified	11 745	10 003
Number of Receiving Reports Vouchered	1 740	1 248
Number of Items Tagged at Beginning of Month	208 296	189 841
Number of Items Tagged this Month - Metal	2 972	1 801
Number of Tagged Items Dropped from record	(21 427)	(68 204)
Total Tagged Items Recorded	189 841	123 438
Number of Items Recorded in quantity only		
At Beginning of month	160 276	104 004
Items added to Record during month	1 595	24 972
Dropped from Record during month	(57 867)	(116 431)
Total Items Recorded in Quantity	104 004	12 545
Total Items on Record	293 845	135 983

PERSONNEL AND ORGANIZATION

	May	June
Number of employees		
On Payroll at beginning of month	259	265
Removals and transfers out	(10)	(10)
Additions and transfers in	16	24
Number at end of month	265	279
Net increase (or decrease) during month	6	14
% of terminations and transfers out	3.9%	3.8%
% of absenteeism	2.4%	3.0%

Reasons for increase of 14 in number of Accounting Division employees during June are as follows:

General: One employee (C. E. Reed) transferred from Hotpoint, Inc.

General Accounting: Net increase of seven employees.

Nine new hires
Two terminations

Weekly Payroll: Net increase of five employees.

Ten new hires
One transfer from Payroll to Labor Relations and Wage Rates
One granted leave of absence
Three terminations

Subcontractors' Payroll: Decrease of one employee

Two new hires
Three terminations

Cost: The Cost Analysis and Cost Sections have been combined. Net increase of two employees (new hires).

Injuries:

	May	June
Major	0	0
Sub-major	0	0
Minor	2	4

PERSONNEL AND ORGANIZATION (continued)

Number of Accounting Division employees and open employment requests as of July 1, 1948 were as follows:

	Number of Employees			Open Employment Requests			
	Non-Exempt	Exempt	Total	Replacements For Employees Removed	Replacements For Employees Leaving	Additions	Total
General	3	5	8	0	0	0	0
General Accounting	129	12	141	1	1	5	7
Weekly Payroll	58	6	64	2	0	4	6
Monthly Payroll	10	2	12	0	0	0	0
Subcontractors Payrolls	14	1	15	3	0	2	5
Cost	32	5	37	0	0	0	0
Methods	0	2	2	0	0	0	0
Total	246	33	279	6	1	11	18

Open replacements may be summarized as follows

Junior Clerks	4
Office Machine Operators	5
Typist	1
Office Helpers	8
Total	18

SECTIONAL ACTIVITIES

Cost

Favorable progress on sample reports and proposal for approval of revision to the cost accounting procedure was made during the month. As many people as possible were removed from routine work and assigned, part or full time, to assist T. R. Evans in this work, and to establish basis for distribution to Divisions receiving the services, such costs as telephone operations and maintenance, automotive equipment and maintenance, etc.

General Accounting

Accounts Payable

Accounts payable vouchers booked during June amounted to $12 463 959 and disbursements amounted to $12 518 234. The accounts payable balance at June 30, representing items booked but not paid was $717 318. All charges are booked immediately upon verification that they are in order thereby eliminating the need for month-end accruals.

Emphasis during the month was placed on billing to the Government of as many vouchers as possible. At the end of the month unbilled accounts payable vouchers amounted to $4 382 194, which primarily consisted of currently booked items. Unbilled vouchers booked prior to May 1, 1948 amounted to $639 524.

Atkinson-Jones provisional reimbursements in June amounted to $1 475 174. The difference between total provisional reimbursements to date and A-J vouchers received, audited, and credited to the provisional reimbursement account is $692 416.

The Freight Section received 1,379 freight bills from the Transportation Division during the month. Payments totaled $392 853. The amount of freight payments to date which have not been distributed to Cost is $ 7 359.

Accounts Receivable

Rent

The number of rented units of each type living facility, with the exception of barracks rooms, increased during June. This increase had a definite effect on the volume of work handled by this section.

Old houses are being leased as soon as they can be made ready for new occupants, after old occupants have moved out. Leases exist for all but one apartment and for all but five pre-cut houses.

General Accounting

Rent (continued)

As of June 30, rent is being collected for 4,407 Richland Houses, 73 Richland Apartments, 1,110 Richland Dormitory Rooms, 161 North Richland Houses, 1,893 North Richland Trailers, and 7,332 North Richland Barracks Rooms.

June rental revenue totaled $377 495 which includes $49 262 from facility operators.

U. S. Government

As June 30 was the end of the U. S. Government fiscal year, the AEC Finance Branch made every effort to clear all billings submitted on public voucher Form 1034 prior to that time. As a result, all vouchers submitted on Form 1034 for payment prior to June 30 were paid. The balance in this account representing vouchers dated June 30 represents 130 Form 1034 vouchers totaling $5 289 709.

Telephone

The moving of employees from old houses to new houses continued during June, and since no telephone facilities are available at the new houses, the number of residence telephones decreased from 2,402 in May to 2,386 in June.

In addition to the preparation of deduction lists which are forwarded to the Payroll Sections and the preparation of telephone statements which included charges for approximately 17,000 toll tickets, a total of 230 work orders for telephone moves were processed.

Total telephone revenue for the month was $16 099, an increase of $1 181 over May revenue.

Hospital Accounting

Revenue from hospital services in June increased over May revenue by $5 910 primarily due to North Richland Hospital's services being extended, effecting an increase in revenue of $3 308. There was a total of 12,786 invoices written recording sales of $82 110.

The effort to reduce the receivable balances was continued in June and although the sales at both hospitals increased, an overall decrease of $300 was reflected in the receivable balance.

Although the old accounts which are considered uncollectible are being assigned to the Atomic Energy Commission, none have been accepted and these accounts are still reflected in the balances.

Accounting Divisions

General Accounting

Property

Seven widely scattered receiving depots required coverage by Property employees, but because of the curtailment of work as a result of the regulation of eliminating items from the record which are under $50 in value, only seven men were required for work in the field. The rest of the field men were assigned to work in the office.

The write-off of items under $50 in value from the property record continued in June and 176,329 items were dropped. To date 255,623 items have been written off and those items yet to be taken from the record are border-line cases which will require time and study before action is taken.

Cash-Advances and Change Funds

Cash advanced for traveling and living expenses totaled $47 521.51 in June with $54 286.29 being accounted for through the submission of approved expense accounts or by refunding unused cash advanced. Accounts are being submitted promptly and prompt government approval of expenses billed has been secured.

For the first time since the establishment of the Traveling and Living Expense Variation Account this account reflected a decrease of $670.71 instead of a gain.

The Cash Change Funds amount to $4 485 and represents 37 individual active funds.

Billings to the Government

Expenditures billed the government during June exceeded those of any previous month. Total billings amounted to $16 221 511. Total billings to date amount to $126 132 470 and the unbilled amount to date, which does not include accruals for items not disbursed, is $6 557 948.

General Accounting

John L. Hudson & Associates

Payments to John L. Hudson & Associates under Subcontract G-142 through June 30, 1948 may be summarized as follows:

Total progress payments made to John L. Hudson under the original contract amount to.....	$3 288 810.48
Additional payments were made through March 31, 1948 under the Supplemental Agreement to Subcontract G-142 dated March 6, 1948 in the amount of.....	379 645.20
Payments made under this Supplemental Agreement in April amounted to.....	725 710.81
Payments made under Supplemental Agreement in May amounted to.....	356 926.22
Payments made under Supplemental Agreement in June amounted to.....	29 810.45
Total payments made to John L. Hudson through June 30, 1948	$4 780 903.16

June payments to Hudson consisted of reimbursement for:

Payments in June by John L. Hudson to Subcontractors.....$	7 126.94
John L. Hudson's payroll and other June expenses.....	22 683.51
Total payments to Hudson during June, 1948.....$	29 810.45

Payrolls

The AEC Audit Section called our attention to ten incorrect salary rates on the Monthly Payroll for May. These errors were typing errors and there were no incorrect salary payments. Complete audit by the AEC Audit Section of Weekly Payrolls for May revealed the follcwing errors:

1. One job code was omitted on the payroll journal.
2. There were nine cases of changes in vacation periods that were not corrected on the Payroll Journal.
3. Seventeen postings were illegible on the Government copy of the payroll.
4. There were four cases of deductions posted incorrectly, but payments were correct.
5. There were four rates shown incorrectly on the payroll although no error in payment occurred.
6. There was one error in calculation of the gross payment resulting in an underpayment to the employee amounting to $2.60.
7. An incorrect total gross amount was shown on one payroll journal sheet. However, the correct amount was used on the summary sheet. There were two compensating errors in division totals on the summary sheet.

Weekly and Monthly payrolls have been reimbursed by the government through the month of May 1948.

A National Cash Register Payroll Posting machine has been received for use in the Monthly Payroll Division and will be used beginning with the payroll for the month of July, 1948.

Beginning on June 25, 1948, weekly salary checks distributed to employees in the 700 and 1100 Areas were enclosed in "Strictly Private" envelopes. Weekly salary checks for employees in the outer areas will be enclosed in "Strictly Private" envelopes beginning July 16, 1948.

The work of maintaining Group Life Insurance records, formerly carried out in the office of the Secretary of the company, is being transferred from General Office to the various payroll divisions. This change will have the advantage of speeding up service to insured employees such as issuing and delivering the insurance certificates, effecting changes in beneficiaries, etc. In this connection, a manual for administering the Group Life Insurance Plan was prepared and issued by the Secretary's office to provide uniform handling and keeping of necessary records. A study was made of the manual and the necessary preliminary work has been accomplished to facilitate the transition to the new procedure at Hanford Works.

Payrolls (continued)

The following "Request for Reimbursement Orders" have not yet been approved by the Atomic Energy Commission:

Date of Request	Date Transmitted to Commission	Items Covered by Request
8/26/47	8/27/47	Seven exempt job classification for Design and Construction
8/26/47	8/28/47	Five exempt job classification for Construction Purchasing
8/26/47	8/28/47	Exempt job classifications for Expediting Supervisor and Expeditor
9/10/47	9/10/47	Exempt job classification for Construction Purchasing
6/22/48	6/22/48	Bonus payments in connection with Patent Applications filed on inventions by employees

Subcontractors' Payrolls

During June only two additional Reimbursement Orders, pertinent to Atkinson-Jones Sub-Contract G-133, were received. One approved classifications and rates for several Atkinson-Jones key employees and the other authorized for payment, the Atkinson-Jones policy of regarding hours paid to non-manual employees for accrued leave as hours worked when computing overtime for hours worked in excess of forty (40) in any week.

As Atkinson-Jones has reclassified those employees classified as Locomotive Brakemen to Switchmen, effective the date of their employment, Reimbursement Orders are needed for only the following to have complete approval for all rates paid by Atkinson-Jones to date:

Rates for Painter and Bricklayer Apprentices

Foreman differential for Sawfilers, Power Saw Operators, Millwrights, Piledrivermen, Shinglers, Sign Painters, Spray Painters, Shop Glazers and Steel and Plate Glazers

Premium payments to Carpenters for hazardous and onerous work and for hazardous work to Electricians, Cement Finishers and Painters.

Reimbursement Order #1, covering all revisions in salary and wage schedules and employment policies not heretofore covered by Morrison-Knudsen Sub-Contract G-1012 (Railroad Maintenance) was received from the Atomic Energy Commission during June.

Preliminary discussions were held during June with the representative from American Machine and Foundry Company, concerning the procedure to be followed in obtaining reimbursement for expenditures in connection with their cost-plus-a-fixed fee sub-contract.

SERVICE DIVISIONS
SUMMARY - JUNE 1948

Employee and Community Relations Division

Open requisitions for additional personnel decreased from 1,162 at the beginning of the month to 811 at the end of June. Accordingly, all help wanted advertisements for additional personnel were suspended. Applicant interviews decreased from 2,550 to 1,939 during June.

During the month, 1,259 contacts were made by Employee Relations Councelors. There were 1,349 new subscribers to U. S. Savings Bonds obtained during the recent bond campaign. Twenty-five per cent of plant personnel participated in this campaign, bringing the total plant participation to 50%. There were 18 suggestion awards, totaling $195, granted during the month.

Eight general news releases and 20 local news releases were issued by the Public Relations Group. Daily reports on flood conditions were made to Schenectady and to General News Bureau, as well as other news agencies in this community.

The Women's Activities Group started the Women's Training Program on June 14, consisting of eight weekly sessions, with 171 women employees in attendance.

Purchasing and Stores Division

Workload increased slightly over the previous month. Purchase requisitions on hand and unplaced at month end totaled 875 as compared with 777 at the end of the previous month.

Orders were placed under the Voluntary Steel Allocation program for our third quarter requirements.

Coal contracts were negotiated for village coal for an estimated total of 125,000 tons.

At month end, Stores stock that had to be physically removed from its previous location due to flood waters was being returned to the original warehouses. It is estimated that this activity will take approximately four more weeks.

Labor Relations and Wage Rate Division

Approval of the Request for Reimbursement Order in connection with the proposed wage structure was received from the Atomic Energy Commission June 7. On the basis of this approval, July 19 was set as the date when the new plan would become effective. The bulk of reclassification to new job titles has been finishe

On June 21 this Division assumed responsibility of administering progression schedules and furnishing such rate information to the Payroll Section. Records were set up to convert to the new progression schedules after July 19.

An analysis was conducted to determine the cost involved in weekly payroll by classification of all non-exempt employees from present job rates to proposed job rates as established by the Weed Report. This analysis revealed that 1.85 per cent reduction in payroll would result, but in applying a $5.00 per week Area Allowance for 2,198 employees there would be an increase to the total payroll of 0.64 per cent.

Plant Security and Services Division

There was one lost time injury this month. This increased the total number of lost time injuries for the year to five. Minor injury rate remained the same as the previous month.

There were 16 minor fires, resulting in a loss of $70.

Laundry volume increased 11% in the 200-West Laundry and 12% in the 700 Area Laundry. The 200-West Laundry has assumed responsibility for the monitoring operation for protective clothing formerly handled by the Health Instrument Division.

Effective June 7, 1948, patrolmen and firemen with their direct shift supervision were placed on a scheduled six-day work week. This was necessary in order to obtain sufficient manpower to meet post requirements jointly establishe by the Atomic Energy Commission and the General Electric Company.

SERVICE DIVISIONS

JUNE, 1948

EMPLOYEE AND COMMUNITY RELATIONS DIVISION

ORGANIZATION AND PERSONNEL

Employment

Effective June 7, a junior clerk, who has had over two years experience in the Employment Division, was engaged for the summer and assigned to the Investigation Group.

One stenographer attached to the Investigation Group was transferred to the Legal Division, effective June 14.

Two typists were added to the Procurement Group, one effective June 1 and the other effective June 17. One typist was added to the Investigation Group, effective June 4.

One office helper was added to the Procurement Group, effective June 25.

Employee Relations

One typist was added to the Insurance and Compensation Group, effective June 17.

Public Relations

One typist was added to the Public Relations Group, effective June 21.

Number of employees on payroll	June
Beginning of month	93
End of month	99
Net increase	6

This additional personnel was required due to an increase in volume of clerical work.

Service Divisions
Employee and Community Relations Division

ACTIVITIES

Employment

The decrease in the total number of open requisitions during the month of June resulted in all advertisements for additional personnel being suspended. Due to this decrease in requisitions and suspension of advertisements, the volume of employment interviews as well as the volume of new cases received for investigation decreased also. A total of 1,939 applicants were interviewed during June as compared with 2,550 during May. The number of new cases received for investigation decreased from 897 in May to 632 in June.

At the beginning of the month there were 1,034 open requisitions for non-exempt personnel, 811 of which were covered by interim commitments. At the end of the month there were 717 open requisitions, 530 of which were covered by interim commitments. In addition, at the beginning of the month there were 128 requisitions for exempt personnel; 70 of the persons requisitioned having accepted offers, 51 having been made offers but no acceptences received and the balance in the process of investigation. At the end of June there was a total of 94 requisitions for exempt personnel; 52 of the persons requisitioned having accepted offers, 32 having been made offers but no acceptances received and the balance in the process of investigation.

It should be noted that a total of 499 new employees were added to the rolls at this works during June; 141 were removed, resulting in a net gain of 358.

Twenty-five new stenographers were employed during June and only five terminated. At the beginning of the month there were 41 open requisitions for stenographers, whereas at the end of the month there were only 12 open requisitions, with 17 candidates in process.

During June, 33 applicants for technical positions who had previously been made offers, refused employment at this works. Forty per cent of these refusals were based on other employment. Six per cent refused because of the low salary offered, and it is reasonable to assume that a majority of those who accepted other employment did so because of a higher rate of pay or due to lack of housing. Twenty-seven per cent of the refusals received were based on lack of housing. Eighteen per cent failed to give any reason for refusing the offers.

During June, 37 new requests for inter-divisional transfers were received by the Procurement Group. In addition, 18 active cases were also reviewed, making a total of 55 requests in process. Twenty-six personal interviews were held as a result of these requests and 24 transfers were effected.

