

PRIVACY ACT MATERIAL REMOVED

HW 21802-DEL

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REPOSITORY

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COLLECTION

Atmospheric Releases

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FOLDER

N/A

FOR

JULY 1951

Hanford

40755

Compiled By

Division Managers

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HANFORD WORKS

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Operated for the Atomic Energy Commission

by the

General Electric Company

under

Contract # W-31-109-eng-52

Classification reviewed for de-
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11	Hanford Operations Office Attention: R. W. Richardson, Historian
12 - 13	700 File

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HANFORD WORKS MONTHLY REPORTGENERAL SUMMARYForeword

This section of the Monthly Report has been an assembly of the same summary sheets that appear again in the body of the Report. With the increase in the magnitude and nature of the work that has taken place, this summary has also increased to the point where it has become too bulky for its intended purpose. Beginning with this issue of the Monthly Report, the General Summary will be a brief review of selected items taken from the summaries of the various groups. The complete summaries of each group will still be found in the usual places in the body of the Report.

Production Operations

Production continues to be plagued by a rash of ruptured slugs. During the month 10 uranium slugs and 4 P-10 target slugs were ruptured in the piles, causing 462 hours of lost production time. Although this is a significant figure, it is not of sufficient magnitude to require any change in the current levels of operation.

Operations in the various plants attained the following percentages of forecasts: canning, 100%; pile discharge, 104%; separation 98.8%; concentration, 100%; isolation 106.9%.

The continued high levels of production operations are accompanied by continued vigilance to detect potential hazards. Abnormally high levels of contamination were detected and corrective measures were taken during the month.

Data accumulated routinely relating to active particles in the atmosphere of the Northwest were suggestive of contributions from extraneous sources.

Engineering and Technology

A possible increase in production of plutonium of 2.6% per megawatt day is calculated for a pile with 8-inch spacing rather than present 8-3/8 inch spacing. Laboratory measurements have established that the two piles would have the same excess reactivity.

The thermal conductivity of irradiated graphite has been found to have a positive temperature coefficient as contrasted with the negative coefficient of virgin graphite.

Successful methods have been developed for the direct conversion of plutonium peroxide to fluoride, thus permitting potential improvements in the manufacturing process.

All analytical procedures necessary to support a development program directed toward the recovery of plutonium from slag and crucibles have been completed.

Continued progress has been made in the adaptation of instrumental methods of analysis to analytical problems of production and development.

The Redox Technical Manual, a volume of nearly 1000 pages, was issued in anticipation of start-up of the production plant.

General Summary

Expansion and Construction

The Redox production plant (202-S Building) was essentially completed this month. Production personnel have begun work in some cells.

Construction was delayed by annoying work stoppages of certain crafts.

Both design and construction work on the Works Laboratory Area continued. Placement of metal siding and roofing on the Mechanical Development Building is nearing completion. Site grading for the Radiochemistry Building was completed. Invitations to bid and negotiations with architects and contractors continued.

Personnel and Services

The turnover rate for the plant increased from 2.19% in June to 2.48% in July, but the total number of employees increased from 8,674 to 8,805.

The shortage of housing continues. During the month 659 applications for housing were pending.

A proposed contract between the General Electric Company and the Hanford Guard's Union was given to the Union for membership ratification. No agreement on a contract has yet been reached with the firemen.

Revised cost accounting procedures were made effective July 1 as another step in the continued development of improved cost control.

The Hanford Works continues to be a safe place to work. There were no major injuries during the month. The National Safety Council again awarded us its Distinguished Service to Safety Award for the second consecutive year.

The net costs of operating Kadlec Hospital were \$33,000 less in fiscal 1951 than in 1950, although the total operating expenses were \$114,000 higher. The net costs of the Industrial Medical Program were \$50,000 less in fiscal 1951 than in 1950. The net costs of the Public Health Program increased \$13,000 for fiscal 1951 as compared with 1950.

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STAFF

General Manager G. R. Prout
Manager, Schenectady Office B. R. Prentice
Assistant General Manager W. E. Johnson
Assistant to the General Manager W. I. Patnode
(Technical and Education Matters)
Assistant to the General Manager J. R. Rue
Assistant to the General Manager and Manager of
the Plant Security and Services Divisions G. G. Lail
Department Comptroller F. E. Baker
Counsel G. C. Butler
Manager, Technical, Engineering and Construction
Divisions A. B. Greninger
Manager, Engineering and Construction Divisions J. S. McMahon
Manager, Technical Divisions O. H. Greager
Manager, Manufacturing Divisions C. N. Gross
Manager, Municipal, Real Estate and General Services Divisions L. F. Huck
Manager, Health Instrument Divisions H. M. Parker
Manager, Medical Divisions W. D. Norwood, MD
Manager, Employee and Community Relations Divisions H. E. Callahan
Manager, Purchasing and Stores Divisions R. T. Cooke

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FORCE REPORT

JULY 1951

	EXEMPT		NON EXEMPT		TOTAL	
	6-29-51	7-31-51	6-29-51	7-31-51	6-29-51	7-31-51
<u>GENERAL</u>	22	22	119	137	141	159
<u>LAW</u>	2	2	3	9	5	11
<u>TECH. ENGR. & CONST. DIV.</u>						
Construction	0	12	24	28	24	40
Const. Acctg.	11	11	80	87	91	98
Design	240	239	299	297	539	536
No. Richland Realty	18	17	113	111	131	128
Proj. Engr.--MJ	20	19	24	24	44	43
Proj. Engr.--MD	49	49	90	90	139	139
<u>TECHNICAL DIVS.</u>						
Administrative	6	6	3	3	9	9
Pile Tech.	119	118	132	137	251	255
Separations Tech.	104	104	48	58	152	162
Technical Services	37	37	151	137	188	174
Analytical Services	95	95	268	283	363	378
<u>MANUFACTURING DIVISIONS</u>						
Mfg. General	15	15	6	5	21	20
Mfg. Acctg.	9	9	63	70	72	79
Industrial Engr.	10	10	8	7	18	17
<u>PRODUCTION DIVS.</u>						
"P"	77	78	291	297	368	375
"S"	162	164	557	595	719	759
<u>PLANT UTILITIES & MAINT.</u>						
Power	92	91	481	478	573	569
Maintenance	54	56	312	318	366	374
Electrical	56	54	254	260	310	314
Instrument	55	56	241	259	296	315
Transportation	58	58	542	541	600	599
<u>MEDICAL</u>	44	45	237	236	281	281
<u>U. I. DIVISIONS</u>						
General	6	6	4	3	10	9
Operations	58	56	178	180	236	236
Development	39	40	92	94	131	134
Biology	33	33	45	47	78	80
<u>ACCOUNTING DIVISIONS</u>	28	29	185	202	213	231
<u>EMP. & COMM. RELATIONS</u>	38	38	79	82	117	120
<u>PLANT SEC. & SERVICES</u>						
Patrol & Sec.	57	58	578	570	635	628
Safety & Fire	42	41	106	108	148	149
Gen. Services	26	27	289	282	315	309

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	EXEMPT		NON EXEMPT		TOTAL	
	<u>6-29-51</u>	<u>7-31-51</u>	<u>6-29-51</u>	<u>7-31-51</u>	<u>6-29-51</u>	<u>7-31-51</u>
<u>PURCHASING & STORES DIVS.</u>						
Purchasing	68	68	122	120	190	188
Stores	20	20	207	199	227	219
<u>COMMUNITY DIVISIONS</u>	204	207	469	461	673	668
 TOTAL	 1974	 1990	 6700	 6815	 8674	 8805

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PERSONNEL DISTRIBUTION - JULY 1951

		100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
		Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
<u>GENERAL</u>													
Supervisors	-	-	-	-	-	-	-	-	-	-	-	22	22
Cler. & other Non-exempt	-	-	-	-	-	-	-	-	-	-	-	137	137
Total	-	-	-	-	-	-	-	-	-	-	-	159	159
<u>LAW</u>													
Supervisors	-	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	-	9	9
Total	-	-	-	-	-	-	-	-	-	-	-	11	11
<u>TECH. ENGR. & CONST. DIVS.</u>													
<u>CONSTRUCTION</u>													
Supervisors	-	-	-	-	-	-	-	-	-	-	-	12	12
Clerical	-	-	-	-	-	-	-	-	-	-	-	28	28
Total	-	-	-	-	-	-	-	-	-	-	-	40	40
<u>CONST. ACCTG.</u>													
Supervisors	-	-	-	-	-	-	-	-	-	-	11	-	11
Clerical	-	-	-	-	-	-	-	-	-	-	87	-	87
Total	-	-	-	-	-	-	-	-	-	-	98	-	98
<u>DESIGN</u>													
Supervisors	-	-	-	-	-	-	-	-	-	-	28	34	62
Other exempt	-	-	-	-	-	-	3	25	-	-	42	107	177
Draftsmen & Designers	-	-	-	-	-	-	-	-	-	-	-	56	56
Clerical	-	-	-	-	-	-	-	3	-	-	69	114	186
Others	-	-	-	-	-	-	-	-	-	-	31	24	55
Total	-	-	-	-	-	-	3	28	-	-	170	335	536

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NORTH RICHLAND REALTY

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors	-	-	-	-	-	-	-	-	-	17	-	17
Janitors	-	-	-	-	-	-	-	-	-	14	-	14
Clerical	-	-	-	-	-	-	-	-	-	55	-	55
Others	-	-	-	-	-	-	-	-	-	42	-	42
Total	-	-	-	-	-	-	-	-	-	128	-	128

PROJ. ENCR.

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors	-	-	-	-	-	-	-	-	-	16	-	16
Engineers	-	-	-	-	-	-	-	-	-	52	-	52
Draftsmen & Designers	-	-	-	-	-	-	-	-	-	49	-	49
Clerical	-	-	-	-	-	-	-	-	-	38	-	38
Others	-	-	-	-	-	-	-	-	-	27	-	27
Total	-	-	-	-	-	-	-	-	-	182	-	182

TECHNICAL DIVS.

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors	-	-	-	-	-	-	-	-	-	-	6	6
Clerical	-	-	-	-	-	-	-	-	-	3	3	3
Total	-	-	-	-	-	-	-	-	-	9	9	9

PILE TECHNOLOGY

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors	3	1	1	1	2	-	-	14	-	-	-	22
Metallurgists & Engrs.	21	3	2	2	17	-	2	23	-	-	3	73
Physicists	-	1	2	3	3	-	-	11	-	-	-	20
Engr. Assts.	3	-	-	-	-	-	1	-	-	-	-	3
Tech. Grads.	17	4	2	3	10	-	-	10	-	-	-	47
Technologists	8	-	-	3	-	-	-	1	-	-	-	12
Laboratory Assts.	18	2	-	2	8	-	-	15	-	-	3	48
Clerical	6	-	-	3	2	-	-	12	-	-	-	23
Engr. Assts.	-	2	-	-	2	-	-	3	-	-	-	7
Total	76	13	7	17	44	-	3	89	-	-	6	255

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SEPARATIONS TECH

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors	-	-	-	-	-	1	4	15	-	-	-	20
Chemists & Chem Engrs.	-	-	-	-	-	4	13	66	-	-	-	83
Other Exempt	-	-	-	-	-	-	-	1	-	-	-	1
Tech. Grads.	-	-	-	-	-	-	8	9	-	-	-	17
Clerical	-	-	-	-	-	-	3	9	-	-	4	16
Operators	-	-	-	-	-	-	1	7	-	-	-	8
Other non exempt	-	-	-	1	-	-	4	11	-	-	1	17
Total	-	-	-	1	-	5	33	118	-	-	5	162

TECH SERVICES

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors	-	-	-	-	3	-	1	7	-	-	3	14
Other Exempt	-	-	-	-	9	-	1	8	-	-	5	23
Technologists, & Tech Grads.	-	-	-	-	5	-	1	8	-	-	-	14
Clerical	-	-	1	-	5	-	3	31	-	-	45	85
Others	-	-	-	-	10	-	6	21	-	-	1	38
Total	-	-	1	-	32	-	12	75	-	-	54	174

ANALYTICAL TECH.

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors	1	-	-	2	-	6	13	17	-	-	-	39
Chemists & Engrs.	6	1	1	2	-	-	8	38	-	-	-	56
Technologist, Tech. Grads.	3	-	-	3	-	6	23	61	-	-	-	96
Laboratory Assts.	4	-	-	7	-	33	92	26	-	-	-	172
Clerical	1	-	-	1	-	3	3	7	-	-	-	15
Total	15	1	1	15	-	48	139	159	-	-	-	378

MANUFACTURING DIVISIONS

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Engineers	-	-	-	-	-	-	-	-	-	-	8	8
Clerical	-	-	-	-	-	-	-	-	-	-	5	5
Total	-	-	-	-	-	-	-	-	-	-	20	20

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	100-B		100-D		100-F		100-H		101		200-E		200-W		300		Plant		3000		700-1100		Total
	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Total
MFG. ACCTG.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Supervisors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Other Exempt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Clerical	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	79

INDUSTRIAL ENGR.

Supervisors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Engr. & other exempt	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Clerical	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17

PRODUCTION DIVS.

Supervisors	8	16	9	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61
Supv. in training	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Engrs.	4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	
Operators	32	61	33	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	270	
Clerical	3	2	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	
Others	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	
Total	48	81	46	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	
																						375	

"S"

Supervisors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90
Supv. in training	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
Engineers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56
Operators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	559
Clerical	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	759

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POWER

MAINTENANCE

ELECTRICAL

INSTRUMENT

6895611

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TRANSPORTATION		100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
		Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors		2	3	1	3	-	2	2	1	8	-	32	54
Other Exempt		-	-	-	-	-	-	-	-	-	-	4	4
Bus Drivers		-	-	-	-	-	-	-	-	-	-	166	166
Journeyman		2	3	3	11	-	1	5	-	9	-	62	96
Trainmen		-	-	-	-	-	-	-	-	26	-	-	26
Servicemen		2	3	1	1	-	2	3	2	19	-	18	51
Equip. Opera.		4	7	3	5	-	4	7	4	21	-	28	83
Clerical		1	1	1	1	-	1	1	1	1	-	24	32
Others		9	2	2	14	-	11	2	2	8	-	37	87
Total		20	19	11	35	-	21	20	10	92	-	371	599
MEDICAL													
Supervisors		-	-	-	-	-	-	-	-	-	-	26	26
Physicians		-	-	-	-	-	-	-	-	1	2	8	11
Other Exempt		-	-	-	-	-	-	-	-	-	-	8	8
Technicians		-	-	-	-	-	-	-	-	1	3	13	17
Nurses		5	1	4	1	-	4	9	2	-	3	61	90
Clerical		-	-	-	-	-	-	-	-	3	6	49	58
Others		-	-	-	-	-	-	-	-	-	1	70	71
Total		5	1	4	1	-	4	9	2	5	15	235	281
H. I. DIVISIONS													
GENERAL													
Supervisors		-	-	-	-	-	-	-	-	-	-	3	3
Other Exempt		-	-	-	-	-	-	-	-	-	-	3	3
Clerical		-	-	-	-	-	-	-	-	-	-	3	3
Total		-	-	-	-	-	-	-	-	-	-	9	9

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	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	
Supervisors	1	1	1	2	-	1	5	8	-	-	2	21
Other Exempt	4	4	4	5	-	3	12	3	-	-	-	35
Clerical	-	-	-	1	-	-	1	1	-	-	1	4
Others	14	18	13	12	-	19	49	44	7	-	-	176
Total	19	23	18	20	-	23	67	56	7	-	3	236

OPERATIONALDEVELOPMENT

Supervisors
Other Exempt
Clerical
Other non-exempt
Total

Supervisors	-	-	-	-	-	2	7	4	-	-	1	14
Other Exempt	-	-	-	-	-	3	12	10	-	-	1	26
Clerical	-	-	-	-	-	1	2	2	-	-	-	5
Other non-exempt	-	-	-	-	-	21	43	14	-	-	11	89
Total	-	-	-	-	-	27	64	30	-	-	13	134

BIOLOGY

Supervisors
Other Exempt
Clerical
Others
Total

Supervisors	-	-	6	-	-	-	-	-	-	-	-	6
Other Exempt	-	-	27	-	-	-	-	-	-	-	-	27
Clerical	-	-	3	-	-	-	-	-	-	-	1	4
Others	-	-	43	-	-	-	-	-	-	-	-	43
Total	-	-	79	-	-	-	-	-	-	-	1	86

ACCOUNTING DIVISIONS
GEN. ACCTG. PAYROLL

Supervisors
Other Exempt
Clerical
Total

Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Other Exempt	-	-	-	-	-	-	-	-	-	-	3	3
Clerical	-	-	-	-	-	-	-	-	-	-	101	101
Total	-	-	-	-	-	-	-	-	-	-	111	111

GEN. ACCTG. ACCTG.

Supervisors
Other Exempt
Clerical
Total

Supervisors	-	-	-	-	-	-	-	-	-	1	7	8
Other Exempt	-	-	-	-	-	-	-	-	-	1	10	11
Clerical	-	-	-	-	-	-	-	-	4	22	75	101
Total	-	-	-	-	-	-	-	-	4	24	52	120

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EMPLOYEE & COMM. RELATIONS									
	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant
	Area	Area	Area	Area	Area	Area	Area	Area	Area
Supervisors	-	-	-	-	-	-	-	-	-
Empl. Rel. Counselor	-	-	-	-	-	-	-	-	-
Other Exempt	-	-	-	-	-	-	-	-	-
Clerical	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-

PLANT SEC. & SERVICES

PATROL & SEC.

Supervisors	5	6	6	5	-	5	8	7	8	-	-	4	54
Other Exempt	-	-	-	-	-	-	-	-	4	-	-	-	4
Patrolman	63	47	65	43	-	66	155	78	7	-	-	25	549
Clerical	-	-	-	-	-	-	-	-	18	-	-	1	19
Seamstress	-	-	-	-	-	-	-	-	2	-	-	-	2
Total	68	53	71	48	-	71	163	85	39	-	-	30	628

SAFETY & FIRE

Supervisors	14	-	-	-	4	-	4	4	6	-	-	-	32
Engineers	1	2	-	1	-	2	-	2	-	-	-	1	9
Firemen	46	-	-	-	8	-	20	16	12	-	-	-	102
Clerical	-	1	-	1	-	1	-	1	-	-	-	2	6
Total	61	3	-	2	12	3	24	23	18	-	-	3	149

GENERAL SERVICE

Supervisors	-	-	1	-	-	1	3	1	1	-	-	19	26
Supv. In Training	-	-	-	-	-	-	-	-	-	-	-	1	1
Ldry Operators	-	-	-	-	-	-	2	-	-	-	-	1	3
Janitors & Servicemen	9	5	6	6	2	4	20	14	3	-	-	44	113
Clerical	-	-	-	-	-	-	-	-	-	-	-	44	44
Others	-	-	-	-	-	-	36	-	-	-	-	86	122
Total	9	5	7	6	2	5	61	15	4	-	-	195	309

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<u>PURCHASING & STORES DIVS.</u>										
<u>PURCHASING</u>										
	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area
Supervisors	-	-	-	-	-	-	-	-	-	16
Other Exempt	-	-	-	-	-	-	-	-	25	27
Clerical	-	-	-	-	-	-	-	-	-	102
Rotational Trainee	-	-	-	-	-	-	-	-	17	1
Total	-	-	-	-	-	-	-	-	42	146
										188
<u>STORES</u>										
Supervisors	2	-	-	-	-	-	-	-	-	15
Clerical	12	-	-	-	-	-	-	-	-	51
Others	23	-	-	-	-	-	1	1	-	78
Total	37	-	-	-	-	-	1	1	-	144
										219
<u>COMMUNITY DIVISIONS</u>										
Supervisors	-	-	-	-	-	-	-	-	-	14
Other Exempt	-	-	-	-	-	-	-	-	-	12
Firemen	-	-	-	-	-	-	-	-	-	34
Patrolmen	-	-	-	-	-	-	-	-	-	21
Journymen	-	-	-	-	-	-	-	-	-	167
Serviceemen	-	-	-	-	-	-	-	-	-	63
Truck Drivers	-	-	-	-	-	-	-	-	-	29
Power Operators	-	-	-	-	-	-	-	-	-	31
Clerical	-	-	-	-	-	-	-	-	-	81
Others	-	-	-	-	-	-	-	-	-	55
Total	-	-	-	-	-	-	-	-	-	51
										617
										668
<u>GRAND TOTAL</u>										
	510	439	428	335	146	528	1418	1015	343	704
										2959
										8805

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MANUFACTURING DIVISIONS

JULY 1951

SUMMARY

A total of 70.8 tons of metal was discharged, of which 94 percent was at the goal value. Production was adversely affected by the rupture of 10 natural uranium pieces and 4 P-10 target slugs to the extent that the input to the piles was 2 percent below that forecast. Material discharged amounted to 104 percent of forecast. Pile operating efficiency was 81.4 percent. Lost time of 462.1 hours is attributable to the ruptured slugs, of which 242.6 resulted at F pile in tube 4380. The special request program required 280 man-hours during the month, while 135 man-hours were required for the Chemical 68-56 program. Fifty-one tubes of special request material, exclusive of Chemical 68-56, were discharged and recharged and 24 casks containing irradiated samples were shipped off site.

A total of 90 tons of acceptable slugs was canned, which represents 100 percent of the production forecast. The canning yield was 77 percent and the machining yield 79.5 percent. The melt plant produced 14 tons at a yield of 87.8 percent. The solid metal yield was 93.8 percent.

A total of 83 regular charges plus 3 acid washes was started in the canyon buildings which amounts to 98.8 percent of the scheduled production.

The concentration buildings completed 94 regular runs in addition to 2 acid washes and 3 master recycle runs. The resultant production amounted to 100 percent of schedule.

A total of 94 regular runs, 2 acid washes, and 9 non-routine runs was completed through the isolation building, representing 106.9 percent of forecast. The average cooling time was 47 days and the minimum was 42 days. The average purity of completed charges was 99.2 percent.

The first cycle waste evaporator in 200 West Area maintained an operating efficiency of 96.1 percent and a volume reduction of 74.1 percent. The average gallons per hour of water evaporated amounted to 566.

Plant Utilities and Maintenance Divisions

The electric power demands for the month were:

Process	7-24-51 (9:00-10:00 A.M.)	69,000 KW
Village	7- 9-51 (3:00- 4:00 P.M.)	11,950 KW

The process load is at an all time peak for this season, in line with increasing process load.

The Assistant Superintendent of the Power Division was appointed Superintendent of Power, effective July 13, to fill existing vacancy.

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Manufacturing Divisions

The Instrument Division assumed responsibility for operation of the Mechanical Development Shop, temporarily located in the 101 Building, Hanford.

An unscheduled interruption of production resulted from a severe power surge on the 230 KV Bonneville System which caused the 100-H incoming line to trip out at 3:07 A.M. on July 28. The 100-H Area was scrambled and all of the other 100 Areas were shut down under a Critical "Y" condition. Electric power to all 100 Areas, except H Area, was restored within twenty-one minutes; H Area power was restored at 12:34 P.M.

Commercial railroad cars handled during July decreased 46 percent as coal receipts were lowered because of the National Coal Miners' Holiday.

C. N. Gross
C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

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MANUFACTURING DIVISIONS

PATENT REPORT SUMMARY
FOR
MONTH OF JULY 1951

Richland, Washington
August 10, 1951

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

INVENTOR

TITLE

N O N E


C. N. GROSS, MANAGER

MANUFACTURING DIVISIONS

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MANUFACTURING ACCOUNTING
JULY, 1951

SUMMARY

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The remainder of standard rates for the "Businesses" were established. Preparation was made for application of the complete list of standards to actual July units of service such as R.R. cars moved, vehicle miles, electrical KWH consumption, etc. Operating statements were designed to show the monthly activity in the operating accounts for business costs and billing at standard.

A procedure for control of Bus System Cash was made effective July 23.

Classes in IBM operation were conducted to develop additional strength in the statistics group.

Operating Statements - Business

Sample operating statements were developed which will show revenue realized from billing at standard rates as compared with actual costs incurred, current month and year to date.

Operating Expense is shown by type of service or material provided to the business.

Exceptions to this are the vehicle rental statements. Revenue is segregated by type of equipment, with billing to customers comprising supplementary detail.

Various changes in form and presentation are still under consideration.

Inventory Card Records

Work begun in June on conversion of Inventory record-keeping to a card system progressed. Complete conversion was accomplished on Overhead Line Material, Instrument Tubes and R.R. Maintenance Materials.

Redox Process Codes

As a result of analyses begun in June, process codes were recommended for costing the Redox process. They were transmitted to operating management for discussion and suggestions.

The codes are intended to segregate costs by processes (a) applicable to both products and (b) applicable to one product only.

Special Requests

Considerable time was spent in 100-H Area by an accounting representative with File Technology personnel conferring and accumulating information on Special Request Processes for the purpose of aiding in development of more accurate allocation of costs to individual orders, possibly by

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process. It is anticipated that further work will be undertaken in cooperation with Engineering Accounting, who have prime responsibility for Technical cost distribution.

Area Building Maintenance

In July reports building maintenance charges on area building space used by departments other than Manufacturing will be segregated so that management determination can be made as to the proper allocation to function or product.

Statistics

The National Salary Survey was completed, and punching for the Manpower Survey finished for the salary.

Work was begun on punching "Debaset" calculations and a series of trial reports for Stores Inventory Control. Fiscal Year 1951 reports on Motorized Equipment were issued.

Although volume on card punching did not exceed the previous month, code changing in connection with the altered cost system resulted in a heavier work-load.

Ten hours of operator instruction classes were given in July. Average attendance was seven, and good interest and understanding were developed on major tabulating principles. The class included two business graduates.

Business Graduates

Rotation on three Business graduates was substantially complete by early August. One graduate was required for an assignment on cost reports, and will begin rotation in August. Graduates were used wherever possible for actual work not requiring "Q" clearance. In this regard graduates were profitably employed in Statistics and on the Bus Cash Control Records.

Organization and Personnel

Beginning of Month	71
Acquisitions	10
Transfers Out	3
End of Month	78
Transfers Out FY to Date	3

Hiring results in July were encouraging, particularly in the Statistics Group, who have the problem of organizing a night shift. Development of a qualified night shift supervisor and adequate machine operator and key punch leadermen remains a major problem. It is anticipated that the training classes will aid in developing leaders. Employees leaving this month gave as reasons:

1. More money in similar work (A & J)
2. More money in other work for which employee is qualified and prefers.
3. Army husband transferred.

The space problem was further aggravated by the hiring gains made this month. Vacations and the rotation of the business trainees has thus far partially relieved the condition.

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August 6, 1951

P DIVISION

JULY, 1951

I. GENERAL

A total increase of 75 MW over previously established maximum operating levels in the pile areas was achieved during the month of July with all piles contributing toward this increase. However, slug failures adversely affected the total production.

Slug failure experience during July requiring outage for remedial action included fourteen ruptures, of which ten were uranium and four were P-10 target slugs. A total downtime of 462.1 hours was required to discharge these slugs.

The average time operated efficiency for five pile operation was 81.4%. The total number of outage hours for all piles was 691.5 hours; of this amount 86.3% was chargeable to plutonium production and 13.7% was chargeable to other irradiation and the special request programs.

Operation of the 300 Area manufacturing facilities were continued on a six-day week basis during July.

Pouring of the foundation concrete for the C-Pile building was started on July 24.

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P Division

II. ORGANIZATION AND PERSONNEL

Number of employees on payroll - July, 1951

Beginning of month - 370

End of month 384

Net increase 14

Seven operators and one clerk were hired for the 300 Area and one stenotypist for the 100 Areas. Four operators terminated voluntarily.

At month end, a total of ten rotational pool employees were assigned to the P Division. During the month, nine new rotational pool employees were assigned to the P Division. Two rotational pool employees were given permanent P Division assignments as technical graduates and began supervisory training.

R. G. Clough and S. L. Nelson, Area Supervisors, were promoted to Assistant Chief Supervisors, effective July 1.

P. R. McMurray transferred from the Health Instrument Divisions to the P Division as an Area Supervisor, effective July 16.

A. K. Hardin, Supervisor-in-Training, was promoted to Assistant Process Engineer, effective July 1.

E. K. Loop, technical graduate, was promoted to Supervisor-in-Training, effective July 1.

W. P. Rankin, Area Supervisor, was transferred to KAPL, Schenectady, New York, effective July 31.

III. AREA ACTIVITIES

The total pile production (input) for July was 8.3% under that of June and was 98% of the amount forecast for this period. The decrease in production reflects the lower pile efficiency and increased number of unscheduled outages during the month. The pile production (output) was 104% of the amount forecast for July.

<u>Pile Production Summary</u>	<u>Pile B</u>	<u>Pile D</u>	<u>Pile DR</u>	<u>Pile H</u>	<u>Pile F</u>
Unscheduled Outage Time (hours)	52.9	81.4	35.6	97.3	245.3
*Inlet Water Temperature (°C.)	19.4	19.2	19.2	19.1	19.3
*Outlet Water Temperature (Max. ° C., 10 tubes 0.240" zone) (10 tubes 0.285" orifice zone at DR and H)	79.9	80.1	78.3	79.6	73.2
Maximum Graphite Temperature (°C.)	363	375	**330	400	380
Metal Discharged (tons)	20.08	15.81	18.56	6.59	9.73

* Month end figures.

** Calculated graphite temperature because of erratic BGST readings.

P Division

<u>Pile Production Summary (Contd.)</u>	<u>Pile B</u>	<u>Pile D</u>	<u>Pile DR</u>	<u>Pile H</u>	<u>Pile F</u>
Inhours Gained	42	44	***-95	48	48
Inhours Poisoned	640	595	235	152	564
Inhours in Rods	85	100	109	136	133

*** Loss in inhours resulted from large discharges.

Pile downtime during the month of July was mainly attributable to the scheduled discharge of metal and to the removal of ruptured slugs.

A tabular breakdown of outage time in hours is given below:

	<u>B</u>	<u>D</u>	<u>DR</u>	<u>H</u>	<u>F</u>	<u>Total</u>
Metal Discharge	15.5	19.8	20.6	--	15.0	70.9
H-10 Discharge	--	--	--	21.4	--	21.4
Ruptured Slug Removal (uranium)	50.8	80.4	35.2	19.7	244.7	430.8
Ruptured Slug Removal (P-10)	--	--	--	31.3	--	31.3
Pile Maintenance	7.5	--	--	--	--	7.5
Production Test (except P-13)	2.0	2.0	--	3.0	15.0	22.0
Special Irradiation	7.0	5.0	2.0	--	5.7	19.7
P-13	--	--	--	0.5	--	0.5
Orifice Change	2.5	4.0	33.0	--	8.4	47.9
Panellet Failure	1.0	--	--	--	0.2	1.2
Insufficient Control Rod for Turn-around	1.1	--	--	--	--	1.1
Electrical Failure	--	1.0	0.4	21.4	0.4	23.2
Process Tube Leak Testing	--	--	--	--	14.0	14.0
	87.4	112.2	91.2	97.3	303.4	691.5

Operating Experience

Operating experience during the month was normal, except for outages required to remove ruptured slugs from all piles, a water leak at F Pile and a power failure on the BPA system which shut down all operating piles.

Production tests having operational significance are reported below:

105-103-P (Corrosion Rates at Elevated Temperatures)

At F Pile, 29 tubes are operating satisfactorily under the provisions of this test. Several of the tubes have limited the pile power level during the month. The orifice sizes of these tubes were increased during the unscheduled outage of July 28 to eliminate the power curtailment.

105-316-P (Exposure of P-10 Fuel Slugs)

Tube 2979-F containing two J slugs was discharged without difficulty during the month. This completes the F Pile portion of this production test.

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P Division

105-338-P (Special Step Plug and Gas Seal)
At D Pile, the silicone seal in vertical rod #20 step plug was replaced with an improved type of silicone compound. The original silicone seal had become brittle and was affecting the movement of the safety rod.

105-453-P (Sodium Dichromate Elimination Test)
The initial phase of this test, involving exposure of anodized and other solid aluminum dummy slugs in two process tubes supplied with water without sodium dichromate, was completed in H Area July 19.

During this outage two process tubes were replaced and charged with special loadings consisting principally of regular slugs and anodized solid aluminum dummies. In the second phase of this test, these tubes are being supplied with sodium dichromate free process water.

105-354-P (Operation of ANL-140 - Hot Run Without Fuel, Supplement A)
Operation of the P-13 equipment at H Area was normal except for an unscheduled outage of 0.5 hours on July 20. The cause of the outage apparently resulted from low pressure in the P-13 circulating system. No further difficulties were experienced.

105-367-P (Westinghouse Creep Test)
During the outage of July 11, the regular metal was discharged from tube 0876-B and a WAPD M-106 slug and associated equipment were installed. Operation of this facility was suspended because of equipment failure on July 15.

The special request loading program required approximately 280 manhours of time during the month. Cask handling and decontamination work continued to consume a large portion of the time charged to this work. Fifty-one tubes of special request material, other than Chemical 68-56, were charged and twenty-four casks containing irradiated samples were shipped off site. In addition, 135 manhours were required for the charging, discharging and shipping of Chemical 68-56.

A total of 70.77 tons of uranium was discharged during the month, of which 2.76 tons was at 80%, 1.95 tons at 37% and 66.06 tons at 100% of nominal goal value concentration.

There was a total of fourteen slug failures in the 100 Areas during July, of these ten were uranium and four were P-10 target slugs. All removal operations proceeded without incident except the one involving tube 4380-F, in which considerable difficulty was encountered, due principally to distortion of the process tube and aluminum rib chips which formed a restriction in the passage of the ruptured slug through the tube. It was necessary to remove the rear gunbarrel to effect dis-

P Division

placement of the metal loading. The total July pile outage time involved in the removal operation amounted to 242.6 hours. Details of the incident are described in detail in document HW-21727.

The following summarizes the pertinent data concerning the failures:

					Document Number
Area	Type of Failure	Date	Tube No.	Outage (Hrs.)	Describing Incident
B	Ruptured uranium	7-18	2169	25.6	HW-21728
B	Ruptured uranium	7-27	4086	25.2	HW-21789
D	Ruptured uranium	7-14	1768	26.9	HW-21788
D	Ruptured uranium	7-21	1961	27.0	HW-21787
D	Ruptured uranium	7-28	1963	26.5	HW-21786
DR	Ruptured uranium	7-19	1487	35.2	HW-21771
H	Ruptured uranium	7-1	3486	19.7	HW-21560
H	Ruptured P-10	7-12	0879	11.7	HW-21746
H	Ruptured P-10	7-12	1072	11.6	HW-21746
H	Ruptured P-10	7-20	2466	8.0	HW-21716
*H	Ruptured P-10	7-28	3874	7.0	HW-21784
*H	Ruptured uranium	7-28	0679	1.0	HW-21784
F	Ruptured uranium	6-29	4380	242.6	HW-21727
		7-10			
F	Ruptured uranium	7-28	1874	2.1	HW-21791

* Pile outage is reported under electrical failure in Pile Outage Summary. These figures represent actual slug removal times.

An unscheduled outage was initiated in all 100 Areas except B on July 28 due to an unexplained power surge in the main distribution system and resulted in the opening of a 230 K.V. relay at H Area which immediately shut down that pile. The resulting critical power condition was corrected within 0.4 hours in all areas except H Area, which required 9.5 hours. All areas thus affected resumed operation except H Area, which was unable to start up because of transient poison conditions. During the outage at H Area, routine investigations revealed the presence of a ruptured regular metal slug in tube 0679-H and a ruptured P-10 target slug in tube 3874-H. B Area was in the process of removing a ruptured slug and was not affected by the critical power condition.

On July 11 it became necessary to shut down the B Pile three hours after a startup because of a lack of available control rod to cover pile transient conditions during non-equilibrium operation. An outage of 1.1 hours duration resulted before the pile could safely resume operation.

Difficulty was experienced in removing several of the dummy supported front face caps at B Area during the July 11 outage. Forces required to remove these caps caused a separation of the caps from the shielding dummies and they had to be pried from the nozzles. Corrosion of these aluminum dummies apparently caused them to stick in the nozzles. This phenomenon is being investigated.

An unscheduled outage of 0.6 hours duration was experienced in D Area on July 18. The outage resulted from a power surge during the period when

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P Division

the DR Pile process water pumps were being placed in operation following an outage.

At the DR Pile, outlet water temperatures have been limiting power level. To improve this condition, particularly during the period of high river water temperatures expected in late summer, a re-orificing program was completed in July in accordance with document HW-21475, "Panellit Changes at DR Pile". Essentially, the program involved the conversion of the central zone from 0.240" to 0.285" orifices. Because of the short period that the change has been in effect, an accurate evaluation is not possible at month end. It has been noted, however, that the maximum level was attained more rapidly following a recent startup.

Following startup of the F Pile on July 12, the power level was limited because of a large wet area in the graphite on the far side of the pile. The water was removed at a rate of approximately 160 gallons per day, and the power level was increased as reactivity was regained until on July 18 the last trace of reactivity loss due to water had disappeared. The water removal rate dropped until it leveled out at approximately 100 gallons per day. During the July 28 outage, several rear face water nozzle gasket leaks were repaired and at month end the water removal rate has decreased to approximately 25 gallons per day. It is indicated that this leak was in addition to the leak previously reported. Investigation into the excessive leakage is being continued.

Mechanical Experience

The general mechanical condition of the pile components and equipment continued good throughout the month. All horizontal and vertical safety rods are in satisfactory operating condition at month end, except the following:

- a. Horizontal safety rod 8 at 100-B is out of service because of a thimble leak. The thimble is scheduled for replacement during an August outage.
- b. Horizontal safety rods 6 and 9 at 100-D bind during operation. The cause of the binding will be investigated during an early outage.

The installation of additional bracing for the B Pile downcomer was begun during the outage of July 11 and will continue during available pile down time until completed.

Process tube channel 4380-F, which contained a ruptured slug, has been temporarily abandoned pending a study to determine the possibility of reinstalling the rear gunbarrel which had been removed as one of the steps in displacement of a ruptured metal piece.

During July, repairs to stabilize the DR downcomer vent pipe and baffle plates were initiated. Repairs will be continued during subsequent outages.

P Division

A leak which developed in the inlet mixing chamber at 107-DR retention basin is being investigated at month end.

At H Area, repairs were made in the east 107-H retention basin to all expansion joints, except those that had been previously repaired. At month end the basin is in service to permit an evaluation of the effectiveness of the repair program.

Gas Processing

The gas processing facilities operated normally throughout the month.

Special Hazards

Removal of ruptured slugs in all 100 Area piles during July was accomplished with no over-exposure to personnel and without spread of contamination to areas outside of established danger zones.

300 AREA METAL FABRICATION

OPERATING SUMMARY

All 300 Area facilities, except the 305 test pile and the Melt Plant, were operated on a one shift, six-day week basis throughout the month. The canned slug production was 100% of the amount forecast for the period. The Melt Plant was operated on a one shift, five-day week basis and the 305 test pile was operated sixteen days during this period.

URANIUM FABRICATION

	<u>June</u>	<u>July</u>	<u>To Date</u> <u>1951</u>
Billets Produced (Tons)	24	14	136
Bare Pieces Machined (Tons)	74	73	607
Briquettes Produced (Tons)	10	11	86
Oxide Burned (Weight Out Tons)	3	4	22
Acceptable Pieces Canned (Tons)	85	90	609
Melt Plant Billet Yield (%)	91.5	87.8	88.7
Melt Plant Solid Yield (%)	95.7	93.8	94.5
Machining Yield (%)	78.8	79.5	78.6
Chip Recovery Yield (%)	87.9	88.9	87.7
Canning Yield (%)	76.5	77.0	84.0
Autoclave Frequency (No./M)	0.09	0.04	0.18

OPERATING EXPERIENCE

Melt Plant

Billet production for July was reduced as a result of the limited raw materials available for casting. Due to a failure of the chip briquetting

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press it was necessary to discontinue operations in the Melt Plant from July 23 through July 30.

A decrease in solid and billet yields is attributed mainly to the increased amount of TXB processed. In addition, some difficulty was encountered with cracked crucibles. Upon investigating this problem it was found that the inserts being placed in the bottom of used crucibles were too large in diameter and did not allow for sufficient expansion during the casting cycle.

Machining

Bare slug production continued to be adversely affected by a lack of manpower. The slightly higher yield resulted from the improved surface quality of rods that were processed.

During the month, four lots of rods rolled during June by the Simonds Saw and Steel Company were machined. The quality of these rods was comparable to rods received in previous shipments, and no significant change in yield was apparent. Bad ends averaged six to eight inches. The usual surface defects with respect to laps, seams and ellipticity were observed. The average diameter of these rods was about 1.420" as compared to 1.407" for previous material.

Chip Recovery

The chip recovery operation was shut down during the latter part of the month due to a failure of the briquetting press. The master cylinder on the press cracked on July 17. To correct this condition the entire press was dismantled for major overhaul and a steel sleeve was sweated onto the master cylinder. Necessary repairs were completed on July 30 and operation was resumed.

Oxide Burning

A total of nine tons of raw oxides was burned during the month. This figure includes six tons of expended graphite parts (MD-4) from the Melt Plant operation.

Canning

The canning yield increased 0.5% during the month. Of the total number of slugs processed, 5.2% was rejected for deviations from standard process, 4.6% for bad welds, 4.5% for marred surface, 4.0% for non-seating, 2.3% for Al-Si on the outside of the can, and 2.4% for other miscellaneous reasons.

Rejects for deviations from standard process were decreased 2.9% through a reduction in off cycle rejects on the canning lines. In an effort to further reduce this type of reject, timing devices are being developed for the Al-Si dip baths and continued emphasis is being placed on close adherence to the canning cycle.

Minute pinholes, which are detectable only with magnification, continue to cause a major portion of the welding rejects. Investigations carried out

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by the Plant Assistance Group indicated that many of the pinholes are superficial. However, no reliable method has been found for distinguishing between superficial defects and minute pinholes which extend through the weld bead.

A study is currently being made of can-sleeve clearances in an effort to reduce non-seating and Al-Si rejects. Preliminary results indicate that excessive clearances frequently exist and are conducive to both non-seating and Al-Si rejects. To correct this condition, closer inspection standards have been established for used steel sleeves.

Inspection

There were three autoclave failures during the month. Two failures resulted from minute pinholes in the weld bead leading to an unbonded section along the side of the cap. In each case, the pinholes in the weld bead were too small to be observed visually after failure in the autoclave test. The cause of the third failure has yet to be determined.

None of the slugs tested for penetration during the month were found to be penetrated within 0.015" of the outer surface of the can wall.

305

The 305 test pile was operated sixteen days during the month.

The following tests were run during this period:

<u>Description</u>	<u>No. of Tests</u>
Billet Eggs	45
Regular Slugs	50
Measure the blackness of thorium slugs prior to charging in the 105 piles.	59
PT-305-14-P, "Reactivity Test of "J" Slugs after Discharge from 105 Pile".	6
Determine the reactivity of concrete samples	5
Measure fission recoils.	2
Irradiate gold foil for calibration purposes.	8
Irradiate uranium sample for calibration purposes.	1

Special Fabrication Work

During the month, 1,288 poison pieces were canned. In addition, 54 manhours were devoted to the following Metal Fabrication Requests:

<u>Description</u>	<u>No. of Pieces</u>
Can lead pieces to be calibrated and used as special shielding pieces.	16
Prepare special test pieces for Pile Physics Studies.	1
Determine the heating rates of can-sleeve assemblies pre-heated in an Al-Si bath at various bath temperatures.	60
Prepare special samples for DC welding demonstration.	2

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Material Handling

Sixty-two tons of normal canned slugs were shipped to the 100 Areas.

Fifty-two tons of billets were shipped to Simonds Saw and Steel Company for alpha rolling.

Five cars, containing 268 tons of alpha rolled rods, were received from Simonds Saw and Steel Company.

Special Hazards

No unusual conditions developed during the month.

Development

As part of a program to further increase the capacity of the slug recovery operation, an agitator has been installed in the hydrofluoric acid tank. Preliminary results indicate this change will increase production rates and reduce hydrofluoric acid consumption. Further evaluation is necessary to evaluate these improvements.

To reduce Melt Plant operator radiation exposure, a procedure was established during the month for transferring TXB from Chip Recovery to the Melt Plant in preweighed charges. This program was made possible by the procurement of special 20 gallon barrels which can be emptied with a minimum of body exposure and air contamination.

Further study was made to determine the effects of a mineral oil and kerosene coolant on chip oxidation as compared with the present water soluble oil coolant. The Melt Plant Cochrane-Bly billet cropping saw was operated using a 70% mineral oil and 30% kerosene mixture for a two week period. The chips produced (270 lbs.) were degreased in 20 pound lots, pickled and briquetted. This material was then processed through the Melt Plant with a control charge of normal TXB. The billet eggs and chemical samples from both types of material appeared to be normal. Aside from difficulties encountered in degreasing the chips coated with insoluble oils, a coolant containing mineral oil and kerosene offers definite advantages in reducing chip oxidation. At month end, the possibility of conducting a test on a slug machining lathe was being investigated.

PROCESS ACTIVITIES

Contact Engineering Group

Project C-431 - 100-C Plant

HDC-2106, "G. E. Company Hanford Works Project C-431-A, Production Facility, Section A, Subcontract G-363 Revised Design Report", by R. A. Moncrieff, dated 6-14-51, was approved by the Working and Scope Committees during the month. This document describes the Water Plant (A) Section of the Project for scope purposes.

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Design of the reactor and its associated equipment is approximately 80% complete and approximately 60% approved. Building 105-C design is approximately 70% complete and 30% approved.

Excavation for the Building 105-C foundations was completed during the month. Pouring of the foundation concrete began on July 24.

At month end, the foundations for the rear Discharge Area wall and the foundations for downcomer-labyrinth areas have been poured. The sewage lift station sump base slab is complete.

Project C-411 - J Slug Handling Facility

Modifications to the Building 105-H Transfer Area were started during the month. At month end, steel modifications are about 80% complete and excavation for the cask supports has been started.

Engineering Control Group

The efforts of the Engineering Control Group were directed toward:

- a. Scoping, design follow-up, and project proposal preparation of a number of urgent projects including "Ball 3X Facilities", "Mechanization of Slug Canning, Finishing, and Inspection Lines", "Repairs to 107 Retention Basins", "Panellit Gauge Revisions", "Crossheader Pressure Monitoring", and "Effluent Downcomer Repairs".
- b. Follow-up in the field of approved projects under construction and assistance in the design and development of new projects, as well as extending engineering assistance to the operating personnel.
- c. Developing explanations for variations in the division unit costs and preparing information and reports to assist operating supervision in control of their costs. Considerable time was devoted to preparing cost data of a non-routine nature for consideration by management.

Summarized below is the status of currently active P Division projects:

C-420 (CO₂ Bulk Storage Facilities)

The installation at 100-D is essentially complete except for the necessary connections to process lines now in service. Recent information indicates transformers for this project will not be delivered until approximately September 15, 1951. An attempt is being made to locate transformers of the same type which can be substituted in order that this work may be completed within the directive completion date of September 1, 1951.

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- C-438 (Ball 3X Facilities for B, D, DR, H, and F Piles (Engineering and procurement of critical materials)
Boron steel balls were placed on order with Industrial Tectonics, Inc. on July 3, 1951. Shipment of 30,000 pounds of balls per month, starting November 1, 1951, is promised by the vendor.

Electrical designs on the ball trip mechanism has progressed to the extent that orders have been placed for component parts. Tests of the coil and magnet assembly for the 2 $\frac{1}{4}$ inch rods have proved satisfactory. It is now planned to connect the Ball 3X System to the No. 2 safety circuit. The feasibility of using the horizontal rod battery supply at 105-H is being reconsidered.

Designs for the step plug hopper and the trip mechanism are essentially complete and should be ready for approval by August 1, 1951.

- M-713 (Vertical Safety Rod Design, B, D, F)
Approved prints have been sent to the field for the design changes necessary to strengthen the tie rod. It is planned to complete these changes by month end and schedule a drop test of the re-designed flexible VSR shortly thereafter.
- M-816 (Retention Basin Sumps - 100-B and F Areas)
The project proposal was submitted to the Atomic Energy Commission on July 3 after approval by the A and B Committee.
- M-828 (Facility for Contamination Control - Shipping Casks)
The last piece of equipment needed (a blower) has now arrived and the work can now be completed.
- M-829 (105-D and DR Safety Circuit Interlock)
The delivery date for the four remaining time delay relays has been revised to August 17, 1951. The Electrical Division has completed checking of the 105-D safety circuit wiring and it is hoped this project will be completed on August 28 and 29 during a shutdown of both the D and DR piles.
- M-831 (Repairs to Retention Basins B, D, F (project preparation only)
Preliminary draft of the project proposal has been submitted to the P Division for comment. Cost estimates for this project should be ready about August 8, 1951.

Process Control Group

Routine Process Control Group activity was discontinued in the 100 Areas pending assignment of personnel to this work.

In the 300 Area, activities were performed in the normal manner. A program of daily checking for adherence to standard operating procedures was instituted.

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Process Development

Progress is being made in the installation of the test set-up in the 108-D Building which will be used for developing and testing charging machine improvements, ruptured slug discharge equipment and tube and gunbarrel replacing equipment.

A document, HW-21638, "Poison Addition During Pile Operation", has been issued which describes a method of improving pile flattening through the addition of poison to selected poison tubes while a pile is in operation. An effort is being made to obtain the equipment necessary for a pile test.

A critical borescopic examination was made of exposed uranium slugs to determine the nature of slug corrosion. Slugs which had been exposed under PT 105-103-P to 400 MD/T exposure with an average effluent temperature of approximately 80° C. were found to have serious weld bead corrosion pits and a severe surface attack which was non-uniform in nature. Other slugs which had been canned during the month of May, 1951 and which had been exposed to less than 50 MD/T showed signs of pitting attack in the weld bead.

The optical system of the DR underwater slug viewer has been altered to increase the magnification to as much as 20x. When this instrument is used with chemically-cleaned film-free slugs, the nature of any slug corrosion attack can be observed with excellent resolution.

E. P. Lee
P DIVISION

EP Lee:ges

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Richland, Washington
August 3, 1951

S DIVISION

JULY, 1951

I. RESPONSIBILITY

There was no change in S Division operating responsibility during the month.

II. ACHIEVEMENT

A. Operating Experience

1. Production Statistics

a. Over-all Performance - Canyon, Concentration, and Isolation Buildings (7-1-51 through 7-31-51, inclusive)

	<u>B Plant</u>		<u>T Plant</u>		<u>Combined</u>	
	<u>Normal</u>	<u>Acid Wash</u>	<u>Normal</u>	<u>Acid Wash</u>	<u>Normal</u>	<u>Acid Wash</u>
Charges started in 221	32	1	51	2	83	3
Charges completed thru 224	35	1	59	1	94	2
Special Charges thru 224		3	-	-		3
Chgs. completed thru 231	33	1	61	1	94	2
Special charges thru 231		-		-		9
Avg. purity comptd. chgs.						99.2
Avg. elapsed cooling time						
Metal processed (days)	50		45		47	
Minimum elapsed cooling						
time metal processed (days)	42		42		42	
Yield thru process	98.1		102.3		100.8	
Material Balance thru						
Isolation	102.4		102.6		102.5	

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	<u>B Plant</u>		<u>T Plant</u>		<u>Combined</u>	
	Acid		Acid		Acid	
	<u>Normal</u>	<u>Wash</u>	<u>Normal</u>	<u>Wash</u>	<u>Normal</u>	<u>Wash</u>
Avg. time cycle-hrs. 221		20.6		12.4		15.7
Avg. time cycle-hrs. 224		19.0		12.0		15.0
Avg. time cycle-hrs. 231		-		-		17.8
First Cycle Waste						
Evaporated - M Gals.		-		539		-

b. Canyon and Concentration Building Performance Data for Completed Charges (7-1-51 through 7-31-51, inclusive)

	<u>B Plant</u>	<u>T Plant</u>	<u>Combined</u>
Percentage of starting product in waste:			
This month	2.2 (a)	1.9 (a)	2.0
Last month	2.1 (b)	2.1 (b)	2.1
Cumulative to Date	3.7 (c)	3.5 (c)	3.6
Percentage of starting product recovered:			
This month	99.8	100.9	100.5
Last month	97.3	99.9	98.8
Cumulative to Date	97.0	96.5	96.8
Percentage of starting product accounted for:			
This month	102.0	102.8	102.5
Last month	99.4	102.0	100.9
Cumulative to Date	100.7	100.0	100.4
Gamma decontamination factor (Log.)			
This month	6.60	6.82	6.74
Last month	6.75	6.93	6.83
Cumulative to Date	7.15	7.26	7.20

(a), (b), and (c): Includes waste from processing recycle. The recycle wastes are estimated as: (a) 0.016%, B Plant; 0.020%, T Plant. (b) 0.053%, B Plant; 0.026%, T Plant. (c) 0.013%, B Plant, 0.061%, T Plant.

c. Isolation Building Performance Data (7-1-51 through 7-31-51, inclusive)

	<u>Prepared for</u>		<u>Retained Material</u>		
	<u>Shipment</u>	<u>Recycle</u>	<u>Waste</u>	<u>Samples</u>	<u>Balance</u>
Average for this month	93.8	6.26	-0.08	0.04	100.0
Average for last month	93.5	6.79	-0.20	0.017	100.1
Average to date	95.0	4.99	0.03	0.013	100.0

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d. Depleted Uranium and Waste Storage Status

Tank Farm	200 East Area					Reserve Capacity in				
	Gallons (10 ³) in Storage					Batches to Process				
	B	C	BX	BY	Total	B	C	BX	BY	Total
Metal Waste	1579	3374	3117	3102	11172	0	0	18	836	854
1st Cycle	2645	3170	2645	1372	9833	0	0	151	254	405
2nd Cycle	1621				1621	Cascade to Crib				
TBP Reserve					758					
Waste Evap.										
Reserve	530									

Tank Farm	200 West Area				Reserve Capacity in			
	Gallons (10 ³) in Storage				Batches to Process			
	T	U	TX	Total	T	U	TX	Total
Metal Waste	1579	4737	4056	10372	0	0	568	568
1st Cycle	792	1585	5546	7923	679	0	54	733
2nd Cycle	1629			1629	Cascade to Crib			
TBP Reserve				758				
Waste Evap.								
Reserve				460				

2. Production Activitiesa. General

Excluding acid washes, of the total batches started in the Canyon Buildings, thirty-nine percent were started at B Plant and the remaining sixty-one percent in T Plant. B Plant failed to comply with the starting schedule by one batch due to encountering process delays while processing special high level material during the latter part of the month. Non-routine process samples were required which extended the normal operating time cycle. Two acid washes were started at B Plant and one at T Plant, while one acid wash was completed at both plants. In addition, three master recycle batches were completed at the B Plant Concentration Building. At the Isolation Building P-11 test material, equivalent to approximately five regular batches, was recycled. Also, seven batches were processed on a Production Test basis to supply material for further evaluation at the 234-5 facility.

b. Extraction

Significant data on extraction waste losses are tabulated below:

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	<u>B Plant</u>		<u>T Plant</u>	
	<u>July</u>	<u>June</u>	<u>July</u>	<u>June</u>
Analysis before rework	2.20	1.55	2.20	2.08
Analysis after rework (throw-away)	2.12*	1.55	2.11**	2.04***
Average MWD/Ton	545	420	515	412

- * Includes three reworked batches
- ** Includes ten reworked batches
- *** Includes five reworked batches

c. Acid Washes - B & T Plants

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

<u>Run</u>	<u>Extraction</u>	<u>Sect. 12 and 1st Cycle</u>	<u>2nd Cycle</u>	<u>Total 221 Bldg.</u>	<u>Total Thru Process</u>	<u>Preflush B, E & F Cells</u>
B-11-06-AW-1	12.24	46.33	10.00	68.57	58.57	13.04
T-11-07-AW-1	7.76	19.86	13.33	40.57	47.62	27.86

At B Plant the higher than normal product pick-up is attributable to a defective distributor assembly in the First Decontamination Cycle precipitator tank, which was inoperative during the processing of the batch preceding the acid wash.

d. First Decontamination Cycle Waste Evaporator Performance - T Plant

	<u>July</u>	<u>To Date</u>
Gallons evaporated	539,083	1,134,697
Percent volume Reduction	74.8	74.1

Operation was normal throughout the month, attaining an efficiency of 96.1%. To date a total of 2,296,125 gallons of supernate have been transferred from the 241-T tank farm. This completes the transfer of settled first decontamination cycle waste from this tank farm.

e. Concentration Building Waste Effluent - T Plant

The rate of overflow from the 200-T series tanks to the cribs decreased perceptibly during the latter part of the month. Temporary measures were instituted which precluded any loss of production, while arrangements have been made to unplug and modify the overflow lines during the early part of August.

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f. Special Metal Processing

The processing of one charging of metal consisting essentially of end pieces from the H pile was started during the latter part of the month. The material is being isolated by processing through one parallel line of the Canyon Building. An acid wash was processed preceding the test material and the dissolver heel was removed before charging this material. At present it is impossible to draw conclusions due to the lack of sufficient analytical data.

3. Process Controla. Dissolver Off-Gas Filter (Project C-337) and Silver Reactor (Project C-378)

The fifth silver nitrate reactor tower was used as an emergency replacement for the tower in the 4-5L cell of T Plant during the month (see Item B-8). A new unit is being fabricated for the project on a work order. The work remaining to be done on these projects consists of connector fabrication which should be completed during the coming month if the work load permits.

b. Additional Waste Evaporation Facilities - 200 East Area Project C-423

Following the bid opening in June, the contract was awarded to the L. H. Hoffman Company on July 16, 1951 for the construction of waste evaporation facilities in the 200 East Area with a completion date specified of November 15, 1951. Work completed to date is as follows:

A) Hoffman Contract

- 1) All tanks except for the evaporator vessel, which is expected to arrive in the latter part of September, have been transferred from the 221-U slab yard to the Hoffman Company and are in the process of being modified for use in the evaporation building.
- 2) Excavation is 90% complete for the sanitary water line.
- 3) The piping to be installed under the floor slab is being fabricated prior to excavation.
- 4) All materials to be used by the sub-contractor are being moved to the job site.

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B) CPFF Forces

- 1) The spare line tie-in near the sub-contractor's job site has been completed.
- 2) The 10 inch spiral sanitary water line was hydrostatically tested and found satisfactory.
- 3) The permanent outside electrical phase of the work is approximately 20% complete. This work has been delayed due to the strike of the Newberry-Neon forces.

c. Additional Waste Storage Facilities - 241-TY, Project C-418

The over-all design phase of the project is 97% complete. The progress of the construction phase of the project may be listed as follows:

1. Pouring of the waste line encasements is 35% complete.
2. The waste line pre-cast beam fitting is 40% complete with 50% of the reinforcing steel for the piers erected.
3. Approximately 50% of the diversion box has been poured.
4. The bases for the 101 and 102 tanks have been poured.
5. The bases for tanks 103 and 104 have been waterproofed and grouted.
6. The dollar and knuckle plate welding on tanks 105 and 106 is in progress.
7. All the dollar plates are on the job site and the knuckle plates are either delivered or in transit.

4. Investigation and Development

a. Extraction Precipitation Bismuth Concentration and Volume Reduction (Production Test 221-B-10)

The processing of plutonium runs using 2.5 g/l bismuth in extraction and 49% and 56% of 9-1-46 volumes in the first and second cycle, respectively, was continued until twenty-two runs had been completed. The average waste loss per run (1.72%), corrected for AM-CM, was about 0.3% higher than that for normal 70% volume runs.

Twelve runs which were processed using 3.5 g/l bismuth in extraction and 49% and 56% of 9-1-46 volumes in the first

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and second cycles, respectively, produced average waste losses of 1.59% or 0.2% higher, corrected for AM-CM, than for 70% volume runs.

At month end plutonium batches are being processed using 2.5 g/l bismuth in extraction and 42% and 49% of 9-1-46 volumes in the first and second cycles, respectively. Conclusive results are not yet available.

b. Elimination of Radio Iodine from Stack Effluent (Production Test 221-B-9)

This test continues to be suspended since it was determined that both silver reactors had failed at T Plant, as well as the 3-5R reactor at B Plant. Therefore it was impossible to continue this test under representative conditions as originally postulated.

c. Suppression of Radio-Iodine in Dissolver Solutions (Production Test 221-T-15)

Work was started early in the month to determine the feasibility of reducing iodine contamination of canyon ventilation air by complexing the radioactive iodine in metal solution with mercuric nitrate. Mercuric nitrate solution, sufficient to produce a concentration of approximately .001M was added to Run T-11-07-DR4 in 6-3 tank prior to reduction. Waste losses and decontamination of this run were normal through both Canyon and Concentration Buildings. Mercuric nitrate, to produce like concentration, has been added to metal solutions of all dissolver cuts, starting with T11-07-DR-13. No processing difficulties have been experienced and the test will continue to permit a complete evaluation of results.

B. Equipment Experience

1. Operating Continuity

There were no unscheduled interruptions in operations during the month.

2. Inspection, Maintenance and Replacements

a. Canyon Equipment Failures - B and T Plants

- (1) At B Plant, the Section 14 first decontamination cycle product precipitator tank spray assembly became inoperative and was replaced.

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- (2) At B Plant, the sampling line which is used by the Stack Gas Group for sampling inlet gas to the silver reactor on dissolver 4-5L became plugged twice during the month. All attempts to free the line following the second plugging, including the use of water and air pressure, have failed.
- (3) At B Plant, the Section 18 second decontamination cycle by-product centrifuge to hold tank transfer jet failed at the jet discharge flange gasket. The defective gasket was replaced.
- (4) At T Plant, an agitator assembly was repaired which had previously failed on 12-28-50 after about six months service in the Section 18 second decontamination cycle by-product catch tank and it will be held as a spare.
- (5) At T Plant, the Section 7 extraction product solution transfer jet from the hold tank to Section 12 failed due to a leak at the jet discharge flange, and was replaced since the high radiation level precluded repairs with existing facilities.
- (6) At T Plant, the Section 16 first decontamination cycle by-product precipitator tank to centrifuge "B" jet assembly failed at the steam connector head, and was replaced.
- (7) At T Plant, a Section 16 first decontamination cycle by-product precipitator to centrifuge "A" jet assembly was installed successfully. Prior attempts had been unsuccessful because of steam supply line creepage within the cell.
- (8) At T Plant, the silver reactor columns were replaced in dissolvers sections 3-5R and 4-5L, after it had been definitely demonstrated that the efficiency of the original reactors had diminished appreciably while the level of activity due to radio-iodine had increased sharply in the area and general environs. While slight improvement is indicated since the replacement of the defective equipment conclusive results are not yet available. The defective columns are stored until the radio-activity will have decayed to within reasonable working limits, when they will be rejuvenated.
- (9) At B Plant, the dissolver section 3-5R silver reactor was rejuvenated in place. However, no metal dissolution has been scheduled in this particular section since the reactor was rejuvenated, therefore the success of the recoating of the packing is not known at present.

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b. Concentration Building Mechanical Difficulties - B and T Plants

- (1) At B Plant, a visual inspection of the splash rings in precipitator tanks in B, D and E cells, which are subjected to HF solution, revealed the welded seams of the splash rings were corroded in B and D Cells. The splash ring in E Cell was in satisfactory condition. The cause of the corrosion was ascribed to insufficient penetration of the weld metal. The defective splash rings were replaced.
- (2) At B Plant, the inner one inch HF dip tube in the precipitator tank in B Cell was replaced due to corrosion. The failed tube had been in service since 3-23-50.
- (3) At B Plant, an experimental one inch monel metal HF dip tube failed in the precipitator tank in D Cell after about three months service, and was replaced with a standard stainless steel dip tube.
- (4) At B Plant, during the month the agitator coupling bolts were tightened and tack-welded. In addition the agitator coupling pins were oiled to ensure that the pins would not vibrate loose.
- (5) At T Plant, leaks developed in the welds of two of the case spray stubs on the E-2 centrifuge. These were successfully repaired by removing the stubs and attaching gasketed blank flanges directly to the case openings.
- (6) At T Plant, several leaks developed in E Cell in the line from the precipitator tank to the centrifuge. Prompt replacement was necessary because of potential contamination problems. This was accomplished by fabricating the line in several four to five foot sections to permit heat treating in the small furnace in the 272-W shops. This proved to be more economical than fabrication in a single unit, since heat treatment would have required firing the large furnace in 200 East Area.

c. Isolation Building - Replacement

(1) Filter Box Replacements - Cell 2

The old-style filter boxes in the "C" and "D" positions of Cell 2 were replaced with the new type boxes

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containing a removable filter cartridge. Cell 2 is now entirely equipped with the improved type boxes.

(2) N-1 Tank Filter Block - Cell 2

The N-1 Tank Filter Block in Cell 2 was replaced during the month. This replacement completes the N-1 filter block changes in all operating cells.

C. Improvements

1. Adoptions

a. Silver Reactor Operation

To prevent overheating of the silver reactor towers and thereby extend the useful life of the equipment, the temperature of the inlet gas to the reactor was reduced from 475° F to 375° F.

Secondary protective devices were installed on the Micromax recorder-controllers to prevent overheating of the silver reactors if the primary control circuit fails.

The power supply to the Micromax recorder was isolated from the main circuit serving the reactor, to prevent the stopping of the instrument when the reactor is de-energized.

b. Flexatallic Gaskets - Plant Scale Evaluation

At the B Plant Canyon Buildings, as a result of preliminary information from tests made in the 272-E Shop, all jet assemblies in the second decontamination cycle product Section 19, normally used for processing, were equipped with flexatallic gaskets for complete evaluation.

c. At the Isolation Building during the month, the second cycle sulfate concentration was reduced from 0.25 M to 0.15 M in an effort to prevent the formation of solids in the AT solution. This test will be continued during the coming month.

d. At the Isolation Building, the practice of taking an AT retained sample on every run was altered during the month. Only one run of each rush, abnormal runs and runs bottled for off-site shipment will have retained samples taken in the future. The retained samples of off-site shipment will be held for three months and then recovered for return to the process stream.

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2. Inventions and Discoveries

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

III. PERSONNEL EXPERIENCEA. Organizational Changes

R. L. Lance, Senior Supervisor, terminated employment on July 9, 1951.

T. C. Kilgress, Senior Supervisor, terminated employment on July 20, 1951.

W. A. Boshier, Supervisor-in-Training, new hire, reported for work July 30, 1951.

R. G. Zumhoff, Shift Supervisor, promoted to Senior Supervisor, Canyon Buildings.

C. F. Yuenger, Supervisor-in-Training, promoted to Shift Supervisor July 1, 1951.

B. Force Changes1. Number of employees on roll:

	<u>Monthly Roll</u>	<u>Weekly Roll</u>	<u>Total</u>
Beginning of month	166	558	724
End of month	<u>165</u>	<u>599</u>	<u>764</u>
Net Increase	-1	41	40

2. Personnel Changes

	<u>Monthly Roll</u>	<u>Weekly Roll</u>	<u>Total</u>
Transfers from other Divisions	0	41	41
Transfers to other Divisions	0	0	0
Reactivates	0	0	0
New Hires	41	35	36
Resigned	-2	-5	-7
Transfers from Weekly to Monthly	0	0	0
Other	<u>0</u>	<u>0</u>	<u>0</u>
	-1	41	40

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3. Work Schedule

The S Division continued to work a six day work week schedule for the month. Members of Day Supervision and Clerical forces not required by work schedule are not participating in the overtime work.

C. Safety Experience

There were no major or sub-major injuries incurred by S Division personnel during the month of July.

D. Radiation Protection

1. Radioactive Iodine Activity

At T Plant, the reactor columns in both silver reactor units were replaced during the month. Subsequent checks on the column installed in Section 4-5L, indicate an iodine removal efficiency of 99.9%. The Section 3-5R unit has not been operated since the replacement of the reactor column. At B Plant, the rejuvenation of the 3-5R reactor column was attempted. Since there has been no production scheduled through this Section since the reactor was treated, no indication as to the efficiency performance is available.