Service Divisions
Employee and Community Relations Division

Employee Relations

During the month of June a total of 1,259 contacts with company employees were made by the Employee Relations Counselors. These contacts resulted in 1,676 inquiries summarized as follows:

Policy	239
Military Service	50
Group Life Insurance	232
Group Disability Insurance	333
Pension Plan	62
Suggestion System	15
G.I. Bill of Rights	14
Social Security	37
Employee Sales Plan	209
Housing	103
Community	20
Personal	111
Income Tax	86
Miscellaneous	165
Total	1,676

A total of 82 exit interviews were given to terminating employees during the month of June. A total of 479 new employees were orientated. Of those employees given orientation, 48% elected to participate in the Group Life Insurance Plan and 57% elected to participate in the Group Disability Insurance Plan.

Elmer E. Morgan	Medical Division
Carlos A. Gelvin	Plant Security & Services Division
Stephen A. Churman	Maintenance Division
Anton Borg	Power Division

These employees were interviewed by an Employee Relations Counselor prior to their retirement and fully informed as to all matters pertaining to the benefits they would receive under the Pension Plan.

Two employees on leave of absence or away from work because of illness were contacted and assistance rendered with respect to their Group Disability Insurance. These employees were:

Donald F. Sonner	Medical Division
Alvin J. Stevens	Health Instrument Division

A salary check was delivered to one employee who was out due to personal illness.

A Group Life Insurance settlement check, as well as a check for the additional free insurance, was delivered to Mrs. widow of employee of the Purchasing and Stores Division who died in the Emanuel Hospital in Portland on May 27.

Passage of the new Selective Service Act by Congress has necessitated the preparation of a list of all male employees under twenty-six years of age, in order that a selective service file may be maintained. The necessary forms to obtain information for this file have been prepared and are presently in use with respect to new employees who fall within the selective service age limit.

Efforts are being made by the Employee Relations Group to stimulate interest of employees in the Group Life Insurance Plan. In conjunction with the Public Relations Group, a publicity campaign is being prepared and posters will be placed on various bulletin boards throughout the plant in an effort to create additional interest in this company employee benefit plan. The first bulletin board notice was placed throughout the plant on June 28.

As a result of the U.S. Savings Bond Campaign, 1,349 new subscribers to savings bonds were obtained. A total of 810 employees increased their subscriptions making a total of 25% of the personnel at this works who participated in this campaign. This works has a total of 50% of its employees participating in the U.S. Savings Bond Plan.

Suggestion System

At the end of June the volume of work in the office of the Secretary of the Suggestion System was as follows:

	May	June	Total Since 7-15-47
Suggestions received and acknowledged	150	101	2,220
Investigation reports completed	25	128	1,743
Awards granted by the Suggestion Committee	18	18	156
Cash Awards	$195	$195	$1,585

During the month of June the Secretary of the Suggestion Commitee participated in one meeting in the areas at which the Suggestion System at this works was discussed. Approximately 25 employees attended.

Insurance

1. Insurance Coverage

Statements for the month of April, 1948, received from the Travelers Insurance Company were returned due to an error in the amount of $1,000.

Approval has not as yet been received from the Atomic Energy Commission for authorization for the Travelers Insurance Company to proceed with settlement of claims involving the fire at the North Richland barracks.

Claim No. As a result of a rejection by the Department of Labor and Industries at Olympia, Washington, to the claim filed by this individual on the grounds that the employee was not considered to be in the course of his employment at the time of injury, a suit has been filed by against the General Electric Company alleging negligence and seeking recovery in the amount of $26,619.50. A Summons and Complaint was served on the company. The matter was referred to the Travelers Insurance Company. Attorney Charles Powell of Kennewick, Washington, is acting as counsel for the insurance company in this suit.

2. Life Insurance

Code information for use by insurance companies in issuing insurance to employees at this works was furnished to 24 insurance companies and investigation agencies during the month of June.

Training

Subsequent to the transfer of the education work to the staff of the General Manager, all supervisory training work handled by the Training Group was transferred to the Employee Relations Group, effective June 1.

All Superintendents and Division Heads were advised of the names of the supervisors in their divisions who have completed the Supervisory Conference Series. A total of 819 supervisors attended these conferences.

Digests of questions and comments as well as problems which were brought up during these conferences are being prepared in order that replies may be made to the problems submitted.

During the week of June 21 through 25 a representative of the Training Group conducted the Women's Training Program composed of 10 groups of women employees, at which time the Hanford Works organization and its relationship to each division was discussed in detail with these employees.

Public Relations

The flood condition of the river, which continued for a period of almost three weeks, was the source of a large number of news releases and information reports, as well as other activities for the Public Relations Group during the month of June. Daily reports were furnished to Schenectady at the request of the Nucleonics Department General Manager, which reports were relayed on to the President of the company. These information reports relative to the flood condition in Richland were also used as a basis for news releases in the East by the General News Bureau of the company. Information, as it became available, was furnished to the radio station K.P.K.W. and also the TRI-CITY HERALD and RICHLAND VILLAGER. Eight general news releases were distributed during the month of June. A series of flood pictures and captions for the pictures were sent to the Editor of the PACIFIC BUILDER AND ENGINEER at his request. Material concerning the activities of the Civil Air Patrol Unit in Richland was furnished to the SPOKANE CHRONICLE on June 10. News releases were also made on the talk by R. C. Muir to the Junior Chamber of Commerce.

The display located on the south side of the Municipal Building was changed during the month of June. An artist's sketch of the new ranch type houses, together with the floor plans of the two types of houses being built, was placed on display.

Request has been received by the Public Relations Group to include the WALLA WALLA UNION-BULLETIN in the list of newspapers, radio stations, and others who receive news stories of a purely local nature.

During the month of June there were 20 local news releases is ued by the Public Relations Group to the RICHLAND VILLAGER, SPOKANE CHRONICLE, TRI-CITY HERALD, WALLA WALLA UNION-BULLETIN, radio stations K.P.K.W. at Pasco, and K.I.T. at Yakima.

Assistance has been rendered by the Public Relations Group to the Employee Relations Group in connection with the U.S. Savings Bond Campaign. A story publicizing this campaign was furnished to the Hanford Works NEWS each week. Releases were also made on the same subject to the RICHLAND VILLAGER. Upon completion of the bond drive publicity program by this works, a request was received from the subcontractor, Atkinson-Jones, to assist them in publicizing their bond drive, which was conducted among 11,000 employees.

Because of the flood, only three issues of the Works NEWS were issued during the month of June. The June 25 issue included the Candid Camera Section.

Women's Activities

A training program for women began on June 14. A total of 171 women employees have been scheduled to attend this program. The program is divided into eight topics extending over a period of eight weeks. The last session will be held on August 6.

High attendance and interest has been maintained in the beginners' and advanced shorthand classes. Twenty-nine persons attend the beginners' class, which meets on Monday and Wednesday evenings for two hours each, and thirty persons attend the advanced class, which meets on Tuesday and Thursday evenings also for two hours each. These classes are being taught by Mrs. Rose Dryer, and from reports received, she has been doing exceptionally fine work with these courses of study.

The women's page entitled, "Today's G E Woman," was prepared by the Women's Activities Group for each issue of the Hanford Works NEWS during June.

During the month of June, 153 women employees were given orientation. In addition to the regular orientation program, these sessions include the welcoming of the new employee, discussing dormitory living, with complete information to North Richland residents concerning that community, as well as recreational and social groups in Richland.

Exit interviews were given to 36 women terminating their employment at this works during the month of June.

A number of inquiries from women employees with respect to transfers and upgrading have been received by the Women's Activities Group.

A total of 219 telephone calls requesting rides or passengers for week-end and vacation trips were received by the Women's Activities Group during June.

Service Divisions
Employee and Community Relations Division

STATISTICS

Employment

Number of employees on rolls	5-31-48	6-30-48
Exempt	1,662	1,710
Non-Exempt	6,597	6,907
Total	8,259	8,617

ADDITIONS

	Exempt	Non-Exempt	Total
New Hires	57	436	493
Re-employs	0	1	1
Reactivations	0	4	4
Transfers from other Plants	1	0	1
Net Additions	58	441	499
Payroll Exchanges	8*	2**	10
Gross Additions	66	443	509

TERMINATIONS

	Exempt	Non-Exempt	Total
Actual Terminations	13	97	110
Removals due to extended leaves	3	28	31
Payroll Exchanges	2***	8****	10
Totals	18	133	151

*Transferred from weekly salary roll.
**Transferred from monthly salary roll.
***Transferred to weekly salary roll.
****Transferred to monthly salary roll.

Approximately 86% of all actual terminations were on a voluntary basis and most of these were for the following reasons: (a) another job, (b) personal reasons, dissatisfied with job, wages, climate, etc., and (c) to return or remain home.

GENERAL

	5-48	6-48
Applicants interviewed	2,550	1,939
Photographs processed	3,148	4,072
Fingerprint impressions taken (in duplicate)	769	960
Procurement letters written	2,874	3,896

ABSENTEEISM STATISTICS (Weekly Salary Roll)*

	5-48	6-48
Male	1.58%	2.53%
Female	2.63%	2.71%
Total Plant Average	1.85%	2.75%

INVESTIGATION STATISTICS

	5-48	6-48
Cases pending at beginning of month	1,800	2,039
Cases received during month	897	632
Cases closed	658	723
Cases pending at month-end	2,039	1,948
Number found satisfactory for employment	650	558
Number found unsatisfactory for employment	31	14
Cases closed before investigation completed	42	60
Special investigations conducted	23	45

*Statistics furnished by weekly payroll division. Absenteeism increase was due to flood condition.

Compensation and Insurance

Claims

	Reported in June, 1948	Reported in May, 1948	Total Since Sept.1,1946
Workmen's Compensation	98	80	725
Liability	28	20	194
Handled for du Pont	0	0	

Compensation Payments Approved (Department of Labor and Industries)

	May, 1948		April, 1948		Total Since Sept.1,1946
	No. of Claims	Amount	No. of Claims	Amount	Amount
Medical Aid	27	$1109.48	9	$ 684.67	$11,237.06
Accident Fund	69	3140.86	57	3155.50	68,299.93
Pension	30	1435.32	28	1297.07	29,812.47

Liability Payments Approved (Travelers Insurance Company)

None - Returned due to error in computation.

PURCHASING AND STORES DIVISION
JUNE, 1948

GENERAL

Purchasing

Purchase orders issued during June totaled 1,548 as compared to 1,510 in May. Requisitions received totaled 2,578 as compared to 2,246 and requisitions placed amounted to 2,480 as against 2,336 for the previous month. Requisitions on hand at month end were 875 as compared to 777 on hand at the end of May.

W. A. Jeffrey made a business trip to Schenectady for discussions of transactions mutually affecting Hanford Works and the home office with particular emphasis given to problems which arise because of Hanford Works being under Government Contract. In a meeting with Mr. Erlicher, vice-president in charge of Purchasing, it was decided that we would operate as a separate unit, handling our own requirements contracts as well as routine purchases. We are to keep the Schenectady office fully informed of our actions.

Fred W. Porter was added to our staff as a buyer trainee replacing a buyer, V. R. Green, deceased.

Orders were placed during June under the Voluntary Steel Allocation program for our third quarter requirements of rail and angle bars, pipe, plate, floor plate, and sheets.

The Continental Coal Company and the Big Horn Coal Company were the successful bidders for our domestic coal requirements, each being awarded 62,500 tons.

Other requirements contracts awarded during June were:

Rock Salt	Leslie Salt Co.
Potassium Hydroxide	Niagara Alkali Co.

Arrangements were made with the Aluminum Company of America to furnish us with 500 colored aluminum cans for experimental purposes.

Due to flood conditions it was necessary to make a spot purchase of 300 tons of hydrated lime over and above that furnished by our contract supplier, U.S. Gypsum Company. This 300 tons was purchased from the Limestone Products Company of Menominee, Michigan.

Stores

During the first two weeks of June, much activity was experienced in taking precautionary measures to protect Stores stock from flood waters. It was necessary to physically remove material valued at approximately $400,000 from the Stores warehouses located in the Transportation Division's Labor Yard south of the Village. At the height of the emergency, personnel were being utilized on a round-the-clock basis to provide material and supplies to the construction workers responsible for building the dike that protected the town of Richland. At month end, the stock that had to be relocated due to flood waters was being slowly placed back in the original warehouses, and it was expected that this abnormal activity would continue for another month. The AEC has granted approval for limited overtime in this regard.

GENERAL (Cont.)

Stores

A Catalog representing materials in the Salvage Yard has been compiled and distributed to Operations and Construction personnel. As a result, disbursements of salvage materials totaled for the month $11,622.68.

C. J. Sheeran visited the Schenectady Works for the purpose of inspecting their Stores operation. Valuable suggestions were noted at the facility, and the adoption of many new ideas is contemplated at Hanford.

Stores is suffering to a degree because of the backlog of work that faces the Maintenance Division. The renovation and repair of Warehouses No. 5 and 6 is still delayed because of other priority work. Disbursements out of general Stores stock are still averaging three times our former normal volume. The Construction program is obviously responsible for some portion of these disbursements, and continues to be a very real problem in the demands of ordinary stock items common to both Operations and Construction.

PERSONNEL

Administrative Supervision	1
Purchasing	
Employees Exempt	6
Employees Non-Exempt	26
Stores	
Employees Exempt	14
Employees Non-Exempt	140
TOTAL	187

SAFETY

Purchasing	
Safety and Security Meetings scheduled	1
Number of Employees attending	30
Stores	
Safety and Security Meetings scheduled	17
Number in attendance at meetings	148
Minor Injuries	7

STATISTICS

Purchasing	
Requisitions on hand 6-1-48 (Includes 142 assigned to Gov't.)	777
Requisitions received during June	2,578
Requisitions placed during June	2,480
Requisitions on hand 6-30-48 (includes 68 assigned to Gov't.)	875
HW Orders placed	1,548
TPS Orders placed	130
O.R.'s placed	14
Alterations issued	146
Orders Expedited	260

STATISTICS (Cont.)

Stores

Number of items added to Stores Stock	147
Number of items deleted from Stores Stock	43
Items in Stores stock at month end	50,938
Receiving Reports issued	3,727
Store Orders filled	20,638
Store Orders filled (Salvage)	466
Emergency Store Orders filled (Stores Stock)	12
Returnable containers on hand at month end	5,174
Returnable containers on hand over six months	1,235
Value of Disbursements, not including cash sale items	$304,145.89
Value of Disbursements (Salvage)	11,622.68
Value of transfers from Salvageto Stores	4,109.75

JUNE 1948

LABOR RELATIONS AND WAGE RATE DIVISION

ORGANIZATION AND PERSONNEL

On June 21, Jackson C. Richardson, Section Supervisor, was added to this Division.

One typist was added June 21, a transfer from the Payroll Section of the Accounting Division.

Number of Employees on Payroll	June
Beginning of Month	8
End of Month	10
Net Increase	2

GENERAL

Approval of the Request for Reimbursement Order in connection with the proposed wage structure was received from the Atomic Energy Commission June 7. On the basis of this approval July 19 was set as the date when the new plan would become effective. The bulk of reclassification to new job titles has been finished.

On June 21 this Division assumed responsibility of administering progression schedules and furnishing such rate information to the Payroll Section. Records were set up to convert to the new progression schedules after July 19.

An analysis was conducted to determine the cost involved in weekly payroll by classification of all non-exempt employees from present job rates to proposed job rates as established by the Reed Report. This analysis revealed that 1.85 per cent reduction in payroll would result, but in applying $5.00 per week Area Allowance for 2198 employees there would be an increase to the total payroll of 0.64 per cent.

STATISTICS

Requisitions for non-exempt personnel received and approved	233
Cards received and filed on new employees	441
Removals from Payroll	111
Transfers from Weekly to Monthly Payroll	13
Transfers approved	86
Job Reclassifications approved	273
Automatic Increases Recorded	461

PLANT SECURITY AND SERVICES DIVISION

MONTHLY REPORT - JUNE 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	2	2	-	-
Patrol and Security	625	662	37 (a)	-
Safety & Fire Protection	137	139	2 (b)	-
Office Services	297	320	23 (c)	-
Total	1061	1123	62	

(a) - 37 Hires	Patrolmen
12 Transfers In	Patrolmen transferred from Community Division
9 Terminations	Patrolmen - 8 Clerical - 1
1 Leave of Absence	Seamstress
(b) - 4 Hires	Firemen
2 Terminations	Firemen
(c) - 29 Hires	Telephone Operators - 10 Clerical - 12

SAFETY & FIRE PROTECTION

Safety

Plant Safety Record - 12 days.