2. 75 Ton Crane Cab Contamination

An activated carbon filter, was installed in the crane cab air supply duct early in the month just upstream from the CWS-6 filter. There have since been no instances of crane cab personnel contamination. However, other factors may have reduced the evolution of radio-iodine into the Canyon air such as the previously mentioned Production Test 221-T-15.

3. Canyon Ventilation - T Plant

Data collected late in June revealed definite shortcomings of the canyon and cell ventilation system, both as an individual unit and as compared to the 221-B Building. Papering over the trench blocks and blanking the ventilation ducts to the Head End cells and cells 2L, 2R, 12L, and 20R, resulted in an average increase of 97% in canyon to cell differential pressure. Individual canyon to cell differentials increased from 25% to 225%.

It was also revealed that the operating gallery to 8R cell differential was equal to the operating gallery to canyon differential, which indicated no differential from canyon to cell 8R. Smoke tests on the canyon deck at Section 8R confirmed

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the condition. Special flushing equipment was fabricated to be placed behind the ventilation baffle plate with the crane. After flushing of the 8-R ventilation duct to the ventilation tunnel, a canyon to cell differential of 0.08 inches of water was attained. Such a differential is low, but satisfactory.

In cell 19R, the ventilation duct baffle plate was moved out 3/8" further from the wall, resulting in a canyon to cell differential of 0.08 inches of water, where the previous differential was 0.05 inches.

The above changes are expected to result in greatly improved special hazards conditions in the canyon.

4. Alpha Activity - Concentration Building Roof Vent - T Plant

The air sampling of the Concentration Building roof fan vents indicated the relatively high levels mentioned in the previous month's report. A return to normal activity was noted during the two days the building was inactive (as scheduled). Sampling results from that time to month end (about 12 days) have been without significance due to electrical difficulties with the samplers caused by the extremely hot weather.

The tops of all of the agitated process vessels which are thought to be the source of this activity have been sealed with G.E. cocoon. Also, a comprehensive program of decontamination and hosing of all the cells has been carried out. It is anticipated that future air samples at the roof vents will show a decided reduction in activity.

5. Canyon Incident - B Plant

An alert member of a sampling team noted promptly that a Chemical Helper, who had entered the Canyon to observe the Sampling operation, was wearing an assault mask with no cannister. The Chemical Helper left the Canyon immediately and it is estimated that he was exposed six minutes to air containing 2.6×10^{-1} uc/l fission product. Thyroid checks were negative.

6. Personnel Contamination - Isolation Building

Three cases of personnel contamination to "S" Division operators were reported during the month. All cases were incurred while changing the N-1 Tank Filter Block in Cell 2 and involved contamination of the hands. Maximum contamination consisted of 10,000 d/m in one case, while the other two instances involved 500 to 1,000 d/m. Decontamination was readily accomplished in all instances.

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7. Air Activity

Samples of the 903 system during the month disclosed an activity of 6.4×10^{-11} ug Pu/cc being discharged to the atmosphere. A work order has been issued to fabricate and install an additional filter on the AR-1 and VR-1 Tanks of Cell 2. The activity of the discharge air from this cell will then be checked to determine the value and operating characteristics of the additional filters.

IV. EXPANSION SECTION

A. TBP Project (C-362)

1. General

a. Project Status

The project status at month-end is as follows:

- (1) All but 79 of the 2841 drawings required for Project C-362 have been approved. The outstanding drawings are on the 241-T tank farm area design for Phase II.
- (2) All purchase orders and contracts for the material and equipment required for the beneficial occupancy of the TBP Plant, an amount estimated to be \$14,035,000, have been placed. An inventory of stainless steel materials at the various Hanford and contractor storage points was completed and showed that an estimated dollar value of stainless steel materials no longer required for the C-361 and C-362 projects is \$700,000. This excess material will be transferred to the Purchasing and Stores Divisions for future allocation.
- (3) At month-end the construction of the C-362 Project is 41 percent complete on a labor and materials basis and 44.3 percent on a labor basis only. This compares to a scheduled completion of 55.5 percent on labor and materials. The lag in the construction progress is due to delays in receiving materials and a lack of the required number of pipe fitters. To date no fitter-welders laid off due to lack of work from the Redox Project have taken jobs with the TBP Project, and it appears that this condition will not be relieved until the close of contract negotiations in August.
- (4) A new construction schedule of all phases of Project C-362 had been completed at month end and will be issued and discussed early in August in a status

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review meeting. Indications are that the construction completion dates issued in the Part II Project Proposal dated on 5-21-51, will not be met, and the completion date may be many weeks later than originally anticipated.

2. Procurement

a. Evaporator Fabrication - Foster Wheeler

The Purchasing & Design Divisions were successful in negotiating a contract with Foster-Wheeler Corporation to take over the Vulcan evaporator fabrication order. The material for this contract, initially located at Vulcan's strike-bound plant, was shipped to Foster-Wheeler early in July. It now appears that Foster-Wheeler will be able to complete the fabrication at a satisfactory rate.

b. Pulse Generator Test Run

The initial run-in and dis-assembly of the pulse generator fabricated at the Proportioner Plant was conducted during the month. All data and observations indicate that the pulse generator unit is satisfactory and little trouble should be experienced with the plant units. The leakage rate through the piston, the motor generator cycle mechanism, and the maximum power demands proved very satisfactory.

3. Miscellaneous

a. 241-C Farm Contamination

While Minor Construction forces were placing a thermo-well in a disposal sheath, after removal of the well from the 105-C metal waste tank, contamination was dropped to paper spread for protection of the area. The paper was not removed promptly, and a "dust devil" passed over the area with contamination of the area, a motor crane and the boom of another crane resulting. There were, also, some cases of minor contamination to construction personnel. At month-end the area had been cleaned and construction work is progressing normally. The contaminated cranes are still being cleaned. Steps have been taken to prevent a recurrence of this incident.

4. Design

a. Phase I Metal Removal, One Cascade: Phase II, Metal Removal, Remaining Cascades

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(1) Sluice Nozzle Tests

Sluice nozzles for the waste removal operation are now being mocked-up and run-in at 277-U Building; however, the tests being performed do not include an actual operating test to determine the characteristics of the unit when discharging water. (The sluicing system is designed to discharge 600 gpm at 100 discharge pressure at the nozzle.) Since operability tests cannot be performed in the mock-up shop, due to lack of a suitable facility, arrangements are being made to mount one of the nozzles in the cold TX-115 tank and perform a test using fire hydrant water boosted to pressure by a fire engine pump.

(2) Sludge Pump Tests

The sludge pumps, to be located in the metal waste tanks, are being mocked-up and run-in at 277-U Building. The pumps tested to date, have been satisfactory with the exception of some minor items which will have to be corrected. A capacity test will be performed in the near future.

(3) Equipment - Moving Thimble

Final plans have been received for the thimble which is to be used for transferring "hot" sludge pumps and sluice nozzles from one waste tank to another. The final design of the unit shows a reduction in size and additional simplification in comparison to preliminary designs. The unit will consist of a seven foot inside diameter cylinder 35 feet long with an air hoist in the upper end to draw equipment up inside the cylinder. A removable bottom will be attached after the equipment is inside the thimble. The thimble will be handled by a large boom type crane and will be transported on a special trailer.

(4) Magnetic Welds in Blend Tanks 224-UR-002 and 003

As discussed in last month's report, some doubt exists regarding the corrosion resisting qualities of the welds in the stainless steel blend tanks for the 244-UR Blend Vault because of strong magnetic properties exhibited. Sample coupons were being cut from these tanks at month-end and will be tested for corrosion resistance in the laboratory.

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b. Phase III-Underground Transfer System

There were no new design developments affecting this phase.

c. Phase IV-Reactivation and Conversion of 200-U Area1. Plastic Trombone Samplers

Plastic trombone samplers for the TBP Plant were adopted, since a study by the Technical Services Division indicated that use of this type sampling equipment would result in significant savings. Project C-362 will provide an initial three months supply of this equipment and will also pay for one-half of the equipment mold cost. This purchase eliminates the need for the project to supply stainless steel trombones.

2. Sampler Truck

Plans for the modification of a panel truck for carrying sampling equipment between U area and the Redox Laboratory were completed this week. New racks, trays, and stainless sheet lining will be installed. It was originally planned to use the existing sample truck, which was at one time used for transport of samples between T and B Plants, but it was found that modification of the old truck was not economically feasible.

3. Canyon Pumps Handling Concentrated, Neutralized RAW

Based on pump test data, outlined in last month's report, agreement was reached that immediate steps should be taken to equip the subject pumps with boron carbide bearings in place of the originally designed Graphitar 41 bearings. A meeting between Johnston Pump Company, Norton Company (supplier of boron carbide) and General Electric representatives was held during the week of July 16. In this meeting the Norton representative stated that they could have all boron carbide bearings mounted and ready for assembly by Johnston on or before October 1, 1951. Based on this date all of the 22 pumps involved should be in

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Richland on or before November 1, 1951. In addition it was agreed to expedite the shipment of the first set of bearings for a multi-stage, 14 foot pump by the early part of August so that Johnston could initiate a test program on the pump. This test will be observed by General Electric representatives.

d. Phase VI - Increased Power Facilities for the 200-W Area

At month-end Phase VI design was 98 percent complete. There were no new developments affecting this phase.

5. Construction

Month-end construction data on the various phases of this project are as follows:

a. Phase I

The scheduled completion for the Minor Construction portion of Phase I is 70 percent. Actual completion is 60.8 percent. The Atkinson-Jones portion of Phase I is scheduled for 95 percent completion. Actual completion is 64.9 percent. The work progress of Phase I has been further delayed because of late delivery of Crane connectors. These are required for jumper fabrication. The minor construction work for the first cascade of "U" farm is scheduled for August 15 completion; however, it is doubtful whether the Atkinson-Jones portion of Phase I will be complete at that time. Mock-up building work is in progress for Phase I slurry pumps, sluicing nozzles, and heel jets. Tanks 241-WR-001 and 002 have been placed in the Vault, and fabrication continues on tanks 241-WR-003, 004, and 005 in White Bluffs.

b. Phase II

The Minor Construction work for this phase is scheduled for 15 percent completion with an actual completion of 11.4 percent. Atkinson-Jones work is scheduled for 27 percent completion and is presently 29.2 percent complete. Tank 241-CR-001, accumulator tanks, has been completed and fabrication continues on the 241-CR-002 and 003 Blend Tanks. Work continues on the pouring of concrete for pump pits and pipe encasements in the CR Area, and the Minor Construction forces are drilling the domes of the 200 series tanks for jets and sluicing nozzles. In the B Area farm form setting and concrete pouring for diversion boxes and pits is continuing.

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c. Phase III

This phase of the work is scheduled to be 100 percent complete; however, the actual completion is 89.4 percent. The major reason for this lag is the shortage of pipe fitters for installation of cross country piping.

During the hydrostatic testing of a portion of the east-west pipe line the "S" Division field checking group located a leak in one of the lines approximately 18 inches from a welded joint. A forty foot section of pipe was removed and replaced, and upon inspection of the pipe it was determined that the hole was caused by lamination during the fabrication of the pipe. A leak in a welded joint of a buried pipe going from the 155TX box to the UR master diversion box was also detected by the field checking group.

d. Phase IV

This phase is scheduled to be 60 percent complete but is actually 38.6 percent complete. Progress has ceased on piping work in the 241-U Building due to the shortage of fitter-welders; however, work continues at White Bluffs on the fabrication of jumpers and canyon pipe for the trench. This work proceeds at a reduced rate due to the lack of fitter-welders. The erection of tanks in 211-AU by the Puget Sound Sheet Metal Works continues at a satisfactory rate. The filter aggregate is being placed in the 291-U sand filter.

e. Phase VI

Work on this phase is scheduled for 68.5 percent completion but is actually 47.4 percent finished. The installation of the 14" and 10" steam lines continues as does the installation of pipe supports. Work continues on the 283-W water filter plant.

B. UO₃ Project

1. Cancellation of Segregation Facilities - Part B

At months end, unofficial word had been received from the local AEC office that Part B, segregation of TBP and Redox UNH feed through the UO₃ Plant, is to be cancelled. A corresponding directive is being issued. This cancellation is based on a recent economic study which indicated that the savings resulting from segregation would not justify the capital investment for these facilities.

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This cancellation will result in a decreased cost for construction and simplification of UO_3 Plant operation; however, it increases the cost and time required for design completion, since revisions to forty drawings, or preparation of new ones, will be required. The situation is further complicated by the recent addition of the secondary concentrator unit to the concentration step of the TBP process. Installation of this evaporator has become integrated with segregation to the point where a new vessel is required due to the elimination of segregation facilities.

2. Project Status

- a. Prior to the cancellation of Part "B", design of Part "A" was considered to be 100% complete.
- b. All acceptance test procedures have been approved and issued.
- c. Delivery of several major pieces of equipment extend into September with the last UO_3 pot scheduled to be delivered September 11, and the top section of the absorber tower September 17, 1951.
- d. Improvements in equipment delivery dates, required to meet a September 1, 1951 beneficial occupancy, have not been made. A revised construction schedule reflecting firm promises on all equipment is being made by Atkinson-Jones.

3. Construction

a. 224-U

Decomposition furnaces 1 through 6 have been received and positioned in E cell. All the tanks in C cell are installed and pipe work is in progress.

Installation of the bag filter units, X-11-1 and X-11-2 is nearing completion. The vacuum cleaner has been installed.

b. 2714-W Warehouse

This building is 99 percent complete.

c. Over-all

The over-all construction completion is 48.3% complete.

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C. Redox (Project C-187-D)

1. General

- a. The conditions of beneficial occupancy were considered to be met for the following cell units on the dates indicated. E cell 7-18-51, F cell 7-23-51, G cell 7-25-51. Immediately following the acceptance, calibration of cell vessels was started by S Division crews on a three shift, seven day a week basis. A number of minor items in all three cells are being completed by construction forces.
- b. Essential materials continued to be moved into the 211-S Area as rapidly as tank units were turned over by construction to operating forces. To date, tank cars of solvent, caustic, and nitric acid have been received and tank trucks of ANN are unloading on a daily basis. Initial shipments of sulfamic acid and chromic nitrate, both dry package chemicals, were received and stored in the 202-S Building.
- c. Comment issues of run procedures for the metal feed preparation step and for the multi-cycle column runs were received from the Technical Plant Assistance Group and appropriate comments returned for inclusion in the final procedures. Preliminary investigations are now underway to determine alterations necessary to by-pass the second or third U Cycles and to return re-cycle material through the PR cage and back into the process. Present start-up plans call for the processing approximately 15 tons of cold uranium followed by two 24 hour runs at 5% activity level and one 24 hour run at 30% activity level prior to the full scale operation of the plant.

Responsibility for accountability procedures has been returned to the S Division by the Accountability Group, and work on these procedures is currently in progress in conjunction with the Plant Assistance group. Final revisions to the boil up and capacity tests for cell equipment are now being made; however, because of the incomplete condenser vent system, no boil-up tests can be started prior to the completion of Cells D, H, and J. Initial work on the Kellex or "B" type sample boxes is in progress to gain operating experience and to determine what changes will be necessary to make the samplers acceptable as operating units.

- d. Calibration work by S Division crews continues in the building and is approximately 44% complete to date. This work is approximately 1½ weeks ahead of schedule and

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progress is now limited to the rapidity with which construction forces can make cell units available. As a time saving measure, arrangements are being made for S Division forces to calibrate the cold feed tanks on the 8th floor of the silo prior to the time this area is officially released by construction. Calibrating experience in E and F cells to date has revealed instrument deficiencies or incorrect piping installations in approximately 50% of the cases. These difficulties are being corrected by construction forces and an effort is being made to locate comparable difficulties in other cells prior to the time tank calibration is initiated.

2. Construction

a. 202-S Building

Work progressed rapidly during the past month in the operating and service sides of the building and in the silo tower shaft, but was, however, somewhat slow in the canyon area. Installation of miscellaneous operating equipment and clean-up of Buildings and the area in general continued. Punch lists of major items are being formulated to determine work which will be outstanding as of 8-15-51, the tentative date by which construction would like to vacate the area leaving only a small token force for each craft. The major areas of equipment installation and cleaning and testing are limited to the silo operating and sample galleries, the 8th floor feed tank area, and cells A, B, C, H, & J in the canyon.

All canyon vessels required by the process are now on the site. Work on cells D & H is now limited largely to jumpers (exceptions, H-2 centrifuge and D-13 pump) with major equipment installation continuing in cells A, B, C, & J. The D-13 pump failed during the 24 hour canyon run-in due to a broken shaft bearing, and it will be returned to the vendor for repair. Unfortunately the spare pump for this position is also currently at the vendor for repair. A great deal of difficulty is being experienced with the H-2 centrifuge in the mock-up building in obtaining proper oil circulation to the upper shaft bearing at the higher operating speeds. This difficulty has not been resolved.

Sufficient saddles have been coated with silver nitrate and baked to pack the first of the three silver reactors.

The packing and installation of the silo reactors in the 202-S Building was completed during the past month and all

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silo jumpers are now in place. Some interference was noted between reactor spacer fins and the permanently installed piping, and, in several instances, jumpers required alterations. This work has now been completed, however, additional work remains in alterations to the silo crane. All viewing windows have now been assembled and, with one exception, have now been installed in the silo shield wall. Protective coverings of steel plate have not as yet been removed because of the security restrictions placed on the silo.

All Class II rotating equipment (with the exception of tank 220 agitator) has been run-in and accepted. Run-in of major compressor units was completed during the past month and the initial operation of inert gas generators was carried out. The compressor room equipment is essentially complete as it now stands; however, additional alterations remain to be completed on the inert gas generator units. Satisfactory run-in of the 291-S electrically driven fans has been completed and run-in of the turbine driven emergency fan is currently in progress. While the turbine portion of this unit is operating satisfactorily there is some tendency for vibration to develop in the fan at high speeds.

b. Outside Facilities

The 203-S Building pump supplying UNH solution to the 224-U Building was run-in satisfactorily. Work in the 211 Area is essentially complete with the only major activity being directed toward lagging of lines and the placement of crushed rock stabilizer on the ground in the area. Structural and piping work in the 207-S organic treatment building is essentially complete. The remaining work involves the run-in of mechanical equipment, and general painting and insulation work in the building. Railroad, water distribution, steam distribution, and sanitary and process waste facilities are complete. Roads and walkways in the area have been completed and final grading is in progress.

Construction Progress Statistics
as of July 31, 1951

Improvements to Land	88
Temporary Construction	99
202-S Building	98.5
211-S Building	98
240-S Building	100
276-S Building	98
277-S Building	99
282-W Building	100
284-W Building	100

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291-S Building	99
2702-S Building	100
2726-S Building	100
Waste Facilities	100
Elect. Dist.	99
Water Dist.	100
Steam Dist.	100
Railroads	100

Over-all 98.74

c. 241-S Waste Facilities (F. J. Early Contract)

Work in this portion of the project is estimated to be 92.4% complete compared to a scheduled 100%. Finishing work is progressing rapidly in the tank farm; however, there is some doubt that the facilities will be completed by the August 15 dead line established by a recent modification to the contract. A small explosion occurred in the 241-S diversion box on Tuesday, 7-25-51, while the application of Amercoat was in progress. No one was injured in the explosion. Investigation disclosed that a lighted match was inadvertently thrown into the box by a passing workman. As a direct result of this incident the construction sub-contractor requested an alteration in design of the 75' storage tanks permitting the use of Lapidolith on the underside of the concrete domes in place of the Amercoat currently being applied. The request for alteration was approved and, as a result, the four remaining tanks in the farm will return to the use of Lapidolith as a protective coating to minimize the danger of an explosion in the tank during interior painting.

D. Training and Procedures1. Training

The fifth and final training cycle for S Division personnel was scheduled for the period of July 9th through August 5th. Upon completion of the cycle a total of 107 operators and 46 supervisors will have completed this phase of their training.

A group of eleven process operators have been assigned to prepare the 321 Building for stand-by condition during a two week period following completion of the training program.

2. Procedurea. Redox

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<u>Procedure</u>	<u>% Completion</u>	<u>Remarks</u>
Flushing	100	
Calibration	95	
Special Hazards	100	
Safety Rules	100	Questions pertaining to precautions and rules required for handling of the inflammable solvent have been resolved.
Emergency	95	Certain questions regarding the Civil Defense Procedure have yet to be resolved.
Operability & Capacity Tests	85	The Kellex, E&C, and Technical people have made numerous suggestions for additions to these procedures.
Essential Materials Control	100	
Operating	80	The first cold multicycle run plans prepared by Technical have been reviewed and returned with comments. The dissolver and PR Cage procedures have been revised and will be recirculated for final comments.
Manual of Standard Practices	75	
Accountability	40	Responsibility for preparation of these procedures has been transferred from the Accountability Representative to the "S" Division. Minutes of a meeting between Accountability, Technical and "S" Division, held on July 25, to scope the subject have been issued.
Dispatcher Control	85	
Job Descriptions	50	Preliminary drafts of the job responsibilities for Process operators and trainees have been issued for comment.

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Communications 100

Lubrication 100

The detailed lubrication procedure, prepared by J. V. Lawler, has been received.

Cell Equipment History 50

b. TBP and UO₃

The final drafts of the duties and responsibilities of process operators, trainees, helpers, crane operators and dispatchers applicable to the TBP-UO₃ process were completed and are ready for submission to the Labor Relations Division for their approval.

Rough draft operating procedures such as, Packaging Room operation, UO₃ Drum Handling, UO₃ Rework Procedures, Equipment Maintenance for Bag Filter System and several miscellaneous general procedures for the UO₃ process were completed and submitted for comment.

Approximately ninety percent of the operating procedures for the 241 Area were completed in rough draft form and were submitted for comment.

Approximately 55 procedures were written and submitted for comments during the month.

Stencil cutting for the Manual of Standard Practices was temporarily postponed due to impending organizational changes.


R. S. Bell
S DIVISION

RS Bell:mvk

INSTRUMENT DIVISION
MONTHLY REPORT

JULY 1951

I. SUMMARY

Effective July 1, the Instrument Division assumed responsibility for the operation of the Mechanical Development Shop presently located in temporary quarters in 101 Building in Hanford. Twenty-four of the personnel assigned to the facility under the Technical Services Division operation were transferred at the same time.

There has been no significant improvement in the employment picture. Requirements for instrument maintenance craftsmen increase steadily as construction of new facilities advance. Shop work backlog for both the Mechanical Development Shop and the Instrument Machine Shop increased substantially with a decrease in effective manpower caused by the termination of experienced personnel and hiring of inexperienced personnel with very small net gain.

Engineering studies on non-destructive testing of canned slugs and improved Beta activity monitoring of pile exit water are receiving priority attention due to the high rate of slug ruptures in the pile areas.

II. STATISTICAL AND GENERAL - JOB EXPERIENCE

100 AREAS

100-B Area

Receiving recorders for exit water activity monitors were mounted in the 105 Building control room. Alarm contacts were transferred from the transmitting recorders to these receiving recorders to allow resetting of alarm points from the control room. Gas Activity, Rod Position and Gas Putiry recorders were removed to make room for the water activity recorder

100-D Area

Stranded thermocouple lead wire has been made up into experimental patch cords for the temperature monitor panel. Maintenance of cords using solid wire has been high and it is felt the stranded wire will reduce mortality considerably.

100-DR Area

During the extended shutdown for orifice change, 950 Panellit pressure monitor gauges were recalibrated to new ranges. After start-up, low pressure was encountered on 357 tubes and ranges on those gauges had to be returned to the original values. As pressure was built up through operation they were recalibrated for the increased pressure range, making the job equivalent to the calibration of approximately 1650 gauges. Other orifice changes required the transposition of some 200 gauges.

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During the poison push following the above mentioned shutdown it was noted that several BGSTN thermocouples were indicating abnormally low temperatures. Investigation indicated thermocouple defects to be inside the unit. After start up an indication of temperature increase was recorded but was from 40°C. to 80°C. lower than normal. Further investigation is planned for the next scheduled shutdown.

100-F Area

Survey of humidity conditions of the pile atmosphere was a major instrument activity during the month. It has not provided definite leak location but indicates a higher concentration of moisture in the vicinity of tube N01 3880 where water was found issuing from the gunbarrel during removal of a ruptured slug from that tube.

An additional shipment of 110 Panallit pressure gauge Bourdon tubes were received from the vendor and were installed in place of the old differential type gauges.

100-H Area

In attempting to change from the far to the near downcomer, the valve stuck, splitting the flow between the two. Thus the Bailey Power Calculator could not be used as neither downcomer temperature was true exit water temperature. A thermocouple was installed at the retention basin inlet to obtain an average exit water temperature while the valve was being repaired.

Shutdown Experience

100-B Area - Unit was shut down manually at 12:13 A.M., July 2, 1951 due to low reading on pressure monitor gauge no. 2676. Obstruction was found in the sensing line.

Unit was shut down at 12:31 A.M., July 14, 1951 due to an alarm on pressure monitor row no. 27. A defective electrical connection was found on gauge no. 2758.

Unit was shut down at 1:51 A.M., July 18, 1951 because of increasing indications on the exit water activity monitor. A ruptured slug was removed from tube no. 2169.

Unit was shut down at 9:54 P.M. July 27, 1951 due to increasing indications on the exit water activity monitor. A ruptured slug was removed from tube no. 4086.

100-D Area - Unit was shut down manually at 10:12 A.M. July 14, 1951 due to increasing indications on the exit water activity monitor. A ruptured slug was removed from tube no. 1768.

Unit was shut down at 6:17 P.M. July 21, 1951 due to increasing indications on the exit water activity monitor. A ruptured slug was removed from tube no. 1961.

Unit was shut down at 6:32 A.M. July 28, 1951 due to increasing indications on the exit water monitor and the retention basin inlet monitor. A ruptured slug was removed from tube no. 1963.

100-DR Area - Unit was shut down manually at 1:45 P.M. June 28, 1951 due to low water pressure on gauge no. 3389. Range had been increased during the shutdown; pressure was normal during start up but dropped after the unit warmed up. Unit was again shut down at 4:07 P.M. due to several low pressure alarms on gauges having ranges changed. Unit was started again at 9:00 P.M. after ranges of most of these gauges had been corrected. Purge of the unit in addition to the metal push lowered the pressures below expected limits.

Unit was shut down manually on June 29, 1951 due to an Instrument mechanic accidentally shutting off the wrong gauge during a calibration check. Unit stayed down for a poison push.

Unit was shut down at 10:33 P.M. July 19, 1951 due to increasing indications on the exit water activity monitor. A ruptured slug was removed from tube No. 1487.

100-F Area - Unit was manually shut down at 11:32 P.M., June 29, 1951 due to a slight increase in exit water indication, confirmed by an H. I. survey. A ruptured slug was removed from tube no. 4380.

Unit was shut down manually at 8:17 A.M. July 29, 1951 due to an alarm on pressure monitor row no. 7. The alarm circuit was found shorted at gauge no. 0787.

Unit was manually shut down at 8:40 A.M. July 28, 1951 due to increasing indications on the water activity monitors on exit water and the retention basin inlet. A ruptured slug was removed from tube no. 1874.

100-H Area - Unit was shut down manually at 3:18 A.M. July 1, 1951 due to increasing indications on the exit water activity monitor. A ruptured slug was removed from tube no. 3486.

Unit was shut down manually at 8:12 A.M. July 12, 1951 due to an increase in temperature and pressure on tube no. 0879. A ruptured slug was removed.

Unit was shut down at 12:40 P.M. July 19, 1951 due to increase in both temperature and pressure on tube no. 2466. A ruptured slug was removed and regular shutdown work was completed before starting up.

Unit was scrambled at 10:52 P.M. July 20, 1951 just after start up, caused by low water pressure on P-13 equipment. No instrument difficulties were found.

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200 AREAST & B Plant Production Instruments

Failure of both resistance thermometer primary elements on 7-1 tank in 221-building caused a six hour delay in production while replacements were being made. Due to high radiation levels defective elements could not be examined to determine cause of failure.

The silver reactor column, section 4 of 221-T building, was replaced due to lowered efficiency. All instrumentation, including primary elements were found to be usable in the replacement column.

Health Instruments

Gurley electronic air speed measuring heads have been replaced with Gurley Velocity Heads at the meteorology station. Bearing failures have caused replacement of three of these units. The vendor is being contacted for adjustment on these items.

Installation of nine remote meteorological stations has been completed and a routine service schedule from 200 West area is established.

Z Plant Production Instruments

Both Miller ion gauge amplifiers for measurement of pressure on the Hood 14 vacuum system, 234-5 building failed simultaneously; one was due to failure of the high voltage transformer, the other from tube failure.

Power Instruments

All dampers in the 234-5 building ventilation control system are being inspected and repaired. Seventeen badly worn brass shafts were replaced with steel and all linkage pins are being replaced.

300 AREAMANUFACTURING SECTION

Responsibility was assumed for operation of the Mechanical Development Shop, effective July 1, 1951. This facility is presently located in 101 Building, Hanford.

Project C-412 - P-10-X Extraction Facilities

The fabrication of one unit of 8 Beckman Safety Controllers has been completed and it is ready for delivery. Of the second unit of 4 controllers, one is complete and three are 85% complete, being delayed by procurement of material. The major portion of material has been received for fabrication of seven Kanne chambers, with two units scheduled for delivery by August 20, 1951. Fabrication schedules will be formulated upon receipt of materials for 3 Hydrogen Counters, 5 De Witt Survey Instruments, 5 Methane Flow Proves, and 1 "Pete" Survey Instrument.

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HW-21802-DEC

Hanford Fluorimeter for Savannah River Works

Operational tests have indicated the desirability of minimizing temperature effect on the galvanometer shunts and extraneous chamber fluorescence. Corrective methods are under study.

MECHANICAL DEVELOPMENT

Project C-346 - Exponential Pile Project (P-12)

Established project schedules will require approximately 1000 man hours of graphite fabrication and machine shop work prior to September 1.

Pile Engineering

Work is progressing on the machining of graphite for the Ball 3X Mock up. This work is scheduled for completion by August 15, 1951.

DEVELOPMENT SECTION

Process Tube Temperature Mapping

Tentative design layout drawings of the large mercury jet switch are being prepared. The availability of Schenectady Works assistance on final design and fabrication is being investigated. Components needed in large quantities have been ordered.

100 Area Effluent Water Monitor

Test data are being accumulated in 100-H Area to determine the relationship between pile power level, effluent water activity and effluent water temperature. Tests on the delayed neutron counting equipment are being continued.

ENGINEERING & CONSTRUCTION GROUP - 760 BLDG.

Project C-431 - 100-C Area

Preliminary specifications for 190-C pump house instrumentation were received and comments issued. Present plans provide for control of flow by pressure; no flow recorders for individual pumps; a total flow recorder and integrator to be part of the 105-C power calculating system; flow recorders for steam consumption of both 190 and 105 buildings; process water pressure recorders. Other items will remain as provided in 190-DR design.

Tentative ranges, quantities and suppression was furnished Panellit, Inc. To date no drawings or gauges have been received for approval.

Only one quotation was received by closing date for bidding on the temperature monitor system. As this bid appeared high, the bidding was extended for a period of five weeks.

A requisition was issued for two optical-projection type indicators which are intended to ultimately replace the galvanometers as an operating tool.

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Project C-187 - Redox Process and Facilities

Instrument calibration is complete in both operating galleries and control systems are now being checked. Installation of Silo operating panels is nearly complete and calibration is expected to start the first week of August.

Project C-362 - Tri-Butyl-Phosphate Process

Inspection of the graphic panels on order with the Foxboro Company has been delayed to June 30, extending the promised shipping date to August 6 and 7.

Considerable progress has been made in the 241-U Tank Farm Area while construction progress on instrumentation in the 221 Area has practically come to a halt. There has been only one instrument pipefitter assigned to the 221-U building since July 9.

Project C-413 - 234-5 Building Expansion Program

Installation of the hopcalite carbon monoxide detector is complete except for the heat trap which will be ready early in August.

The heliux system instrumentation for RMA line has been received with the exception of the panel boards which were scheduled for delivery by the end of July.

Personnel from this group made a trip to General Engineering Laboratory for consultation with their personnel and review of work done to date on the RMB line.

III. ORGANIZATION AND PERSONNEL

There were 22 weekly and 2 monthly persons transferred with the Mechanical Development Shop from Technical Services Division. There were 4 new hires and 3 terminations for an effective force gain of one.

	<u>Monthly</u>	<u>Weekly</u>	<u>Total</u>
Beginning of month	58	259	317
End of month	<u>58</u>	<u>260</u>	<u>318</u>
Net increase	0	1	1

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MAINTENANCE DIVISION

JULY, 1951

GENERAL:

The divisions backlog of work as of July 31 is 27.5 for the present crews. This figure represents a decrease of two days as compared with last months backlog.

BACKLOG STATUS

<u>Mandays Work</u>	<u>June 30</u>	<u>July 31</u>
Unusual Maintenance	2535	1733
Maintenance work	2742	3220
New work	1162	1264
Routine Work	<u>1704</u>	<u>1544</u>
Total	8143	7761
Total crew	277	282
Crew days of work	29.4	27.5

The division continued working 45% of its crews six days a week during the month.

100 AREAS

During a scheduled shutdown of the DR pile, the far side downcomer was reinforced to prevent mechanical failure to the eight inch vent pipes. This repair was necessary to prevent a similar failure which had occurred in the near side downcomer when it was put into service.

Eleven hundred and fifty-three orifices in the "B" and "DR" piles, size 0.240", were replaced with size 0.285" to permit increased water flow.

Two rubber covered flexible stainless steel pigtails were installed on the discharge side of process tubes #4469 and #4470 during a scheduled shutdown of the "B" pile. A study will be made to compare contamination pickup of the flexible pigtails against the present stainless steel tubing pigtails.

A portable five hundred pound lead shield was fabricated to replace the bulky and difficult to move concrete shield, in front of the P-13 test rig on the "H" pile.