Injury Statistics

	May	June	Year to Date	Cumulative F/R - 1948
Major Injuries	2	1	5	0.616
Non-Tabulatable Major Injuries	0	0	0	
Sub-Major Injuries	4	6	22	
Minor Injuries	483	481	2860	3.52

Major Injury No. 48

June 18, 1948 - , an employee of the Security and Services Division, received a chemical burn to the cornea of the right eye during a demonstration at the pistol range. The injured was one of about 25 men gathered in a steel hutment for instruction and training in the use of a smoke bomb. Lt. Burrus, the instructor, was showing the manner in which the pin is pulled in preparing to discharge the bomb. When he attempted to replace the pin, it would not go all the way in, making it necessary to hold the lever firmly against the side of the cannister to prevent the primer from exploding. For some undetermined cause, the primer exploded while the instructor was holding it in his hand. He was unable to toss it out the door because the men, upon hearing the primer explode, had become panicky and blocked the two exits, making it necessary for him to hold the bomb while it discharged.

Sub-Major Injury No. 115

June 3, 1948 - , a mechanic of the 1100 Area Transportation Division, incurred a compound fracture of the right great toe. Injured was making repairs to an air lift of a cutter bar on a Farmall Tractor. Employee placed a 36-inch bar behind an 8-inch eye bolt to force clearance for insertion of a missing bolt in cutter head. As he applied pressure, the crystalized eye bolt which supported the entire weight of attachment snapped and cutter head fell about 12 inches, landing on injured's right foot. He was not wearing safety shoes.

Sub-Major Injury No. 115½

June 7, 1948 - , an employee of the 3000 Area, Power Division, incurred a chip fracture, distal phalanx, right thumb while cranking a one cylinder gasoline driven pump motor on a portable water chlorinator. As he turned the engine over it backfired, throwing his hand clear of the crank and against the frame on which the motor is mounted.

Service Divisions
Plant Security and Services

Sub-Major Injury No. 116

June 9, 1948 - , a carpenter of the 700 Area, Maintenance Division, received laceration to tip of middle and ring fingers, tuft fracture distal phalanx, middle finger, right hand. Injured and another employee were making a jointer cut on 2" x 4" stock, 14 feet long. The 2" x 4" was being passe over the cutting head on edge. Before the last few inches of stock had passed over the cutter, the piece began to tip, and Stock reached for the lumber to stop it from rolling. As he did so, the board had completely passed over, exposing the cutting head, and he inserted his ring and middle fingers of the right hand into the blades.

Sub-Major Injury No. 117

June 9, 1948 - , an employee of the 183-D Pump Room, Power Division, sustained a chip fracture at the base of terminal phalanx, dorsur right little finger while checking the oil level in a coupling of 4 F & S Turbine While attempting to tighten a plug with a 5/8" Allen wrench, after having checked the oil level, wrench slipped out of the plug, allowing his hand to strike the bearing housing. The Allen wrench was not properly seated. Employee was pushing on the wrench with palm up and fingers extended, contrary to instructions that had been given during the early part of his training.

Sub-Major Injury No. 118

June 13, 1948 - , an operator of the 300 Area P Division, incurred a tuft fracture of the left ring finger while preparing new crucibles for use. During this process it is necessary to brush down the inside and remove all dust and foreign material. The procedure has been to tilt the crucible and empty dust by inverting the crucible on the floor. During the process of returning the crucible to its normal upright position, the injured's foot slipped throwing him off balance and causing him to catch his finger between the bottom of the crucible and the cement floor.

Sub-Major Injury No. 119

June 22, 1948 - , an employee of the 300 Area P Division, was using a set of metal stamps and a hammer to identify a lot of material. The metal stamps are provided with handles for safe use. One stamp in the set being used had previously had the handle broken. In using this stamp, the injured hit his left thumb a glancing blow with the hammer.

Safety Meetings - There were 667 safety meetings held, with a total attendance of 7,966.

Safety Spectacles - Orders were placed for 71 pair prescription safety spectacles; 43 pair were checked, received and fitted; and 136 adjustments and repairs were made to all types of safety spectacles.

Exposure Hours - There were 1,456,652 exposure hours from June 1, 1948 to and including June 31, 1948.

SAFETY DIVISION - INJURY AND ACTIVITY STATISTICS

	300 Area	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	700-1100 Areas	Misc. Areas	3000 Area	Pasco Area
Minor Injuries	109	17	25	54	71	74	106	4	19	2
Sub-Major Injuries	2	0	1	0	0	0	2	0	1	0
Major Injuries	0	0	0	0	0	0	0	1	0	0
Days since last Tabulatable Major Injury	259	35	517	1163	230	902	31	457	335	335
Days since last Sub-Major Injury	8	163	15	253	203	83	21	113	64	261
Days without a Minor Injury	3	19	15	7	4	1	3	26	18	28
Safety Meetings Conducted	91	48	60	51	55	82	264	6	0	8
Number in Attendance	1220	322	473	521	428	934	3896	33	0	59
Safety Spectacles Delivered	9	1	3	9	1	6	14	0	0	0
Safety Spectacles Serviced	8	14	18	23	15	45	13	0	0	0

Safety Spectacles Ordered
All Areas 71

MONTHLY INJURY ANALYSIS

Period - June 1 through June 30, 1948

Minor Injuries

	Misc. Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Blisters	Unclassified	TOTAL JUNE	TOTAL LAST MONTH
GENERAL	0	1	0	0	0	0	0	0	0	0	1	0
MANUFACTURING	48	53	31	76	11	14	10	12	12	18	285	289
MUNICIPAL	3	7	2	12	4	2	0	1	5	1	37	0
ACCOUNTING	0	1	0	1	1	0	0	0	0	1	4	2
LEGAL	0	0	0	0	0	0	0	0	0	0	0	0
TECHNICAL	10	11	2	19	5	4	0	1	2	1	55	35
MEDICAL	2	1	4	7	1	2	0	0	0	2	19	12
HEALTH INSTRUMENT	2	4	0	4	1	0	0	3	0	1	15	21
SERVICE	4	6	5	15	4	7	2	6	0	5	54	95
DESIGN & CONSTRUCTION	1	1	1	2	1	2	1	0	0	2	11	29
TOTAL	70	85	45	136	28	31	13	23	19	31	481	
LAST MONTH	53	99	66	97	28	41	21	33	13	32		483

Service Divisions
Plant Security and Services

Activities

100 Areas

Safety Speakers contest winners from all three areas were selected.

Schedules for the supervisors Safety Training Conferences were set up and distributed.

A letter drawing attention to unsafe practices in handling gas cylinders and exposing them to high temperatures was issued in all three areas.

Joint meetings for clerical personnel in 100-D Area were scheduled with departmental heads alternating as chairman. This plan has been reviewed by 100-F Area and is being adopted.

A letter was sent to supervisors in all three 100 Areas warning them of the danger due to cave-in around the 181 buildings caused by flood conditions. Their cooperation was urged in cautioning of personnel who are required to work around these buildings.

Minor construction divisions were requested to provide full leather suits for welders who are working on the inside of large pipe lines. It was also requested that steel monkeys be provided with a safe belt hook.

The first meeting of the Health Instrument Division Safety Council was attended by the Safety Engineer.

Arrangements have been made to hold the 100-F Area three-year Safety Celebration on July 15 at 3:30 P.M.

Investigation is being made of a boiler insulating material which at its first usage caused burns to three employees. Laboratory analysis has been requested.

200 Areas

Three area inspections were held during the month.

The Safety Speakers Contests were held and winners chosen.

Six films on Safety were shown during the month.

300 Areas

The Safety Engineer, as chairman of a special committee to study the parking lot situation, recommended several changes to alleviate hazards to pedestrians

The Safety Engineer attended three meetings as a member of a special committee to develop control methods for the safe use and storage of Hexone in all laboratories and buildings. Report was made to O. H. Greager by M. K. Harmon, Chairman.

5

Inspection and test was made of Automatic CO_2 equipment in 321 Building, in conjunction with Area Fire Inspector.

Inspection of Methanol tank, and survey of its uses in 313 Building, was made. No recommendations for changes were made.

Final arrangements were made and supervisors advised of the Supervisors Safety Conferences to be held each Wednesday and Thursday morning during the month of July.

700-1100 Area

A meeting of the Housekeeping and Area Improvement Committee was held to determine which sections of the 700 Area were in immediate need of walks, road repairs, and clean up. Recommendations are being submitted for necessary work.

The 700 Area Council met on June 4, at which time the entire area improvement program was presented for review and approval by the Council.

Inspections were made on weed spraying equipment and approval given to place it in service after revisions were made relative to proper guarding, pressure system safety, and operating procedures.

Safety Speakers Contest finals for the 700-1100 Areas were held this month, and Mr. Alfred Poole was selected to represent the 700-1100 Areas in the Plant Contest.

Road spraying equipment has been checked for safeguards, and, after necessary revisions, approval was given to place it in service.

Recommendations were made to the Community Division, Labor Section, for safe operation of new platform loader type tail gates. This new equipment is being put into use and necessary changes have been made.

Preparations have been completed for the Safety Leaders training course which will begin July 1 and end July 30. A total of 144 supervisors has been scheduled to attend.

Parking regulations pertaining to distances from combustible buildings was a point of discussion at the 700 Area Council Meeting, and steps are being taken to clear this problem within the area.

Daily contacts have been made with supervision in an attempt to place emphasis on minor injury control and elimination.

In line with area improvement, the 700 Area Council has taken steps for action on inside area walks, walk changes, and relocation outside of area, defined road layout, grass planting, zebra striping of poles and guy wires, and general area clean up.

Service Divisions
Plant Security and Services

General

In the design of the new junior high school, it was pointed out that the location of the boy's toilet was a pocket in connection with fire evacuating.

Proposed project of adding to the 200-West Fire Station was reported.

Completed projects in the 703, 721, and 1131 Buildings were inspected.

A representative of the Safety Division worked with village engineers to set a safe limit on the dance floor of the American Legion Building. He also worked with North Richland officials on rules and regulations for handling Liquefied Petroleum Gas, and with Design in working out the details of a Protecto Wire Fire Detector System.

The representative met with a committee from Design, and made recommendations for the water supply in the 101 Area.

Prints were checked of well houses that are to be used in Richland and North Richland Areas, and several recommendations were made.

Recommendation was made to change the sprinkler heads in the attic of the hospital to 175 degrees F. heads. Steps have been taken to do this work.

Safety hazards resulting from the flood waters in the John Dam Park and Masonic Lodge areas have been called to the attention of the Community Activities Director, and recommendations for correction have been submitted.

A survey of the open area being used as a parking lot north of the 762 Buildin has been made. Recommendations have been made that its present use be discontinued, or a parking lot of minimum safe requirements be laid out.

Instruction in the operation of moving picture equipment is being given a group of employees of the Medical Division.

Safety orientation is being conducted for all new employees of the 700-1100, 3000, White Bluffs and Pasco Areas.

Safety as it concerns the jobs of women will be taught July 6 through July 9, 1948.

FIRE PROTECTION

Fires	Number of Fires		Estimated Damage	
	May	June	May	June
Plant Area	10	14	No Damage	$30.00
Miscellaneous	0	2	No Damage	40.00

7

June 28, 1948 - The second largest brush fire in the outer area occurred at 4:05 P.M. Thirty or forty creosoted railroad ties were charred. Broken bottles along, or adjacent to, the old restricted fence line erected during the first construction period may have been the cause of both of these fires. The Inspect at White Bluffs will survey and remove any such bottles if found.

Routine Duties

Fire Extinguishers		Fire Drills and Lectures	
Inspected	1620	Outside	31
Installed and Relocated	0	Inside	92
Refilled	233	Auxiliary Brigade	20
Repaired	46	Safety Meetings	34

Gas Masks	
Inspected	98
Serviced	6

All fire alarm boxes in the Industrial Area were tested.

All fire hose houses, hydrants and lines in Plant Areas were inspected and hydrants flushed.

OFFICE SERVICES DIVISION

Classified Files

During the month of June, the issuance of Series B of the Hanford Works Technical Manual was completed and a backlog of offsite requests was filled. Work proceede on a routine basis, while the work flow increased as compared with the month of May.

A breakdown of work statistics as compared with the month of May follows:

	May	June
Classified Documents received and Issued (Incoming)	738	969
Unclassified and Restricted Documents Received	5428	6650
Classified Documents Issued (Outgoing)	3019	3400
Inter-Area Transfer	6638	7343
Yellow Copy Transfer - Pittsfield	2245	1898
Documents Routed	4912	6941
Requests for File Documents	2609	2785
Documents Transmitted to AEC for Retransmittal Offsite	275	125
	25,864	30,111

General Services Division

Laundering volumes were as follows:

Plant Laundry (Building 2723)	May	June
Coveralls - Pieces	24,866	28,512
Towels - "	7,812	8,656
Miscellaneous "	48,358	58,000
Total Pieces	81,036	95,168
Total Dry Weight - Lbs.	113,862	132,897
Richland Laundry (Building 723)		
Flatwork - Pieces	155,659	162,963
Rough Dry- "	26,369	30,927
Finished - "	5,053	5,019
Total Pieces	187,081	198,909
Total Dry Weight - Lbs.	121,603	138,291
Monitoring Section (Building 2723)		
Poppy Check - Pieces	48,612	50,333
Scaler Check- "	76,759	78,923
Total Pieces	125,371	129,256

The General Services Division assumed responsibility for the protective clothes monitoring operation in the 2723-W Laundry. Ten employees were transferred from the Health Instrument Division to the Security and Services Division to handle this work. Better coordination will result in higher efficiency by placing the entire laundry operation under the same supervision.

The increased loads coming from Richland and North Richland Hospitals, and North Richland barracks, have made a three-shift, six-day operation necessary in the 723 Laundry.

Clerical Services Division

Telephone

The PBX Board at the hospital has now been turned over to the Medical Division, and two operators were transferred to operate the board. Arrangements were made with Mr. Pullen for the establishment of a two-place board and additional lines for the hospital in order to provide the necessary lines and board to handle the large volume of calls.

One additional lease line was added to Seattle and Portland.

A new operating procedure for the Telephone Exchange was approved by the AEC, which allows Division Superintendents to check calls made by their personnel after the fact.

Mr. Orr of the P.T. & T. spent several days in the Exchange making observations on operating procedures and techniques. A full report was given verbally and will be confirmed in writing. The principal observation was that operating technique was satisfactory but that lack of equipment was causing sub-standard service.

A meeting was held with the Cost Division, and a new cost breakdown established for charging back the operation of the Telephone Exchange to the various users.

		May		June	
Lines working as class	A single lines	348		354	
	A party lines	10		14	
	PBX lines	13		13	
	C single lines	306		288	
	C party lines	39		42	
	C PBX lines	6		6	
	B1-B2 combination lines	1		1	
Total Official Lines			723		718
Lines working as class	B2 single lines	84		81	
	B2 party lines	12		17	
	B2 PBX lines	2		2	
	B1 single lines	9		8	
	B1 party lines	1262		1284	
	B3 single lines	21		19	
Total Non-Official Lines			1390		1411
Vacant Lines			87		71
Total Lines in multiple bank			2200		2200

Mail and Stationery

Effective this month, the Design and Construction Division started handling their own mail, with the exception of the receipt of mail from the Post Office. The mail is picked up by the Central Mail Room and delivered in bulk to the Design and Construction Mail Room.

Service Divisions
Plant Security and Services

	May	June
Pieces of first class mail received	51,896	55,380
parcel post	1,131	923
registered mail	317	284
insured mail	271	285
special delivery	320	328
Total received	53,935	57,200
Pieces of mail sent out	34,768	30,135
Amount of money used in postage meter	$1,902.17	$1,911.39
Teletypes sent	6,060	4,320
Teletypes received	5,485	4,404
Total	11,545	8,724

Office Equipment

Due to the flood, we were unable to handle the numerous requests for delivery of office equipment during the first part of the month. These requests are now being filled currently.

Office machine repair work is behind due to the tremendous volume now being handled. Over-time work is necessary until the new shop is completed.

	May	June
Office machines repaired in shop	306	268
Office machine service calls	257	324

Printing

Volume continues heavy, and one additional multilith machine has been put into service to take care of the increased volume.

	May	June
Multilith orders received	210	232
Multilith orders completed	201	241
Multilith orders on hand at month end	30	21
Mimeograph orders received	2866	2266
Mimeograph orders completed	2947	2266
Mimeograph orders on hand at month end	0	0
Ditto orders received	3338	3492
Ditto orders completed	3557	3492
Ditto orders on hand at month end	0	0

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Stenographic Services

A Stenographic Services Section was formed during the month to perform unusual and non-repetitive typing and stenographic work for the 700-1100 Area.

Permanent Records Storage

Responsibility for operation of the permanent records storage facilities was transferred to the Office Services Division from the Accounting Division during the month of June.

A number of meetings have been held with the Atomic Energy Commission regarding the period of time which records must be kept, in order that future space requirements may be estimated.

PATROL AND SECURITY

General

On May 25, 1948, H. W. Instruction Letter No. 88, entitled, "Revised Photographic Identification Passes", was issued regarding the new type photo-passes for Hanford Works employees.

Effective June 28, 1948, new photographic identification passes were issued. Employees covered by a Formal "P" Security Clearance are to be furnished a photo pass with a large open "P" located just below the photograph. When a "Q" clearance is received by the Security Division from the Atomic Energy Commission, this "P" Pass will be exchanged for a "Q" pass from the Security Office.