The defective slug in the F" pile, reported last month, was removed from the unit on July 12, after an extended pile outage of thirteen days. To date this has been the longest delay experienced in the removal of defective metal from the piles. The delay in removing the ruptured slug may be due to the location of process tube #4380 being at a point in which it was at maximum distortion and also the failure of the tube nineteen and one-half feet from the rear face while attempting to push the metal column. There

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were eight other occasions during the month when defective slugs had to be removed from the piles by the Maintenance Division. Five of these at "H", three at "D", two at "B", one at "DR" and one at "F" were removed in the normal manner.

A one hundred capacity P-10 slug storage cave was fabricated and installed on the wash pad in the 105-B Building. The installation of this storage cave eliminates the need for fabricating ten additional storage casks.

Because of excessive vibration in #4 Pomona pump in 181-H Building, it was removed from service and dismantled. The upper and lower bowl baffles had worked loose which permitted them to ride on the impeller positioning flanges, causing excessive wear to both the threads of the positioning flanges and the bowl baffles.

Several failures occurred to the governor thrust bearings and spindle connector on the Worthington turbines in the 190-DR Building. A Worthington Pump and Machinery Company representative spent two weeks checking the operation of all fourteen turbines. The defective governor regulating springs were too short and were replaced with longer springs. Adjusting governor valve settings and altering the leverage action on the governor arm, resulted in the turbines performing much more smoothly.

Project C-411 - P-10-X "J" Slug Storage and Shipping Facilities

Fabrication of miscellaneous steel framing for cask which is to be installed on special truck is progressing. One cask and one hundred bucket inserts promised from A & J August 1. Project is 80% complete.

Project M-713 - Vertical Rod Corrective Design

Revised prints have been received to modify the connector rings that failed in the first drop test of the rods.

200 AREAS

Metal Fabrication

To prevent the possibility of spreading contamination to the dry chemical mix and the RMA line rooms, two special CWF filters were installed in the twenty-six inch vacuum line on the duct level.

It was becoming increasingly difficult to maintain proper balance of building air because of faulty damper operations on the air supply fans. Repairs were made by replacing worn damper blade stub shafts and linkage pins, cleaning and adjusting thrust on the stub shaft bearings. The dampers are now working smoothly and the proper balance of building air is being maintained without difficulty.

200 WEST AREA

All fresh air lines in Building 231 were identified in accordance with

the plant standard color code.

Two silver nitrate reactor towers were fabricated and installed several days ahead of schedule in the "T" Canyon Building to replace the existing iodine saturated towers.

200 EAST AREA

In order to keep the "B" Canyon tank farm in a good state of preservation, all pipe line support poles were reinforced by inserting creosote treated stub poles in concrete and banding them to the existing poles. All stairs, handrails, catwalks, acid unloading and transfer pumps, bases, motors and switch gears were painted with acid-alkali resistant paint.

Because of the favorable results obtained in using stainless steel flexatallie gaskets on the jet connector heads in the "T" Canyon Building, the jet connector heads in sections 19-L and 19-R in the "B" Canyon were regasketed using the same material.

An inspection was made of the agitator assemblies on the B-1, D-1 and E-1 tanks in the "B" Concentration Building. This inspection disclosed the need for replacing the splash guards on B-1 and D-1 agitators because of weld failures caused by corrosion. Also, the one inch thermo-dip tube was replaced as it had become damaged by HF corrosion.

Project C-326 - Soil Sampling Equipment for Health Instrument Division

A successful trial demonstration of the equipment was conducted on July 3 and was accepted by all parties concerned.

Project C-444 - Hood 26 Addition (26-B) 234-5 Building

Completed installation of bell jar in existing hood. The shop fabrication of vacuum assemblies is now complete and installation in proceeding rapidly.

300 AREA

Two stainless steel liners which had failed on the tin dipping furnaces DB and 2B were repaired by welding schedule 80 mild steel pipe caps over the burned out sections. This type of repair will be evaluated against replacing the entire stainless steel liner.

Revisions were made increasing the distance between the arc and the chuck and collet that holds the electrode on one of the argon arc can welding machines. This revision permits greater circulation of argon around the electrode thereby decreasing the amount of heat that formerly caused deterioration to the collet and chuck assembly. Results so far indicate this new revision has increased the useful life of these chucks and collets better than four times.

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HW-21802-DEL

As a result of a near serious injury the sulphuric acid piping system in the 384 Building was revised during the month to provide a suitable means to completely drain the system of acid.

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ELECTRICAL DIVISIONJULY, 1951GENERAL

The scheduled work backlog at month end was 6,788 mandays, or 26.0 mandays per non-exempt employee. Line crews remain on scheduled six day week until sufficient backlog reduction can be achieved. Because of continued scarcity of replacements for terminated line craft personnel, total crews were reduced from four to three for greater supervisory efficiency.

The power demands for the month were:

	<u>Date</u>	<u>July KW Demands</u>	<u>Comparative June Demands</u>
Process Load	7-24-51 (9:00 to 10:00 a.m.)	69,000	66,400
Village Load	7-9-51 (3:00 to 4:00 p.m.)	11,950	19,000

The process load is at an all time peak for this season, in line with predictions of slowly increasing load. The Village peak is at the summer low and compares favorably with a year ago; the June figure was out of line because of one unseasonably cold day.

A number of problems were discussed and plans formulated with the Atomic Energy Commission:

1. Project C-443 (Additional Line Equipment and Conversion to Four Party Service - Richland Exchange) was substantially modified and reduced in amount. A number of requirements were deferred, and several are being covered quickly from "customer service extension" accounts. The remainder principally selectors for improvement of grade of service, will be covered by a revised Project Proposal, now in preparation.
2. Concurrence was obtained for the new substation and underground feeder for the new wing to the 703 Building.
3. Concurrence was obtained for BY Telephone Exchange equipment to serve the requirements of Project C-431.
4. Plans were developed for installation of fan equipment for the main North Richland transformer banks as required to meet the growing loads predicted for the Army installation.
5. A new Budget Item for FY 53-54 was developed for a separate official Richland Telephone Exchange.

A general "Safety Quiz" of 19 questions pertaining to actual past injuries within the Electrical Division was developed for immediate presentation and discussion with all personnel.

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Electrical Division Instructions Letter No. 9, comprising a complete discussion of the method of initiating work under customer service extension accounts (HW Instructions Letters No. 167 and No. 168), was developed and distributed.

AREA ACTIVITIES

On July 18 at 2:20 p.m., an outage of the front bus in the 151-D Substation resulted from motors being started in the 190-DR Building in an attempt to raise the water pressure in anticipation of starting the 105-DR Pile, then under established Grade "S" conditions. It was necessary to declare a short Grade "Y" in the "D" Area prior to restoration of the combined areas to normal. Discussion is covered by a separate report.

Process Water Pump Motor No. 6 (800 HP Westinghouse) in the 190-B Building failed on July 28, constituting the nineteenth failure since start-up.

An investigation of continued grid failures, bridge drive controller, of a 75 ton crane in the 221-B Building indicates severe operation may be responsible. An electrical interlock circuit to prevent operation with brake applied is under consideration.

Final acceptance tests and inspection have been completed for the major portion of the 202-S Building, and operational tests are in progress for the new steam turbine in the 284-W Building.

TRANSMISSION AND DISTRIBUTION

One unscheduled partial interruption of process power involving half of the 100-H Area supply occurred during the month. At 3:07 a.m. on July 28, a severe power surge occurred on the 230 KV Bonneville system, relaying the Coulee-Midway No. 1 line. Simultaneously, the loop opened at the 151-H Substation, scrambling the "H" pile, requiring shutting down all areas under a Critical Power Grade "Y" condition. All areas except "H" were restored in time to permit start-up after the "H" by-pass was closed. A thorough inspection of "H" Area lines and main transformers was made before the area was restored at 12:34 p.m. No specific cause could be found for the trip-out which was undoubtedly related to the Bonneville Power Administration surge.

A loose connection in a fence lighting fixture near the 107-B Retention Basin caused hot metal to drop and start a grass fire on July 23 within the Project C-431 Construction Area.

Metering equipment has been installed for Army Camp service from 100-B, 100-D, 200-E and 200-W Areas, and for Project C-431 construction.

Project C-404 (Primary Electric Power Lines - Hanford Works Laboratory Area) has been held up because of substantial over-run. A Part II is in preparation.

TELEPHONE SECTION

On July 15, severe damage occurred to a 900 pair and a 200 pair cable between manholes No. 8 and No. 9 near the men's dormitories in Richland. A power shovel operator did not have a proper digging permit.

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Special dial tests were performed at the Richland Exchange relative to required dial speeds and "percent break" of impulses.

Reloading of Point "I" to 100-B Area cable has been completed.

The following items were discussed with design groups:

1. Telephone cabling for new housing additions (Atomic Energy Commission).
2. Telephone cable distribution for Hanford Works Laboratory (300 Area).
3. Telephone cable distribution for Project C-431.
4. Telephone layout for Pile Technology office (100-D Area).

The following is a summary of current telephone service rendered by the Project Telephone System:

	<u>Lines in Service</u>	<u>Stations in Service</u>	<u>Extensions in Service</u>	<u>Vacant Lines</u>
Richland	3,855	6,200	1,049	145
Project Total	5,371	7,854	1,923	734

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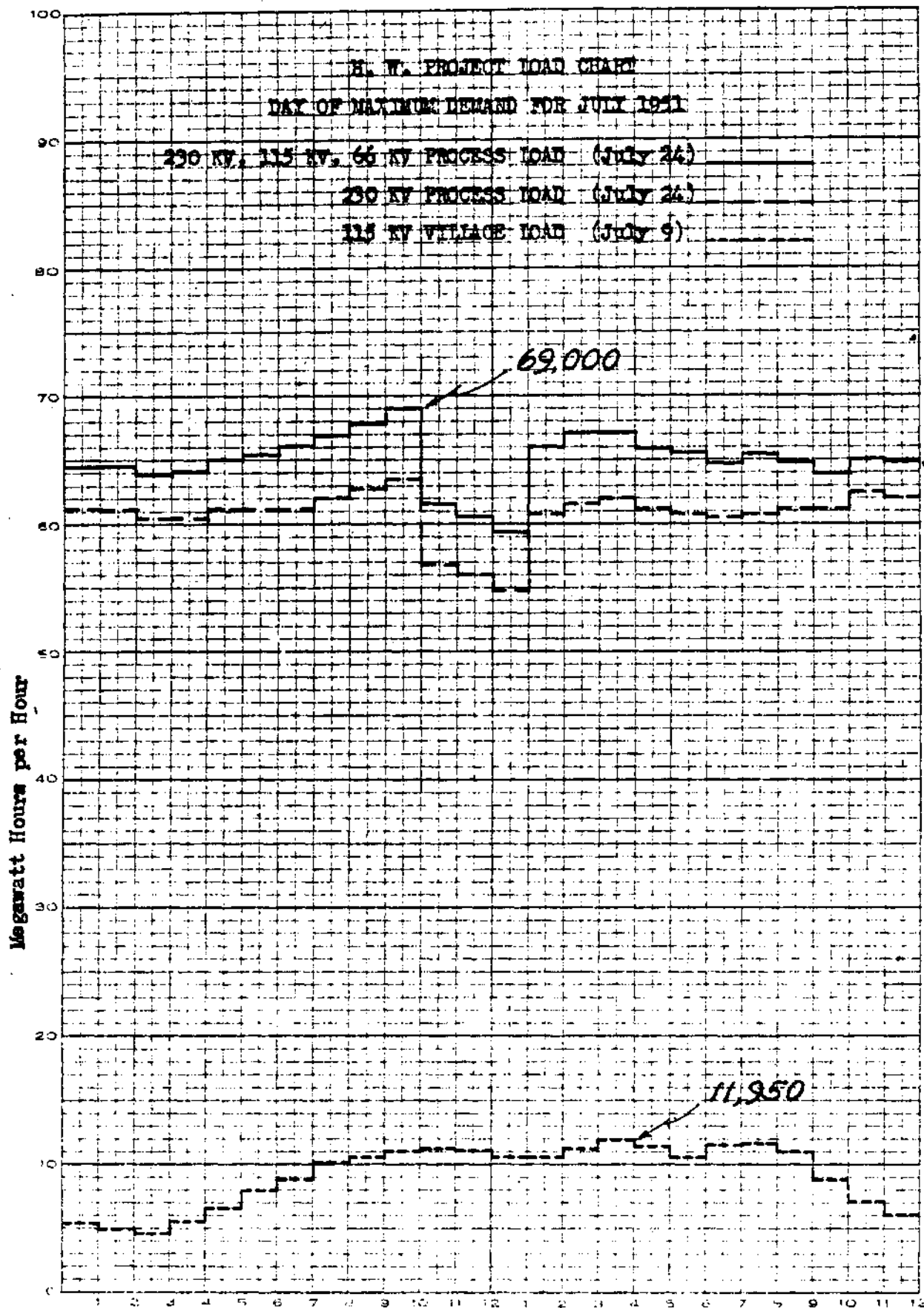
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POWER STATISTICS - ELECTRICAL DIVISION FOR MONTH ENDING JULY 31, 1951

ITEM	ENERGY - MW HRS.		MAX. DEMAND - KW		LOAD FACTOR - %	
	June	July	June	July	June	July
<u>230 KV SYSTEM</u>						
A-2 Out (100-B)	7,540	7,550	11,100	12,100	94.3	83.9
A-4 Out (100-D)	12,630	13,450	19,600	21,900	89.5	82.5
A-5 Out (100-H)	8,676	8,676	20,100	19,900	60.0	58.6
A-6 Out (100-F)	6,770	5,150	10,300	10,300	91.3	67.2
A-8 Out (200 Areas)	3,924	4,104	6,480	6,840	79.7	80.6
TOTAL OUT	39,540	38,930	67,940**	71,040**	80.8	73.7
MIDWAY IN	40,290	39,649	61,200*	63,600*	91.4	84.0
Transm. Loss	750	719				
Percent Loss	1.9	1.8				
<u>115 KV SYSTEM</u>						
BI-S4 Out (N. Richland)	1,843	2,069	3,398	3,514	75.3	79.1
BB1-S1 Out (Richland)	3,264	3,418	9,360	7,470	48.4	61.5
BB1-S2 Out "	3,194	2,862	11,250	6,390	39.4	60.2
BB3-S4 Out	760	752	1,760	1,760	59.9	57.4
TOTAL OUT	9,061	9,101	25,768**	19,134**	48.8	63.9
Benton In	1,740	1,390	***	37,200	***	5.0
S. Richland In	7,510	7,880	22,200*	15,300*	47.0	69.2
TOTAL IN	9,250	9,270	***	52,500**	***	23.7
Transm. Loss	189	169				
Percent Loss	2.0	1.8				
<u>66 KV SYSTEM</u>						
B7-S10 Out (W. Bluffs)	474	489	1,283	1,328	51.3	49.5
Hanford Out	337	351	600	600	78.0	78.6
TOTAL OUT	811	840	1,883**	1,928**	59.8	58.6
HANFORD IN	796	837	1,800*	1,700*	61.4	66.2
Transm. Loss	*15	*3				
Percent Loss	*1.9	*.4				
<u>PROJECT TOTAL</u>						
230 KV Out	39,540	38,930	67,940**	71,040**	80.8	73.7
115 KV Out	9,061	9,101	25,768**	19,134**	48.8	63.9
66 KV Out	811	840	1,883**	1,928**	59.8	58.6
TOTAL OUT	49,412	48,871	95,591**	92,102**		
230 KV In	40,290	39,649	61,200*	63,600*	91.4	83.8
115 KV In	9,250	9,270	***	52,500**	***	23.7
66 KV In	796	837	1,800**	1,700**	61.4	66.2
TOTAL IN	50,336	49,756				
Transm. Loss	924	919				
Percent Loss	1.8	1.8				

* Coincidental Demand
 ** Non-Coincidental Demand
 *** Not available. Demand
 chart off-scale because of
 energy transfer for BPA.

Average Power Factor - 230 KV System--94.0
 Average Power Factor - 115 KV System--99.6
 Average Power Factor - 66 KV System--77.6



TRANSPORTATION DIVISION
MONTHLY REPORT
JULY 1951

GENERAL

Transportation Division personnel forces were increased from 597 to 599 employees during the month by 14 new hires, 6 transfers in, 5 transfers out 9 terminations and 4 deactivations - personal illness.

RAILROAD ACTIVITIES

Commercial cars handled during July decreased 46.5% over June as coal receipts were substantially lower because of the National Coal Miner's Holiday.

Process movements during July decreased 24% over June due to the continued curtailment of shipping from the 100 Areas which is expected to be normalized late in August. Cars handled during July including process movements totaled 1,275 compared to 2,226 in June; 2,443 in May; 2,078 in April; 1,984 in March; 2,793 in February and 2,625 in January.

The following recapitulation indicates the number of commercial cars handled:

<u>Carload Movements</u>	-	<u>Loads In</u>	<u>Empties In</u>	<u>Loads Out</u>	<u>Empties Out</u>
General Electric Company		372	9	10	370
Subcontractors and Others:					
Arnold & Jeffers		1	-	-	1
Atkinson & Jones Co.		46	-	-	47
L. E. Baldwin & Associates		7	-	-	7
E. J. Bartell		1	-	-	1
Bergman & Lampson		1	-	-	1
F.J. Early		14	-	-	14
J.P. Head		1	-	-	0
L.H. Hoffman		2	-	-	2
McPhail Engineering Co.		3	-	-	1
Newport Construction Co.		1	-	-	1
A. Ritchie & Co.		2	-	-	2
Royal Co.		1	-	-	1
Sound Construction Co.		6	-	-	6
Taylor Bros.		1	-	-	1
U.S. Public Health Service		1	-	-	1
U.S. Army		11	-	-	11

Received and installed new wheels on 80-ton Diesel electric locomotive 39-3722 which has been out of service since February while undergoing major repairs and awaiting replacement parts. Final assembly of traction motors is being made and this unit should be returned to duty early in August.

Completed annual inspection service and repairs on plant-owned cask and well cars

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Transportation Division

Railroad track maintenance and rehabilitation work continued on a six day week schedule. Surfacing and related work was in progress on the "A" line, 221-B, 234-5, 100-F coal track, 100-F lead, and "B" line, requiring 3,941 man-hours. Replacement of ties at the 200-West tank farm track, 221-B, 221-T, 200-West coal track and 3000 Area lead required 2,125 man-hours. Distribution and handling of materials required 286 man-hours. Disposal of salvage materials and clean up required 472 man-hours.

AUTOMOTIVE ACTIVITIES

The Area Bus System transported 1.6% more passengers in July than in June. The following tabulation indicates the July passenger volume by shifts and the total revenue received:

No. 1 outbound and No. 3 inbound	27,203
No. 2 outbound and No. 1 inbound	56,554
No. 3 outbound and No. 2 inbound	55,207
Total	138,964
Revenue	\$ 6,948.20

The following is a comparative breakdown of average daily bus trips to the Plant Areas:

Passenger busses - 100-B	10
Passenger busses - 100-D	12
Passenger busses - 100-F	10
Passenger busses - 100-H	9
Passenger busses - Hanford	4
Passenger busses - 200-West	23
Passenger busses - 200-East	12
Passenger busses - 300 Area	6
Passenger busses - Riverland	3
Passenger busses - Pistol range	1
Passenger busses - White Bluffs	4
Passenger busses - North Richland	3
700-300 Area Shuttle Service	23
Inter-Area Passenger Service	3
Inter-Area Express Service	1
Inter-Area Mail Service	1

Special bus service between North Richland and Carmichael Junior High School was discontinued on July 30 due to the completion of special classes for Technical Graduates.

Special bus service was furnished for a tour of the Plant Areas on July 31 at the request of the Atomic Energy Commission.

The Richland Local Bus System transported 4% fewer passengers in July than in June. Volume of service rendered is indicated in the following statistics:

Transportation Division

Total passengers including transfers	32,245
Total bus trips	3,526
Total bus miles	19,393
Total revenue	\$ 2,401.35

Off-Plant automobile trips (Company business and/or official visitors) totaled 129.

The following tabulation indicates the service rendered by the Drivers' Test Unit which includes the new permits issued in compliance with AEC Bulletin No. GM-181:

Applicants: Male	144	Number retested	0
Female	24	Number rejected	0
	168	Number tests given	168

Permits issued: Limited to driving with glasses	28
Unlimited	140
	168

Permits reissued: Routine	48
New AEC	1400

The following tabulation indicates the Plantwide usage of automotive equipment:

Code	Type	No. of Units	Total Mileage
1A	Sedans	321	3,617,909
1B	Busses	158	242,331
1C	Pickup Trucks	468	329,338
1D	Panel, Carryall, Sta. Wagon	113	138,235
1E	Armored Cars	12	732
1G	Jeeps	2	832
68 Series	Trucks	292	84,755
		1,366	1,414,132

The following tabulation indicates the volume of fuel distribution by the Equipment Maintenance Section:

	Gasoline	Diesel Fuel	50 Cetane	Kerosene	White Gas
Stock at start of month	46,059	11,519	18,698	3,428	194
Received during month	100,299	21,655	22,350	180	0
Total	146,358	33,174	41,048	3,608	194
Delivered to Areas	107,171	20,448	25,231	2,020	0
Stock at end of month	39,187	12,726	15,817	1,588	194

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Transportation Division

The following tabulation indicates the volume of inspection and maintenance service rendered to Hanford Works automotive and heavy equipment by the Equipment Maintenance Section: 26 motor overhauls; 144 Class A Inspections and Repairs; 1,160 Class B Inspections and Lubrications; 1,672 other routine maintenance and repairs and service calls; 702 tire repairs and 534 wash jobs.

The Planning and Methods Section of the Transportation Division completed on July 25 a comprehensive report prepared from a vehicle utilization survey between May 14 and July 14 on the utilization of all Government-owned light automotive equipment assigned to Hanford Works.

LABOR ACTIVITIES

The following tabulation indicates in gallons the volume of asphalt road material handled by the Services Section:

	<u>MC 1</u>	<u>MC 3</u>	<u>MC 4</u>	<u>MC 5</u>
Stock at start of month	0	8,570	0	4,791
Received during month	0	18,914	0	37,480
Dispensed during month	0	9,300	0	27,939
Stock at end of month	0	18,184	0	14,332

The following tabulation indicates the volume of materials handled by the Services Section and a breakdown by Plant Areas:

	<u>100 B</u>	<u>100 D</u>	<u>100 F</u>	<u>100 H</u>	<u>200 W</u>	<u>200 E</u>	<u>300</u>	<u>Total</u>
Cars coal unloaded	60	89	23	50	44	6	0	272
Cars other material	3	2	4	6	0	1	7	23
Cars loaded out	0	2	0	0	0	0	0	2

Seal coating of Area roads in 100-H and 200-West required 1,204 man-hours. Maintenance of primary roads required 186 man-hours, secondary roads 60 man-hours and patrol trails 24 man-hours.

Vegetation control throughout the Plant required approximately 1,300 man-hours.

Handling of miscellaneous materials for the Stores Division at White Bluffs required 1,600 man-hours and excess material 138 man-hours.

Handling of materials for the Stores Division in the 700, 1100 and 3000 Areas required 503 man-hours.

Handling of Area deliveries required 1,1,163 man-hours, Stores deliveries 345 man-hours and office furniture moving 1,229 man-hours.

Transportation Division

Handling and loading of 2 carloads of scrap, 1 carload of equipment, 100 truckloads of material, 25 truckloads of equipment and other miscellaneous related work required 2,297 man-hours.

Routine Area maintenance and labor services were rendered in all Manufacturing Areas.

Labor and transportation equipment were furnished for Projects: P-172, P-378, P-398, P-410, F-411, P-422, P-423, P-424, P-426, P-438, P-444, M-602, M-769.

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POWER DIVISION
JULY 1951

PERSONNEL

The Assistant Superintendent of the Power Division was appointed Superintendent, effective July 13, to fill the existing vacancy.

Number of employees on payroll - July

Beginning of Month	573

End of Month	<u>569</u>

Net Decrease	<u>4</u>

The indicated net decrease is the result of the transfer into the Division of four employees, while eight left the Division. Those leaving the Division included the termination of the Division Superintendent, six non-exempt personnel terminations, and one removal from the payroll on account of illness.

100 AREAS

An electric power failure occurred at 2:35 P.M. on July 18 in the 100-D and 100-DR Areas. Approximately 50% of all operating electrical equipment in these areas tripped out. Normal power was available in thirty-six minutes, and normal water flow conditions were restored without difficulty.

In the 105 valve pit, 100-D Area, connections were made to the main steam line and emergency filtered water line on July 14, and to the export line on July 24 to supply water and steam for Pile Technology tests (Project C-424).

In the 100-D Area, 190 Process Pump House, process water pressure was raised to 15 psi above normal on July 24, at the request of the P Division.

A Critical "Y" power condition existed in all 100 Areas for twenty-one minutes on July 28 when one incoming line breaker tripped in the 100-H Area substation. Approximately one-half of all operating electrical equipment tripped out in 100-H Area. Operating equipment was not affected in the other 100 Areas.

The No. 3 export pump in 100-D tripped out on July 28, presumably from overheating of electrical overload protection. The No. 2 pump was started and system pressure restored without difficulty.

In the 100-B Area, 190 Process Water Pump House, the No. 7 process pump motor, which failed on March 7, was repaired and returned to service. In the same pump house, the No. 6 motor failed during an attempted start-up on July 28.

200 AREAS

1. On July 19, construction forces in the 200 East Area cracked a section of the 12-inch sanitary water line on the south side of the "B" and "C" Area tee while excavating for cathodic protection. A temporary band was installed immediately and permanent repairs were made on July 23 during an eleven hour shutdown. Temporary changes in the water system made repairs possible without affecting production.

Power Division

200 AREAS (Cont'd.)

On July 6, in the 200 West Area, 234-5 Facility, difficulty in the operation of main ventilation supply fan dampers made necessary an inspection of dampers on all supply fans. Considerable wear in damper bearings was found and attributed to the flutter of the damper blades. The necessary repairs were completed by July 12.

A change in the piping arrangement on the York Air Conditioning Unit in the 200 West Area, 222-U, Health Instruments Building, was made on July 17. By eliminating the spray water circulating pump and introducing spray water directly from the evaporator, at a lower temperature, the dry bulb temperature and relative humidity in the counting room was appreciably lower. This afforded a solution to long standing personnel complaints and unreliable counting equipment operation.

The EM-3 Exhaust Fan at the 200 West Area, 291-Z Stack Fan House, was out of service from July 17 through the remainder of the month for replacement of rough bearings, and to build up the shaft. The lubrication system will be converted from grease to oil as a measure to improve bearing performance.

300 AREA

On July 12, the lower sprocket wheel on the coal elevator failed. The unit was out of service for 24 hours for the installation of a new wheel.

GENERAL PLANT AREAS

At 7:55 P.M., July 3, the White Bluffs fire and sanitary well pump relayed out as a result of a power surge. The pump was restored to service within 10 minutes without further incident.

POWER ENGINEERING SECTION

The high flow filter capacity test, which was started in the 100-B Area, 183 Filter Plant, on February 1, was completed on July 2. Test results which indicate the feasibility of continuous operation of the 100 Area Filters at 113% of design capacity were reported in Document HW-21484.

A restudy of steam requirements in 200 West Area was reported in Document HW-21621, dated July 13. The conclusions were essentially the same as reported in previous studies. Future peak steam loads were estimated to range from 400,000 to 459,000 pounds per hour.

As requested by letter from the Atomic Energy Commission, an investigation has been made to determine the feasibility of modifying the existing 200 West Area boilers to increase boiler capacity, as compared with the installation of one new boiler. Representatives of Power, and Project Engineering Divisions consulted engineers of the Erie City Boiler Company, Erie, Pennsylvania, to establish feasibility, and procure estimates on the modification of existing boilers. Cost estimates have been completed; and evaluation of the proposals will be completed in the near future.

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HW-21802 -DEL

Power Division

POWER ENGINEERING SECTION (Cont'd.)

Revised Project Proposal C-433-2, for the Expansion of the 300 Area Power House and Pumping Station, has been prepared to reduce total expenditure from \$793,000 to \$665,000. A lump-sum subcontract for the design and construction of all work on this project has been awarded to the Bumstead and Woolford Company and revised cost estimates indicate that this reduction can be made.

POWER DIVISION STATISTICS

From July 1, 1951

Through July 31, 1951

		A R E A S				
		100-B	100-D	100-DR	100-F	100-H
<u>RIVER PUMP HOUSE (Bldg. 181)</u>						
River Elevation (msl ft.)	(max)	403.2	392.3		379.1	384.3
	(min)	398.4	388.3		374.8	380.5
	(avg)	401.6	391.0		377.7	383.0
River Temperature	Avg. °F	61.2	61.0		60.6	61.5
Water to Reservoir	gpm avg rate	39,762	56,437		30,070	48,685
Water to 183 DR	gpm avg rate		29,997			
<u>RESERVOIR (Bldg. 182)</u>						
Flow to Filter Plant	gpm avg. rate	35,740	44,385		27,232	43,867
Flow to Cond. System	gpm avg. rate	4,022	3,054		2,838	4,818
Flow to Cond. System (DR)	gpm avg. rate		3,944			
Flow to Export System	gpm avg. rate		5,054		0	0
Flow to Export System	gpm nor. rate		5,054		0	0
Chlorine, Added (#1 Inlet) Pounds		20,000	15,000		10,500	28,100
<u>FILTERED WATER (Bldg. 183)</u>						
Flow to Power House	gpm avg. rate	218	454		202	233
Flow to Process (190)	gpm avg. rate	32,564	32,113	35,605	25,095	39,848
Flow to DR	gpm avg. rate		6,296			
Flow to Fire & Sanitary	gpm avg rate	381	256		248	102
<u>WATER TREATMENT (Bldg. 183)</u>						
Chlorine - Consumed	Pounds	4,000	10,000	12,000	4,000	9,000
	ppm avg.	1.65	1.32	1.08	1.34	2.10
Lime - Consumed	Pounds	42,000	63,000	43,000	35,780	67,961
	ppm avg.	3.2	3.8	3.9	3.5	4.2
Coag - Consumed	Pounds	86,090	147,420	88,450	67,660	121,798
	ppm avg.	6.5	8.9	7.9	6.7	7.5
Raw Water PH		7.90	7.99	8.11	7.72	7.86
Finished Water PH		7.75	7.74	7.70	7.62	7.79
Alkalinity, M.O. - Raw	ppm avg.	58	58	58	56	56
	Finished	ppm avg.	57	54	56	58
Residual Chl. - Finished	ppm avg.	.11	.05	.12	.12	.18
Iron - Raw	ppm avg.	.11	.16	.15	.11	.14
	North Clearwell	ppm avg.	.014	.019	.013	.017
South Clearwell	ppm avg.	.014	.020	.018	.013	.018
	Hardness - Finished	ppm avg.	70	70	74	74
Turbidity - Raw	ppm avg.	7	7	7	7	7
	Filtered	ppm avg.	0	0	0	0

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HW-21802-DEC

Power Division Statistics

From July 1, 1951

Through July 31, 1951

		A R E A S				
		100-B	100-D	100-DR	100-F	100-H
<u>POWER HOUSE (Bldg. 184)</u>						
Maximum Steam Generated	lbs/hr	148,000	284,000		134,000	129,900
Total Steam Generated	M lbs	92,239	170,855		74,016	85,853
Steam Load - Avg. Rate	lbs/hr	123,977	229,644		99,484	115,394
225 psi Steam to Plant(est)	M lbs	78,001	144,667		62,548	73,585
15 psi Steam to Plant (est)	M lbs.	218	218		218	218
Coal Consumed	Tons	6,007	11,129		5,145	5,727
Coal in Storage (est)	Tons	38,208	32,635		37,336	32,123

(190) TANKS

Flow to 190	gpm avg.rate	32,314	31,863	35,605	24,845	39,598
Dichromate-Consumed	pounds	27,300	24,100	26,800	18,700	32,100
Chemical Analysis:						
PH	PH avg.	7.63	7.68	7.70	7.62	7.68
Dichromate	ppm avg.	1.8	1.9	1.8	1.8	1.8

PROCESS PUMP ROOM (Bldg. 190)

Flow to 105	gpm avg.rate	32,139	31,688	35,270	24,670	39,423
	gpm nor.rate	34,600	33,901	38,139	33,200	42,600
Water Temperature	Avg. °F	63.1	64.2	63.9	63.9	64.0

VALVE PIT (Bldg. 105)

Solids Consumed	pounds	1,200	3,600	1,800	4,800	9,050
Chemical analysis						
A, B, C, & D Headers						
Standard Limits						
PH	7.5 - 7.8	PH (max)	7.70	7.70	7.75	7.65
		(min)	7.60	7.60	7.55	7.60
		(avg)	7.63	7.65	7.65	7.63
Na ₂ Cr ₂ O ₇	1.8 - 2.2 ppm	(max)	2.1	1.9	2.1	1.9
		(Min)	1.7	1.8	1.8	1.8
		(avg)	1.9	1.8	1.9	1.8
Iron	ppm	(max)	.020	.010	.030	.020
		(min)	.010	.015	.010	.010
		(avg)	.011	.013	.020	.011
Chlorides	ppm	(avg)	1.8	1.6	1.5	1.8

Power Division Statistics

From July 1, 1951

Through July 31, 1951

<u>Unit</u>		<u>200 Areas</u>	
		<u>200-E</u>	<u>200-W</u>
<u>RESERVOIR (Building 282)</u>			
Raw Water Pumped	gpm avg. rate	1,938	3,116
<u>FILTER PLANT (Building 283)</u>			
Filtered Water Pumped	gpm avg. rate	356	788
Chlorine Consumed	lb.	200	470
Alum Consumed	lb.	1,850	5,000
Chlorine Residual - Sanitary Water	ppm	.51	.51
<u>POWER HOUSE (Building 284)</u>			
Maximum Steam Generated	lbs/hr	25,000	86,000
Steam Generated - Total	M Lb.	13,522	40,352
Steam Generated - Avg. Rate	lb/hr	18,175	54,236
Coal Consumed (Est)	Tons	871	2,548
Coal in Storage (Est)	Tons	9,714	24,506
		<u>300 Area</u>	
<u>POWER HOUSE (Building 384)</u>			
Maximum Steam Generated	lbs/hr	14,000	
Steam Generated - Total	M lb.	8,019	
Steam Generated - Avg Rate	lb/hr	10,778	
Coal Consumed - Total (Est.)	Tons	520	
Coal in Storage (Est.)	Tons	1,792	
<u>SANITARY AND FIRE SYSTEM (300)</u>			
Sanitary Water from 3000 Area	gal.	37,272,730	
Well Water Pumped - Total	gal.	26,208,000	
Total Water Per Day	gal/day	2,047,765	
Total Water	gpm avg rate	1,422	
Chlorine Residual	ppm	.46	
		<u>MISCELLANEOUS AREAS</u>	
<u>White Bluffs</u>			
Ice Manufactured	lbs	1,192,200	
<u>101 Shops</u>			
Coal Consumed	Tons		90

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MANUFACTURING DIVISIONS
INDUSTRIAL ENGINEERING SECTION
JULY 1951

I. Responsibility

No change.