A Construction Evacuation Plan for the 241-TX and 234-5 Areas (Procedure Memorandum No. 19 signed by F. R. Creeden) was issued June 4, 1948.

An Operations Master Evacuation Plan and a Practice Master Evacuation Plan were issued June 9, 1948.

On June 15, 1948, a procedure for the 272-Z "Exclusion" Area, located at the southwest corner of the 231 Area, was issued to all division heads.

A procedure was issued June 24, 1948, by the Security Office, relative to the establishment of the 100-DR "Exclusion" Area, on June 28, 1948, to all division heads. Four patrolmen were assigned to man posts in this restricted area.

On June 25, 1948, Supplement No. 1, Instruction Letter No. 2, entitled "Telegrams and Teletypes" was given plantwide distribution, concerning the sending and receiving of classified messages by these means.

On June 1, 1948, Form HW-4.162, Badge Board Record - by call numbers - was discontinued in the 100 Areas.

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Effective June 4, at 12:01 A.M., all gates in the Construction Area Fence separating the 200-West Operations and Construction Areas have been locked. One gate at the intersection of 4th and "A" Streets will control entrance to the Power and Construction Area and will be manned twenty-four hours daily.

Escorts for the 200-West Area Construction First Aid cases were discontinued June 2 on the day shift, and June 7 on the swing shift due to a First Aid Station being installed within the Construction Area.

On June 7 the Patrol started working a 48 hour week due to a manpower shortage.

On June 9, a procedure covering Barricade Violations (Radio Unit Signal No. 35) was placed in effect.

Pursuant to action of the Inter-Department Radio Advisory Committee, their document 6366, dated February 5, 1948, the call letters of Radio Station WUGN were changed to WGMB at 12:01 A.M., June 13.

Effective June 14, Radio Unit Signal No. 15 will cover "Blackout".

On June 18, the "Lost and Found" Department formerly handled by the Patrol Emergency Officers was transferred to the Community Patrol Division.

On June 28, five M-8 Light Armored cars were received for use in the Industrial Area.

Test Plan "E" of the Mobilization Procedure was activated in the 100-F and 200-West Areas on June 29.

On June 30, a survey of roads in the Rattlesnake Mountain Area was made, regular routes designated for patrols, post numbers established, and work order instigated to erect signs reading "Do not use unless on assignment" to be placed on roads that should not be used.

Effective June 3, Army Officers with A.G.O. Passes will be allowed entrance to the Pasco Depot Area. If they are in an Army vehicle, it also may enter.

On June 7, the West 700 Area Badge House located on Stevens Drive was placed in operation. This post will be manned by one patrolman twenty-four hours daily and is separate and distinct from the vehicle gate.

Effective with the first shift, June 7, the 300 Area will be responsible for the protection of the 3000 Administration Area. The Vehicle Gate located on the east fence will be manned twenty-four hours daily. A roving patrol will be furnished on the first and third shifts daily and twenty-four hours on Sundays and holidays.

Effective June 8, a radio jeep from the 100-F Area, will make a general patrol of the White Bluffs Area on the day shift, maintaining contact with Radio Station No. 9.

Service Divisions
Plant Security and Services

Effective June 10, the Hanford Ferry will operate from 6:00 A.M. to 6:00 P.M. for emergency equipment and passengers. Private vehicles will be prohibited without special authorization.

Effective June 14, the 100-F Area Patrolman on the White Bluffs Jeep Patrol will drive the White Bluffs First Aid ambulance when required.

On June 24, one patrolman will be posted at the bus exit gate, east of the 100-D Main badge house during the day shift, to handle concrete and material trucks from the Aggregate plant to the new 107 Building. Badges will be handled through the 105-DR badge house.

On June 14, the lane leading to the 222-T Building was fenced off, and entrance to the 222-T Building may now be gained only by checking through the 221-T Exclusion Area Badge House, for Exclusion Area double identification check.

Effective June 15, escorts of classified shipments from Warehouse No. 6 in Richland to the 300 Area are being handled by the 300 Area Patrol instead of the AEC as in the past.

The 100-D Area Patrol will furnish drivers for the 100-DR and 100-H Area ambulances when required.

In addition to the "Vendors" Truck Pass being used, Vendors will be issued a laminated vendors badge when entering a "restricted" construction area, to be returned to Patrol upon exit from the Area, effective June 11.

PATROL

The 200 Areas handled 498 Process Escorts between the Areas.

Requests handled totaled 470, mainly consisting of opening doors and gates for employees of other divisions.

A total of 173 Construction employees were escorted into areas for First Aid treatment.

There were 143 Unusual Incident reports received, consisting mainly of contraband picked up at barricades, and lost badges and pencils.

Twelve classified escorts were handled during the month.

Seven employees were given emergency first aid treatment in Areas by Patrol supervision during periods when medical personnel were absent from the Areas.

The Outer Area traffic car issued 6 citation tickets, 3 warning tickets, 55 verbal warnings, and handled 172 details in addition to their regular duties.

A practice evacuation was held in the 100-D Area at 1:35 P.M. on June 9.

Service Divisions
Plant Security and Services

Training

Basic and advanced training was continued during the month.

Scores and qualifications were not maintained during this period.

A new 28 inch target has replaced the old type six foot Army "L" type.

The Range House, two hutments and pump house were painted.

Wooden fronts were installed in front of the steel frames on the F.B.I. range course to reduce the danger of ricochetting bullets.

The Safety Meeting included the topic of the month, "Hazards and how to Avoid Them". A safety film was also shown.

Security Meetings were covered by a discussion held by Mr. M. J. Headley of the Security Division.

The Health talk included the topic of the month, "Common Sense of Summer Recreation".

M-8 Light Armored Car training was not held during this period.

SECURITY

There were 361 Security Meetings held, attended by 6,146 General Electric employees.

The following Security Education talks were given by Security speaker M. J. Headley:

Operations - 340 Employees of General Electric
Construction - 82 Employees of sub-contractors

Authorization Cards Issued: May - 30 June - 5

Class "Q" clearances received on old employees this month	324
Class "Q" clearances received on old employees to date	2,288
Class "Q" clearances received on new employees this month	178
Class "Q" clearances received on new employees to date	3,755
Class "Q" clearances received on both old and new employees since February 17, 1947	6,043
Interim "S" clearances awaiting change to "Q"	18
Formal "P" clearances awaiting change to "Q"	507

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200

Service Divisions
Plant Security and Services

Sixty-three per cent of the check-off of unaccounted-for classified documents in the Works Inventory has been completed in Classified Files.

Two hundred "Slogan of the Month" posters were distributed to all areas, entitled, "If You Don't Want to be Quoted, Don't Quote It".

One jumbo sign was replaced in the plant areas with the statement, "A Combination of Words Opens the Security Lock".

G. E. Security Bulletin No. 24, entitled "Document, Document, Who's Got the Document?" was issued June 18, 1948. G. E. Security Bulletin No. 25, entitled "Mobile Shortwave Radio Units" was issued June 25, 1948.

Procedure Memorandums dealing with Security were issued to the Design and Construction Divisions as listed:

Procedure Memorandum No. 18 - Storage of Classified Documents and Records May 26, 1948

Procedure Memorandum No. 19 - Construction Evacuation Plan for 241-TX, 234-5 Areas - June 4, 1948

Statistical Summary of Outstanding Area Badges

	May					June			
	A	B	C	Total		A	B	C	Total
100-B	475	1265	665	2405	100-B	610	1193	651	2454
100-D	743	1216	671	2630	100-D	777	1147	654	2578
100-F	800	1101	644	2545	100-F	784	1102	646	2532
200-E	861	1355	605	2820*	200-E	1015	1301	589	2905*
200-W	1176	1489	541	3206	200-W	1289	1391	522	3202
200-N	71	745	184	1000	200-N	80	724	182	1706
300	1417	1453	410	3280	300	1464	1392	422	2278
100-DR	4317	344		4661	100-DR	4468	351		4819
241-TX	2706	177		2823	241-TX	2646	234		2880

* For May and June both - each includes 31 "A" badges at Riverland Yards.

Visitors or Temporary Badges

Area	May	June
100-B	59	29
100-D	161	41
100-F	76	39
200-E	97	47
200-W	125	61
200-N	30	26
300	141	71
100-DR	83	61
241-TX	152	35
	924	410

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Service Divisions
Plant Security and Services

Special Clearance Section

Following is a statistical summary of emergency clearances status of vendor and consultant companies:

Total companies forwarded to AEC this month	20	Personnel	146
Total companies forwarded to AEC to date	156	Personnel	1,654
Total companies cleared for restricted data this month - 29		Personnel -	96
Total companies cleared for restricted data last month - 19		Personnel -	140

New companies forwarded to AEC this month:

Fairchild Aerial Surveys
224 E. 11th Street
Los Angeles, California

Distillation Products, Inc.
755 Ridgeroad W.
Rochester, New York

Number and type of clearance granted by the AEC this month to vendors:

Formal "Q"	34
Formal "P"	28
Emergency "Q"	34

No individual investigations were conducted by the Security Section for the purpose of obtaining Emergency clearance for vendors and consultants this month. The month of May showed a total of 8.

Emergency clearances requested for GE personnel this month	35
Emergency clearances requested for GE personnel to date	141
Emergency clearances received on GE personnel this month	23
Emergency clearances received on GE personnel to date	85
"QR" clearance requested for GE personnel this month	1
"Q" clearance cards issued this month to vendor personnel	13
Clearance change requests from "P" to "Q" submitted to AEC this month	6

HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING JUNE 30, 1948

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
MEDICAL DIVISION						
I. Visitors to this Works						
S. T. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Consultation on medical problems	W. D. Norwood P. A. Fuqua	6-17-48	6-18-48	X	
Captain Hollander Vector Control U. S. Public Health Service Seattle, Washington	Mosquito control program for Richland, Pasco and	R. Sachs	6- 4-48	6-30-48		X
Miss Irene Yeik American Red Cross Public Health Section San Francisco, California	Conference on flood conditions in tri-city area	R. Sachs	6-12-48	6-12-48		X
Miss Hilda Steinmetz Disaster Case Worker American Red Cross Minneapolis, Minnesota	Investigate evacuated families housed in N. Richland	R. Sachs	6-7-48	6-30-48		X
CONSTRUCTION DIVISION						
I. Visitors to this Works						
Joseph Pope Stone & Webster New York, New York	Prepare report on stand-by steam plant in process area	E. W. Seckendorff J. P. Martel F. W. Wilson	6-23-48	6-24-48		X

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
J. R. Colgate Industrial Engineering Div. E. I. du Pont de Nemours & Co. Wilmington, Delaware	Prepare outline for Construction Project History	W. V. Krewatch	6-1-48	6-9-48	X	
O. G. Patch U..S. Bureau of Reclamation Pasco, Washington & Grand Coulee, Washington	Experience use of admixtures in concrete inspection	G. E. Bubb	6-21-48	6-21-48		X
A. Brunstad U. S. Bureau of Reclamation Ephrata, Washington & Grand Coulee, Washington	Obtain experience data on records where admixtures were used in concrete	Concrete Consultants under G. E. Bubb	6-26-48	7-1-48		X
E. J. Glenn Willamette Iron & Steel Co. Portland, Oregon	Review requirements on piping bends and on hoods	G. E. Hotaling	6-28-48	6-28-48	X	
E. B. Clarke Willamette Iron & Steel Co. Portland, Oregon	Review requirements on piping bends and on hoods	G. E. Hotaling	6-28-48	6-28-48	X	
II. Visits to other Installations						
L. H. Arning to: Bremerton Navy Yards Bremerton, Washington	Review status of safety rods and production on contracts.	-	6-10-48	6-10-48		X
J. P. Doetsch to: General Machinery Co. Spokane, Washington	To check tools	H. I. Gustafson	6-1-48	6-5-48	X	
J. P. Doetsch to: Union Iron Works Spokane, Washington	To check tools	F. D. Williamson	6-1-48	6-5-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
J. P. Doetsch to: General Machinery Co. Spokane, Washington	Inspection work on corregated spacers	H. I. Gustafson	6-21-48	6-26-48	X	
G. E. Hotaling to: Kellex Corporation New York City, New York	Set-up the NYC-Kellex Procurement offices	R. J. Carpenter F. W. Burk R. F. Turnell	6-4-48	6-16-48	X	
L. G. Jones to: Vermont Marble Company Rutland, Vermont	Check "B" blocks	H. L. Smith	6-1-48	6-5-48		X
L. G. Jones to: Standard Stoker Company Erie, Pennsylvania	Check "B" blocks	J. B. MacKenzie	6-1-48	6-5-48		X
J. B. Whitworth to: Willamette Iron & Steel Portland, Oregon	Examine first of the stainless steel hoods being produced	C. M. Sigle	6-29-48	6-29-48	X	
- - - - -						
E. McCulloch McCulloch & Sons Portland, Oregon	Examine unsatisfactory piping arrangements made in their shop in field construction warehouse at HW	J. C. Hamilton	6-16-48	6-16-48	X	
R. L. McCulloch McCulloch & Sons Portland, Oregon	Examine unsatisfactory piping arrangements made in their shop in field construction warehouse at HW	J. C. Hamilton	6-16-48	6-16-48	X	

DESIGN DIVISION

I. Visits to other Installations

E. V. Mills to: Giffels & Vallet Detroit, Michigan	Approval of drawings and coordination of design	R. F. Giffels C. J. Steigleder W. D. Rausch N. R. Bjornson	6-1-48	6-12-48	X	

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
P. M. Murphy to: Giffels & Vallet Detroit, Michigan	Conferences on design	M. M. Bush, Jr. E. Vorel H. Ellsberg J. Pfaendtner	6-1-48	6-10-48	X	
E. J. Burda to: Giffels & Vallet Detroit, Michigan	Conference on design specifications	N. B. Laing C. J. Steigleder	6-3-48	6-8-48	X	
G. H. Syrovy to: General Machinery Co. Spokane, Washington	Expedite design	H. I. Gustafson	6-1-48 6-21-48	6-2-48 6-22-48	X X	
J. M. Frame to: Argonne National Laboratory Chicago, Illinois	Technical consultation and inspection	S. Lawroski	6-4-48	6-9-48	X	
R. H. Beaton to: Argonne National Laboratory Chicago, Illinois	Technical consultation and inspection	S. Lawroski	6-5-48	6-9-48	X	
R. H. Beaton to: Kellex Corporation New York City, New York	Attend meeting on Redox design	H. H. Willis	6-18-48	6-24-48	X	
J. H. Julien to: Giffels and Vallet Detroit, Michigan	Discuss design work	M. M. Bush, Jr.	6-4-48	6-12-48	X	
R. T. Jaske to: Giffels and Vallet Detroit, Michigan	Assist on design work	W. D. Rausch E. Vorel L. Maurer	6-6-48	6-16-48	X	
E. E. Scott to: Giffels and Vallet Detroit, Michigan	Technical consultation	N. R. Bjornson	6-7-48	6-17-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
E. L. Nugent to: Giffels & Vallet Detroit, Michigan	Consultation on design	W. D. Rausch L. Maurer	6-10-48	6-16-48	X	
R. D. Flanders to: Giffels & Vallet Detroit, Michigan	Consultation on design	C. J. Steigleder	6-10-48	6-18-48	X	
R. D. Flanders to: Roberts Filter Company Darby, Pennsylvania	Conference on design problems	F. R. Haddock	6-10-48	6-18-48	X	
O. S. Petrescu to: Puget Sound Navy Yard Bremerton, Washington	Discuss rod fabrication	Mr. Allison	6-10-48	6-10-48		X
A. T. Strand to: Puget Sound Navy Yard Bremerton, Washington	Discuss rod fabrication	Mr. Allison	6-10-48	6-10-48		X
W. C. Royce to: Giffels & Vallet Detroit, Michigan	Review and approve plans and specifications being prepared	C. J. Steigleder W. D. Rausch H. Ellsberg	6-13-48	6-20-48	X	
T. J. Birchill to: Giffels & Vallet Detroit, Michigan	Review and approve plans and specifications being prepared	C. J. Steigleder W. D. Rausch	6-13-48	6-20-48	X	
J. L. Smith to: Giffels & Vallet Detroit, Michigan	Coordinate design	M. M. Bush, Jr.	6-14-48	6-22-48	X	
W. E. Johnson to: Giffels & Vallet Detroit, Michigan	Engineering conference on ventilation	C. J. Steigleder R. F. Giffels	6-15-48	6-19-48	X	

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
A. E. Rhodes to: C. C. Moore & Co., Engrs. San Francisco 5, California	Establish schedules and procedures	R. L. Andersen	6-21-48	6-24-48	X	
W. R. McKenna to: General Machinery Co. Spokane, Washington	Expedite design	H. I. Gustafson	6-21-48	6-22-48	X	
J. L. Boyd to: Portland District USED Portland, Oregon	Obtain engineering information regarding flood probabilities	N. Bixby R. Conway O. Lunn	6-27-48	6-29-48		X
C. G. McIntosh to: Giffels & Vallet Detroit, Michigan	Coordinate design	C. J. Steigleder	6-14-48	6-19-48	X	
C. G. McIntosh to: General Electric Co. Schenectady, New York	Consultation and inspection	--	6-14-48	6-19-48	x	
P. E. Collins to: Willamette Iron & Steel Portland, Oregon	Conferences regarding equipment fabricated by them and examine first of the stainless steel hoods being produced	C. G. Sigle	6-28-48	6-29-48	X	
ELECTRICAL DIVISION						
I. Visitors to this Works						
C. A. Marten Graybar Electric Spokane, Washington	Telephone business	H. A. Carlberg	6-23-48	6-25-48		X
HEALTH INSTRUMENT DIVISION						
I. Visitors to this Works						

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
S. T. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Consultation on Health Instrument problems	H. M. Parker	6-17-48	6-17-48	X	
P. E. Church University of Washington Seattle, Washington	Meteorology consultation	H. M. Parker D. E. Jenne	6-14-48	6-14-48	X	
II. Visits to other Installations						
C. C. Gamertsfelder to: Radiation Laboratory Berkeley, California	Consultation	Dr. Overstreet Dr. Lind	6-21-48	6-22-48	X	
M. L. Mickelson to: Radiation Laboratory Berkeley, California	Consultation	Dr. Overstreet Dr. Lind	6-17-48	6-25-48	X	
POWER DIVISION						
I. Visitors to this Works						
N. E. Waggoner State Board of Health Seattle, Washington	Plant inspection of Sewage Disposal at HW	H. F. Measley	6-30-48	6-30-48		X
TRANSPORTATION DIVISION						
I. Visitors to this Works						
R. Ingebretsen Barco Manufacturing Co. Chicago, Illinois	Instruct Morrison-Knudsen operators in use of gasoline driven tie tampers which had not been previously used locally	R. T. Cooke, GE Supt. Smith, MK	6-7-48	6-9-48		X

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
L. K. Sorensen Milwaukee Railroad Seattle, Washington	Conference with GE officials regarding conditions on the Milwaukee RR line from Beverley to Riverland	R. T. Cooke	6-17-48	6-17-48		X
E. B. Crane Milwaukee Railroad Seattle, Washington	Conference with GE officials regarding conditions on the Milwaukee RR line from Beverley to Riverland	R. T. Cooke	6-17-48	6-17-48		X
C. H. Buford Milwaukee Railroad Seattle, Washington	Conference with GE officials regarding conditions on the Milwaukee RR line from Beverley to Riverland	R. T. Cooke	6-17-48	6-17-48		X
L. C. Ford General Electric Service Engr Portland, Oregon	Inspect new locomotive which just arrived at HW	R. T. Cooke	6-28-48	6-30-48		X
C. A. Thuener American Locomotive Company San Francisco, California	Inspect new locomotive which just arrived at HW	R. T. Cooke	6-28-48	Still here for 30 days		X

TECHNICAL DIVISION

I. Visitors to this Works

C. S. Wynn Air Reduction Sales Company Stamford, Connecticut	Technical consultation and inspection	O. H. Greager	6-1-48	6-25-48	X	
A. H. Neeley Air Reduction Sales Company Stamford, Connecticut	Technical consultation and inspection	O. H. Greager	6-1-48	6-25-48	X	
F. E. McKenna Air Reduction Sales Company Stamford, Connecticut	Technical consultation and inspection	O. H. Greager	6-1-48	6-25-48	X	

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
H. H. Haaland Western Precipitation Corp. Los Angeles, California	Technical consultation and inspection	O. H. Greager	6-17-48	6-19-48	X	
A. A. Abbatiello Carbide & Carbon Chemical Oak Ridge, Tennessee-Corp.	Technical consultation and inspection	O. H. Greager	6-22-48	6-25-48	X	
L. B. Werner Radiation Laboratory Berkeley, California	Technical consultation and inspection	O. H. Greager	6-24-48	6-25-48	X	
W. C. Dunlap Research Laboratory Schenectady, New York	Consultation on electric & magnetic measurements on graphite	A. A. Johnson	6-28-48	7-1-48	X	
C. S. Barrett Argonne National Laboratory Chicago, Illinois	Metallurgy meeting and consultation	A. A. Johnson	6-16-48	6-17-48	X	
D. Harker General Electric Company Schenectady, New York	Metallurgy meeting	A. B. Greninger	6-16-48	6-16-48	X	
J. P. Howe General Electric Company Schenectady, New York	Metallurgy meeting and consultation	A. B. Greninger	6-14-48	6-18-48	X	
F. F. Foote Argonne National Laboratory Chicago, Illinois	Metallurgy meeting	A. B. Greninger	6-16-48	6-16-48	X	
L. Kelman Argonne National Laboratory Chicago, Illinois	Metallurgy meeting	A. B. Greninger	6-16-48	6-16-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
A. R. Kaufman Mass. Institute of Technology Cambridge, Massachusetts	Metallurgy meeting	A. B. Greninger	6-16-48	6-16-48	X	
H. R. Nelson Batelle Memorial Institute	Metallurgy meeting	A. B. Greninger	6-16-48	6-16-48	X	
H. A. Saller Batelle Memorial Institute	Metallurgy meeting	A. B. Greninger	6-16-48	6-16-48	X	
W. A. Johnson Carbide & Carbon Company Oak Ridge, Tennessee	Metallurgy meeting	A. B. Greninger	6-16-48	6-16-48	X	
C. G. Gieszl Applied Research Laboratory Berkeley, California	Check and adjust operation of the two-meter grating spectrograph recently purchased from them	R. E. Curtis	6-17-48	6-18-48	X	
F. Hagemann Argonne National Laboratory Chicago, Illinois	Discuss irradiation	E. B. Montgomery	6-23-48	6-23-48	X	
II. Visits to other Installations						
O. H. Greager to: Argonne National Laboratory Chicago, Illinois	Attend Redox conference	W. M. Manning	6-7-48	6-8-48	X	
R. B. Richards to: Argonne National Laboratory Chicago, Illinois	Attend Redox conference	W. M. Manning	6-7-48	6-8-48	X	
V. R. Cooper to: Argonne National Laboratory Chicago, Illinois	Attend Redox conference	W. M. Manning	6-7-48	6-8-48	X	

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
F. W. Albaugh to: Argonne National Laboratory Chicago, Illinois	Attend Redox conference	W. M. Manning	6-7-48	6-8-48	X	
J. G. Bradley to: Argonne National Laboratory Chicago, Illinois	Attend Redox conference	W. M. Manning	6-7-48	6-8-48	X	
O. H. Groager to: Standard Oil Development Co. Bayway, New Jersey	Attend Redox conference	F. W. Schumacher	6-9-48	6-11-48	X	
R. B. Richards to: Standard Oil Development Co. Bayway, New Jersey	Attend Redox conference	F. W. Schumacher	6-9-48	6-11-48	X	
V. R. Cooper to: Standard Oil Development Co. Bayway, New Jersey	Attend Redox conference	F. W. Schumacher	6-9-48	6-11-48	X	
W. M. Harty to: Giffels & Vallet Detroit, Michigan	Technical consultation on design of Development Laboratory	F. P. Ingalls	6-14-48	6-15-48	X	
O. H. Groager to: Mr. Muir's Office New York City, New York	Attend meeting of Redox Advisory Committee	Mr. Muir	6-18-48	6-24-48	X	
O. F. Hill to: Argonne National Laboratory Chicago, Illinois	Attend meeting on Ruthinum	W. M. Manning Chemistry	6-21-48	6-22-48	X	
C. F. Callis to: Argonne National Laboratory Chicago, Illinois	Attend meeting on Ruthinum	W. M. Manning Chemistry	6-21-48	6-22-48	X	

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
A. R. Maguire to: Standard Oil Develop- Bayway, New Jersey ment Co.	Technical consultation and inspection	F. W. Schumacher	6-30-48	7-9-48	X	
A. R. Maguire to: Kellex Corporation New York City, New York	Technical consultation and inspection	K. C. Vint	6-30-48	7-9-48	X	
A. R. Maguire to: Knolls Atomic Power Schenectady, New York Laboratory	Technical consultation and inspection	J. Marsden	6-30-48	7-9-48	X	
A. R. Maguire to: Argonne National Labora- Chicago, Illinois tory	Technical consultation and inspection	W. M. Manning	6-30-48	7-9-48	X	
C. A. Bennett to: Radiation Laboratory Berkeley, California	Attend meeting of Institute of Mathematical Statistics	-	6-22-48	6-25-48		X
L. M. Knights to: Giffels & Vallet Detroit, Michigan	Consultation on laboratory design problems	C. J. Steigleder	6-1-48	6-4-48	X	
J. W. Hall to: Knolls Atomic Power Schenectady, New York Laboratory	Consultation and exchange of Redox analytical data of interest to both sites	J. W. Flagg	6-8-48	6-10-48	X	
E. W. Christopherson to: Knolls Atomic Power Schenectady, New York Laboratory	Consultation and exchange of Redox analytical data of interest to both sites	J. W. Flagg	6-8-48	6-10-48	X	
J. W. Hall to: North Bergen, New Jersey	Interview prospective tech-nical personnel	E. F. Gates	6-10-48	6-11-48		X
L. F. Kendall to: Los Alamos Laboratory Los Alamos, New Mexico	Study spectrochemical anal-ytical methods	E. R. Jette	6-14-48	6-25-48	X	

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
J. S. Stoakes to: Detroit, Michigan	Attend annual convention of the American Society for Testing Materials	-	6-21-48	6-24-48		X
R. E. Curtis to: University of Chicago Chicago, Illinois	Consultation of spectro-chemical techniques	N. H. Nachtrieb	6-21-48	6-21-48	X	
P. F. Gast to: Pasadena, California	American Physical Society Meeting and Interview	-	6-23-48	6-29-48		X
J. T. Carleton to: General Electric Co. Schenectady, New York	Technical consultation and inspection	C. R. Hanna	6-12-48	6-17-48	X	
P. F. Gast to: Los Alamos Laboratory Los Alamos, New Mexico	Technical consultation and inspection	C. L. Tyler	6-1-48	6-5-48	X	
W. M. Harty to: Willamette Iron & Steel Portland, Oregon	Examine first of the stainless steel hoods being produced	C. M. Siglo	6-29-48	6-29-48	X	

"p" DIVISION

I. Visits to other Installations

P. E. Lowe to: Giffels & Vallet Detroit, Michigan	Blueprint review	M. M. Bush, Jr.	6-3-48	6-10-48	X	

[redacted]

COMMUNITY DIVISIONS

SUMMARY - JUNE, 1948

ORGANIZATION AND PERSONNEL

Number of employees on roll	Beg. of Month	End of Month
Community Administration	11	11
Public Works	370	428
Commercial Facilities	15	16
Housing	33	33
Community Fire	125	125
Community Patrol	158	147
Community Activities	9	12
	721	772

This increase in personnel is due primarily to employment of junior laborers for seasonal work in maintenance of public areas and clean up of areas that have been flooded.

ADMINISTRATION

Steps were taken, during the month, to organize a Community Advisory Council.

Budget requirements for construction during 1948-51 period were prepared and presented to the Appropriations and Budget Committee.

Studies were initiated toward improving the operating costs of Richland.

During the fore part of the month considerable attention was directed toward flood control.

PUBLIC WORKS

The balance of 450 U and V type houses was completed. This is the entire amount of this type of house to be constructed.

120 houses were renovated in preparation for new tenants.

FACILITIES

A survey of business volume at representative facilities indicate a substantial (approximately twenty per cent) increase in all types of business, possibly due to the partial isolation of Richland during the month of June.

FACILITIES (Continued)

Several commercial facilities have been given approval to make structural improvements, at their expense, to the building being leased by them.

Operating agreements were made between General Electric Company and the following operators:

Elite Shop	Richland
Arthur R. Trimble (Ice Delivery)	North Richland
Vance Properties (Re maid service)	Richland

The normal functions of liaison between General Electric Company and the operators; interviewing prospective facility operators; and general duties of the Division were carried on during the month.

HOUSING

309 houses were leased during the month.

Approval was received from the AEC to lease ten tract houses, formerly boarded up and listed for removal, to the Graysport Construction Company for their use.

Newly constructed houses received and ready for allocation were as follows:

U & V type	34
M,Q,R, & S	87

FIRE

The Community Fire Division was placed on a six day per week work schedule beginning June 7, 1948.

A total of 57 fire alarms were answered in Richland and North Richland. These fires resulted in a property loss of $693.40 to project owned property and $2,083.10 in personal property.

PATROL

The Community Patrol Division was placed on a six day per week work schedule beginning June 7, 1948.

A post was established at the barracks constructed by Nettleton-Sound, Inc., for control of that area.

PATROL (Continued)

132 persons were processed through the Richland jail during the month of June.

ACTIVITIES

Recreational activities were hampered considerably by flood conditions but were beginning to get back to a normal basis by June 30, 1948.

In addition to the above, all normal functions of the various divisions were performed as required.

COMMUNITY DIVISIONS

COMMUNITY ADMINISTRATION

JUNE , 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll	June
Beginning of month	11
End of month	11
No change	0

GENERAL

During the month two meetings were held with representatives of various civic organizations for the purpose of organizing a Community Advisory Council. T. A. Purton was elected temporary chairman of this organization and W. C. MacBrayne vice-chairman.

There was prepared and submitted to the Appropriations and Budget Committee the Construction Budget estimates covering the anticipated construction needs of the Richland Community Division for the fiscal years 1948-49 to 1950-51 and beyond. Preliminary project proposals supporting the summary budget estimates will be submitted.

As a part of the over-all cost reduction program, monthly cost reports for the Community were revicwed as well as the methods used for determining the basis of distribution for overhead costs charged to the Community. Work order cost summary sheets were reviewed and comments upon them were transmitted to the Community Public Works Division in accordance with the plan to effect cost reductions in cooperation with heads of the operating groups.

During the flood emergency personnel of this Division was kept informed as to the current and forecasted water levels. An emergency system of Village bus service was prepared in case of need and arrangements were made for a broadcast through the Pasco station notifying Richland residents of the closing of certain artorial streets.

Appropriation requests were prepared and submitted to the Appropriations and Budget Committee as follows:

1 - Study on flood control and access roads.
2 - Enlarged patrol headquarters.
3 - Construction of storm sewer main - Area "C"

4 - Design of water and sewer facilities - Richland and North Richland.
5 - Construction of water and sewer facilities - Richland and North Richland.
6 - Development of additional areas for commercial facilities - Richland.
7 - Restoration of George Washington Way drainage culvert.
8 - Relocation of Sewer Main - Hains Avenue.

Conferences were held with H. K. Hossom of the University of Washington to assist him in the tax study being made at the request of the Atomic Energy Commission.

At the request of Nettleton-Sound, Inc., a change was made in the Longfitt bus route to accommodate their personnel living in the barracks constructed at the southern end of the western prefabricated area.

Publicity was released in the Richland Villager and Works News on the following subject:

Formation of Community Council
Mosquito Control Program
New trash and garbage disposal area
Power shutdown in certain areas
Hazards in grass fires
Irrigation of street trees
Program for seeding of inner block areas

Meetings of the Village Safety Committee during the period approved steps taken to insure the safety of residents during the flood crisis.

COMMUNITY DIVISIONS

Public Works Division

ORGANIZATION & PERSONNEL

Number of employees on payroll:	Exempt	Non-exempt	Total
May 31, 1948	36	334	370
June 30, 1948	39	389	428
Net increase	3	54	57

During the month of June the following personnel changes were made:

New employees	59
Transfers - from "S" Division	1
Returned from sick leave	2
Retired	1
Terminations	2

ENGINEERING SECTION

General

The normal duties of inspection, scheduling and follow-up consultation and general planning were performed during the month. Contacts with members of the Construction Group were continued relative to Richland houses, facilities, and dormitories. Performed the necessary liaison work with Design Division, where we were designated as the Contact Engineer.

Tenant Service

The processing of patrol orders and work orders during the month is as follows:

	Incomplete 5-31-48	Issued During June, 1948	Incomplete 6-29-48	Issued Prev. Month
Patrol Orders - Days	1358	4011	1667	3550
Patrol (furniture repair)	130	37	117	50
Patrol (off shift elect.)	0	451	0	600
Patrol (off shift maint.)	13	254	8	241
Regular work orders	414	62	401	82
Backcharge Tenant Service orders	57	116	51	74
Routine Work Requests	47	6	53	10

The tabulation of house renovations by types for the month is as follows:

Tract	A	B	D	E	F	G	H	L	U	V	Prefabs	Total
1	24	32	3	3	6	1	15	2	2	1	30	120

Community Public Works Division

ENGINEERING SECTION (Continued)

Items of Interest

180 grass seed permits were issued to tenants during the month, which amounted to 5009 pounds of seed.

119 scrap lumber permits were issued to tenants during the month of June as compared with 219 issued during the previous month.