II. Personnel

Five Rotational Trainees joined the Section. Three did not have "Q" clearances and were assigned to training in methods improvement and time study.

III. Achievements

General

A program is being formulated for establishment of standards for steam, electricity, coal and essential materials used by the Power Division in the 100-200 Areas.

An analysis of forms and procedures required for a cost control system was completed and standard forms were developed. Problems concerning the division of responsibilities, cost coding, scheduling of activities and scope of work have been resolved in cooperation with the Manufacturing Cost Section.

Labor and material studies required for determining standard manufacturing costs were begun during the month. A "P" Division - Industrial Engineering, Methods Improvement Committee is functioning to sponsor cost reduction work.

100 Areas

Study work was initiated to determine labor requirements of the "P" Division in all 100 Areas preparatory to establishing standard labor costs. Collection of data and analysis of major elements was begun.

200 Areas

Proposed labor and process schedules were prepared for operating the 221 and 224-T plants at varying production rates. Preparation of the report of results is in progress.

An analysis was completed covering the effects on capacity of Hoods 25 & 26, R.G. Line, by reducing the times of various components in the overall cycle of these hoods.

300 Area

The design of an experimental semi-automatic canning unit is essentially complete and fabrication is progressing. Operational tests are scheduled to begin about August 15.

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WITH DELETIONS**

August 10, 1951

TECHNICAL DIVISIONS

July, 1951

MONTHLY SUMMARY

Pile Technology Division

It was established that a pile constructed with an eight-inch spacing between centers of uranium rods would have essentially the same excess reactivity as one with the present eight and three-eighths inch spacing. Calculations indicate that this reduction in spacing would increase plutonium production by 2.6 per cent per megawatt day.

Measurements have been made of the reactivity of thorium slugs in preparation for large-scale use of this material for pile flattening.

Experiments to determine the effect of a strong neutron absorber on the critical mass of plutonium solutions were completed.

Studies of irradiated graphite indicate that the thermal conductivity of irradiated graphite increases with increasing temperature, which is in direct contrast to the negative coefficient of virgin graphite.

A test of operation of two pile process tubes charged with regular uranium slugs and cooled with dichromate-free process water was started.

Mechanical development studies of a ball third safety system, continuous charging machines, and C Pile components were continued.

Uranium fuel slugs, P-10 Target slugs, and J slugs that were normally discharged at 600 MWD/CT were inspected through the underwater periscope. Numerous defects were classified as weld corrosion, blistering, and corrosive pitting.

In the P-10 program, production capacity tests on the metal extraction and separations facilities were completed, and responsibility for these facilities was transferred to the P-10 Operations Group. Development studies in progress include

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DECLASSIFIEDSeparations Technology Division

A production test to determine the effectiveness of mercuric nitrate for restricting the evolution of radiiodine has been started at T Plant. Second cycle waste and cell drainage (5-6) have been combined for storage at both T and B plants. In the 234-5 Building, successful methods have been worked out for the direct conversion of the Isolation Building peroxide cake to the fluoride. Oxalate waste supernates (current) have been recycled successfully to the Concentration Building. Recycle of stored supernates is now being accomplished by blending with current recycle.

In Redox and TBP process development, the Redox Technical Manual was issued and the TBP Manual carried to 50% completion. The development of Purax pulse column specifications for O.R.N.L. was completed. The final 4-week training period for "S" Division supervisors and operators was started in the 321 Building. Run plans for the shakedown of the Redox Plant with cold uranium were issued for comment. Accountability procedures for the Redox plant were developed. The construction of the Hot Semi-Works was carried to 15% completion.

In the research laboratory, Redox "Head-End" studies at full activity levels were concluded. Studies were begun on the development of a single solvent-extraction process for the coupling of Redox and BiPO_4 product solutions to 234 purification together with the recovery of 234 slag and crucible wastes. A small pulse column unit was designed for high-level studies in the multicurie laboratory of the 202-S Building.

In the 234-5 laboratory, the desirability of methanol washing of the peroxide to give a dry uniform cake prior to hydrofluorination was demonstrated. Studies to evaluate a 50% reduction in the amount of hydriodic acid used in each oxalate strike at the 234 Building appear promising with lanthanum being the only impurity present in the laboratory plutonium button in greater than desirable amounts.

It has been determined that excessively high temperatures in the three plant silver reactors giving poor performance caused the melting of silver nitrate from the packing. The 4-5L reactor at T plant was replaced, and thus far is removing iodine to the extent of 99.9%. Attempts will be made to regenerate the silver nitrate by spray techniques in the 3-5R reactor at B plant.

Analytical Division

A differential technique has led to a five-fold improvement in the precision of infra-red absorption determination of TBP and has opened up the possibility of other new or improved applications of infra-red spectrometry. A new double-beam spectrometer has been received on site and will greatly assist in these investigations.

A new X-ray absorption photometer has been modified to include various improvements and was found to have greater sensitivity than the original instrument.

The automatic coulometric titration method for determination of uranium has been examined for application to Metal Recovery Process feed solution. It was found that phosphate and sulfate in concentrations higher than those expected introduce no interference and that the method is therefore applicable.

With the development of a radiochemical procedure for determination of plutonium, and of spectrographic procedures for determination of calcium and magnesium in solutions of slag and crucible waste, all analytical requirements have been met to support research studies and possible plant application of a plutonium recovery process.

Investigation of emission spectrometric procedures for determination of hydrogen to tritium ratio has been completed, and a method is available for process application. In view of the successful application of mass spectrometric procedures and of the fact that the emission spectrometer affords determination of only the isotope ratio, it has been decided not to introduce the emission spectrometric procedure into routine practice. As a result, the instrument has been transferred to the 300 Area where it will be employed for investigation of a variety of other applications. The instrument is on field trial from Leeds and Northrup, and its use at Hanford has proved to be of benefit to both parties concerned.

Further study and accumulation of quantitative data have shown that the adsorption of hydrogen isotopes on the mass spectrometer walls causes more interference in P-10 analyses than originally believed and that it is desirable to segregate sample types in order to obtain the highest accuracy.

The considerable amount of Am-Cm activity present in metal waste solution from the current 600 MWD material must be corrected for to evaluate the need for rework. On the basis of results obtained to date, it is estimated that 75% of the Am-Cm activity in 6-1-MB is carried into the metal waste solution. This factor is tentative, pending completion of laboratory studies.

During the past two months test samples have indicated only 98 - 98.5% recoveries in radioassay of Separations Process product solutions. Detailed checking reveals that use of etched platinum discs, normal practice in the control laboratories, was the cause, and that using new, highly polished platinum, recoveries were close to 100%. To avoid the prohibitive cost of using only new platinum for routine analyses, on July 23 the use of smooth, disposable stainless steel discs was adopted for these product solutions. With elimination of platinum disc clean-ups time equivalent to four analysts will be saved. A back-scattering correction is applied to bring results obtained on new SS discs into agreement with those obtained on new platinum discs.

The customer requested a specification analysis on all plutonium metal shipped. It was, therefore, necessary to develop an analytical method and equipment capable of assaying plutonium metal to an accuracy of 0.1%. This has been accomplished and the method placed in service in the 234-5 Building Laboratory. A ceric sulphate potentiometric titration is employed, using an Emil Greiner buret. To obtain the required accuracy, hydrochloric acid must be employed as the dissolution and titration medium, sulfuric acid being unsatisfactory.

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DECLASSIFIEDTechnical Services Division

Work continued on the completion of the exceptions to the final acceptance of Building 222-S from Construction. Rough adjustments of the ventilation system have been completed, but some modification in the damper plates and the relocation of the sensing tubes for the automatic hood-damper controls must be made prior to final balancing.

Work was started on Phase II construction in this building. When completed, radio-chemical laboratories will be provided in a section of the building originally reserved for future additional multicurie cells.

A supplemental proposal (C-406, Part III), requesting \$158,000 in additional funds for the Phase II construction of the Mechanical Development Building, was approved by the A & B Committee and forwarded to the A.E.C. on July 10. Meanwhile, placement of the metal siding and roofing panels for this new Works Laboratory facility is nearing completion.

Preliminary site grading for the Radiochemistry Building was completed, and the concrete work has started.

Final work in preparation for issuing a call for bids for construction of the Plot Plan & Utilities for the Works Laboratory Area is nearing completion, and bid assemblies are expected to be completed early in August. Design work on the concreting facilities for disposal of "hot" wastes is approximately 85% complete. These facilities are considered as a part of the Plot Plan & Utilities.

Construction of the Badge House was included in the bid invitation covering the Library & Files Building which was issued on July 10. Bids are scheduled to be opened on August 16.

The invitation to bid for construction of the Radiometallurgy Building for the Works Laboratory Area was issued on July 19; these bids are to be opened on August 16.

Final tracings and specifications covering the Pile Technology Building in the Works Laboratory Area have now been returned from Chas. T. Main Co., architect-engineer. Preliminary review indicates some minor details must be added before bid assemblies can be prepared.

Project Proposal C-458 covering the conversion of Building 3702, 300 Area, for use as the Laboratory Supply Building was returned unapproved by the A.E.C. Actual construction on this building had been scheduled during 1953, and the Commission requested that this proposal be resubmitted immediately prior to the proposed construction starting date.

The press of service work in support of the Technical Development programs made it necessary to continue the following groups on a six-day work week: Equipment Design, Technical Shops, Laboratory Services, IBM Computing Laboratory, and the Contact Engineers.

A means of predicting U_{235} content of uncanned fuel slugs from reactivity in the Building 305 Test Pile was developed by the Mathematics Section by fitting a hyperbolic equation to data obtained from the Hanford-Y 12 cooperative analytical program for the determination of uranium in enriched uranium-aluminum alloy fuel slugs (Document HW-21686). As more data became available, an improved estimate was made of the average loss of U_{235} in aluminum-silicon scrap per enriched uranium-aluminum fuel slug canned (Document HW-21695). The magnitude of this loss was confirmed by a less direct, completely independent method of estimation.

WK Woods:elm

J. H. Thayer
*W. H. W.***DECLASSIFIED**


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August 9, 1951

PILE TECHNOLOGY DIVISION

JULY, 1951

VISITORS AND BUSINESS TRIPS

<u>Visitor</u>	<u>Date</u>	<u>Address</u>	<u>Purpose</u>
A. A. Batza W. A. Hartman	7-6-51	KAPL	Discuss G.E.L. irradiation and P-10 consultation
C. V. Moore	7-16/31-51	KAPL	Observe fuel rod irradiation drop test and consult on in-pile creep test.
A. Glassner	7-29/31-51	ANL	P-10 Consultation

<u>Visitor</u>	<u>Date</u>	<u>Address</u>	<u>Purpose</u>
R. O. Bolt	7-24/26-51	California Research and Development Company	Consultation on special irradiations.
R. W. Lockhart	7-10-51	KAPL	Consultation on heat transfer problems.
H. H. Barschall	7-30/31-51	Los Alamos National Lab.	Consultation on cross section measurements

<u>Name</u>	<u>Date</u>	<u>Place Visited</u>	<u>Purpose</u>
J. H. Bach	7-16/20-51	KAPL	Metallurgical consultation on the reactor material program
	7-23/24-51	Battelle Memorial Institute	Discuss the testing of aluminum.
W. R. Lewis	7-9/10-51	ORNL	Give lectures to the Reactor School on Pile Technology.
W.J. Ozeroff	7-17/20-51	KAPL	Hanford Assistance Program
R. H. Leyse	7-14/31-51	KAPL and GEL	Follow the C-410 assembly testing and to discuss in-pile tests.
D. E. Stephens	7-5-51	Commercial Controls Corp.	Discuss Automatic Data Recording Equipment
	7-6-51	Arthur D. Little Corp.	Discuss temperature sampling product.
	7-9-51	Bell Telephone Laboratory	Discuss amplifiers.
	7-10-51	The Daven Co.	Discuss electrical switches.
	7-11-51	The Applied Science Corp.	Discuss temperature sampling product.
	7-12-51	Cook Electric Company	Discuss electrical switches.
	7-13-51	Automatic Electric Company	Discuss electric switches.

ORGANIZATION AND PERSONNEL**DECLASSIFIED**

	<u>June</u>	<u>July</u>
Physics	31	38
Engineering	56	63
Metallurgy	38	42
Pile Applications	52	55
P-10 Project	68	71
Administrative	<u>10</u>	<u>11</u>
	255	280

The Physics Section had an increase of six technical graduates, who transferred from Management General, and one engineering assistant, who transferred from the E & C Divisions.

In the Engineering Section, six technical graduates and one engineering assistant transferred in from Management General. One engineer transferred in to the Engineering Section from the Pile Applications Section, and a steno-typist transferred from the Engineering Section to the Metallurgy Section.

The Metallurgy Section gained five technical graduates who transferred in from Management General. A steno-typist transferred in from the Engineering Section and one steno-typist terminated. A metallurgist terminated to take a new job in Schenectady.

Five technical graduates and one engineering assistant transferred to Pile Applications Section from Management General. A laboratory assistant was hired and terminated three weeks later. One steno-typist and one technologist terminated from the Pile Applications Section. An engineer transferred from Pile Applications Section to the Engineering Section.

The P-10 Section had an increase of two technical graduates, who transferred in from Management General, and a new laboratory assistant. A technical graduate terminated the first week in July to return to school but returned to work a week later.

A new laboratory assistant and a new general clerk were hired for the Pile Technology Division and placed in the Administrative Section until their "Q" clearance is received. An assistant to the division head terminated to accept employment elsewhere.

CRITICAL MASS

Experiments designed to determine the effect on criticality of a strong neutron absorber were completed during the month. Stepwise additions of lithium nitrate were made to the plutonium solutions to obtain a calibration of critical mass versus the amount of absorbing material. These experiments were performed in a 14-inch spherical reactor with full water tamper. Unavoidable additions of nitrate were made during the experiment and it was necessary to correct the results for this effect. This could be done, however, since the effect of nitrate in the

solutions had previously been studied with considerable thoroughness. As a first step in the experiments on the addition of lithium the critical mass of the 14-inch spherical reactor was redetermined, the value was found to be identical with that measured seven months ago, thus indicating the very high reproducibility of results obtained with this experimental equipment.

A measurement was made of the temperature coefficient of reactivity of the 14-inch spherical reactor, this was found to be .75 grams of plutonium per degree C. This value is in good agreement with results obtained previously with cylindrical reactors.

IMPROVED PILE STRUCTURES

A. Exponential Pile Experiments

The values of excess reactivity obtained by the exponential experiment method are strongly dependent upon the measurement of the neutron flux distribution in a horizontal plane in the pile and during the past month considerable work was done in the pile with the eight inch lattice to determine with greater precision this neutron distribution.

It has now been established that a pile constructed with an eight inch spacing between the centers of the uranium rods would have essentially the same excess reactivity as one constructed with the present 8-3/8 inch spacing. A decrease in the lattice spacing is certain to increase the production of plutonium per megawatt day. Although the size of this increase has not been established experimentally, calculations indicate that the reduction in lattice spacing to eight inches will increase the plutonium output by 2.6 per cent per megawatt day. In addition to this increase in production, a pile of the present dimensions would include 5.7 per cent more tubes and, therefore, the production of the pile with substantially the same overall dimensions, with the same building, control rods and instrumentation could be increased by approximately eight per cent by shifting to the eight inch lattice. More aluminum tubes and more water would be required. There is not sufficient information on hand to establish whether or not this eight inch lattice is the optimum obtainable, it is simply the lattice which appears best in the light of our present information.

Two measurements were carried out of the distribution within a uranium slug of the neutron flux which produces fission. This was done by catching the fission fragments on small aluminum foils. The slugs were exposed for a short time in the Test Pile. The results indicate a greater drop in flux from the surface of the slug to the center than was expected on the basis of diffusion theory. Further work on these measurements was in progress at month end.

Construction work for this program is being done under a project whose scope is currently being revised to include moving all of the facilities to the 189-D Building in September. This move is necessary to free the 101 Building for machining of graphite for new pile construction.

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B. General Lattice Design

The apparatus being constructed to produce xenon for the determination of the xenon cross section must efficiently remove all of the iodine fission products from the off-gas stream. It is presently proposed to do this by passing the off-gases through a charcoal column. The efficiency of this charcoal column is currently being tested by collecting a sample of gas after it has passed through the column. The feed gas to the column in this case consists of helium as a carrier with a small amount of natural iodine introduced to simulate the fission product iodine. After the gas has passed through the column, a sample will be irradiated in the pile and any small amount of iodine remaining in the gas will then be detected by measurements of the radioactivity of the gas.

In making a measurement of the xenon cross section, it is necessary to establish how much xenon has been placed in a collimated neutron beam. This will be done by measuring the beta decay rate of the xenon sample. The equipment for making this measurement is now being assembled. Scalers have been received on the plant, four beta counters are under construction in the instrument shop, one pulse height analyzer, one coincidence circuit and one scintillation counter power supply are also being constructed.

C. Large Scale Pile Structure

Methods for carrying out pile physics calculations are well known when the region of the pile involved is large, and in the other extreme, when the region consists of a single lattice cell, but the treatment of regions consisting of an aggregate of a few lattice cells has always been a difficult one. A method for handling such problems has now been developed and has been initially applied to problems connected with the use of enriched uranium to increase the flattening and, therefore the production, of the Hanford piles. The method was also checked by performing calculations which done by previously known methods and obtaining results which are in agreement with the results obtained by these previous methods. A detailed report of the method and some of the initial calculations is being prepared.

SHIELDING STUDIES

The calibration of the DR Pile shield testing facility was completed during the month. Results indicate that this facility will be satisfactory for measurements of the shielding effectiveness of bulk amounts of shielding materials. Following the completion of this calibration slabs of Brookhaven type heavy aggregate concrete were placed in the shielding facility with foils inserted at the desired points and exposure of these foils was underway at month end.

Samples of Brookhaven concrete have been exposed to large doses of pile radiation to determine their stability under such exposure. The samples exposed were designed to allow the measurement of changes in thermal conductivity, in dimensions, and in compressive strength. Exposures have been completed but measurements of the properties were still in progress at the end of the month. The exposure which these samples received is equivalent to that received by a shield in many years of

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pile operation. The exact equivalence between the exposure received in the pile and exposure which would be received when the material is used in the shield requires considerable study and cannot be established until the neutron energy distribution at the point of exposure and at various points in the shield can be more accurately determined. However, the exposure of the sample to thermal neutrons was equivalent to the thermal neutron exposure in the shield in 45 years of operation. The rate of gas evolution from concrete samples exposed to pile radiation at a temperature of 110°C has been found to be four cc. per gram per day during the exposure. Prediction of gas evolution in a shield of this material, based on these results, was in progress at the month's end.

The magnetic spectrometer for the measurement of the energy of beta rays has been improved by the addition of a control system for the magnetic field intensity. A ten millicurie source of cobalt 60 is being prepared by pile irradiation as a second calibration standard for the spectrometer. A cerium¹³⁷ source has already been used for calibrating this instrument.

OPERATIONAL PILE PHYSICS

Ruptured Slug Detection By Fission Product Detector

One of the monitoring chambers installed as part of the delayed neutron detection experiment has failed and is not functioning due to causes as yet undetermined. The injection of a uranium bearing solution will take place early next month. The equipment is assembled and the production test has been approved. This simulated rupture will be monitored by the remaining chamber and possibly by scintillation detectors of off-plant design which are being tested for the duPont Company.

Supplementary Reactivity Control

Calculations have been made on the amount of supplementary control of the type furnished by an "ink" facility required to give reasonable operational flexibility in the older piles. A memorandum will be issued evaluating the possible production gains to be made with this equipment, used both for supplementary control and flux distribution control.

Automatic Temperature Traverse Recording For IBM Computation Use

A survey has been completed and recommendations made for the most desirable automatic recording temperature traverse equipment for C Pile. It appears that acceptable performance, greatly improved over present experimental installations, can be obtained without requiring an extensive developmental program.

J Slug Burnout Measurements

Test Pile work in connection with the experimental determination of the burnout of U₂₃₅ in irradiated J slugs has been completed. Analysis of data is proceeding, and a report will be issued.

Use Of Thorium Slugs For Pile Flattening

Measurements have been made of the reactivity effect of thorium slugs in preparation for the large scale use of this material for pile flattening. Tests on selected slugs were made in the configuration necessary for comparison with post-irradiation measurements which are planned for this material.

GRAPHITE STUDIES

Pile Graphite - Thermal Conductivity

Measurements of the thermal conductivity of central pile graphite samples have been extended to cover the temperature range from 20° to 180°C. In this temperature range, the thermal conductivity increases linearly at a rate of 40 per cent per 100°C; this is in direct contrast to the negative coefficient of thermal conductivity of unirradiated graphite.

Capsule Graphite Exposures - Expansion

Measurements of the lattice spacing of graphite samples during capsule exposures to about 2,000 MD/CT have indicated a trend toward saturation of the crystal spacing expansion. The rate of expansion above 1,000 MD/CT was found to be about one-third that at lower exposures. In contrast, physical length measurements on the same capsule samples indicate an increased rate of physical expansion above about 500 MD/CT. Physical expansion rates for Natural, KC, CS, and Lampblack graphites above the inflection in the expansion curves are linear and about twice the rate at lower exposures.

Special Capsule Exposures - Flux Studies

Physical property measurements on capsule exposures of graphite samples spaced along the length of a regularly loaded process tube indicate that irradiation damage is proportional to the neutron flux distribution along the tube. The temperature gradient resulting from the heating of the cooling water was responsible for a shift in the damage toward the front of the tube.

Graphite Exposures - Temperature Coefficient of Damage

The controlled temperature exposures of graphite in a dry cooled process tube operated at 225°, 185°, 164°, and 118°C. These temperatures deviated by as much as 17°C. Future experiments of this type may require individual control on each heated slug.

Thermal Studies - Interferometer Measurements

A correlation was obtained between the rate of physical expansion on pile exposure and the thermal coefficient of expansion as measured in the laboratory, on transverse samples of WSF, CSF, KC, and molded natural graphites.

Mechanical Property Tests

Satisfactory methods have been developed to measure the ultimate compressive strength and the modulus of elasticity of small graphite samples 0.40 inches in diameter and 0.73 inches in length. Standard deviations of less than 10 per cent were obtained. These methods will be valuable for the study of pile graphite samples such as those obtained with the core borer.

Graphite Process Development

A survey of raw material availability for pile grade graphite was issued as document HW-21720, dated July 27, 1951. On the basis of this survey and other available information, recommendations were made in document HW-21728, dated July 26, 1951, that a program be explored immediately with the National Carbon Company for process development work on graphite manufacture.

Pile Gas Studies

Thermal conductivity of helium, carbon dioxide, neon, nitrogen, and their binary mixtures, were calculated over a temperature range of 0° to 527°C. Experimental equipment has been designed and is being fabricated to confirm these calculations.

Controlled Gas Atmosphere Experiment, Project C-410

A facility is being built to allow investigation of the C-CO₂-CO reaction under pile irradiation at controlled temperatures between 250°C and 650°C.

The completion of the Test Hole heater tube is proceeding at the Schenectady General Engineering Laboratory. The tentative Hanford Works delivery date is now September 21.

The gas analysis equipment mock-up is 90 per cent complete. Gross leaks have been eliminated and leakage has been reduced to a point where the helium leak detector equipment can be used to eliminate the remaining five leaks.

HEAT TRANSFER STUDIES

Boiling Consideration Studies

A rough draft document discussing means for increasing the boiling limitations in the present piles was issued for study within the Division. This document outlines the advantages and disadvantages of the use of larger tube outlet fittings and higher header pressures.

Work continued during the month on the boiling consideration study to re-evaluate the maximum power per tube limitation for the present piles from both a technical and experimental standpoint. The results of these studies should be issued during the coming month.

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Calculations were made to estimate the relative effect of film buildup on the boiling limits for the proposed C Pile annulus and fittings. The header pressure necessary for a 700 KW tube output under film-free conditions was determined. The required pressure for the same power, but for a 40 pound film condition, was calculated to be about four per cent greater. This increase corresponds closely to the increased pressure requirements resulting from the same film buildup in a standard annulus.

Thermal Shield Temperature Determinations for C Pile

Calculations were made to determine the temperature which might exist in the cast iron thermal shield with a 12 inch cooling tube spacing; calculations were made for operating levels up to 1200 MW plus the heat load which would result from radial enrichment. Under these conditions, temperatures of 300°C might exist in portions of the thermal shield. Because temperatures of this order of magnitude might result in large stresses in the cast iron blocks, and cause detrimental effects to the supporting concrete, it was recommended that the 8-3/8 inch spacing of the cooling tubes be retained.

An analysis of temperature data obtained from the B, D, and H Pile shields indicated the aluminum reflectors used in the DR and H Piles are of little value. Temperatures on the inner biological shield tie straps, eight inches from the thermal shield, were uniform regardless of the reflectors. Calculations indicated that this condition exists because of the large path for heat flow from the tie straps to the process water. Calculations for operating levels up to 1200 MW, plus an additional heat load resulting from front to rear enrichment, indicated that the reflectors would lower the biological shield temperature by only 7°C or less; thus it is recommended that these shields be omitted in the C Pile.

Single Tube Mock-Up Tests

The heat transfer test equipment in the 189-D Building was not operated during the month; all efforts were directed toward new designs and equipment modification. Completed new designs include the hydraulic and electric end connections, and an alternate method for pressurizing the flow system by utilizing air pressure rather than steam. In order to verify experimentally the results of calculations on process tube rib dimensions, a means of varying the rib height is necessary. A method has been developed whereby ribs of varying dimensions can be affixed to the heating tube. A ribless process tube is available and the test line will be initiated as soon as the heater tube is prepared.

Nickel for the high temperature heater tube was received; a plot of temperature versus electrical resistivity is being prepared prior to the design of the heater tube. The repair of the present variable wall thickness heater tube has proved difficult; in case this difficulty proves insurmountable, an alternate method is being studied to fabricate the heater in approximately six pieces rather than 50 or so pieces now used. This method will be used with the nickel tube.

C Pile Flow Calculations

Calculations were made to determine the orifice zones which are to be used at the startup of the C Pile. It was necessary to do this immediately in order that the Reactor Division could order the proper panellet gages. Detailed curves were constructed to permit evaluation of the most desirable pressure and flow conditions for the initial operation of the C Pile. Factors affecting the operating conditions were (1) necessary flow (2) necessary header pressures to provide such flow (3) necessary header pressures from a boiling consideration standpoint (4) pump efficiencies and (5) future flow and pressure requirements.

WATER STUDIES

Laboratory Construction

Construction of the 105-D Laboratory has progressed very little during the month. This has resulted from a lack of critical materials which are scheduled for delivery by August 1. If these schedules are met, the laboratory should begin operation about September 1.

The detailed drawings for the proposed 50 tube mock-up for studying front tube corrosion have been completed. The Project Proposal for this work has been submitted to the A and B Committee and it is hoped that this project can also be completed by September 1.

The Use of Filter Aluminum As A Coagulant For Process Water

A document is being prepared which will propose the use of filter alum and activated sodium silicate as a coagulant for treatment of pile process water. It is proposed to initiate a Production Test at the 100-B Area for studying the possibilities of using these coagulants. The objectives will be to determine the effects of alum coagulation on pile film formation rates and on pile effluent water activity. If this proves to be satisfactory, the test should be continued to determine the maximum filter capacity obtainable using alum and activated sodium silicate.

Sodium Dichromate Determination Studies

PT 105-453-P, "Sodium Dichromate Elimination Studies", is progressing satisfactorily. The equipment tests during the past month were completed and the dummy slugs were discharged on July 19. Two of the tubes were replaced and regular metal charges were loaded at that time. Operation of the equipment since loading of the regular metal charges has been satisfactory.

Corrosion Studies

The various corrosion studies now in progress are continuing; some data have been obtained from the high temperature corrosion equipment at 105-D. It is expected, however, that the data obtained at this facility will be negligible until present modifications now in progress are completed. The potential relations for magnesium

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information now available on front tube corrosion is being prepared.

MECHANICAL DEVELOPMENT

Ball Third Safety System

The corrosion testing of the nickel plated boron steel and boron stainless steel balls, in a carbon dioxide atmosphere saturated with water vapor at 50°C, is being continued. This test simulates conditions which could exist in a pile following a serious water leak. After approximately two months, no corrosion is visible through the glass containers in which the balls are being tested. Microscopic examinations are scheduled at the end of three months of uninterrupted test.

Reactivity tests in the 305 test pile on carbonaceous cements supplied by the National Carbon Company disclosed that these cements absorb approximately one ih per pound of material. This is an appreciable amount and probably precludes their use as crack filling materials. Physical property tests also indicate these cements to be unsuitable for this purpose. Similar tests are in progress on a cement made of powdered graphite and sodium silicate. This material shows considerably more promise than the commercial materials previously tested.

Some difficulty is being experienced with the sphincter gas seal which is being used with the experimental Ball 3-X step plug on #20 D rod. It appears that the silicone grease used to lubricate the rod has decomposed into a tacky film which tends to impede rod travel through the seal. No evidence of this was found during the first eight months this seal was in operation. A different type grease is now being tested to see if this difficulty can be overcome.

C Pile Tests

Testing has shown that the damage to the slugs by the D machine results from the operation in which the bar plug is pushed back through the process tube channel. The slugs are forced upstream approximately two feet during this operation. It has been determined that very large forces are required for this backseating operation, and in one case, 7,000 pounds force would not backseat 41 lead slugs. No oil has been used in these tests in the past but it is planned to determine the effect that oil will have. Scratches on the dummy slugs as deep as seven mils were measured after the slugs had been passed down stream through the process tube.

Initial results from the testing of the gland seal, which is proposed for use around the horizontal rods, indicate that considerable redesign will be necessary to obtain satisfactory operation.

All orders have been placed and all drawings, with the exception of electrical, have been completed and are ready for approvals on the horizontal rod mock-up. Fabrication of the supporting structures will start soon and fabrication of the graphite blocks is now underway.

Tests to determine the effect of removal of deformed tubes and slugs from cored graphite are in progress on the nine tube mock-up. Preliminary results indicate that coring of the graphite will not seriously affect the removal of ruptured slugs from the C Pile. An expanded ruptured slug very easily fractures the graphite blocks if they are undercut as in the IR and H Piles.

METALLURGY OF URANIUM

The general objectives of this program are the development of means of fabricating uranium which will be more resistant to distortion during irradiation, to develop tests to differentiate between various structures in uranium, and to develop more economical ways of fabricating uranium.

Fabrication

The canning of slugs cut from alpha-rolled uranium rods cold drawn to final size was completed. Laboratory studies of the microstructure and orientation of the rods are being continued.

Physical Measurements

Measurements of the expansion of bare and canned uranium slugs made in a dilatometric study for the Manufacturing Division and in a test to determine the dimensional changes which currently occur in the triple-dip canning have been completed, and the results have been given to the Mathematics Section to be correlated with orientation values of these slugs. A Thomas Metal Disintegrator has been received to be used for "drilling" holes into uranium samples to facilitate better temperature measurements. Metal Fabrication Request No. 131 has been approved for work using the Metals Comparator to determine the degree of transformation of beta-treated production slugs.

Orientation Studies

The preferred orientation of four rods rolled at Joslyn Manufacturing and Supply Company, Fort Wayne, was determined. Two rods showed a (200) texture and the other two, the usual (020) orientation. Rods with the (200) orientation decreased in length and increased in diameter during pile exposure at Chalk River, but no information is available on the behavior of those with (020) orientation. Details of this test are reported in HW-21749.

METALLURGY OF PLUTONIUM

The objectives of this program for 1951 are the development of specialized laboratory facilities, procedures, and metallographic techniques and the determination of pertinent portions of the plutonium-70-58 pressure-temperature-composition system.

The development of specialized metallurgical facilities and procedures for handling plutonium continued. Nearly all the required metallurgical equipment has been received, and the hoods are expected on site by the end of the month.

RECEIVEDMETALLURGY OF HANFORD STRUCTURAL MATERIALS

The objectives of this program are to establish the suitability of metallic materials under present and proposed operating conditions and to develop new structural materials for new reactors and processes.

Studies of Process Tube Materials

Efforts to produce zirconium process tubing at the Superior Tube Company, using conventional methods for stainless steel, failed. It is believed that the presence of carbides was responsible for the difficulties encountered. The operation will be attempted later with higher purity zirconium.

It was agreed with Battelle that the work on the creep of 2S aluminum should be continued at higher stresses and temperatures.

Slug Storage Test

A corrosion test on canned uranium slugs in dry storage has been initiated in collaboration with the Manufacturing Division. The slugs were first examined on all surfaces and then coated with selected corrosion inhibitors. Periodic examinations for corrosion will be made during a storage time of one year.

100 Area Corrosion

Solution potential measurements of aluminum alloys and zirconium in process water were obtained in singly immersed and on galvanically coupled samples. Battelle Memorial Institute has offered to furnish zirconium-tin alloys for corrosion studies in Hanford process water. The zirconium-tin alloy has shown excellent corrosion resistance and does not exhibit variations in the solution potential such as are found in different heats of high purity zirconium.