624 home fire inspections were reported and processed during the month of June. 1107 homes were visited.

There are 103 bathroom painting requests outstanding for the month.

Window glass replacement (all types) requests outstanding are 114.

Tenants in new apartments and M, Q, R, S, type residences were furnished with standard instructions for adapting evaporative coolers to furnaces. Many tenants were furnished sketches of proposed alterations which were approved.

Sink linoleum requests outstanding for the month are 127 as compared to 187 the previous month.

Kitchen and bathroom faucets in need of repair and exchange are 332 outstanding.

Electrical outage notifications received and handled during the month, 13.

During the month 281 items of household furniture were sent to maintenance for repair and 283 items were returned to furniture warehouse following repair.

Alteration permits issued to tenants during the month of June amounted to 521 as compared with 266 issued during the month of May. Permits issued during June consisted of the following:

Air conditioners	470
Refinish floors	14
Basement excavations	13
Install automatic washers, dryers and dishwashers	26
Install rear door in 3 bedroom prefabs	4
Install wood railing to front steps (R) house	1
Lower thermostat	1
Install linoleum tile on kitchen floor	1
Install awnings on windows and door	1
Exterior painting of 3 bedroom prefab	1
Build and connect storage cabinets to rear of house	1
Move hot water heater to new location	1
Patio in rear of house	1
20 amp circuit installed	1
Reverse position of range and refrigerator	1
Install electrical outlets and receptacles	2
Fence area west of tract house for pasture	1
Install shelves in kitchen broom closet	1

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avoiding the production of the polymeric and Pu(VI) forms of product during the metathesis step. The use of C.P. HNO_3 for dissolving the metathesized product cake following the Crossover step was introduced in Runs B-5 and B-6.

Laboratory evaluation of the flow sheet process on plant solutions from each of the February runs paralleled rather closely the behavior in the plant. Analyses indicated considerable variation in the amount of Pu(IV) remaining after the pre-reduction step, indicating the necessity for further evaluation of optimum conditions for this procedure.

Production Tests

Production Test 231-3E-2 called for the following changes in procedure during the February runs:

1) Reduction of the amount of filter aid added with each batch introduced to H-1 and H-2.
2) Second cycle peroxide precipitation at 2N HNO_3 and 0.25M $(NH_4)_2SO_4$ for the purpose of reducing recycle volumes and favoring rapid settling characteristics.
3) Elimination of the peroxide killing step in P-1 by holding solution until CT-1 could be emptied and used for the purpose.

These changes have all proved advantageous. Since the high acidity precipitation is carried out at half the volume used when the 1N HNO_3 process is employed, the amount of product recycled when a given solubility is obtained is half that which would be observed in the full volume process. The second cycle solubilities (high acidity) obtained in runs B-1 through B-4 have been 42, 33, 55, and 19 mg/l respectively.

Product Purity

The composite of the cleanup solution of equipment following the January runs, T-5-01-B-6C, T-5-02-B-1 and T-5-02-B-2, showed a purity of 63% in terms of ignited product oxide relative to total ignited solids in the adjustment tank solution. The adjustment tank solution contained suspended solids which had partially settled out before the sample was taken for

Community Public Works Division

MAINTENANCE SECTION (Continued)

Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
May 31, 1948	17	197	214
June 30, 1948	18	199	217

During the month the following personnel changes were made:

New Employees:	2 electricians
Transfer from "S" Divn.	1 Mechanic-carpenter
Returned from sick leave	2
Terminations	2

Safety

No major or sub-major injuries or near serious accidents occurred during the month.

Progress

During June 120 housing units were renovated. 38 orders not completed are on hand.

The reconditioning of dormitory W-21 remains 98% complete.

The inside of 33 conventional type units were painted during the month. Painting personnel generally assigned to this work are still assisting in renovations.

Outside painting was completed on nine tract houses.

Linoleum was replaced on 179 kitchen table tops during the month of June.

Project C-242, installation of mail boxes in dormitories, is approximately 85% complete. Final completion date is expected on 8-1-48, and the postmaster for Richland has been notified in order that he may prepare for personnel to place these mail boxes in service.

Carpenter crews are continuing to repair the exteriors of permanent type houses in the south end of town. Work is 75% complete in division seven, 90% complete in division five and 90% complete in division four.

Project C-158, dormitory air conditioning, is 80% complete. All evaporative coolers for 22 dorms are in position. Cool air is being provided through ducts or into hallways of all womens dorms and #1 and 2 mens dorms. Cool air will be provided for 6 remaining mens dorms by July 9th. Hall ducts are completed in 9 dorms (2 of which are not yet painted). In addition to the remaining hall ducts, work yet to be completed includes installation of dampers, controls, canvas connections, 6 attic rooms, partial wiring of mens dorms and painting.

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plant would make it possible to eliminate scavengers and to shorten the time cycle for this step which is now the longest of any step in the process.

Recovery of Product from By-Product Precipitates

Procedures have been worked out and tested on a laboratory scale for reworking by-product precipitates with abnormally high product content. Laboratory work is essentially complete on a procedure for reworking of a $BiPO_4$ by-product containing a significant amount of the less soluble beta form of $BiPO_4$. The procedure involves the use of twice the normal amount of HNO_3 for dissolving the $BiPO_4$ followed by oxidation in the usual manner,

COMMUNITY DIVISIONS

COMMUNITY COMMERCIAL FACILITIES DIVISION

June 1948

ORGANIZATION AND PERSONNEL — JUNE

Number of employees on payroll:	
Beginning of month	15
End of month	16
Net increase	1

COMMERCIAL FACILITIES

The following figures indicate trends in commercial activities as related to various basic items:

	May	June
Cafeteria Meal Customers (Progressive)	131,983	161,984
Per cent of room-day occupancy - Desert Inn	95%	95.6%
Gallons of ice cream sold	11,269	17,090
Carnation milk and cream deliveries (Gal)	83,622	103,126
Darigold milk deliveries (to stores)	6,519	8,228
Theater customer count	52,372	56,077
Gallons of gasoline sold	304,851	335,866

Total number of Commercial Facility operator's employees, full and part time, as of June 30, 1948 - 1159.

Desert Inn installed flake ice machine in Riverview Room, at operator's expense; mechanically refrigerated air conditioning units are also being installed in Riverview Room.

Pennywise Drug was authorized to revise electrical circuits to carry an additional load, at operator's expense.

Desert Inn was authorized to cut additional louver in attic of center section, to improve ventilation.

Campbell's Cold Storage Locker addition was opened to public on June 28.

New parking lot at Campbell's Cold Storage Plant was placed in operation.

Robley L. Johnson, photographer, was authorized to install evaporative air conditioning at operator's expense.

showed it to contain significant amounts of Rn, which has not been identified previously in process solutions at this point.

Characterization of Product Radiations

The relative quantities of different Pu and Np isotopes formed are known to vary with the time and power of pile operation. The possibility exists that new isotopes with hazardous levels of gamma radiation may be produced under the conditions of H.E.W. pile operation. Therefore, the gamma and/or X-ray radiations from a highly decontaminated sample of Metallurgical Project Pu and a similar sample of Pu from the composite of the January H.E.W. runs have been compared critically. Within the limits of detection and for the power levels involved, all of the radiations of the two samples have the same energy values and the same intensities per unit of product.

A determination of the specific alpha activity of H.E.W. product agrees with the accepted value for Metallurgical Project Pu within the limits of detection

Apparatus and Equipment

Assistance has been given in the inter-calibration of beta standards in counting rooms of the various areas and in determination of coincidence losses on both beta and alpha counters.

The nitrogen chamber alpha counter has been placed in operation. Performance tests showed reliable and reproducible results for counting rates up to 200,000/minute. The counting rate was independent of sample position over a 6-cm. diameter region on the sample holder. The instrument exhibits a high tolerance to beta background. It is expected that this range will be considerably extended by the use of a scaling circuit with a higher scaling ratio.

Standards were prepared for the so-called liquid gamma counter. Performance tests have been made on three instruments set up in counting rooms in Buildings 3706, 222-F and 231.

Additional lead and aluminum absorbers have been prepared and calibrated and added to sets previously made up.

Satisfactory performance of the counter tube in the open-air counter has been obtained as the result of changes made in the equipment to prevent heating of the tube during operation.

Faults in the FP-54 circuit, designed for use in comparing samples over a very wide range of activities, have been corrected and it now shows satisfactory stability.

The calibration of the quarts micro-balance, used to make determinations on the purity and specific activity of plant product, has been rechecked by an independent method and found to be accurate. The balance is now performing reproducibly with a sensitivity of a few one hundredths of a microgram. This makes it possible to weigh samples of as little as 10 micrograms with an accuracy of better than 1%. Assistance is being given the Analytical Division in setting up another such balance for purity determinations and in training a man in its use.

Semi-Works Section

Separations Laboratory - Building 321

Work in this building has consisted of making inactive chemical runs. Preliminary chemical runs on both $BiPO_4$ and LaF_3 cycles were made in order to test equipment. Building facilities also were used to check handling properties and mechanical details involved in the KOH washing of $BiPO_4$ precipitates and in similar studies on crystalline LaF_3.

Chemical Runs

Chemical runs on the Crossover cycle indicated that difficulties may be experienced in centrifuging and in removing the LaF_3 cake from the centrifuge bowl. With present equipment, a centrifugal force of only 450 G can

was necessary, and approximately twice the flow sheet quantity of water was required.

KOH Washing of $BiPO_4$ Precipitates

A series of five inactive chemical runs were made in which $BiPO_4$ was precipitated from a 6% HNO_3 solution, centrifuged, washed with KOH, and dissolved in HNO_3. Washing time was varied from 20 to 40 minutes; in each case, the KOH skimmings and following water washes were caught and analyzed for soluble phosphates in order to determine the efficiency of the operation. It was found that with the 20-minute KOH washing, approximately 70% of the phosphate theoretically present was solubilized and removed. Increasing the washing time increased the percentage of phosphate removed. When the cake was washed for 40 minutes, an average of 93% of the phosphate was removed. After KOH washing for 40 minutes, the cake was treated with 10% of the flow sheet quantity of 60% HNO_3. Essentially all of the cake dissolved, but an appreciable quantity of [illegible] undissolved after 30 m

COMMUNITY DIVISIONS

COMMUNITY HOUSING DIVISION

June, 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	June
Beginning of month	33
End of month	33
Net increase	0

RICHLAND HOUSING

Housing Utilization as of Month End

Houses Occupied by Family Groups	Conventional	Block	Pre-Cuts	Prefab	Apts.	Tract	Total
Operations	2185	184	389	1121	65	36	3971 3910
Facilities	123	2	15	110	1	11	261 266
Government	100	19	15	42	2	9	187
Kellex Corporation	1	6	9	2	1		19
Morrison-Knudsen	3		1		1		5
Atkinson-Jones	8	27	8	8	2		53
J. Gordon Turnbull		1	2	7			10
Giffels & Vallet		1	1	8			10
J. A. Terteling & Sons			1	1			2
Graysport Construction						1	1
Newport-Kern Kibbe						1	1
Vernita Orchards						5	5
McNeil Construction Co.			1	3			4
Urban, Smythe & Warren		2	1		1		4
Newberry Neon Electric		2	2				4
TOTAL HOUSES OCCUPIED	2420	244	445	1302	73	*63	4547
Houses utilized for special purp.						1	1
Houses assigned (leases written)	16	20	3	6	1		46
Houses assigned- awaiting tenants	64	15	2	24			105
Government houses - unassigned						**42	42
TOTAL HOUSES	2500	279	450	1332	74	106	4741

* Occupancy figure includes 4 houses occupied by Bonnerville Power in Priest Rapids and White Bluffs.

** This includes 34 Tract Houses boarded up for salvage.

COMMUNITY HOUSING DIVISION

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2437	90	107	2420	Minus 17
Block Type	142	104	2	244	Plus 102
Precut Type	385	67	7	445	Plus 60
Prefab Type	1308	43	49	1302	Minus 6
Apartments	72	4	3	73	Plus 1
Tract	65		2	63	Minus 2
Total	4409	309	169	4547	Plus 138

Dormitory Statistics

Dormitories		Occupants	Vacancies	Total Beds
Men - Occupied	14	532	* 22	556
Men - Unoccupied				
Women - Occupied	14	580	* 12	592
Women - Unoccupied				

Women's Dormitories Occupied By:

G. E. Office	1
Education	1
Apartment	1
	31

* This includes 6 beds in W-9 and 10 beds in M-12 not in use. Space in W-9 is being used for Supply Rooms and Dormitory Offices. Space is being used for F. B. I. Offices.

GENERAL

The following tract houses K-790, K-786, K-741, K-753, K-719, J-780, J-713 and L-856 have been leased to Graysport Construction Company to house their key personnel. Graysport Construction Company has agreed to repair and maintain the houses as agreed upon by representatives of Graysport Construction Company and General Electric Company. Rental was set at $10.00 per month for each house.

Applications for moves to Ranch Houses were made available on June 17, 1948. All applications were to be in this office by 5: P.M. July 1, 1948. After this date, applications for moves to Ranch type houses will not be considered.

Thirty-four (34) precuts were accepted from the Hudson Company during the month of June - (4 "U" Type and 30 "V" Type). On June 10, 1948 the last Hudson house was accepted and turned over to this office.

Eighty-seven (87) Atkinson-Jones houses were accepted during the month of June - (39 "Q" Type, 45 "R" Type, and 3 "M" Type).

All census forms have been received and are being processed so that information desired can be obtained.

COMMUNITY DIVISIONS

COMMUNITY FIRE DIVISION

JUNE, 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	June
Beginning of month	125
End of month	125
Terminations	1
New employees	1

	Richland	North Richland
Response to Alarms	30	27
Fire Loss (Estimated)		
Hanford Works	$475*	$218.40
Personal	$1260*	$823.10
Investigations of Minor Fires and Incidents	12	7
Inspections Made (Buildings)	1012	682
Extinguishers		
Inspected	1106	871
Installed	23	124
Recharged	130	54
Removed	6	0
Damaged	0	1
Stolen	0	6**
Safety Meetings	16	8
Outside Drills	64	54
Inside Drills	72	39
Fire Alarm Boxes Tested	130	0
Fire Hose Tested, 1½ Inch	3000 feet	1650 feet

*Fire occurred in tract house about 2 miles west of Richland during flood period. House entirely surrounded by water. Tenant claimed a loss on furniture to extent of $1200.

**Reported to Patrol

COMMUNITY DIVISIONS

COMMUNITY PATROL

JUNE 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:		June
Beginning of month		158
End of month		147
Net decrease for month		11
Reason: V. T. Personal	5	
Transferred to Industrial	12	
Transferred to Construction	1	
Discharged	1	
	19	
Less new hires	8	
Net Decrease	11	

GENERAL

On June 2, 1948, restrictions were set up to prevent persons using the swimming pool in North Richland.

On June 3, 1948, a new Chevrolet panel truck was obtained by the Community Patrol Division, to be used as a "Paddy Wagon".

Two Safety Show escorts, daily, morning and evening except Sunday's, were begun on June 3, 1948, by the North Richland Patrol.

Effective June 7, 1948, the Community Patrol was placed on a temporary 6 day work week. As a result of this change, the Patrol is now operating on a 7 company shift schedule.

On June 8, 1948, Ass't Chief R. L. Soule reported for duty with the Community Patrol. He is to be in charge of Special Training of Patrol personnel through the summer months.

On June 9, 1948, Patrol began making occasional checks with Mr. L. H. Siefert, Night Watchman employed by the Thorgaard Plumbing Company. Such checks will be continued until further notice. Mr. Siefert has been deputized by Sheriff Harry B. Cochran.

Beginning June 9, 1948 and extending through June 30, 1948, special checks were made by Motor Patrol of all areas affected by the flood. All children found wading, swimming, etc., were ordered out and warned of dangers of such practices.

On June 10 and 11th, 1948, Patrol received letters of commendation from Mr. Muir and Mr. Neblett, expressing their appreciation for the efficient handling of controls set up during the flood emergency.

Effective June 11, 1948, the Patrol changed to summer uniforms on all shifts.

On June 12, 1948, a patrolman was assigned to the Lewis & Clark School for the protection of flood victims housed there temporarily. This post was discontinued on June 18, 1948.

On June 12, 1948, a master key to the Nettleton Sound Construction Area in southwest Richland was placed in custody of the Patrol Desk Sergeant for use by Patrol when required.

Effective June 13, 1948, a schedule was installed for "Sunday coverage" by ranking Patrol supervision. The schedule provides for a rank of Captain or above to be on duty at all times.

Effective 12:01 A. M. on June 13, 1948, call letters of Radio Station WUGN were changed to WGMB. This was pursuant to action of the Inter-Department Radio Advisory Committee at Washington, D. C. in their Document No. 6366, dated February 5, 1948.

On June 15, 1948, a Patrol Library was installed, consisting of text-books covering various phases of Police Science, methods and systems. This library is located in Patrol Staff Headquarters (Bldg. 770) and is available to all members of Patrol.

Effective June 15, 1948, two patrolmen are assigned each evening, Monday through Saturday, at the Columbia High School Stadium, to handle traffic and parking of cars during soft ball games. This is necessary only for a limited time before and after each game.

On June 17, 1948, the practice of assigning a Patrolman to escort telephone men engaged in installing and removing phones in residences, was discontinued.

On June 17, 1948, Patrol began making occasional checks by Motor Patrol of the Nettleton Sound Construction Areas.

Effective June 19, 1948, the Patrol Desk Sergeant was made responsible for handling of Lost and Found articles turned into the Patrol. This function was formerly handled by the Patrol Emergency Office of the Plant Patrol. A Lost and Found section was also installed in the Patrol Headquarters in North Richland as of this date.

Beginning June 22, 1948, a Patrolman was posted at the Ferry landing on the Richland side. This post was to be manned as long as needs require. Effective June 22, 1948, the issuing of permits for entering restricted flood zones, was discontinued by Patrol.

Effective June 23, 1948, Patrol began occasional checks of C & F Construction Areas.

Effective June 25, 1948, a patrolman is assigned to the hospital, on call, to drive the ambulance in the absence of the regular driver. This assignment was discontinued on June 30, 1948.

During the period from June 1, 1948 to June 27, 1948, special patrol posts were established throughout the east section of Richland due to the flood emergency. New posts were set up and others eliminated as needs required.

On June 28, 1948, 13 men were released from the Community Patrol for reassignment due to the increased manpower gained through working a 6 day week. 12 of these men were transferred to the Plant Patrol to fill existing vacancies in that department and one was transferred to Construction.

Because of the flood emergency, it was necessary to work a number of Patrol personnel overtime to Patrol the dike, handle rerouting of traffic and to enforce restricted zones set up by the Flood Control Committee. All patrol dike assignments were discontinued effective June 28, 1948. Periodic checks by motor patrol were continued.

Ass't Chief D. F. McCall reported for duty with the Community Patrol Division on June 28, 1948. He is to act in the capacity of Traffic Consultant and Training Instructor through the summer months.

Checks on trailers entering the project were continued throughout the month.

Intermittent checks were made during the month by our motor patrol for persons observed hauling scrap lumber.

A Patrol shack was constructed at the Nettleton Sound Construction barracks during the latter part of the month. This post is to be manned on the swing and graveyard shifts Monday through Friday and on all 3 shifts on Saturday, Sunday and holidays.

132 prisoners were processed through the Richland jail during the month of June, 1948.

The weekly check on the patrol boat was continued through the month of June.

Training

Effective June 22, 1948, the routine training of Patrol personnel was resumed under the direction of Instructor R. S. Soule. This program had been temporarily discontinued on June 7, 1948, due to the flood emergency, to better utilize manpower. Effective June 22, 1948, and until further notice, patrol personnel will be assigned to a full day of classroom instruction in room 114, Dorm W 10. This will temporarily replace routine arms instruction for Community Patrol personnel at the Patrol Range.

Training topics and demonstrations covered since June 22 for the month are as follows: Means of Defense, Report Writing, Laws of Arrest, Witness Interrogation, Criminal and Civil Liability, Intelligence Precautions in Carrying Out Police Duties, General Duties involved in any Felony, Handling of Evidence, Self Incrimination, Obtaining a Dying Declaration, Duties of an Officer

in Court, Increasing Powers of Observation.

In addition a series of excercises for strengthening muscles and shoulders were given.

Qualifications in Army "L" course firing were as follows:

	April	May	June
Unqualified	4%	10%	
Marksman	30%	30%	
Sharpshooter	26%	15%	
Expert	40%	45%	

Note: No Army "L" course firing was given for the month of June due to the flood emergency.

Richland Area (Village)

	April	May	June
Check on absentees	2	15	11
*Persons assisted	347	369	305
Doors and windows found open in commerical facilities	11	20	14
Lost children found	6	13	6
Ambulance runs	53	44	61
Lost dogs reported	1	1	1
Dog and cat complaints	19	32	33
Persons injured by dogs	4	10	7
Bank escorts and details			42
Fires investigated			37
Misc. escorts			40
Complaints investigated			76
Missing persons reported			7
Totals	443	514	640

*Includes: Escorts from Cashier Office and Bus Terminal to Bank; persons admitted to residence; transportation for nurses and technicians to Hospital on special night calls; delivery of messages to residents who have no telephone; and opening Trailer Parking lot for individuals.

Note: A further breakdown of Patrol functions has been made beginning with this report. This will account for the blank spaces under various headings for the months of April and May.

Richland Area (North)

	April	May	June
Check on absentees	0	0	0
*Persons assisted	649	784	717
Doors and windows found open in commercial facilities			22
Lost children found			3
Ambulance runs	12	15	9
Lost dogs reported			0
Dog and cat complaints			1
Persons injured by dogs			0
Bank escorts and details	35	23	26
Fires investigated			18
Misc. escorts	101	109	79
Complaints investigated	147	122	149
Missing persons reported			0
Totals	944	1053	1024

*Includes: Admitting persons to their rooms; contacting parties on long distance calls; issuing rooms and bedding; and locating persons wanted for various reasons.

Note: A further breakdown of Patrol functions has been made beginning with this report. This will account for the blank spaces under various headings for the months of April and May.

Traffic Section

A quantity of School Boy Patrol caps, raincoats and rain hats were received by Patrol during the month.

A number of Traffic posters entitled, "One Second from Eternity" were received by Patrol and posted throughout Richland and North Richland by the Patrol Traffic Section.

1000 leaflets entitled "Signs of Life" were received and distributed by the Traffic Section during the month.

Captain W. A. Ziegler of the Richland Enforcement Patrol was made responsible for manning all Traffic Control posts in the Richland Village effective June 29, 1948. This change was effected in order to unify command and provide better utilization of manpower and also to eliminate overlapping of responsibility.

Classroom instruction on Adult Drivers Training has been eliminated for the time being. However, practical instruction has been resumed and will continue until further notice.

Traffic and Offense Stetistics

These are presented in separate tables at the end of this departmental report. A comparison of Richland Offense Statistics with outside averages also is presented.

Patrol

A total of 184 unusual incident reports was received, which consisted mainly of Accidents, Traffic Violations, and intoxications. Regular Traffic Violation Reports, not accompanied by an Unusual Incident Report, are presented in separate tables in the Traffic Statistics attached to this report.

PATROL DIVISION REPORT

MUNICIPAL

JUNE 1948

FORCE REPORT	Entire Patrol 5-31-48	Entire Patrol 6-30-48
Patrol		
Patrol Supervisor	1	1
Division Supervisor	1	3
Captains	5	5
Lieutenants	12	12
Sergeants	18	17
Patrolmen	117	104
Total	154	142
Clerical		
Jr. Clerks	1	1
Stenographers	2	3
Office Helper	1	1
Total Clerical	4	5
Grand Total	155	147

Additions

1 Stenographer (New Hire)
2 Division Supervisors

Terminations

18 Patrolmen
1 Sergeant

TERMINATIONS CONSIST OF

5 V.T. Personal
1 Transfer to Construction
12 " " Industrial Patrol
1 Discharged

PATROL DIVISION - TRAFFIC CONTROL STATISTICS
JUNE - 1948

MOTOR VEHICLE ACCIDENTS

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	May	June	May	June	May	June	May	June
Plant	7	1	0	0	0	0	8	1
Richland	32	29	0	0	3	0	10	3
North Richland	13	28	0	0	0	3	1	7
Totals	52	58	0	0	3	3	19	11

ACCIDENT CAUSES

	Negligent Driving		Failure to Yield Right-of-Way		Reckless & Drunken Driving		Other Causes	
	May	June	May	June	May	June	May	June
Plant	4	0	1	0	0	0	2	1
Richland	8	17	13	7	1	0	11	6
North Richland	5	18	4	5	1	2	3	4
Totals	17	35	18	12	2	2	16	11

PLANT WARNING TRAFFIC TICKETS ISSUED

	Speeding		"Stop" Sign		Parking		Imp. License		Def. Equip.		Other Violations		Totals	
	May	June	May	June	May	June	May	June	May	June	May	June	May	June
Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Richland	0	0	8	1	79	39	6	0	64	7	8	1	165	48
N. Rich.	8	0	0	1	217	161	0	0	48	19	0	0	273	181
Totals	8	0	8	2	296	200	6	0	112	26	8	1	438	229

COURT CITATION TRAFFIC TICKETS ISSUED

	Speeding		"Stop" Sign		Drunken Driving		Reckless Dr.		Neg.Dr.		Parking V.		Other V.		Totals	
	May	June	May	June	May	June	May	June	May	June	May	June	May	June	May	June
Plant	1	2	1	2	1	0	1	0	1	0	0	0	1	0	6	4
Richland	34	12	19	31	5	1	1	1	24	11	63	19	20	20	166	95
N. Rich.	22	22	24	24	3	4	0	1	30	33	7	2	28	25	114	111
Totals	57	36	44	57	9	5	2	2	55	44	70	21	49	45	286	210

TRAFFIC VOLUME Count taken in June of 1948, Goethals Drive, just north of Knight Street-24 hour period-9,821 cars.
Note: Due to late reporting, thirteen accidents that occurred in Richland and eight that occurred in North Richland during the month of May are included in June totals.

PATROL TRAFFIC SECTION
****
RICHLAND JUSTICE COURT CASES
****
JUNE, 1948
****

Violation	Number of Cases	Number of Convictions	Total Fines	Total Susp.	Sentenced To Jail	Sentence Susp.	License Revoked	Average Fine Paid	Cases Dismissed	Warrants Issued
Drunken Driving----------	5	4	$222.50	None	None	None	4	$55.62	1	0
Reckless Driving---------	2	1	27.50	None	None	None	1	27.50	0	1
Negligent Driving--------	17	15	265.00	$40.00	None	None	0	15.00	1	1
Speeding-----------------	31	28	302.50	25.00	None	None	0	9.91	1	2
Stop Signs---------------	39	37	209.00	26.00	None	None	0	4.94	0	2
Failure to YROW----------	11	11	132.50	75.00	None	None	0	5.22	0	0
Improper Passing---------	15	15	93.50	15.00	None	None	0	5.23	0	0
Improper Parking---------	8	8	28.00	None	None	None	0	3.50	0	0
No Arm Signal------------	1	1	7.50	None	None	None	0	7.50	0	0
No Driver's License------	16	16	71.25	30.25	None	None	0	2.56	0	0
Failure to Stop and Identify-----------------	1	1	12.50	None	None	None	0	12.50	0	0
Defective Equipment------	2	2	11.25	7.50	None	None	0	3.75	0	0
No Vehicle License-------	2	2	12.50	12.50	None	None	0	None	0	0
Leaving Car Unattended---	1	1	6.25	6.25	None	None	0	None	0	0
Permitting Unlicensed Driver to Drive----------	1	1	7.50	7.50	None	None	0	None	0	0
Disobeying Traffic Signals-----------------	2	2	8.25	None	None	None	0	4.12	0	0
Public Intoxication------	62	61	715.50	12.50	8	6	0	11.52	1	0
Public Nuisance----------	15	15	302.50	70.00	5	3	0	15.50	0	0
Vagrancy-----------------	7	7	70.00	17.50	3	3	0	7.50	0	0
2nd Degree Assault-------	1	Transferred to Prosser Jail								
3rd Degree Assault-------	8	8	None	None	8	2	0	None	0	0
Gambling-----------------	7	7	117.50	17.50	0	0	0	14.28	0	0
Bootlegging--------------	1	1	52.50	35.00	0	0	0	17.50	0	0
Possession of Gambling Equipment-----------------	1	1	None	None	1	1	0	None	0	0
Petit Larceny------------	1	1	52.50	None	0	0	0	52.50	0	0
	257	246	$2731.00	$397.50	25	15	5		4	6

Total Fines-----------$2731.00 Less Fines Suspended $397.50--------$2333.50
Total Fines Received $2333.50

The Above includes violations that occurred on the Hanford Works Project.

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JUNE 1948

PATROL DIVISION - RICHLAND OFFENSES

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Offenses May	Actual Offenses June	Offenses Cleared By Arrest	Offenses Cleared By Other Action	Perpetrators Involved
Assault	2	0	1	2	2	0	3*
Attempted Suicide	0	0	0	0	0	0	0
Burglary-Breaking and/or Entering	3	0	5	3	0	0	(u)
Attempted-Breaking and/or Entering	3	1	3	2(a)	0	1	2
Robbery	0	0	0	0	0	0	0
Larceny-Theft(except auto & bike):							
(a) $50.00 and over value	7	0	5	7 (b)	0	1	1
(b) Under $50.00 value	29	6	15	23 (c)	1	3	4
Auto Theft	2	0	3	2	0	0	(u)
Attempted Auto Theft	0	0	0	0	0	0	0
Bicycle Theft	9	0	14	9 (d)	0	1	1
Weapons: Carrying-Possessing-Using	1	0	1	1 (e)	0	1	3
Destruction of Government Property	4	0	9	4 (f)	0	1	2
Destruction of Personal Property	0	0	3	0	0	0	0
Destruction of School Property	0	0	0	0	0	0	0
Disorderly Conduct	9	0	4	9	2	7	15*
Drunkenness	25	0	9	25	25	0	25
Embezzelment and Fraud	0	0	1	0	0	2	1
Forgery	0	0	0	0	0	0	0
Gambling	0	0	0	0	0	0	0
Missing Persons	1	0	3	1	1	1	1
Offense against family & children	0	0	0	0	0	0	0
Pickup for Outside Agency	0	0	0	0	0	0	0
Prowlers	7	3	2	0	0	0	0
Public Nuisance	0	0	2	0	0	0	0
Rape	0	0	0	0	0	0	0
Sex Offense	2	0	0	2 (g)	0	1	4
Cohabitation	0	0	0	0	0	0	0
Vagrancy	1	0	2	1	0	1	1
Violation State Game Laws	0	0	0	0	0	0	0
Violation State Liquor Laws	0	0	0	0	0	0	0
Miscellaneous	2	0	2	2	0	0	(u)
Juveniles(other than reported above) Disorderly Conduct	2	0	1	2 (h)	0	2	3
	109	10	85	99	31	22	66

*2 Colored Males

See Page Two

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les, of ages 9 and 11 years.
e, of ago 16 years.
, of ago 17 years.
, of ago 13 years.
, of ages 12, 13, and 14 years.
nilos, of ages 5 and 11 years.
os, of ages 5 and 11 years.
iles, of ages 4½, 7, 7 and 10 years.
anilos, of ages 6,9, and 10 years.

iko)

PATROL DIVISION - COMPARISON CHART OF RICHLAND OFFENSES

Number of offenses known to police per 10,000 inhabitants, in cities between 10,000 and 25,000 inhabitants:

Classification	Wash, Oregon & Calif. Six months (Jan-June 1947)	One Month Average	Richland Six Months (Jan-June 1947)	May 1948	June 1948
Murder	.688	.114	0	0	0
Robbery	19.57	3.26	0	0	0
Aggravated Assault	11.23	1.87	.22	.66	1.33
Burglary	114.53	19.09	1.66	3.33	2.0
Larceny	296.10	49.35	12.33	22.66	26.0
Auto Theft	57.73	9.62	.22	2.0	1.33

Number of offenses known to police per 10,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

Classification	State of Washington Six Months (Jan-June 1947)	One Month Average	Richland Six Months (Jan-June 1947)	May 1948	June 1948
Murder	.184	.30	0	0	0
Robbery	5.11	.85	0	0	0
Aggravated Assault	1.62	.27	.22	.66	1.33
Burglary	36.20	6.03	1.66	3.33	2.0
Larceny	91.39	15.23	12.33	22.66	26.0
Auto Theft	19.79	3.30	.22	2.0	1.33

The portion of offenses committed by persons under the age of 25 years, is shown by the following figures:

Classification	National Average (Jan-June 1947)	Six Months (Jan-June 1947)	Richland May 1948	June 1948
Robbery	56.1%	0	0	0
Burglary	61.0	30%	0	0
Larceny	46.0	19%	0	8%
Auto Theft	74.1	33%	0	0

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 arrest records is doubtless incomplete in the lower age groups because of the practice of some jurisdictions not to fingerprint youthful offenders".

In Richland every delinquent juvenile is entered in the records.