Corrosion test of 2S aluminum and 304 stainless steel in glycerine were necessary in order to evaluate the use of this medium as a coolant during the transportation and storage of J-slugs in casks made of 304 stainless. It was found that corrosion of the 2S aluminum at 200°C was very slight and that galvanic coupling of the two alloys did not accelerate the corrosion rate (HW-21739).

An investigation, reported in HW-21727, has shown that a black film is formed on the aluminum can when either 304 stainless steel or brass is galvanically coupled with aluminum in process water. In cleaning corrosion products from irradiated process slugs, prior to weighing them in air, the galvanic coupling may be avoided by using linen base mica insulation which will withstand the hot acid used to remove corrosion products (HW-21738).

The air weighing and slug-cleaning devices are now operating satisfactorily. Corrosion weight loss data so far obtained indicate that the corrosion rates are significantly higher than was supposed on the basis of slugs weighed under water. All the data have not yet been analyzed.

Preliminary results of statistical analysis of the large amount of data on slugs weighed under water indicate a significant correlation between weight loss per month and average slug power generation. This is being further explored with curve

fitting being done by the Mathematics Section. Not enough data are yet available to establish a relationship between the corrosion rates indicated by weightings in water and in air.

Under optimum conditions, slugs are now being weighed in air at a rate of ten to fourteen per day.

200 Area Corrosion

Splash rings from vessels in contact with nitric, oxalic, and hydrofluoric acid solutions were found to have failed because of corrosive attack immediately adjacent to the weld bead. The units which failed were examined in the field, decontaminated, and then moved into the laboratory for detailed study.

Considerable progress was made on the development of an electrolytic cleaning technique for removing free iron contamination from the surface of stainless steel. Tests are being made to establish whether the stainless steel cleaned by this technique is left in an active or passive condition.

The following reports were issued on work previously completed:

1. Evaluation of Acceptance Limits for Iron Pickup in Acid Testing of Field Welded Stainless Steel Pipe. (Unclassified)
2. Corrosion of Stainless Steels by Concentrated UNH Solutions. (HW-21520)

CANNING DEVELOPMENT

The objective of this program is aimed at the improvement of the present and the development of new canning processes to provide canned slugs of better quality.

Beta Heat Treatment in Salt Baths

The results of a comparison of salt baths, reported in HW-21653, show that the chloride bath attacks uranium to a lesser extent than does the carbonate bath. Studies directed toward establishment of a beta heat treating cycle in a carbonate bath are underway.

Re-evaluation of Canning Bath Conditions

The experimental work of determining the temperature of can-sleeve assemblies after various times of partial and complete submersion in Al-Si baths at selected temperatures within the normal operating temperature range is essentially complete.

A supplementary test to determine the feasibility of operating at the maximum specified limits of temperature and preheat time also has been completed and reported in document HW-21692. From the results of these studies, it appears that the non-uniformity of contact between cans and sleeves causes such a wide variation in heat transfer that there is no temperature range which simultaneously will insure satisfactory seating and freedom from danger of wall penetration.

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Establishment of Standards and Techniques for Bare and Canned Slug Inspection

A report on the completed phases of studies relating to the establishment of standards for bare slug inspection is in preparation. These studies have disclosed no evidence to support the suspicion that the canning of physically unsound uranium slugs produces weaknesses in the final piece which can be correlated with present pile failures. However, it is conceivable that defects in the uranium slug may contribute to reduced jacket quality, and if this assumption is valid, the present criteria for rejection of bare slugs appear justifiable, if somewhat rigorous.

Re-Evaluation of the Operating Conditions for Welding

The experimental work on the phases of this problem covered by PT 313-116-M has been completed and a report is in preparation. This study has shown a way to better weld quality through improvement of operating techniques.

Autoclaving of Canned Slugs

Attempts to evaluate autoclave thermal cycling as means of guaranteeing the satisfactory pile behavior of slugs have yielded conflicting results. There is some evidence that this treatment is more effective than the standard autoclave test in eliminating potential pile failures.

Initial microscopic studies of the cross sections of three slugs which had been subjected to twenty cycles of thermal shock indicate that the thermal shock test causes little or no damage in the compound layer.

RADIOMETALLURGY

The objectives of this program are the development of laboratory techniques for the study of samples of irradiated materials and the metallurgical investigation of radioactive materials which are used in the present or are planned for use in the proposed Hanford Reactors.

Nine ruptured irradiated uranium slugs were discharged this month. Six of these together with one previously unreported slug failure were examined through an underwater periscope. The information is tabulated below:

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No.	Tube No. & Area	Canning Date	Charge Date	Discharge Date	Days in Unit	MWD/ct	Observations
21	1476DR	MRG 8-1-50	9-4-50	6-29-51	298	523	Cap failure
22	3486 H	MRG 12-29-50	1-24-50	7-1-51	157	346	Side failure Parallel splits simi- lar to 3373H
23	4380 F	MRG 2-27-50	5-23-50	7-10-51	413	393	Cap failure
24	2169 B	MRG 12-27-50	2-7-51	7-18-51	161	371	Cap failure
25	1768 D	MRG 12-15-50	2-14-51	7-14-51	150	304	Cap failure
26	1487 DR	Unobserved	5-9-51	7-19-51	71	144	Not observed at time of report
27	1961 D	MRH 8-31-50	10-25-50	7-22-51	270	498	Side failure 1-3/8" dia. hole in middle of can.

Four hundred ninety-four fuel slugs, 117 P-10 slugs, and 45 J-metal slugs that were normally discharged from the 105-H reactor unit, were inspected through the underwater periscope. Some defects that were noted on the uranium fuel elements are:

1. Weld Corrosion: 30 to 40 per cent indicated corrosive attack with some welds partially to completely removed. Weld attack was predominant on the down-stream pieces.
2. Blistering: 40 to 50 per cent indicated from slight to excessive blistering; no correlation between blistering and position in the tube was evident.
3. Corrosive Pitting: Small patches of bright metal having a deeply etched appearance and very irregular boundaries were observed.

Several suspected rupture pieces were observed when the contents of tube 3481-DR were discharged.

A final report on the examination of the ruptured slug from tube 1368-DR was issued in document HW-21515. A summary report on the ruptured slugs that have developed in the Hanford reactors was issued as document HW-21455.

The modifications of the 111-B Building have not been completed as planned, but the work is progressing. The dry storage unit has been installed, and is currently being used. The cut-off box for hot samples was received from the technical shops and is being set up to cut wafers from low level irradiated slugs.

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P-10 OPERATION

Production

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Metal Line Operation

Metal extraction and separation facilities were transferred to the Operations Group on July 23, 1951, upon the satisfactory completion of the production capacity tests.

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Health Hazard Control

Three operators and one maintenance man exceeded the working limit for internal tritium contamination but did not exceed the maximum permissible concentration. All four worked in the metal line cell room during the repair period following the production capacity tests. Surface contamination of equipment, clothes, tools, personnel and the general area was detected during this period and had to be removed. This occurrence emphasizes the necessity for rigid contamination control procedures.

The highly radioactive piece of metal discovered in the Can Opening Room in June was analyzed to be irradiated uranium. No additional information was obtained on its method of entry into the Can Opening Room.

P-10 DEVELOPMENT

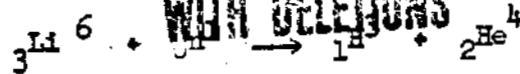
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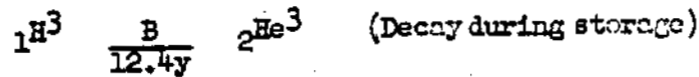
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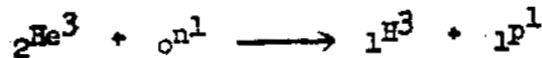
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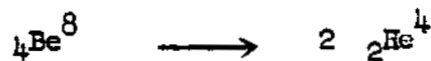
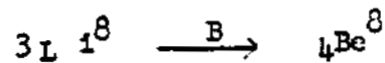
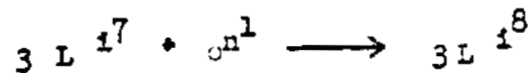
3.



If these were the only reactions occurring, the theoretical ratio would be:

$$\frac{2\text{He}^4}{\text{H}^3 + 1/2 \text{He}^3} \longrightarrow 2.00$$

However additional minor reactions,



occur to form additional 2He^4 so that the ratio is closer to 2.01.

If it is assumed that none of the helium is lost during the processing operations, then the percentage recovery of tritium could be calculated from this ratio.

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Applied Research Activities

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SPECIAL IRRADIATIONS

High Pressure Water Channel, ANLM-140

The behavior of water, prototype fuel and structural materials is being observed under conditions simulating those of the STR as closely as is possible in the Hanford piles.

During July, the pile tube was operated without samples to observe the effects of changing the system temperature and of changing pile condition. Pressure was held at _____ and temperature _____. Immediately following a pile startup or a system temperature increase, the gas content of the water increased approximately two hundred per cent and then settled down to equilibrium conditions in a period of approximately three days.

KAPL Fuel Element Tests, Beta Experiment, SR 79

The influence of pile irradiation on fuels and fuel assemblies in contact with liquid metal coolant is being determined.

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No slugs are now being irradiated because of the damage to uncooled process tubes in the hot central zone of the pile. Rather than irradiating the slug in a fringe tube, it is being redesigned for a water cooled annulus tube and suggested design features have been forwarded to KAPL.

Electrical Insulators, PT 105-408-P

The insulation resistance of a commercial strap heater with mica insulators is being continuously measured in a dry process tube. The initial resistance to ground of 1.3×10^9 ohms has decreased continuously to less than 100 ohms except for recoveries during shutdowns. Circuit design prevents the separation of the influences of temperature and pile operation on these temporary recoveries because of the extremely low value of the resistance to ground.

The resistance to ground of a spare lead wire has also decreased from a value of over 10^9 ohms to less than 100 ohms. This apparent failure of asbestos-covered wire is not understood because asbestos has performed well under similar conditions in other experiments.

Measurement of Uranium Slug Temperatures, PT 105-411-P

Work is continuing on the design and fabrication of a uranium slug with both a central and a surface thermocouple. An automatic thermocycling autoclave has been developed for testing the slug prior to exposure in the pile.

Exposure of KAPL Fuel Pins, KAPL-107

A prototype KAPL fuel pin slug was discharged without difficulty after a six month exposure. The outer can was removed and visual examination showed no growth or warping of the pins or central beryllium rod. The components are to be returned to KAPL for detailed examination.

LVDT Calibration (WAPD-M-103, PT 105-79-P)

Since the charging of the slug on May 16, the electrical resistance of the zirconium specimen has increased along a smooth curve which appears to be leveling off at a 1.31 per cent increase.

Creep of Zirconium (Pneumatic Loading) (WAPD-M-106, PT 105-430-P)

The slug assembly was successfully charged under creep on July 14, and as with the previous sample, creep stopped under irradiation. Stress-strain curves were run and during one of the runs, the pressure inadvertently was increased sufficiently to rupture the specimen.

Special Irradiations

Monthly statistics on the Special Request Program are tabulated below:

P-10-A pieces charged	573
P-10-A pieces discharged	321
P-10-A pieces being irradiated (Exclusive of H-10)	1553

*Special Request samples charged	98
Special Request Samples discharged	33
Samples on hand awaiting charging	771
Samples now being irradiated	412
Samples awaiting shipment	72
Samples shipped during July	71

100 AREA PLANT ASSISTANCE - ENGINEERING

Unit Motion

Two indications that the recovery of graphite damage may have been arrested were noted this month. Routine cold unit motion readings at B Pile have shown a reversal of the downward and inward motions of the shields in some parts of the pile. Mercury manometer traverses of tubes in the top far and near corners of the B and D Piles have shown an increase in the graphite elevation at from seven to ten feet into the pile, although the elevation has been reduced in the central region. The changed trend in shield motion may have been caused by other factors, and confirming information will be required before the significance can be properly estimated.

Loss of Thermocouple Coverage - DR Pile

Graphite thermocouples 6G through 20G in DR Pile were observed to be from 50°C to 150°C in error after the startup on July 21. The most probable explanation is that there is water in a thermocouple duct through the biological shield. These thermocouples are the only operable ones in the hottest part of the pile, with the exception of two thermocouples mounted on a VSR thimble. Since the graphite temperature at DR has never exceeded 310°C, this is not now a serious problem, but unless the thermocouples can be returned to service, the problem will become more serious as higher power levels and the gradual reduction in graphite conductivity in the tube bore regions increase the graphite temperature. It might very quickly assume serious proportions if an H-10 type load is put into the DR Pile.

Increased Flow At DR Pile

The DR orifice zoning was revised to the pattern recommended in HW-21418, "Revised Orifice Pattern for DR Pile" - R. B. Hamilton to E. J. Filip, June 20, 1951. This pattern provides for 956, 0.235 inch orifices, and will almost eliminate summer power cutbacks due to outlet water temperatures.

The expected flow increase of 3100 gpm was observed. The pile reached a new record level of 537 MW this month, primarily as a result of this change.

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Ruptured Slugs

There were eight ruptured uranium slugs in the piles this month, one suspected rupture, and four ruptured P-10 target slugs. Pertinent data are tabulated below together with data on 4380F which failed at the end of June and was not reported last month.

Uranium Slugs

Tube # and Pile	4380F	3486A	1786D	2169B	1487DR	1961D	4086B	1963D	1874F
Date	6-29	7-1	7-14	7-18	7-19	7-21	7-27	7-28	7-28
Days in Pile	402	158	148	161	71	269	108	102	277
Tube Power-KW	176	368	270	341	355	272	234	280	289
Slug Power-KW	4.0	7.1	5.7	6.3	7.8	3.2	4.3	6.0	4.8
Local Water Temperature °C	40	54	48	68	58	64	50	51	66

P-10 Slugs

Tube #	0879H	1072H	2466H	3874H
Date	7-12	7-12	7-19	7-28
Days in Pile	301	379	345	317
Power/Tube-KW	315	330	344	332
Local Water Temperature °C	56	56	51	53

100 AREA PLANT ASSISTANCE - PHYSICS

Each of the five piles achieved new maximum power levels during July, but emergency shutdowns in all areas prevented long runs at equilibrium such as occurred during June.

Of the twelve shutdowns during the month that could be attributed to ruptured slugs, unusual physics effects were noted on only one. This was the 300 hour outage at F Pile starting June 29, for the removal of a ruptured slug, during which the process tube was broken, and considerable water leaked into the packing. Although the initial reactivity effect was 145 inhours, the power level was limited during subsequent operation by flux distortion rather than available reactivity. The water was effectively removed by July 21, but continued high water removal rates seem to indicate another leak somewhere in the pile.

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File Technology Division

HW-21802-DEC

A summary of the reactivity status of each of the operating piles for the end of July is given in the table below:

<u>File</u>	<u>B</u>	<u>D</u>	<u>DR</u>	<u>F</u>	<u>H</u>	<u>Totals</u>
Control Rods	85	100	109	133	136	
Xenon	628	651	690	643	701	

"B" Program	87	80	60	83	0	310
Dummy Columns	<u>10</u>	<u>18</u>	<u>11</u>	<u>31</u>	<u>30</u>	
Hot Reactivity	1353	1347	1034	1340	989	
C ₀ Allowance	<u>-287</u>	<u>-376</u>	<u>-212</u>	<u>-429</u>	<u>-237</u>	
Cold, Clean	1066	971	822	911	752	

There were gains observed at B, D, and F as the result of increasing average product concentration in these piles. H Pile gained reactivity from the replacement of depleted H-10 loading by virgin regular metal. There was a loss observed at DR resulting from further large scale pushes of high exposure material.

300 Area Plant Assistance

Warp measurements were made on several rods following their passage through the Medart straightener. As much as 0.027"/foot warp was found among the eight rods measured.

A recent test has shown promise for the use of Dy-Chek as an aid in diagnosing the true quality of the welded closures on bad weld reject slugs, rejected on the basis of microscopic inspection. Dy-Chek makes it possible to separate most of the suspected slugs with welds having only superficial defects from those with serious defects, thus saving more than half the slugs normally rejected as bad welds. A document entitled, "Recommendations for Slug Improvement", HW-21586, was issued.

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PLANT SERVICE WORK

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Cadmium Rolling

Cadmium was rolled to sheets of 0.045, 0.010, 0.005, and 0.002 inch thickness for the Pile Physics Section.

Chromium Plating

Two machined specimens which were fabricated from type 304 E.L.C. stainless steel were bright chromium plated for the Redox Equipment Development Section of the Separations Technology Division.

Graphite Compression Tests

Compression tests on 21 graphite samples were run for Pile Engineering. Data on the effect of various rates of loading were obtained using the stress-strain recorder.

Hood Deflection Tests

Hood-deflection curves on two "pancake" expansion joints were made for E and C. These joints are under consideration for use in Redox vertical jumper lines.

Compression Test of Shielding Material

A proposed shielding material of iron or lead shot embedded in Portland cement is being tested in compression for the Pile Physics group. When available, irradiated samples will be tested to check the effect of pile exposure.

Routine Stainless Steel Corrosion Tests

The corrosion laboratory has conducted 14 standard Huey tests on a routine service basis during the past month. These tests were conducted for the Waste Metal Recovery Plant, the Hot Semi-Works and for the Purchasing Division.

Joining Magnesium to Nichrome

A method of joining Nichrome wire to magnesium was investigated. Soldering was difficult and weak, a shrink fit did not hold well, but a mechanical joint in which a small headless brass bolt was brazed to the Nichrome and secured into a tapped hole in the magnesium was used with satisfactory success.

INVENTIONS

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

the course of their work have been examined for possible inventions or discoveries.

<u>Inventor</u>	<u>HW No.</u>	<u>Title</u>
A. R. Matheson	HW-21046	Recovery of P-10 From Irradiated LI-AL Slugs.

Signed *G. E. McCullough*
 G. E. McCullough
 Division Head

GEM:dd

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July 31, 1951

SEPARATIONS TECHNOLOGY DIVISIONMONTHLY REPORT
JULY, 1951VISITORS AND BUSINESS TRIPS

R. E. Blanco, Oak Ridge National Laboratory, visited this site July 10-11 for discussions on slug dissolution methods.

G. W. Watt, Consultant from the University of Texas, visited Hanford from July 17-26 for research and development consultations on separations processes.

A. C. Jealous and J. E. Conway, Oak Ridge National Laboratory, visited here July 25-27 for Purex Process consultations.

C. M. Slansky visited the Radiation Laboratory on July 5-6 for discussion of separations processes.

J. Dunn attended a pump meeting at the Johnston Pump Co. at Los Angeles, Calif., July 16-18.

ORGANIZATION AND PERSONNEL

Personnel totals are as follows:

	<u>June</u>	<u>July</u>
Administration	2	2
Special Assignment	3	3
Research Section	37	38
Development Section	80	84
Process Section	<u>31</u>	<u>41</u>
Total	153	168

Separations Technology Division

Development Section: Three Tech. Grads. and one Steno-Typist B were added as new hires. One Material Expeditor transferred from E&C Divisions, and one Expeditor C was terminated.

Process Section: One Draftsman and one Lab. Asst. B were added as new hires; two Steno-Typist B's were transferred from the PS & S Divisions; one Chemist transferred from the Research Section; and six Tech. Grads. transferred from Management General. One Tech. Grad was transferred to the "S" Division.

Research Section: One Lab. Asst. D and one Steno-Typist B were added as new hires; one Tech. Grad. was transferred from Management General; one Chemist transferred to the Analytical Division and one Chemist transferred to the Process Section.

200 AREAS PLANT ASSISTANCE

Canyon Buildings

At B Plant 22 runs were processed under Production Test 221-B-10, Process Volume Reduction, at 2.5 g./l. bismuth concentration in extraction, 49% volume in the first decontamination cycle and 56% volume in the second decontamination cycle of the September, 1946 standard. Total Canyon Building waste losses corrected for americium and curium content were 0.13% higher than for twenty preceding runs at 3.5 g./l. bismuth in extraction and 56% volume in both cycles, and was 0.33% higher than eighteen standard control runs. Twelve runs were then processed at 3.5 g./l. bismuth concentration in extraction, 49% volume in the first cycle and 56% volume in the second cycle. Corrected Canyon Building waste loss was no different from that using the same bismuth concentration and 56% volume in both cycles. The average waste loss was 0.20% higher than eighteen standard control runs. Runs are now being processed at B Plant at 2.5 g./l. bismuth in extraction, 42% volume in the first cycle and 49% volume in the second cycle. At T Plant runs continue to be processed at 2.5 g./l. bismuth concentration in extraction and 56% volume in both cycles. The acid used for second cycle by-product cake removal was standardized for volumes 70% and below at the standard amount used for a 70% volume run. This action was taken after frequently plugged sampler and jet assemblies in the 18-4 Tank at both areas indicated that the reduced volume cake solutions were receiving insufficient agitation.

Production Test 221-T-15 (Control of Radio-iodine in Canyon Building Exhaust Ventilation Air) has been started at T Plant. Under the provisions of the test, mercuric ion is added to the metal solution to complex the radio-iodine present and prevent its evolution. Mercuric nitrate was added to Run T-11-07-DR-4 in order to observe any effect on waste loss or decontamination. The salt was added to the batch make-up tank to a concentration equivalent to 10^{-3} M in the dissolver after dilution water addition. No effect on waste loss or decontamination was observed when mercury was added.

Insufficient results are available from samples taken since the introduction of mercury to indicate any trend in iodine evolution. Two runs sampled before and after the nitrite pre-treatment show no evidence of iodine evolution during this step.

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Second cycle waste and cell drainage (5-6) have been combined for storage at both B and T Plants. Cell drainage was diverted to the second cycle cascade system starting July 7, 1951, at B Plant and June 25, 1951, at T Plant. The cascade systems are now sampled twice monthly to determine the amount of activity going to the ground.

Three master recycle runs were processed at B Plant during July. One of the special runs was made up from 234-5 Building flushes and acids. This run was acidified, oxidized in the D-1 Tank and processed normally at 56% volume. The other two special runs were made up from 231 Building recycle and 234-5 Building flushes and acids. These runs were processed in the same way as the first, but without lanthanum addition in D Cell. No operating troubles were observed during these runs.

Twenty-two cans of SN-3 material, concentrated supernatant, were received from the 234-5 Building during the month to be processed as regular 231 Building recycle under Production Test 234-1. No difficulties were encountered in processing the material. Losses in the seventeen runs in which SN-3 solutions were added to 231 Building recycle did not differ from losses observed in runs of 231 Building recycle alone.

Approximately 45 units of B-1-S (nitric acid pickling solution) were added with regular 231 Building recycle runs with no process difficulties and no appreciable difference in product loss.

Processing of 571 MWD/Ton metal has been started at both B and T Plants. No adverse effects have been noted in the Concentration Buildings other than somewhat increased gamma activity of the F-10 production solution.

Isolation Building

The N-1 filter block in Cell 2 was replaced, completing the program of changing filter blocks. Eighteen 60% nitric acid leaches of the block followed the filter aid removal, after which two water leaches were made to wash out the acid. Approximately 39% of a standard run was recovered by this procedure. It is estimated that about 25% of a standard run that could ultimately be recovered by 60% nitric acid leaches remains in the old block. This block will be held for subsequent Pu recovery in the future.

The sulfate ion concentration was lowered from 0.25 M to 0.15 M in the second cycle precipitation. There has been no observed change in the settling of the precipitate with this lowered ion concentration.

Five runs with material returned from P-11 studies were processed without difficulty. It was necessary to add from 1.0 to 1.5 Kg of 0.1 M Fe solution to each recycle to facilitate the heat kill of the peroxide.

Six additional runs were processed under Production Test 234-3 by the method of filtering the second peroxide slurry on a Filtros E block mounted in a lucite "bucket". A total of nine runs have been processed in this manner.

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Waste Evaporator

The waste evaporator sludge was removed by using several different flushes. Two flushes of fresh feed evaporated to a 50% reduction had practically no effect on the removal of the sludge in the bottom. Two water flushes of approximately 4000 gal. with constant steam sparging were tried with little or no effect upon the removal of the sludge. A 4000-gallon flush of citric acid at ~0.5% concentration cleansed the system quite thoroughly. During the time the acid was being held at 80°C. in the evaporator, the air sparger was connected to a portable air compressor to give maximum sparging action. This method will be employed to cleanse the evaporator whenever needed in the future. The evaporation rate for twenty-three batches varied between 542 and 708 gallons per hour at volume reductions of 70-82%.

Purification and Fabrication Building Plant Assistance

A satisfactory casting has been made from material processed in accordance with Production Test 234-3 using platinum-rhodium boats as containers in the dry-chemistry operation. A very hard and lumpy plutonium fluoride results when the 231 Building peroxide cake is washed with water solutions. Plutonium fluoride prepared from peroxide cakes which have been alcohol washed in the 231 Building has contained no hard lumps and has been removed from the boats by merely tipping them upside down. Production yields for the powdered plutonium fluoride have been 90 and 98%. Yields for two reductions made with the lumpy plutonium fluoride which had not been powdered prior to charging the reduction bomb were 70 and 96.7%. In both of these latter cases the surface of the button produced was very rough and contained slag inclusions. On the basis of the observations made to date, a recommendation has been made to the "S" Division that an alcohol wash be used for P-2 cakes to be delivered to the 234 Building for hydrofluorination.

The six supernatant evaporations in the presence of hydrogen peroxide have been made in accordance with Production Test 234-1, Supplement A. The most complete removal of iodine from the supernatant solutions was obtained when 2.4 liters of hydrogen peroxide were added to eight normal supernatant batches prior to evaporation. This quantity of hydrogen peroxide represents 105% of the quantity of peroxide required for the quantitative removal of the iodine and oxalic acid present. Procedures have been established for processing concentrated supernatant solutions now stored in the recovery storage vault with the supernatant solutions from current purification runs. These procedures will be written subsequently as Supplement B of Production Test 234-1.

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It was originally planned to process cerous oxalate through RM Task II to produce a fluoride which would then be used as a stand-in material for Task III tests. Task III equipment, however, was ready for stand-in runs prior to completion of the installation of the Task II equipment. It became necessary, then, to provide another stand-in material for some Task III dry runs. On the basis of trials, lead iodide was finally chosen as the stand-in material. The yield of lead was 91%.

Detailed write-ups of the work listed in the RM Start-up Committee Plans assigned as a Technical Divisions' responsibility have been started. The work was approximately 70% complete at month's end. First rough drafts of RM Line run books are being prepared. Preliminary work necessary for the preparation of stand-in pieces for shakedown runs in the coating hoods has been completed and work orders have been issued for their fabrication.

REDOX AND METAL WASTE RECOVERY DEVELOPMENT

Technical Manuals

The Redox Technical Manual was issued, as Document No. HW-18700.

On July 25 the Uranium Recovery Technical Manual was about 50% complete. Limited rough draft editions of the following two chapters were issued to the "S" Division for use prior to completion of the entire manual:

- VIII. Calcination (Document HW-21462)
- IX. Acid Recovery (Document HW-21463).

Process Studies

The pilot-plant work on the caustic dissolution of U-Al alloy slugs conducted by the Chemical Development Section in 1950 (reported in Documents HW-18135 and HW-18220) was discussed with R. E. Blanco of O.R.N.L. in a meeting at Hanford Works on July 10. The visitor from Oak Ridge was interested in this work in connection with Rala process development.

The following memorandum report was issued during July:

- HW-21750, "Control of the Plutonium Concentration Step by Temperature - Effect of 2BP or 3BP HNO₃ Content Variation," by R. B. Lemon, dated July 25, 1951.

Redox Solvent-Extraction Studies

The Demonstration Unit and auxiliaries were operated during the month to train "S" Division personnel for Redox Plant operation.

TBP Solvent-Extraction Studies

During the month, 18 solvent-extraction studies were carried out in 5-in. and 8-in. diameter pulse columns under O.R.N.L. #1 Purex Flowsheet conditions for the 1A, 1B, 2A, and 2B Columns. These studies were carried out with the dual objective (a) of training "S" Division personnel in the operation of the TBP

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process pulse columns and (b) of completing the experimental program for the development of Purex Plant pulse column specifications, as requested by Oak Ridge National Laboratories. In addition to the above 18 solvent-extraction studies, the 5-in., 8-in., and 16-in. diameter pulse columns were operated (using TBP in hydrocarbon diluent as the solvent) solely for training "S" Division personnel.

Pulse column design specifications for a Purex Plant capable of processing 2.5 short tons of irradiated uranium per day were developed on the basis of the "cold" plant-scale studies carried out in the 321 Building. The specifications, which are being reported separately in Document HW-21624, were discussed with A. C. Jealous and J. E. Conway of O.R.N.L. in a meeting at Hanford Works on July 25-27.

Salient results of the Purex pulse column experimental studies conducted during the month are summarized below:

In 5-in. diameter 2A Column studies under O.R.N.L. #1 Purex Flowsheet conditions, with uranium used as a stand-in for plutonium, H.T.U.'s ranging from 1.8 to 2.3 ft. (uranium losses from 0.2 to 0.7%) were observed at volume velocities of 1050 to 3030 gal./((hr.)(sq.ft.)), sum of both phases. These studies were made at a pulse frequency of 70 cycles/minute and 1-in. amplitude, using stainless steel plates with 1/8-in. holes, 23% free area, and 2.0-in. plate spacing. The "packed" height was 12.2 ft.

In 8-in. diameter 2B Column studies under O.R.N.L. #1 Purex Flowsheet conditions, with uranium used as a stand-in for plutonium, H.T.U.'s ranged from 2.4 to 3.1 ft. (uranium losses from 3 to 6%) at volume velocities of 500 to 2260 gal./((hr.)(sq.ft.)), sum of both phases. These studies were made at a pulse frequency of 70 cycles/min. and 0.5-in. amplitude, using stainless steel plates with 1/8-in. holes, 23% free area, and 2.0-in. plate spacing. The "packed" height was 8.54 ft. These results were closely confirmed by studies under otherwise similar conditions in a 5-in. diameter column with a 12.2-ft. "packed" height, in which the H.T.U.'s were 2.5 and 2.3 ft. (uranium losses 0.6 and 0.7%), respectively, at 730 and 1400 gal./((hr.)(sq.ft.)), sum of both phases.

321 Building Construction and Maintenance

A specific gravity controller was installed in the steam supply line to the coil in the IAW concentrator to make the equipment conform more closely to that in the Redox Plant. The addition of a check valve in the vent line of the RCU pump has prevented air-binding of the pump during column operation. A constant water seal of the overflow from the Scale-Up Concentrator (AQ-8 Tank) is now assured by the addition of a water line and float-operated valve to the overflow seal pot.

321 Building Operations

Training runs for and by "S" Division personnel were continued in the Demonstration Unit equipment during the entire period. Over-all performance of the equipment was satisfactory. Use of the centrifuge bowl containing the baffle has resulted in increased clarity of the IAF after Redox head-end treatment, but difficulty is still being experienced in maintaining a constant feed flow to the centrifuge.

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Scheduled Purex flowsheet solvent-extraction runs in the Scale-Up equipment were completed on July 17 after five days of operation using the Purex second plutonium cycle flowsheet.

321 Building Operations Training

The fourth cycle of "S" Division trainees (25 operators and 14 monthly roll trainees) completed their training on July 8, 1951. The training program will terminate August 5 when the present group consisting of 24 operators and 4 monthly roll employees complete their training.

Redox Plant Assistance

The following formal documents were issued during the report period:

HW-21556, "Redox Plant - 'Cold' Uranium Head-End Treatment Run Plan - Comment Issue," issued July 16, 1951, by R. E. Smith to File.

HW-21630, "Redox Process - Revised Head-End Process Flow Diagram," issued July 20, 1951, by R. E. Smith to File,

HW-21768, "Redox Program Committee Minutes," issued July 23, 1951, by F. W. Woodfield to File.

Work on the Redox "How Book" was continued. Completed rough draft portions of the procedures are being revised in accordance with suggestions by the "S" Division. Revisions are 40% complete with an estimated completion date of August 8, 1951.

Discussions were held between "S" Division and Redox Plant Assistance personnel to go over the comment-issue run plans for "cold" Metal Feed Preparation, and the First "Cold" Multicycle Run. Many minor details were discussed and appropriate corrections or changes were agreed on at these meetings.

Accountability procedures for S and F materials in the Redox Plant are currently being discussed by representatives of the "S" Division, the Hanford Works Accountability Representative, and the Redox Plant Assistance Group.

Hot Semi-Works

Construction of the Hot Semi-Works is 15% complete. The forming and placement of steel have been completed for the ceiling slabs for A and C Cells of the Hot Process Building. These will be poured separately, the first being scheduled for the week of July 30. The floor slabs in the Office and Change House and the base for TK-70 have been poured. Steel superstructure for the Solvent Building is 50% complete and for the Gas Preparation Building is 90% complete.

Equipment Development

Hot Semi-Works Centrifuge Feed Pump. Study drawings for this pump have been completed and initial cost estimates have been made. Exclusive of the electric motor and boron carbide sleeve bearing which are on hand, the cost of fabricating the pump assembly in the 300 A Instrument Shops is \$2450.00. This does

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not include the cost of a standard Duraseal (carbon to stellite seal faces) which is estimated to cost \$300. Drafting of shop drawings for the pump assembly is estimated to be 5% completed.

Pump and Agitator Acceptance - Redox. All 17 of the "hot service" pumps and all 22 of the agitators have been put through the mock-up shop and accepted. All of the agitators have been installed in the 202-S Bldg. and operated in their respective vessels. Operation has been smooth and quiet with satisfactory seal leakage rates (less than 15 cc/hr.). The program designed to relieve the clearance between the journal and boron carbide bushing in the bowls of the "hot service" pumps has been completed. All pump bowls have been returned from Peerless with the clearance relieved from 1.5 mils to 2.5 mils (diametrical). All but two of the pumps have been installed and operated in 202-S Bldg. Operation has been satisfactory. Seal leakage has been within specifications (less than 15 cc/hr.). Operation of both pumps and agitators is sufficiently vibration-free that a coin may be balanced on edge on the flat horizontal surfaces.