OFFENCES, NORTH RICHLAND, PATROL DIVISION, JUNE 1948

Classification	Offences known: or reported to: Patrol	Offences Unfounded:	Actual Offences: May	Actual Offences: June	Offences Cleared: By Arrest:	Offences Cleared: By Other Action:	Perpetrators Involved:
Assault	15	0	5	15	9	2	13
Attempted Suicide	0	0	0	0	0	0	0
Burglary-breaking and/or entering	0	0	1	0	0	0	0
Larceny-Theft (except Auto & Bike)							
(a) $50.00 and over value	12	1	9	11	0	1	1 a
(b) Under $50.00 value	17	1	11	16	0	3	3 b
Auto Theft	2	1	4	1	0	0	0 u
Bicycle and Motor Bike Theft	0	0	0	0	0	0	0
Carrying Concealed Weapon	0	0	0	0	0	0	0
Destruction of Government Property	2	0	0	2	0	0	0 u
Destruction of School Property	0	0	0	0	0	0	0
Destruction Personal Property	1	0	0	1	0	0	0 u
Disorderly Conduct	0	0	0	0	0	0	0
Drunkenness	46	0	54	46	46	0	46
Embezzlement and Fraud	0	0	0	0	0	0	0
Forgery	0	0	1	0	0	0	0
Gambling	8	0	7	8	8	0	8
Missing Person	0	0	2	0	0	0	0
Offence against Family & Children	1	0	0	1	0	0	0
Prowlers	4	0	1	4	0	0	0 u
Public Nuisance	26	1	14	25	24	0	24
Rape	0	0	2	0	0	0	0
Robbery	0	0	1	0	0	0	0
Sex Offences	0	0	0	0	0	0	0
Vagrancy	9	0	7	9	9	0	9
Violation of State Game Laws	0	0	0	0	0	0	0
Violation of State Liquor Laws	1	0	0	1	1	0	1
Miscellaneous	3	0	3	3	0	2	2
Juveniles (other than reported above)-Disorderly Conduct	0	0	0	0	0	0	0
	147	4	122	143	97	8	107 c

(a) One of the offences was perpetrated by one juvenile, age 19
(b) One of the offences was perpetrated by one juvenile, age 16
Value of property recovered during the month of June - $1167.00

(c) 53 of perpetrators involved are colored males.
(u) Represents unknown.

PATROL DIVISION - NORTH RICHLAND - COMPARISON OF OFFENSES
JUNE 1948

Number of offences known to Police per 10,000 inhabitants, in cities between 10,000 and 25,000 inhabitants:

Classification	Wash. Oregon & Calif. Six Months (Jan-June 1947)	Wash. Oregon & Calif. One Month Average	North Richland Six Months (Jan-June 1947)	North Richland 1948 May	North Richland 1948 June
Murder	.688	.114	0	.0	.0
Robbery	19.57	3.26	0	.66	.0
Aggravated Assault	11.23	1.87	0	3.33	10.0
Burglary	114.53	19.09	0	.66	.0
Larceny	296.10	49.35	0	13.33	18.0
Auto Theft	57.73	9.62	0	2.66	.6

Number of offences known to Police per 10,000 inhabitants regardless of whether offences occurred in cities or rural districts:

Classification	State of Washington Six Months (Jan-June 1947)	State of Washington One Month Average	North Richland Six Months (Jan-June 1947)	North Richland 1948 May	North Richland 1948 June
Murder	.184	.30	0	.0	.0
Robbery	5.11	.85	0	.66	.0
Aggravated Assault	1.62	.27	0	3.33	10.0
Burglary	36.20	6.03	0	.66	.0
Larceny	91.39	15.23	0	13.33	18.0
Auto Theft	19.79	3.30	0	2.66	.6

The portion of offences committed by persons under the age of 25 years is shown by the following figures:

Classification	National Average (Jan-June 1947) Six Months	North Richland (Jan-June 1947) Six Months	North Richland May 1948	North Richland June 1948
Robbery	56.1%	0	0	0
Burglary	61.0	0	0	0
Larceny	46.0	0	5%	7%
Auto Theft	74.1	0	0	0

Note: Statistics of juvenile offences 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 jurisdiction not to finger-print youthful offenders."

In North Richland every delinquent juvenile is entered in the records.

COMMUNITY DIVISIONS

COMMUNITY ACTIVITIES DIVISION

JUNE, 1948

ORGANIZATION AND PERSONNEL

Number of employees on roll	June
Beginning of month	9
End of month	12
Net increase	3

This net increase includes two section supervisors, one stenographer, and one lifeguard. One stenographer was transferred out of this Division during the month.

CHURCHES

The following is a tabulation of full time paid personnel, as of June 30, 1948:

	Ministers	Staff	Total
Episcopal Church	1	0	1
Church of Christ	1	0	1
Catholic	2	2	4
Central United Protestant	3	2	5
United Protestant - South Side	1	0	1
Latter Day Saints	4	0	4
National Lutheran	1	1	2
Mo. Synod Lutheran (Redeemer)	1	1	2
Assembly of God	1	0	1
Regular Baptist	1	0	1
Mission Baptist	1	0	1
Free Methodist	1	0	1
Church of God	1	0	1
	19	6	25

On June 7, Reverend H. Imme was formally installed as permanent pastor for the Redeemer Lutheran Church. Rev. Imme will replace Rev. W. F. Georg who has been serving as temporary pastor since illness forced the retirement of Rev. R. E. Jaech.

The United Protestant Churches sponsored a vacation church school for children 5 to 15 years of age, with daily classes from 9:00 AM to 12:00 noon. Classes were held in all four elementary schools from June 7 through 18.

The Richland Lutheran Church sponsored a vacation church school, June 7 through 18, with classes held daily from 9:00 AM to 11:30 AM for children from age three up.

The Church of Christ the King sponsored a vacation church school at Columbia High School June 7 through 18, with daily classes from 9:00 AM to 3:00 PM.

The Assembly of God sponsored a vacation church school at Columbia High School June 21 through July 3, with classes held each day from 9:00 AM to 12:00 noon.

The Pacific Northwest Conference announced that Dr. Roy L. Smith and Rev. Kenneth Bell had been reappointed to serve Richland's United Protestant Church for another year.

The United Protestant Church announced the appointment of Rev. Kenneth Underwood who assumed the responsibilities of the United Protestant program in North Richland on June 27.

The junior and intermediate choirs, assisted by an orchestral ensemble, presented a concert of sacred music at the Richland Lutheran Church on Sunday evening, June 27.

The applications of the following churches for a building site and permission to build were approved in principle and they were invited to submit detail plans and specifications for final approval after which a building permit may be issued: The South Side United Protestant Church, the Reorganized Church of Jesus Christ of Latter Day Saints, and the Richland Church of Christ.

SCHOOLS

Mr. P. A. Wright of Snohomish who becomes Superintendent of Schools for Richland on July 1 announced the appointment of Dr. A. A. Sandin to the post of Assistant Superintendent. Mr. Sandin is expected to arrive in Richland August 1.

The Richland School Board announced on June 3 that the new junior high school, now under construction at Lee and Thayer, would be named in honor of the late S. P. Carmichael who was superintendent of schools here from 1923 to 1938. It was further announced that if and when a second junior high school was built it would bear the name of Robert Gray whose name was selected originally for the school now under construction.

Jefferson Grade School was closed all day June 1 on the advice of flood control authorities due to the dangers caused by heavy traffic of trucks and equipment along George Washington Way.

All Village schools were closed June 4 for summer vacation. They were scheduled to reopen for the fall semester on September 7.

Community Activities Division

The Columbia High School Commencement exercises were held in the High School Auditorium on June 1.

The graduating class of Columbia High School, with appropriate ceremonies, presented the Student Association with $300 with which to purchase a clock for the football field and planted a weeping willow tree on the school grounds outside the high school principal's office.

Lewis and Clark Grade School was converted, on June 9, into temporary housing facilities for Hanford Works employees and flood refuges during the emergency. Rooms 129, 131, 133, and 141 housed the men and rooms 107, 113, 115, 117 and 119 were made available to women. A total of 99 beds were set up for this purpose. The beds were removed on June 18 and 19.

The Richland schools sponsored an organized, six-weeks, recreational program for village youngsters beginning June 21, 1948.

The Music Institute, sponsored by the Richland public schools from June 21 through July 23, opened its first classes with an enrollment of sixty students.

As of June 30, 1948, there were thirty-eight persons employed by the School District #400.

COMMUNITY

On June 7, the American Institute of Electrical Engineers formally accepted into its membership a Richland section which will include Columbia, Walla Walla, Benton, Franklin and Yakima counties in Washington and Umatilla County in Oregon.

Richland Post No. 71, American Legion recruited 200 men and women volunteers on June 1 to establish food depots for construction workers during the flood emergency. Twelve such depots were set up at tactical points along the dike and 10,000 cups of coffee, sandwiches, pies, cakes and many cigarettes were distributed.

The operation involved 7500 volunteer, man-hours of activity.

A summary of the activities of the Richland Squadron of the Civil Air Patrol during the emergency includes the following items:

Personnel Participating:	30 Hanford Works employees, volunteer- part-time pilots. 9 Out-of-town, volunteer pilots who remained on the project for entire two weeks of emergency. 25 Richland Air Cadets, 15 to 18 years old, who acted as volunteer ground crews for landing, take-off, and parking control.
Planes in Operation:	23 Richland-owned planes, 4 from Lewiston, Idaho, 4 from Spokane, and 1 from Coeur d' Alene.
Patrols Flown:	24 Hours coverage by regular patrols flown during the most critical days of flood with lightening schedule as danger decreased. 4 Planes on regular, scheduled night patrol. 19 Planes on regular, scheduled daylight patrols. 2 Planes on special river patrol for Red Cross, making daily flights to spot new inundations and stranded personnel or livestock.
Emergency Flights:	All regular activities of C.A.P. were cancelled and all flights restricted to patrols and transportation of authorized personnel and equipment. During a typical emergency day, the field recorded an authorized take-off or landing of one plane each minute between the hours of 4:30 AM and 10:00 PM. More than 200 official flights were made to Pendleton and Walla Walla. Acting as an emergency ferry service, the C.A.P. transported 250 G.E., A.E.C., and sub-contractor employees to the project. Special cargoes carried during the emergency included critical material for the Hanford Works, U. S. Mail, bread, newspaper copy, and the weekly issues of the Villager.

Due to the fact that the lighted, softball field was inundated and unavailable, the Columbia High School's football field was utilized for local league play.

The Richland Park Swimming Pool was surveyed with regard to flood damage and the necessary repairs made. The reconditioned pool is scheduled to open for public use on July 5.

Community - Activities Division

The Co-ordinate Club announced on June 24 that it had been granted a license by the State Liquor Board to serve mixed drinks. The effective date of the license is September 6.

Arrangements were completed whereby the Richland and North Richland Post Office buildings will receive complete janitor service on and after July 1.

Complete inventories were made of all government owned equipment and furnishings now in the possession of and being used by community organizations.

Initial approval in principle was given on June 7 to the local post of Veterans of Foreign Wars for their proposed clubhouse site on Thayer Drive. The V.F.W. group was invited to submit detail plans and specifications for final approval after which a building permit may be issued.

Preliminary proposals for budgetery purposes were submitted for Junior High School #2, Grade School #2, School Administrative Offices and Warehouse Facilities, Sacajawea Grade School and Nursery School Improved Food Handling Facilities, Sacajawea Grade School Improved Heating Facilities, Move and Dismantle All School Hutments, Youth Activities Building, Community Center and Auditorium, Community Swimming Pool, Equipment for Public Parks, and Community Golf Course.

On June 24, the Recreation Advisory Committee held its regular monthly meeting. The Committee recommended that the following organizations be approved subject to the required security clearance: Richland Womens Circle of the Kennewick Christian Church, Tri-City Archery Club, American Chemical Society (Richland Section), and American Institute of Electrical Engineers (Richland Section).

The buildings housing the Richland Masonic Lodge and the Village Players, Inc. were inundated and became untenantable. The regular, monthly rental fees were suspended for the duration as provided in their respective leases. The Masonic Lodge and the Eastern Star were provided with temporary meeting quarters in the Sacajawea Grade School Auditorium.

The Richland National Guard Unit, Battery C, 420th AAA, was called out for flood control duty and functioned in cooperation with local flood authorities.

The Red Cross offices reported an average daily traffic of 360 telephone calls for information regarding local conditions and the safety of Richland residents and workers.

The visit of President Truman which was scheduled for June 9 and which was to have included a tour of Hanford Works was cancelled due to flood conditions.

The Atomic Aerodec sponsored by the C.A.P. and scheduled for June 13 was postponed until August 1 due to complications caused by local flood conditions.

The regular U. S. Mail schedules which were disrupted for three weeks during the flood emergency were restored on June 27.

June 22 was announced as the official opening date of Clear Lake Camp and the Richland Camp Committee announced that the Girl Scout permanent camp at Clear Lake was ready for occupancy and over 500 camp folders and camp applications were distributed to Richland Girl Scouts, 10 to 17 years old.

The Richland Junior Chamber of Commerce announced officially the choice of September 6, Labor Day, as the date of the next Richland Day.

On June 14 and 15, the League of Women Voters opened booths in five of Richland's public schools, each day from 5:00 to 9:00 PM, to afford Richland residents another opportunity to register for the coming elections.

In the interests of public safety, the Public Works Engineers, on June 10, restricted the upper floor of the American Legion Building to a maximum live load of 375 persons. The maximum live load permissable in the dance hall section was set at 225. These restrictions will remain in effect until further inspections and surveys can be completed and the existing deficiencies corrected.

Due to the foregoing restriction, the C.A.P. Aerodic Dance scheduled for June 11 was moved to the Marcus Whitman Grade School auditorium and all other groups which had scheduled events notified.

The Richland Junior Chamber of Commerce held its annual anniversary and installation dinner and dance on June 4. Dinner was served at Columbia High School cafeteria and the dance was held at the Co-ordinate Club. Mr. Roy C. Muir was the guest speaker.

The Richland Dormitory Club sponsored two public programs during the month. The first event was a variety show and dance at the Co-ordinate Club featuring Ray Pitman's band on June 14. The second event, a spring, semi-formal dance, was held at the American Legion Hall June 21. Ken Davidson's band appeared at the second event.

As of June 30, 1948, organizational personnel included:

State Game Commission	1
Villagers, Inc.	4
American Legion	3
Co-ordinate Club	1
Youth Council	1
Boy Scouts	1
Camp Fire Girls	1
High Spot Club	1
Jr. Chamber of Commerce	2
Red Cross	3
Castle Club	1
Post Office	68
Veterans Administration	2
Girl Scouts	1
	90

Community - Activities Division

MAJOR ACTIVITIES DURING MONTH

June 11	Richland Squadron, C.A.P. Dance	Marcus Whitman
June 14	Richland Dormitory Club Variety Show-Dance	Co-ordinate Club
June 21	Richland Dormitory Club Spring Dance	American Legion
June 25	Orthopedic Guild Spring Dance	American Legion
June 27	Softball - Fishers Ghosts vs. Terteling	Columbia High School Field

PROJECT AND RELATED PERSONNEL

GOVERNMENT EMPLOYEES	5-28-48		6-30-48	
Civilian Personnel - Atomic Energy Comm.	335		345	
Civilian Personnel - G. A. C.	4		3	
Total		339		348
RICHLAND VILLAGE PERSONNEL				
Commercial Facilities (Including No. Richland)	1330		1159	
Organizations, Clubs, Etc.,	90		90	
Schools	242		38	
Churches	25		25	
Total		1687		1312
MORRISON-KNUDSEN PERSONNEL (Benton City)		155		219
CONSTRUCTION SUB-CONTRACTORS				
Atkinson-Jones	9604		9704	
Newport, Kern & Kibbe	11		13	
John L. Hudson Co.,	52		5	
B. K. V. Heating Co.,	1		-	
Chicago Canteen Co.,	304		317	
Dewitt C. Griffin & Assoc.	3		-	
Newberry Neon	740		723	
Urban, Smyth, Warren Co.,	1103		1057	
Payne Plumbing	4		-	
E. C. Knight Electric	28		13	
J. B. Head Co.,	21		25	
L. D. Rieder	5		-	
Kellex Corp.,	465		453	
J. Gordon Turnbull	45		55	
Giffels & Vallet, Inc.,	160		179	
Permawall Const., Co.,	17		-	
Morrison-Knudsen Co.,	855		970	
C. C. Moore	3		66	
Mahring & Hanson	33		33	
V. S. Jenkins	25		24	
Curtis Sand & Gravel	35		35	
National Carbon/Carbide Co.,	186		186	

CONSTRUCTION SUB-CONTRACTORS	5-28-48	6-30-48
Trowbridge & Flynn Electric Co.,	21	17
J. A. Terteling & Son	583	587
Graysport Construction Co.,	152	163
Estep Electric	15	9
X-Ray Products	41	1
Nettleton-Sound	347	564
Thorgaard Plumbing	56	72
Chris-Berg Co.,	10	30
Holert Electric Co.,	8	23
Strasser Drilling Co.,	4	4
Kelly Wells Co.,	5	4
McNeill Construction Co.,	410	568
Raymond Pile Co.,	19	-
Rust Engineering Co.,	-	7
Arnold & Jeffers Co.,	-	27
Pacific Roofing Co.,	-	13
Central Service Co.,	-	8
Charles Swanson	-	9
Taylor Bros	-	7
Builders Insulating Co.,	-	3
Fox Metal Products	-	6
Total	15,421	15,980
GENERAL ELECTRIC PERSONNEL	8,259	8,617
GRAND TOTAL	25,861	26,476