Instrument Acceptance - Redox. Installation of instruments in 202-S Bldg. is 99% complete, and piping is 95% complete. Vessel calibration in E Cell and the silo area has been started by the "S" Division.

Materials Testing. An Agile flame spray gun has been received from American Agile Corporation for continued development of techniques for applying flame sprayed plastic coatings. The Agile gun has the advantage over the Schori and I.C.E. (Industrial Coatings Equipment Co.) gun of positive pressure feed of the plastic powder to the gun nozzle.

Homalite CR-39, Homalite Corp., a sheet material similar in appearance to Lucite, resisted 10% HNO₃, 50% HNO₃, 50% NaOH, hexone, and RAX (12-1/2% TBP) for 9 days.

Process Chemistry

The batch counter-current extractor is tentatively scheduled to be completed (exclusive of auxiliary equipment) by August 3, 1951. However, an additional week may be required to finish detailed work. The "Mini" mixer-settler unit has been finished and delivered to 222-S Building. Work is scheduled to begin within 2 weeks to put it in operation. The dissolver and head-end treatment equipment design for the 222-S cubicle is proceeding, with some of the work orders for the fabrication of lines and vessels to be written during the coming week.

A cask for procuring 500 ml. samples from the Redox Plant is being designed.

Redox Assistance

Plant Assistance engineers have requested additional physical data concerning the head-end treatment, with particular respect to MnO₂ cake volume, density, and dissolution. A brief laboratory program has been outlined and work has been started.

Separations Technology Division

SEPARATIONS PROCESS RESEARCH**DECLASSIFIED**Decontamination of Second Cycle Wastes

Preliminary studies on improving the decontamination of second cycle wastes currently obtained through neutralization and settling have led to the following conclusions:

1. Data previously reported by G. R. Leader and B. F. Faris (3-3220), showing decreasing decontamination with increasing pH of the waste prior to settling have been confirmed.
2. Precipitation of calcium oxalate in the waste by the addition of calcium nitrate and oxalic acid prior to neutralization increased the over-all decontamination obtained. Ruthenium appears to be the principal activity not carried under these conditions.
3. Digestion of the neutralized waste at elevated temperature increased the over-all decontamination.
4. Addition of pre-formed MnO_2 to the neutralized waste improved ruthenium decontamination by a factor of about 10.

Iodine in Dissolver Solution

Attempts to improve the sparging of radioactive iodine from dissolver solutions at concentrations expected in these solutions have not been successful in contradiction to previously reported results of macro-scale cold runs. In fact, nitrite, at elevated temperature and in the presence of metallic uranium, appreciably decreased the rate of iodine evolution. Addition of sulfite to dissolver solution produced a temporary increase in the rate of iodine evolution. The sulfite was rapidly decomposed or removed under the conditions employed. The effects of alternate addition of sulfite and sparging are under investigation.

Redox Head-End Studies

Four final Junior Cave runs have been performed using 30 ml. Hanford dissolver solution to firm up (a) the effect of oxidizing the reducing impurity present in dissolver solution with ceric ion prior to the addition of permanganate, (b) the advisability of using pre-formed manganese dioxide as a scavenger for zirconium and niobium, (c) the feasibility of replacing permanganate by ceric ion during the ruthenium volatilization, and (d) the scavenging efficiencies of manganese dioxide when formed by the destruction of permanganate with either chromic ion or manganous ion. The results of these experiments indicate that: (1) the use of ceric ion oxidizes the reducing impurity present in dissolver solution, however somewhat poorer ruthenium decontamination may occur, possibly due to an initial lower ruthenium volatilization or a larger induction period brought about by the cerium; (2) the scavenging efficiency of pre-formed manganese dioxide is about 10-fold less efficient than co-formed manganese dioxide when freshly prepared manganese dioxide is added to the dissolver solution immediately after the ruthenium volatilization; (3) ceric ion alone is not recommended as a simple replacement for permanganate as an induction period

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of about one hour is observed before ruthenium volatilization and efficiency of ruthenium volatilization is quite poor; (4) the destruction of permanganate by either chromic ion or manganous ion produces manganese dioxide slurries of equal scavenging efficiencies for zirconium and niobium.

Mixed Plutonium(III) and Plutonium(IV) Oxalate Precipitations

The replacement of hydriodic acid currently used in the 234-5 operations by less corrosive reducing agents such as hydroxylamine sulfate, ammonium sulfite (or sulfur dioxide gas), or hydrogen peroxide leads to complete reduction of plutonium(VI) to plutonium(IV) but only to partial reduction of plutonium(IV) to plutonium(III) when Bismuth Phosphate AT material is used as the source of plutonium. Since the plutonium(III) oxalate is currently used in 234-5 operations and it is known that the plutonium(IV) oxalate is suitable for metal production, precipitations of mixed plutonium(III) and plutonium(IV) oxalates have been carried out using reducing agents other than hydriodic acid. The results of these experiments are summarized as follows:

1. An AT solution diluted to 62 g./l. Pu and 1.4 M HNO_3 was reduced with hydrogen peroxide. Some solid plutonium peroxide precipitated which dissolved upon standing 20 minutes. The addition of oxalic acid precipitated mainly plutonium(IV) oxalate which settled quite well, giving a bulk density of 0.2 g./ml. Pu and a solubility of 0.04 g./l. Pu (ca. 0.1% loss).
2. A similar experiment using ammonium sulfite produced mainly plutonium(III) oxalate which settled rapidly, had a settled bulk density of 0.2 g./ml. Pu and had a solubility of 0.014 g./l. Pu (ca. 0.06% loss).
3. Reduction with hydroxylamine sulfate followed by the addition of oxalic acid gave an extremely bulky oxalate of very poor settling characteristics.
4. Items (1) and (2) above merit further investigation in that they offer a means of replacing hydriodic acid in the 234-5 operations.

Isolation of Plutonium from F-10-P Solutions

The replacement of 231 facilities by a solvent extraction process using hexone as the extractant has been investigated briefly. An 0.085% plutonium loss was observed using a batch counter-current extraction system employing four extraction stages and equal volumes of organic and aqueous phases and F-10-P solutions containing 4.0 g/l Pu, 0.5 M HNO_3 , 0.2 M $\text{La}(\text{NO}_3)_3$, 1.3 M $\text{Al}(\text{NO}_3)_3$, and 1.5 M KNO_3 as the feed. Two additional batch counter-current runs were performed employing a three-fold volume reduction in the extraction section and a four-fold volume reduction in the stripping section. In both runs the feed composition was 3.3 g./l. Pu, 1.5 M $\text{Al}(\text{NO}_3)_3$, 0.5 M HNO_3 , 0.16 M $\text{La}(\text{NO}_3)_3$, and 1.5 M KNO_3 . The first run employed four extraction stages and three stripping stages while the second run employed six extraction stages and three stripping stages. The strip solutions were distilled water and 0.2 M H_2SO_4 , respectively. The plutonium losses in the extraction sections were 0.78% and 1.5%, respectively, while the losses in the stripping sections were 1.28% and 0.25%, respectively.

DECLASSIFIEDRecovery of Plutonium from Slag and Crucible

The recovery of plutonium from slag and crucible solution by batch counter-current solvent extraction systems using 30% TBP in AMSCO 125-90W has been studied using plutonium solutions prepared from laboratory-size reduction crucibles and slag (7-gram charge) and employing the Los Alamos dissolution technique. Variables studied were feed:solvent:scrub:strip volume ratios, the number of stages required and the composition of the strip solution. Using the results of these preliminary experiments as a guide, the recovery of plutonium from a plant-size reduction crucible and slag was tested employing a batch counter-current extraction system having six extraction stages and one scrub stage. The solvent composition was 30% TBP-AMSCO 125-90W and the feed:solvent:scrub volume ratios were 10:1:1. The plutonium loss over the extraction and scrub stages was 0.45%. The stripping system consisted of four batch counter-current stages, solvent:scrub volume ratio of 5:1 and a strip composition of 0.4 M $(\text{NH}_4)_2\text{SO}_4$ and 0.01 M H_2SO_4 . The plutonium loss in the stripping section was 0.49%, resulting in a total plutonium recovery of ca. 99% (excluding the plutonium loss in the silica). Although the purity data of the final product solution are not now available, previous spectroscopic purity data on samples of plutonium oxalate and plutonium peroxide precipitates prepared from strip solutions obtained from small-scale reduction crucibles indicate that the strip solution purity is more than adequate for 234-5 operations.

Tributyl Phosphate Extraction System for Recovery and Isolation Purposes

Since recovery of slag and crucible solution by TBP extraction is feasible and preliminary data indicate that isolation of plutonium from Bidmuth Phosphate F-10-P solutions and Redox IIBP solutions is possible, a study is being made of possible means to accomplish all of these objectives in one solvent extraction system. Several possible flowsheets for this purpose have been proposed and have been issued as Documents EW-21464 and HW-21773. The most attractive of these flowsheets, and the one on which greatest effort is being placed in laboratory studies, involves an extraction column with one scrub stage (water as the scrub stream), two extraction stages for F-10-P and/or IIBP and four more extraction stages for the remaining plutonium in these streams combined with slag and crucible solution. It is believed that losses of 0.01% or less are possible in this system. Also, it should be possible to feed all other recycle streams from the 234-5 Building operations into this solvent extraction facility.

Single Drop Extraction

The extraction of UNH from a 12.5% TBP-AMSCO 125-90W solution containing 48.5 g./l. UNH by water drops during the period of drop formation has been investigated. The extraction occurring during the free fall time was estimated from previous studies of free fall extraction and the extraction during formation obtained by subtracting the free fall extraction from the total extraction. Drop diameters of 0.372 and 0.284 cm were used for which the times of formation were 2.75 and 1.04 sec., respectively. For both sizes of drops the extraction obtained during drop formation was equivalent to that obtained during a drop fall of 18 cm.

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Solvent Research

A number of organic phosphorous compounds have been synthesized and their extraction of uranyl nitrate is being studied. Among these, it has been found that the alkyl phosphonates exhibit uranium extraction behavior comparable to TBP. Betachloroethyl orthophosphate extracts uranium, but the complex separates as a third phase.

Among other types of compounds which have been synthesized and studied, 2,2-diethyl trimethylene oxide shows good uranium extractability while the 2,2-dibutyl trimethylene oxide does not extract uranium.

Pulse Column Research

The valve actuated pulse column was operated as a "cold" Purex IA Column. Uranium losses were appreciably lower at 65°C. than at 25°C. which shows the beneficial effect of temperature as previously demonstrated for the Metal Recovery RA and RC Columns and the Purex IC Column.

The design, procurement, and fabrication of the glove box pulse column and the multicurie pulse column to be installed in the 222-S Building are progressing satisfactorily. Completion dates are tentatively October 15 and January 1 for the glove box and multicurie columns, respectively.

The height of these columns has been increased to 12 feet of packed length in order to be able to simulate the full length Redox columns.

234-5 PROCESS DEVELOPMENT

Redox Coupling

Plutonium trifluoride reduction studies, made to evaluate precipitated plutonium trifluoride as a possible Redox coupling agent and to determine the feasibility of shortening the hydrofluorination cycle in Building 234, have indicated that plutonium trifluoride prepared by direct hydrofluorination of plutonium(III) oxalate and dried for one hour at 250 to 300°C. does not give a satisfactory metal yield upon reduction (average 78.9 and highest 92.7 per cent for 11 runs). It appears feasible to obtain on a laboratory-scale metal yields of 88% or greater from PuF_3 dried at 250 - 300°C., and it is possible that drying at 500°C. might improve the process.

Plutonium Peroxide Processing

A subject summary report, HW-21691, "Laboratory Evaluation of One and Two-Cycle Peroxide Processing of F-10-P Solutions on the Basis of Metal Purities Obtained," dated July 20, 1961, was issued. A formal report covering all of the work done on plutonium peroxide processing is being issued.

As assistance to Production Test 234-3 (Direct Hydrofluorination of Plutonium Peroxide), two Isolation Process batches of filtered second cycle peroxide cake were washed with methanol in the laboratory prior to transfer to Building 234 for hydrofluorination. The use of two 500 ml. methanol washes on the filter resulted in (a) the extraction of approximately 690 ml. of water from each cake

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as determined by specific gravity and volume measurements of the filtrate, heat killed to decompose hydrogen peroxide, (b) the loss of 0.01 to 0.02% of plutonium to the filtrate, and (c) an increase in bulk volume of the cakes by about 25 per cent.

By raising the furnace temperature directly to 190°C. in the present oxalate direct-hydrofluorination drying cycle, over an hour can be cut from the dry chemistry step, and adding 30 minutes of the saved time to the present 600°C. hydrofluorination period might be expected to reduce the number of refluorinations from the present (May) 15% to less than 10%.

Oxalate Process

Laboratory studies to evaluate a 50% reduction in the amount of hydriodic acid used in each oxalate strike at the 234 Building appear quite promising with lanthanum being the only impurity present in the laboratory plutonium button in greater than desirable amounts (2000 ppm).

Reduction Process Using Sulfur as a "Booster"

A summary report is being written to record the work done on reduction of plutonium tetrafluoride in charges containing calcium and sulfur. Dissolution in 8 molar nitric acid of slag and crucible fragments from four small-scale reductions using sulfur instead of iodine took place in the normal time (about four hours). Dissolution of an aged sample of uranium slag containing 0.12 moles of CaS per mole of CaF_2 dissolved readily in boiling 8 molar nitric acid with the formation of hydrogen sulfide and some free sulfur which agglomerated on the surface.

Oxalate Process Waste Treatment

A summary report, HW-21616, "Treatment of 234 Building Concentrated Oxalate Waste Solutions for Recycle," dated July 6, 1951, was issued. This describes the result of laboratory studies based upon the blending of concentrated (SN-3) wastes with current (SN-1) wastes followed by treatment with hydrogen peroxide and subsequent volume reduction by evaporation.

234-5 Quality Control

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STACK GAS DISPOSAL

Silver Reactor Performance

It has been established that the lowered efficiency (90 to 98%) of three of the plant silver reactors was caused by the silver nitrate melting and running off the packing in the reactors. An experimental reactor, containing an 8-inch depth of 1/4-inch Berl saddles coated with silver nitrate, was maintained in the temperature range of 419 to 478°F. for 11 days. After this treatment the top two inches of packing had only 1% of the original silver content and an I¹³¹ removal efficiency of 93% compared to 99.9% for the original material. The top two inches of another experimental packing which had been held in the temperature range of 417 to 457°F. for 10 days but rose to 580°F. for a period of 17 hours due to an emergency steam shutdown was found to have an I¹³¹ removal efficiency of only 52%. A temperature of 580°F. has been reached in plant reactors during accidental overheating.

The set temperature of the platinum thermohm control point has been reduced from 475 to 375°F. in all the plant reactors in an attempt to prevent future overheating of the silver nitrate coated packing. The measured efficiency of the 4-5L B Plant reactor at this temperature setting was 99.9%. A study will be made to determine whether this temperature can be lowered further without impairing reactor efficiency or dropping the temperature of the Fiberglas filter below the dew point of the gas stream.

The 4-5L silver reactor at T Plant was replaced on July 13, 1951. Monitoring of the dissolver vent gases downstream from the reactor demonstrated that 0.01 curie of I¹³¹ was discharged to the stack during an entire metal dissolution (an indicated efficiency of greater than 99.99%). Equipment has been designed and fabricated to permit spraying silver nitrate solution over the Berl saddle packing in the 3-5R B Plant reactor. Tests will be made to evaluate this technique of restoring the efficiency of an overheated reactor.

Plant Filter Installations

The following steps were taken in the preparation of filters for various plant installations:

1. Fiberglas media were packed in the six filters to be used for the decontamination of the Redox dissolver off-gas and process vessel vent lines.
2. The vessel vent filter for the 276-S Building was packed.
3. A composite activated carbon and Fiberglas filter was packed and tested for flow resistance for installation in Hood No. 8 of the 234-5 Building.

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

R. B. Richards

R. B. Richards

Separations Technology Division

7/31/51

ANALYTICAL DIVISION

JULY 1951

August 10, 1951

VISITORS AND BUSINESS TRIPS

O. J. Sweeting of the University of Colorado, Boulder, spent July 18-19 discussing alpha counting instruments.

A. F. Wells of the General Electric Company, Schenectady, spent July 30-31 installing a new spectrometer.

No business trips were made by Analytical Division personnel during July.

ORGANIZATION AND PERSONNEL

Personnel totals in the subdivisions are summarized as follows:

	<u>June 30</u>	<u>July 31</u>
Analytical Service Section	325	339
Analytical Research Section	34	36
Administrative	<u>3</u>	<u>3</u>
Division Totals	362	378

Fifty-three Technical Graduates assigned to the Analytical Division participated in a training school program conducted by the Technical Recruiting Offices while awaiting security clearances. Seven received Q clearances shortly before the end of the program and were given area laboratory assignments. Following termination of the program on July 27 forty-one men with formal P clearances were assigned to an unclassified laboratory training program in the 3706 Building; two were assigned to the 100-B Area Laboratory; three remained in 700 Area on straight P clearances. Proper security measures are being taken to safeguard classified information while the new chemists are in training in the 3706 Building.

A number of supervisory changes have been made in the division. R. B. Abrams and E. P. Galbraith have been assigned as Senior Supervisors and G. L. Hanson

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and M. J. Rasmussen as Shift Supervisors in the 222-S Building Laboratory. Effective August 1, J. D. McIntosh and D. H. Elderkin were assigned as Senior Supervisors of the 222-T and -B Buildings, respectively, and E. A. Paulsen became Area Supervisor of all 100 Area Control work (Water Control, P-10 and P-13 Projects). Effective the same date, D. C. Bixby, L. F. Wirfs and C. E. Mulford were assigned as Shift Supervisors, 200 Area Control.

ANALYTICAL SERVICE

Work Volume Statistics

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

	<u>June</u>		<u>July</u>	
	<u>Samples</u>	<u>Determinations</u>	<u>Samples</u>	<u>Determinations</u>
Process Control - 200	4,702	10,824	3,654	8,892
Process Control - 300	685	1,337	480	892
Water Control - 100, 700	791	3,282	1,007	3,650
Research & Dev. Programs	2,133	4,297	1,921	3,818
P-10 Control	450	4,500	260	2,576
Process Reagents	2,081	2,298	1,306	1,722
Essential Materials	2,352	2,871	1,481	2,017
Special Samples	843	7,950	613	6,780
Totals	13,407	37,359	10,722	30,347

The decrease in the 200 and 300 Process Control, the Process Reagent and Essential Material analytical work load was correlated with decreased production schedules. The mass spectrometer used for P-10 Control was dismantled and moved to a new laboratory facility, thereby, eliminating its productivity for a ten-day period and accounting for the drop in determinations.

100 Areas Control

The special two-week test on the Naval Reactor (P-13) Project described in last month's report was not terminated as scheduled but is being continued an additional five weeks. The marked increase in sampling necessitated the scheduling of two chemists on a six-day week in addition to two-shift coverage. Analyses are proceeding in a satisfactory manner with the exception of frequent shut downs due to an insufficient supply of liquid nitrogen. A second gas analyzer has been fabricated and installed and will be used on a standby or emergency basis. Daily analyses of P-13 water for hydrogen peroxide were started this month in order to furnish data on possible dissociation of the water which is being recirculated in the reactor unit.

A modified colorimetric method for aluminum analysis which employs Alizarin Red S as the indicator has been given to the Water Group of the Power Department for use in their laboratories. They are interested in knowing the residual

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aluminum content of Columbia River water since it is proposed to use alum as a flocculant in place of ferri-floc in one of the 100 Areas. Preliminary studies of the method show it to give the required accuracy and precision.

The mass spectrometer employed for P-10 analyses was out of service for a ten-day period while being moved to a new laboratory and reassembled. A special metal line production test was run during the second and third weeks of July in order to test production rates and over all operational quality. Samples submitted during this period were analyzed on schedule without any undue strain of laboratory facilities.

An all metal vacuum manifold has been fabricated and tested for use on the mass spectrometer. This manifold presents two main advantages over the present all glass manifold; the elimination of all stopcocks which is the major source of vacuum leaks and a decrease in potential glass breakage with attendant possible injury and spread of tritium contamination.

The new G. E. Mass spectrometer has been shipped and upon arrival will be installed in the analytical laboratory in 108-B Building. The addition of this instrument to existing facilities should eliminate the backlog of samples which has been obtained with only one mass spectrometer in operation.

The P-10 Control Laboratory will revert to a five-day week, three-shift basis, effective August 1, 1951, consistent with the return of the P-10 Operations Group to a five-day per week schedule at this time.

200 Areas Control

The completion of the Acid Dispensing System for the 222-B Building Laboratory (June report) necessitated the installation of a safety shower adjacent to the head tanks. The unloading platform, acid storage space and safety shower formerly used are located on the opposite side of the building from the new acid outlet.

Results of the laboratory investigation of possible discrepancies in AT vs. shipping container (SC) plutonium content were reported in HW-21821. It was concluded that plutonium transfers from AT to SC were quantitative, even though occasional solids were present, and that the AT as a point of sampling, was satisfactory. Obviated then, is this point as a major source of the Hanford-Los Alamos accountability differences noted in the past, assuming that routine sampling is done with the same care exercised in taking the test samples.

The results of the analyses of a test sample of BiONO_3 , analyzed in the 222-B and -T Laboratories, showed excellent agreement throughout. A study was initiated on June 5 to evaluate the Falling Drop Method for determining specific gravity. Results showed this method to be slightly less precise ($\pm 0.24\%$) than the Pycnometer Method ($\pm 0.036\%$), but either to be satisfactory for production control.

Analytical service is being provided the 200 Area Plant Assistance Group in their investigation of the possibility that the efficiency of washing of the second peroxide precipitate at the 231 Building is directly connected with high

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lanthanum concentrations encountered in the 234-5 Building Process. Twenty-five final solution samples (AT) will be analyzed spectrographically for lanthanum and the results evaluated in terms of washing efficiency for individual runs.

Following an extended shut-down for equipment changes the P-11 Project resumed operations during the month. Analytical service requirements for this resumption to date have been: (1) thirteen process samples for Pu, Sp. G., total NO_3^- , H_2O , H^+ and Fe analysis; (2) five AT samples for lithium analysis.

Production Test #234-3, which involves the direct hydrofluorination of plutonium peroxide, has required the following analytical service: six DC-1 samples (plutonium peroxide slurry) and three DC-3 samples (plutonium fluoride) were submitted for complete spectrographic analysis. The DC-1 samples were taken to evaluate the purity of the material prior to the hydrofluorination of the peroxide and the DC-3 samples to evaluate the use of Inconel boats as a replacement for platinum-rhodium boats now used.

Effective July 19, final solution (AT) retain samples will be taken by the S Division from material destined for off-site shipment, from abnormal runs and from a run representative of each metal push (instead of each run). Sampling of the button sample at the 234-5 Building was reduced to every fifth button on June 29. Prior to this time every third button has been sampled. Based on the current production schedule, it is estimated that these reductions will result in a saving of 85 man-hours/month of analytical time.

The aluminum electrode holders in the enclosed high voltage spark stand used with the 234-5 Building spectrograph were replaced with stainless steel. This change was necessary due to the formation of an oxide film on the aluminum electrode holders. This condition resulted in a gradual buildup of aluminum contamination and also caused poor and varied electrical conductance resulting in unreliable excitation, each affecting the accuracy of spectrographic analyses.

300 Area Control and Special Services

Certain essential materials for the Redox plant recently submitted have been found to be out of specifications. The oxidizing impurity in hexone was abnormally high, consequently, a review of the specification resulted in relaxing the oxidizing impurity from 0.001 N to 0.01 N. Similarly the assay of aluminum nitrate solution was changed from 74-76% to 72% by weight minimum. The revisions of the specifications of these essential materials are in process and will be issued through classified files in the near future. Rapid qualitative tests are being used to approve unloading of cars and trucks containing several Redox essential materials, since waiting upon the lengthy specification analyses would cause considerable demurrage charges. The laboratory has been requested by the S Division to report refractive index for acceptance of hexone and specific gravity and free nitric acid for acceptance of aluminum nitrate solutions. Such analyses are reported immediately to the field by phone.

The possibility of further application of the X-ray method for the determination of UNE in aqueous and organic solutions submitted by the research branch of

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Separations Technology was investigated. At the present time 50 ml. of sample is required although the sample may be used for other determinations after the X-ray reading is taken. Above 100 g. UNEH/1, a dilution is made permitting use of less than 50 ml. of sample. Calibration charts are available for aqueous solutions as well as for solutions of hexone and TBP in various diluents being considered for the metal recovery process. Corrections can be made accurately for HNO_3 , Cr_2O_7 and other constituents. Results obtained by the X-ray and Chromous Titration Method on 16 samples from the research group showed an average difference of only $\pm 1.5\%$, proving that the X-ray Method could generally be applied.

The pile engineering group of Pile Technology submitted samples of thermocouple wire which had been used in a pile for three years. Because of the radiation in the pile it was felt that some of the copper in the Constantan could have transmuted to zinc which would affect the calibration of the thermocouple. To check this point, one part of the wire from the interior of the pile and the other from a relatively cold section of the wire, were dissolved in hydrochloric acid, mounted on copper electrodes and submitted to spectrographic analysis which confirmed the hypothesis.

Several samples of heavy masonite were submitted by the shielding studies group of Pile Technology for determination of C, H, O, halogens, and residue on ignition. The conventional combustion-gravimetric method was used for C, H, and halogens were determined by a sodium peroxide fusion. Residue on evaporation was negligible and since spectrographic analysis showed no major components the oxygen was then reported by difference. In conjunction with this program the Reactor Division has submitted a number of cellulose base plastic woods for determination of density, halogen, H and off-gases. These plastics are to be used for filling in cracks or depressions in masonite shields.

Examples of other unusual service analyses performed during the month were analysis of magnetite to be used as an aggregate in a shielding concrete; analysis of a commercial battery additive alleged to increase the life of batteries; analysis of a grouting compound, comprising an organic liquid and an inorganic powder mixture to be mixed together before use; and analysis of several specimens of rubber floor tile, floor sealing compound and floor waxes submitted by Technical Services, 222-S Building.

Chemical Development Service Laboratory and 222-S Building

Analytical work proceeded in a routine manner in support of the chemical development branch of Separations Technology. However, significant changes were made with regard to personnel assignment in preparation for the start-up of the 222-S Building. Sixteen Laboratory Assistants and one Technical Graduate were transferred to other laboratory groups to make room for the forty-one new Technical Graduates being instructed in analytical techniques, essential material analyses, counter operation, and electronic circuits, as indicated in the Organization and Personnel Section of this report.

Engineering, drafting, and construction of the apparatus required for handling radioactive solutions in the 222-S Building is proceeding satisfactorily. It

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is believed that the major and key items, while still requiring up to two months for completion, will be ready in time to provide required analytical service.

Methods Control**Standard Sample Analyses**

The following table summarizes the results of the routine geometry determinations made on all of the ASP and IDL counters in the Area control laboratories. The accepted value is $50.5\% \pm 0.15\%$ for the ASP unit. The IDL's are maintained on the best operating plateaus, since the geometry level is specific for each instrument. A satisfactory counter performance for routine control is indicated by the results.

Alpha Counter Standardizations

<u>Laboratory</u>	<u>Instrument</u>	<u>June</u>		<u>July</u>	
		<u>Ave. Geometry</u>	<u>No. Tests</u>	<u>Ave. Geometry</u>	<u>No. Tests</u>
3706	ASP	50.50	48	50.49	42
	IDL	50.51	25	50.54	21
222-B	ASP	50.50	141	50.51	104
222-T	ASP	50.52	138	50.51	105
231	ASP	50.51	92	50.48	84
234-5	IDL-1	50.75	30	50.59	26
	IDL-2	51.20	33	51.18	27
	IDL-3	-----	--	50.58	26

A summary of the results of synthetic process samples analyzed in the 222-T and -B and 231 Building Laboratories for plutonium are tabulated below:

Results of Analysis of Plutonium Test Samples

Sample	AT	AT	AT	19-4-P	19-4-P
Laboratory	231	231	231	222-B	222-T
Method	Chem.Assay	Radio Assay (Old Pt Discs)	Radio Assay (New Pt Discs)	Radio Assay (Old Pt Discs)	Radio Assay (Old Pt Discs)
Ave. Recovery	99.6%	98.3%	99.5%	98.4%	98.2%

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Error Source	No.	% Prec.	No.	% Prec.	No.	% Prec.	No.	% Prec.	No.	% Prec.
Analyst	39	± 0.98	23	± 2.87	14	± 2.73	12	± 2.94	11	± 1.32
Dilutions									22	± 0.64
Within Chem-										
ists	78	± 1.54	92	± 1.44	56	± 0.96	48	± 0.88	44	± 0.66
Counting				± 0.26		± 0.26		± 0.33		± 0.33
Total		± 1.83		± 3.23		± 2.91		± 3.08		± 1.63

The three laboratories are apparently in good agreement. The primary source of variation in the radioassays appears to be the difference between analysts. The significant bias on the low side, however, was found to be due to the surface condition of the used platinum discs as indicated by an increase of 1-2% in the recovery obtained in the 231 Building Laboratory when only new platinum discs with a smooth finish were used. Since platinum discs have always been reused in the control laboratories, this bias has probably always existed, not being clearly disclosed by material balance discrepancies because of compensating errors. This has not effected CA/RA ratios prior to May, 1951, inasmuch as the RA was determined using a vacuum counter (ASVP) in which backscattering effects are not manifested regardless of the type of disc. The instruments went out of order in May (for unknown reasons) and since then all radioassays have been made employing an ASF counter sensitive to disc condition. The CA/RA ratio obtained by analysis of recent AT samples average 1.52% higher than the ratio obtained from the equation relating TPC/TU to CA/RA (see table below). This high value is believed to largely represent the error introduced by low RA values as shown on the test sample data, above.

Comparison of CA/RA Ratio Obtained on AT Samples to that Calculated from TPC/TU

Run Series	B-11-05	T-11-05	B+T-11-05	B-11-06	T-11-06	B+T-11-06	11-06 + 11-05
No. Det's	62	65	127	31	55	86	213
Ave. % Diff.*	+ 1.95	+ 1.17	+ 1.53	+ 1.32	+ 1.60	+ 1.50	+ 1.52
% Prec. Individ.	± 6.72	± 4.90	± 5.90	± 6.49	± 7.22	± 7.01	± 6.36
% Prec. Ave.	± 0.84	± 0.62	± 0.52	± 1.17	± 0.97	± 0.78	± 0.45

* CA/RA obtained from analysis of AT-CA/RA from TPC/TU, expressed as percent.

As a result of these studies analytical Method FuA-6b, (direct mount on disposable stainless steel discs) replaced Method CA-6a (direct mount on platinum discs) for all main line product samples and recycle solutions from the 231 and 234-5 Buildings, effective July 23. Since stainless steel discs were previously in use for plutonium analyses of 6-1-MS, 6-3-MR and all waste samples except 8-3-WS, the only remaining samples routinely analyzed using platinum discs will be 8-3-WS for plutonium and 6-1-MS for Am, Cm. A + 2% backscattering correction is applied in the analysis of all of the samples mounted on stainless steel except the 6-1-MS and 6-3-MR. This change should reduce the low recoveries due to the surface condition of the normally used platinum discs and in addition decrease analytical costs (ca. four men's time). The validity of the backscattering correction, obtained using relatively new platinum as a reference point, is being investigated. Recent control laboratory results indicate that the total correction should be in the neighborhood of 3%.

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New or Revised Methods

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Further investigation of the chemical assay for plutonium in MC material (Metal Fabrication Process) has led to a reversal of the previous intention to employ a sulfuric acid medium in favor of a hydrochloric acid medium. The excellent results obtained suggest that the rigorous assay specification may impose less analytical difficulties than had been expected. The required equipment has been installed in the weighing and aliquoting hood, the dissolving hood, and in one of the two titration hoods. All equipment required for the second titration hood has been obtained and will be installed when time permits. Process control service is now available as required.

Employing an 0.5 g. cutting of process metal dissolved in 6 N H_2SO_4 as a test specimen, results of 21 titrations showed the method to be biased 0.3% high. Similar results were obtained with a mixture of HCl and H_2SO_4 . The possibility that these high results might be due to calibration of the buret was checked by calibrating another buret with ceric sulfate instead of mercury. The second buret gave the same results as the first. Although no difficulty had been experienced with the first two sulfuric acid dissolutions of the cut sample, the third, fourth, and fifth cuttings failed to go into solution completely. These three cuttings were from pieces all of considerably higher density and hence, according to Los Alamos experience, probably higher in the alpha phase content than the previous material. A cutting from another piece was consequently dissolved in HCl, diluted to 2-3 N HCl and nine titrations made. The results showed a bias of only 0.1% and a precision of $\pm 0.24\%$ for quadruplicate titres.

The falling drop apparatus, used to determine specific gravity of Separations Process solutions, was modified by installing thrust bearing on the lift mechanism and independent controls for the emptying vacuum line and pipet positioner. The analytical method for calibration of the organic reference solutions was issued as Method DZ-2a.

Preparations for Analytical Services for 222-S

A multipurpose combination centrifuge-magnetic stirrer was designed (for use in centrifuges already mounted into the gloved box floor), thus permitting standardization of the major pieces of equipment for seven of the 222-S gloved boxes. New equipment to reduce radioactive contamination in Method SV-1a (determination of sulfates) was designed and is partially built. The calrod unit evaporator, originally designed for evaporation of sample in fluorimeter dishes, has been modified for use on stainless steel discs for determination of plutonium in aqueous streams. A mock-up model was tested and found to be satisfactory for aqueous, hexone and TBP evaporations.

One of the fluorimeters for 222-S was received from the Instrument Division for preliminary testing. This instrument gave too high (equivalent to 0.01 ug of UNH) a reading on an empty platinum dish. A light leak in the ultra-violet filter system was found and this is being corrected by the Instrument Shop. Preliminary tests on a makeshift correction of this light leak indicated the instrument blank value will be ca. 0.003 ug of UNH. The resistance system was found to have some thermocouples in it. After correcting this, the instrument appears to have excellent short term stability.

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Methods PuA-6b (determination of plutonium by direct evaporation of organic samples on stainless steel discs), PV-1a (volumetric determination of phosphate), SV-1a (volumetric determination of sulfate), a code key sheet, and a summary of the dilutions required for Redox samples were added to the rough draft manual of analytical procedures for the Redox and Metal Recovery Processes.

Counting Standards

Three orifice plates for ASVP counters having an agreement within 0.075% overall d/m counting range were received from the Instrument Division. A study of some of the unsatisfactory orifice plates previously constructed indicated the difficulty was due to the metallurgical properties of the stainless steel preventing accurate machining. Six orifice plates are being constructed of hardened stainless steel No. 410, all of which should be as accurate as the selected orifice plates made of regular stainless steel.

The ASP-ASVP relationship is being reestablished using electroplated discs prepared by the analytical research branch.

Recovery of 234-5 Building Laboratory Wastes

Procedures for the recovery of plutonium from laboratory waste solutions, resulting from the determination of F⁻ and Chemical 70-58 (oxine method) are in use at the present time. Difficulty in processing the first 160 grams batch of plutonium recovered from fluoride waste was experienced due to the presence in the recovered solution of a foreign material thought to be silicic acid. The material balance for the runs processed is considered satisfactory, the largest departure of product recovered from product charged in being + 1.1%.

The behavior during spectrographic analytical procedures on a sample of the recovered product from the "low level" 70-58 waste (oxine method) indicates that this solution still contains foreign material which is probably organic matter. The spectrographic assay of the plutonium solution currently ready for return to the process showed it to be of high purity.

Special Hazards Control

Because of the increased number of new personnel and anticipating the apparent need for a more thorough indoctrination in special hazards control, shift surveys were resumed at the 231 Building Laboratory on July 13. This additional work will require approximately 80 man-hours/month of analytical time.

In cooperation with the Methods Control Group, the equipment for the plutonium assay of cast metal samples at the 234-5 Building Laboratory has been installed in the four hoods in Room 139. An air lock has been installed in the dividing partition between two of the adjacent hoods and a lucite panel with rubber glove ports installed in the front of one of the hoods. Evaluation of this type of arrangement, as a possible substitute for the glove boxes currently in use throughout the laboratory, will thus be made.

Air samples taken by the Health Instrument Division in the 222-T Building Laboratory indicated fission product greater than the maximum permissible concentration

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(1×10^{-6} microcuries/liter) during an eight-hour period on June 27. Special thyroid checks of all personnel involved showed 23 people with counts above background but below maximum permissible concentration. Recounts were made the following week and two of the people continued to show above background counts. These people will be checked periodically (4-7 days) until below background counts are registered. Atmospheric conditions existing at the time and air samplers located outside the building proved the gas from the 292 stack to be the source of the contamination. The main contaminant has been identified as I^{131} . The 4-5-L silver reactor which had been operating at a lowered efficiency has been replaced and it is believed that the condition will not be repeated.

Determinations of UNH in plutonium peroxide cakes and washes were performed by fluorimeter analysis in the Chemical Development Service Laboratory. In spite of the fact that solutions containing 50 gm Pu/l were involved, very little trouble with Pu contamination was encountered. After the work was completed, the induction heater compartment was vacuumed to remove small particles of sodium fluoride cake after which no plutonium activity could be found. As an added precaution, however, the canisters were replaced. It may be concluded that the present fluorimetric method for determination of UNH may be employed for plutonium without unusual hazard.

ANALYTICAL RESEARCHMetal Recovery Process

Application of a differential technique to the infra-red absorption determination of TBP in diluent, in which the sample is measured against a standard sample rather than on an absolute basis, has effected a considerable improvement in the method. TBP contents of 15% were previously determined with a precision of $\pm 0.3\%$ but with the new technique may be determined to $\pm 0.06\%$. The modified procedure is simple and does not increase the time of the analysis. Applicability of the technique to the purchase specification assays of TBP and hexone is being investigated. Infra-red studies with TBP revealed an absorption peak peculiar to samples containing uranium and TBP. The analytical utility of this peak is being explored. A new double-beam infra-red comparator has been received and is being tested for research purposes prior to transfer of the first instrument to the Redox Control Laboratory where it will be employed for routine analyses.

The automatic coulometric titration of uranium has been tested for application to Metal Recovery feed solution and found to work satisfactorily; phosphate and sulfate, in concentrations considerably above those expected in the samples, exhibit no interference. Modifications of the electronic circuit have eliminated a troublesome interaction previously observed between the generator and trigger units. Detailed operating procedures are being drawn up, and design has been completed for a titrator that will be used for test purposes in the Redox Control Laboratory.

A successful technique has been developed for determining the solidification temperature of Metal Recovery streams. Previous difficulties with supercooling

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phenomena were eliminated by allowing the sample to freeze in a glass test tube before plotting a cooling curve and to thereby impress a "memory effect", in the form of precipitation centers, on the glass surface. A functional test for determination of completeness of solution of Metal Recovery feed is being tested. It involves the successive addition of increments of acid to the sample until an end point is obtained at which no solid material other than miscellaneous foreign material is recovered by centrifuging.

UO₃ Product Specification Analysis

Study of U-237 interference in the determination of fission product a beta activity in the final Redox uranium stream has continued. A preliminary separation of fission products from uranium appears promising, employing a paper pulp column which holds the fission products and from which the uranium is flushed with ether. It was found that 10 mg. of uranium could be removed from the column with better than 99.99% efficiency and that a mixture of eight fission products, having a total beta count of 1000 c/m, were retained with an efficiency of 99.7%. No tests have been made with a mixture, but it was observed that the treatment efficiently separated uranium from its daughter products. The proposed procedure involves the indicated separation, ashing the paper pulp and its contained fission products, and counting this residue.

A sample of uranium, free from daughter products, has been obtained and is being studied to determine the rate of growth of daughter products; the information obtained will allow correction for daughter build-up on oxide samples measured on the Hanford instruments at some known period after leaving the last Redox or Metal Recovery separation step.

The interference of U-237 in the determination of the fission product gamma activity of final Redox uranium solution is also under study. A sample of decontaminated uranium is being prepared from dissolver solution and will be employed to find the relation between gamma counts from U-237 and the thickness of lead shields surrounding the sample in the Shonka instrument. Modifications were made on the Shonka gamma counting instrument to increase the response time and thereby lessen the background fluctuation; the net effect is to increase the sensitivity of gamma counting.

Equipment necessary for the conversion of UO₃ to the fluoride in preparation for mass spectrometric isotope analysis has been designed and placed on order. The mass spectrometer to be employed for the analysis is expected on September 15.

An examination of the procedure for low level plutonium in uranium oxide has been made both at Hanford and at Oak Ridge, and a mutually satisfactory procedure has been developed for this difficult determination.

Redox Process

Modifications of the X-ray photometer obtained for Redox and Metal Recovery analyses have been completed. An insensitive response which was first noted has

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been eliminated, and calibration of the instrument is under way prior to transfer to the control laboratory. A detailed examination has been made of the precision to be expected from X-ray absorption analysis of uranium solutions contained in small sample cells. Multiple readings taken at the same instrument settings give precisions of $\pm 0.7\%$ and $\pm 0.06\%$ at the 10 g/l and 100 g/l levels, respectively. Multiple readings taken over a long period of time during which the instrument is readjusted give corresponding precisions of $\pm 2.1\%$ and $\pm 0.43\%$.

Brief investigations of the lanthanum fluoride carrying technique have shown it to be applicable for the determination of plutonium in the highly active Redox centrifuge slurry tank. Re-examination and minor modifications have eliminated several difficulties encountered with the radiozirconium and radioniobium analytical procedures.

P-10 Process

The mass spectrometer was placed in routine service shortly after its transfer to the new P-10 Analytical Laboratory and following several minor repairs. Further study and additional quantitative data show that the "memory effect" of the instrument for hydrogen isotopes is somewhat greater than initially believed and that some segregation of sample types is desirable. Numerous routine analyses have recently been made on tritium samples containing unusually high concentrations of hydrogen. Since such a mixture contains more than the normal amount of HT, it was expected that this molecule would introduce a significant quantity of T⁺ that would appear in the combined peak with He³. An evaluation of the T⁺ contribution from this source revealed this to be the case and established an accurate correction factor.

Investigations have been completed and a report was issued under document number HW-21718 on the application of emission spectrometry to the determination of P-10 H/T ratio. Since the method determines only the ratio and since mass spectrometric methods adequately meet the P-10 analytical requirements, it was decided not to apply the new method routinely. The Leeds and Northrup mass spectrometer employed in the investigation was transferred to the 300 Area laboratory where it will be applied to the study of rapid methods for determination of Sn, Si, and U in aluminum-silicon dip bath; determination of impurities and constituents in stainless steel and aluminum; and determination of copper impurity in tin bath. The instrument is on field trial from the Leeds and Northrup Company, but contacts with personnel have indicated that the move is agreeable to them.

Metal Fabrication Process

A TTA extraction of plutonium (IV) has been found to be a suitable basis for the determination of plutonium in solutions of slag and crucible waste. The devised method exhibits a plutonium recovery of 98.7% with a precision of $\pm 5.6\%$ for a single determination and will effect a 10^4 decontamination factor from americium. The previously reported spectrographic method developed for the determination of calcium and magnesium in the same solution has been improved by reduction of the background to effect greater sensitivity. It was found that nitric acid reduces the line intensities but does not affect the intensity ratio

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and that a linear working curve is obtained. A subject report on the determination of oxalic acid and lanthanum in Metal Fabrication Process streams has been issued under document number HW-21457.

General

An additional set of plant samples has been analyzed as a part of the program to determine the distribution of the total americium-curium found in 6-1-MS among the various Bismuth Phosphate Process streams. In view of the presumed large amount of Am-Cm activity currently present in metal waste solutions because of the processing of 600 MWD material, it has been necessary to supply a factor for this stream on the basis of the best available data as a basis for rework decisions. This has been estimated at 75% subject to revision on completion of the laboratory program.

Recently completed investigations of the use of stainless steel discs in alpha counting analyses led to the observation that the counting efficiency is, to some extent, a function of the smoothness of the platinum or stainless counting disc. A sensitive device known as the Profilometer which measures the smoothness of a surface has been obtained and applied to a variety of counting discs. Appreciable variation was found between various unused platinum discs, and it was noted that polished stainless presents a smoother surface.

Work has been resumed on the porous cup and hollow cathode spectrographic excitation techniques. With the former, it was noted that solution boiling occurred as a result of the intense heat developed in the excitation and that redesign of the electrode was necessary in order to allow better cooling. With the latter it was found that the flow rate in the gas circulation system was inadequate; the system has been modified by replacement of the mercury diffusion pump with a Toepler pump to allow study of this condition.

Preliminary investigations of the spectrographic procedure for determining silicon in aluminum-silicon dip bath show very poor reproducibility and indicate the need for further tests to determine whether this is due to excitation conditions or to segregation in the sample.

The geometry of the BGO beta counters resulting from use of different "shelf heights" has been evaluated as a function of beta energies; the information obtained is necessary for intelligent use of the instrument since the geometry has been known in the past only at one energy level, namely that given by a radium E standard.

Miscellaneous special service work included analysis for lithium of a group of eight samples originating from the Critical Mass Program, employing by a procedure previously referred to that was developed for the purpose. Trains for the purification of carbon monoxide and for introducing standard samples were designed for use in the in-pile Graphite Burnout studies. A group of plutonium standards was prepared and standardized for Westinghouse Electric Corporation at the request of the A.E.C., using the recently developed electroplating technique to give smooth, uniform, adherent films; it was observed that plutonium (IV) quantities in the range of 200 and 6000 μg were electroplated with 100% efficiency.

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INVENTIONS

All Analytical Division personnel engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during July 1951 except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

INVENTOR(S)

C. R. McCully

TITLE

Puncture Type Device for Sampling Gases
from Aluminum Capsules

Signed: *F. W. Albaugh*
F. W. Albaugh, Division Head

FWA:lrc

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TECHNICAL SERVICES DIVISIONJULY 1951VISITORS & BUSINESS TRIPS

There were no specific visits of off-site personnel to this Division in July.

There were no business trips by Technical Services Division personnel during the month of July.

ORGANIZATION AND PERSONNEL

Effective July 2, all non-exempt craft personnel (24) and their supervision (2) assigned to the Technical Shops were transferred to the Instrument Division. On July 9, J. K. Figenshau was transferred from the Analytical Division and appointed Staff Engineer in charge of the Technical Shops for the Technical Services Division. Under this new arrangement the Technical Divisions are responsible for the Technical Shops; the actual fabrication work will be performed by Instrument Division craftsmen.

Personnel totals in the several subdivisions are summarized as follows:

	<u>June 30</u>	<u>July 31</u>
Engineering Section	79	66
Technical Information Section	79	81
Mathematics Section	24	31
Administrative	<u>3</u>	<u>3</u>
Division Totals	185	181

ENGINEERING SERVICESMechanical Shops (Bldgs. 101 and 3706)

Work volume statistics for the Mechanical Shops are as follows:

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	Customer Division or Program	June		July	
		No. of Jobs	Man- Hours	No. of Jobs	Man- Hours
<u>Work Done on</u>	P-10	21	463	14	411
<u>Jobs Completed</u>	File Tech. (Incl. P-12) (a)	46	530	68	1000
	Separations Tech	43	761	24	429
	Analytical	21	491	29	530
	Technical Services	13	303	8	252
	Others	2	81	2	16
	Sub-Total	146	2629	145	2638
<u>Work Done on</u>	P-10	2	810	3	64
<u>Jobs Not</u>	File Tech. (Incl.				
<u>Completed</u>	P-12)	12	252	4	32
	Separations Tech	8	56	2	4
	Analytical	4	54	8	367
	Technical Services	2	8	4	196
	Others	1	0	2	208
	Sub-Total	28	1180	23	871
Total Work Done			3,809		3,509
<u>Work Backlog:</u>					<u>Man-Hours to Complete</u>
<u>Jobs Started</u>	P-10	2	307	3	281
	File Tech. (Incl. P-12)	12	1497	4	1278
	Separations Tech.	8	100	2	10
	Analytical	4	119	8	421
	Technical Services	2	48	4	371
	Others	1	2	2	362
	Sub-Total	28	2073	23	2723
<u>Jobs Not Yet</u>	P-10	3	62	4	56
<u>Started</u>	File Tech. (Incl. P-12)	4	132	11	264
	Separations Tech.	5	130	6	706
	Analytical	5	134	7	362
	Technical Services	5	624	6	341
	Others	2	634	1	84
	Sub-Total	24	1716	35	1813
Total Backlog			3,789 (b)		4,536 (c)

(a) P-12 designates the Exponential File Project.

(b) Does not include 4 man-hours transferred to 300 Instrument nor 496 man-hours transferred to Maintenance during June.

(c) Does not include 120 man-hours transferred to Transportation nor 160 man-hours transferred to Maintenance during July.

Technical Services Division

A substantial increase in July work volume from the June level has required Technical to request the Instrument Division to continue the 6-day work week for their craftsmen assigned in Bldg. 101. In addition, Instrument and Maintenance Divisions machining craftsmen in the other areas worked the same overtime schedule on jobs cross-ordered from Technical. Less assistance can be expected from Maintenance in the future due to the press of other work coming into their shops.

Work has been suspended on four metal transfer assemblies for the P-10 project due to the low priority of this job. A special stainless steel ion chamber for the P-10 project, which required unique heliarc welding, stress relieving, machining and testing was completed by the Shop. This unit is to be used for monitoring effluent gas from ACP processing. The Shops completed several small jobs for the P-10 project; included were the fabrication of several special valves and flanges, and the fabrication of stainless steel fittings, heliarc welded to thin stainless steel bellows.

Shop work is nearing completion on the design and fabrication of a 15-stage counter-current batch extractor for the Chemical Development Section. A second extractor has been started for the Chemical Research Section.

Work continued on a remote control pipetter for the Analytical Service Section. One Instrument Maker has been assigned to work directly with Equipment Design engineers in the developing of this pipetter. The first unit is approximately 50% complete.

Work has been started on the fabrication of graphite for the Ball 3-X mock-up for Pile Engineering Section of Pile Technology.

Modification of the Bldg. 222-S multicurie air hoist was continued during the month. These modifications are the result of previous tests. Development work for the Equipment Design Group is continuing on: (1) the "Hanford-slave manipulator", (2) flexible shaft tongs, and (3) other types of handling tongs.

Construction of a miniature mixer-settler for the Chemical Research Section has been requested and the work order is in process. Development work was started on the fabrication of parts for sintered stainless steel filters for the P-10 program. Attempts are being made to determine the breakdown characteristics of sintered stainless steel under high temperatures and to determine the weld-type best suited to the welding of this material.

It is estimated that approximately 1,000 hours of graphite fabrication and machine shop work will be required prior to September 1, for the P-12 Exponential Pile Project.

Glass Shop

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

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	<u>June</u>	<u>July</u>
<u>Jobs Completed</u>		
New	67	48
Repairs	19	10
Revisions	<u>9</u>	<u>7</u>
Total	95	65
<u>Job Backlog</u>	13	16

Scheduled vacations cut the number of available man-hours in the glass shop to 720 hours during July and as a result, the Glass Shop had approximately 8 days' backlog at month end. However, a reduction in the work load on the P-10 Program is expected to free one man now assigned to 108-B for 3706 Glass Shop assignment. This additional manpower should permit the 3706 Glass Shop to maintain a satisfactory schedule through the balance of the vacation periods. Glass workers assigned to Bldg. 108-B continued on a scheduled 6-day week in support of the P-10 program.

Three quartz fabrication jobs were completed during the month and three more are awaiting fabrication.

A new gas analysis line was fabricated and installed in the 100-B Area, and it is anticipated that more of these lines will be required in connection with P-13 work.

Equipment Design

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

	<u>June</u>		<u>July</u>	
	<u>Engineering</u>	<u>Drafting & Misc.</u>	<u>Engineering</u>	<u>Drafting & Misc.</u>
<u>File Technology</u>				
Engineering	34	366	20	269
Metallurgy	54	75	17	4
<u>Separations Technology</u>				
Development*	8	-	48	-
Research*	66	68	152	6
<u>Analytical</u>				
Services*	298	529	344	522
Research	-	12	-	8
<u>Technical Services</u>				
Shops	-	5	-	31
<u>Laboratory Equipment Development (RDA #TC-5)</u>	<u>334</u>	<u>199</u>	<u>179</u>	<u>72</u>
Totals	824	1,254	730	912

* Work during June and July was almost wholly devoted to preparation of laboratory equipment for Bldg. 222-S.

Technical Services Division

High work load factors in connection with the completion of designs for the multicurie cells and other special equipment for Bldg. 222-S, as well as for Pile Engineering programs, resulted in continuation of the planned 6-day work schedule for a number of the engineers and for all designers and draftsmen in this group.

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

Pile Engineering

Drawings were made of the graphite support frame, transfer chamber, Kelvin bridge clamps, Beta nozzle, pig tail, spacer assembly and various graphs.

Metallurgy

A shielded sample cask was designed. A drawing was made of the Metallurgy cell tray.

Chemical Development

Assistance was given in the development and shop fabrication of the miniature mixer-settler and in the outfitting of the Bldg. 222-S.

Chemical Research

A steam coil and condenser for the 9-ft. gloved box was designed. Design layout was initiated on the 1-inch column for the Bldg. 222-S multicurie cell. Design work to date includes lucite prisms to view the column and remote control equipment to operate the cell and remove samples. Further assistance was given in the outfitting of the Redox Analytical and Plant Assistance Laboratory, Bldg. 222-S.

Analytical Service

Assistance was given to the shop on the fabrication of the pipetter for the 5-unit gloved box line. Outfitting of the boxes for Bldg. 222-S continued. Development continued on the line to simplify sample handling in Bldg. 222-S.

A sample dryer for a cesium determination was designed. The shop completed fabrication and the dryer was in use by the end of the month.

Drawings were made of cave liner boxes, doorstop track and dolly, doorstop lifts, modified interchange locks and a micro pipetter.

Laboratory Equipment Development (RDA #IC-5)

Development of multicurie cell equipment continued. An improved model of the toggle-operated automatic release hook was designed and fabricated. Revision and improvements in the "Hanford-slave manipulator" continued, with the successful operation of a totally sealed bellows-type hydraulic tongs.

Efficiency tests continued on an installed hood fiberglass air filter in Bldg. 3706. A small disposable Junior Cave filter removed this month showed a surface radiation reading of 12 rep while the secondary canopy filter showed only 2/10 mrep.

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New Laboratory Planning

The three contact engineers engaged in this work continued on a planned 6-day work week, as required to expedite the final design stages of the Works Laboratory Area program.

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

Work continued on the completion of the exceptions to the final acceptance of Bldg. 222-S from Construction forces. Rough adjustments of the ventilation system have been completed but some modification in the damper plates and the relocation of the sensing tubes for the automatic damper controls for the hoods must be made prior to final balancing. This work is expected to delay completion of the balancing three to four weeks.

Investigation into the cause of the yellow discoloration of the marbelized floor tile was begun. Results of preliminary tests indicate the stain is due to penetration of the tile by the mastic used to bond the tile to the floor.

Work was started on Phase II construction in this building. When completed, radiochemical laboratories will be provided in a section of the building originally reserved for future additional multicurie cells.

In Bldg. 219-S the 103 Tank has been installed and the related pipe fitting is now in progress. The completion of this work will bring about the physical completion of the building.

Mechanical Development Bldg., Proj. C-406

A supplemental proposal (C-406, Part III) requesting \$158,000 in additional funds for the Phase II construction of the Mechanical Development Bldg. was approved by the A & B Committee and forwarded to the A.E.C. on July 10. Meanwhile, placement of the metal siding and roofing panels is nearing completion.

Requisitions are being written for the purchase of machine tools for the Mechanical Development Bldg. that are to be charged against Proj. C-431. Space to be reserved at one end of the main shops bays for use by the Pile Technology Unit for exponential pile experiments will not be used for this purpose; therefore, arrangements are in progress to install equipment originally planned for this area.

Radiochemistry Bldg., Proj. C-381

Preliminary site grading for the Radiochemistry Bldg. was completed and the concrete work has started. Sound Construction & Engineering Co. is the lump sum sub-contractor for this new building.

A list of recommended changes in the Radiochemistry Bldg. has been submitted to E & C and lists of the office furniture and equipment are being reviewed.

The revised hood drawings and the revised hood specifications have been completed and the requisitions for construction are expected to be sent out in the near future.

Technical Services Division

Plot Plan and Utilities, Proj. C-394

Final work in preparation for issuing a call for bids for construction of the Plot Plan and Utilities is nearing completion. The reproducibles are being revised by E & C to conform with the comments and suggestions of the reviewing operating and design groups. Design work on the concreting facilities for the disposal of "hot" wastes is approximately 85% complete. These facilities are being considered a part of the Plot Plan & Utilities.

Invitations for bid covering construction of the badge house have been released with the bid opening scheduled for August 16, 1951.

Radiometallurgy Bldg., Proj. C-385

The invitation for bids for construction of the Radiometallurgy Bldg. was issued on July 19; these bids are to be opened on August 16.

Some changes have been required in the final designs submitted by the Leland S. Rosenar Co., architect-engineer. These changes are being made by General Electric forces since they were not within the scope of the A-E contract. The final design of the Radiometallurgy Bldg. will incorporate an aluminum stack and aluminum duct work, except for the stainless steel ducts which will be used between the filters and the hot equipment.

Pile Technology Bldg., Proj. C-414

Final tracings and specifications covering the Pile Technology Bldg. have now been received from the Chas. T. Main Co., architect-engineer. Preliminary review indicates some minor details must be added before bid assembly can be prepared. This work has been temporarily delayed to permit time for the final bid assembly preparation prior to issuance of the invitation for bids on other Works Laboratory buildings since assemblies covering these buildings were nearly complete.

Library and Files Bldg., Proj. C-421

Invitations to bid on the construction of this Works Laboratory Area building were released on July 19 with the bid opening date set for August 16.

Laboratory Supply Bldg., Proj. C-458

Project Proposal C-458 covering the conversion of Bldg. 3702, 300 Area, for use as the Laboratory Supply Bldg. was returned unapproved by the A.E.C. Actual construction on this building had been scheduled during 1953, and the covering proposal had been submitted at this time in order to complete approval of all proposals covering Works Laboratory Area funds. The Commission has requested that this proposal be resubmitted immediately prior to the proposed construction starting date.

Laboratory ServicesBuilding 3706

Normal Bldg. 3706 services continued routinely. Material control, stockroom and work order activity is summarized as follows:

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	<u>June</u>	<u>July</u>
<u>Purchase Requisitions</u>		
Total number processed	34	54
Number requiring special expediting	9	12
Number requiring emergency handling	1	0
<u>Stores Stock Requests Processed</u>	0	0
<u>Store Orders</u>		
Total number processed	856	1050
Number requiring emergency pick-up and deliveries	13	14
<u>Work Orders Processed</u>	24	73

One exempt and two non-exempt personnel in this group worked a six-day schedule through July 21 to serve laboratory personnel working a six-day schedule.

Work continued on the Kardex file of purchase requisitions which have been previously processed. Use of the file to locate material on hand has already demonstrated its effectiveness.

A.E.C. approval was received on the request for funds covering the conversion of a portion of the Bldg. 3707-C Change House to provide a permanent location for the IBM Computing Laboratory. Work was started on July 9 but was discontinued on July 26 which a shortage of funds was recognized. A request for supplemental funds was being prepared at month end to permit completion of the work.

Work on the remodeling of Room 59, Bldg. 3706, to a gas laboratory is progressing and should be completed by September 15.

Building 222-S

Balancing of the ventilation system was started on July 5 and all rough adjustments have been made. The damper plates which control exhaust from hood and auxiliary units were found to require reinforcement to eliminate excessive vibration of the plates before final adjustments can be made. Relocation of the sensing tubes for the automatic damper controls on the hood units will also be necessary. These tubes are presently located where air turbulence prevents satisfactory operation. These modifications are expected to delay completion of the ventilation balancing from three to four weeks. Interference with the balancing of the ventilation system has prevented further investigation of the exhaust fan vibration.

Modification of the slurping hood trays was completed by Construction forces and card holders for identification of laboratories and offices have been installed. Installation of the "hot waste" receiver tank (103) in Bldg. 219-S was also completed and final testing of the agitator and piping is being made; it is expected that construction will complete the building for acceptance by General Electric during August.

An investigation of the yellow discoloration of the marbelized (black & white) floor tile in Bldg. 222-S was started during the month. Samples of the stained tile were submitted to the General Chemistry Laboratory, 300 Area, for analysis. Results of the tests made by the laboratory indicate the stain is due to the

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penetration of the tile by the mastic used to bond it to the floor. A factory representative of the tile manufacturer (Robbins Floor Tile Co.) was in the building on July 24 for checking the condition of the floor. Samples were also taken by the representative for testing at the Robbins Floor Tile Co. laboratory.

Phase II of the project has been started in Room 1-G of the Multicurie Section. The room has been sealed off by construction and the outside door is being used by the personnel working on the project. Connections to the laboratory services in the tunnel are being made at the present time and capped off in the room to eliminate the necessity of future difficulties when Bldg. 222-S begins operation.

MATHEMATICAL SERVICES

Statistical Services

A means of predicting U_{235} content of uncanned fuel slugs from reactivity in the Building 305 Test Pile was developed by fitting a hyperbolic equation to data obtained from the Hanford-Y 12 cooperative analytical program for the determination of uranium in enriched uranium-aluminum alloy fuel slugs. To facilitate the use of the hyperbolic equation, a tabulation of the U_{235} content of fuel slugs for various test pile results was prepared for the Accountability Section. (Document HW-21686, "Relation Between U_{235} Content and 305 Test Pile Results for Fuel Slugs.") As more data became available, an improved estimate was made of the average loss of U_{235} in aluminum-silicon scrap per enriched uranium-aluminum fuel slug canned (Document HW-21695, "Loss of U_{235} During the Canning of Fuel Slugs"). The magnitude of this loss was confirmed by a less direct, completely independent method of estimation.

Data on canned uranium slugs tested in two dilatometers, submitted by the Metallurgy Section, evinced a systematic difference between the results from the two instruments. Bond strength data, submitted by the 300 Area Plant Assistance Group, revealed a diminishing pull in pounds to strip the can from slugs with increased number of cycles through the Autoclave Test. More data are being gathered to study this effect further.

An experiment is being designed for the 300 Area Plant Assistance Group to determine the effect of uranium slug surface irregularities on the occurrence of rejects during canning. A new stringer pattern to eliminate weight bias in testing billet eggs in 305 Test Pile was recommended to the "P" Division and the Pile Physics Section. A plan was formulated for obtaining ample data for statistical control of shipper-receiver differences in weighing bundles of sixteen uranium rods on the proposed print weight scale.

Statistical controls were reported on "P" Division operational results from Machining, Pickling, Canning and Autoclave, Test Pile and Melt Plant.

For the Pile Technology Division: (1) boundary solutions for two different types of pile enrichments are being obtained; (2) computations of pile power from previously derived equations were made; and (3) the results of further analysis of slug corrosion data were reported in Document HW-21747, "Statistical Analysis of Slug Corrosion Data - Interim Report". For the "P" Division at the 100-B Area, work was continued on the study of unit costs.

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For the Separations Technology Division: (1) estimates were made of the minimum number of pieces required in the Building 234-5 casting operation to show, at various levels of confidence, that a reduction in processing voids has occurred; (2) a regression analysis, based upon the effect of Am and Cm on the extraction waste alpha count, was begun to provide realistic resample and re-work limits for the extraction waste; (3) a particular solution to a set of fourteen simultaneous equations relating to extraction column operation was obtained; and (4) the study of fluorimeter data begun last month was completed. For the P-10 Development Section, a least squares procedure for estimating the half-life of tritium from ratios of He^3 to He^4 was begun.

The regular semi-monthly reports of certain Kr-85 calculations for the A.E.C. were completed and forwarded.

The monthly control report of re-runs in 200 Area analytical laboratories was issued. In addition, the previously reported investigation of the At-Specific Gravity Relationship was pursued further during the month.

In support of the Health Instrument Division: (1) consulting assistance was given in the presentation of analytical data associated with the determination of background radium in the human body; (2) an extensive study of data was completed from an experiment concerning the effects of pH and pile effluent water on seven characteristics of bean plants; (3) progress was made in fitting curves to represent the rate of uptake of tritium oxide by bean plants grown in the presence and absence of light and in nutrient solutions of different activity density; and (4) confirmatory variance analyses were performed in connection with blood chemistry and hematology data. Statistical reports submitted to the Health Instruments Division included: (1) "Relation of Radioactivity in 100-D Retention Basin to Water Treatment Variables"; (2) "Phosphorus Up-Take by Red Kidney Beans"; (3) "Yttrium U-Take by Barley Roots"; and (4) "Relationship of the Physical Properties of C_{40} -Polyenes (Carotenes) to the number of Conjugated Double Bonds".

Computing Services

The computing processes for diffusion length and critical pile dimension calculation have been changed at the request of the P-12 Group. Re-programming for the critical dimension problem has been completed and calculations made for seventy-five cases. The new calculation is based on constants obtained from thermal source diffusion theory and utilizes a modified least squares fit to a cosine curve. The new calculation for diffusion length will utilize fast source theory. An iterative procedure will be required where the value of the key constant will be estimated to begin the calculation and will appear again as the result. The proper value is found when the calculated value agrees with the value entered at the beginning. The diffusion length is obtained directly from this key constant. Programming is 50% complete for this calculation.

Another study of the exposure expectation of the H-10 loading was made. Slug corrosion calculations were made for thirty-two tubes and a listing of all previous corrosion data made. Boiling disease calculations were made for four cases. Programming has been completed for radioactivity counter calculations for data taken on the H.I. sheep experiment. Four maps were prepared showing the power deviation of each tube from its maximum permissible power.

Technical Services Division

Programming is completed on a pile source equation involving definite integrals of the $I_0(x)$ and $K_0(x)$ Bessel functions. Extensive calculations were made for statistics group in an effort in an effort to fit equations to slug corrosion data.

A special study of panellit data was made to find any possible improvement in predicting slug trouble.

A large quantity of data has been punched into cards to assist in preparing special S.F. accountability reports. A table of seven-hundred values relating 305 Test Pile data to slug enrichment was also prepared.

Routine work was completed on graphite calculations, panellit pressure data, aquatic biology, and sheep experiment radiological data.

The machine difficulties reported last month with the Card Programmed Calculator have been eliminated. The down time was caused by major changes incorporated in the equipment to improve operation in line with past experience. The alterations resulted in temporary upset of circuits, and required considerable modifications of board wiring. The improvements attained have been well worth the difficulties encountered during transition.

TECHNICAL INFORMATION SERVICESPlant Library

Library work volume and book statistics were as follows:

	<u>June</u>	<u>July</u>
Number of books on order received	329	152
Number of books fully cataloged	188	153
Number of bound periodicals processed but not fully cataloged	0	95
Pamphlets added to the pamphlet file	12	66
Miscellaneous material received, processed and routed (Including maps, photostats, patents, etc.)	110	91
Books and periodicals circulated	3,896	3,592
Unclassified reports processed	130	160
Unclassified reports circulated	333	299
Reference services rendered	1,732	1,036

	<u>Main Library</u>	<u>W-10 Library</u>	<u>108-F Library</u>	<u>Total</u>
Number of books	7,618	3,220	364	11,202
Number of bound periodicals	4,627	0	593	5,220

Activities in the Library proceeded routinely, with a wide variety of reference questions covering many fields of technical literature. A sampling of typical reference questions is given below:

Request for an article on the "Personality Characteristics of Successful Engineers".
Composition of "Ceroc".
Address for several publishing houses.

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The density of a saturated solution of AgNO_3 at 170°F .
 The boiling point and melting point of ethyl mandelate.
 The heat content and free energy functions of several metal oxides.
 Design and theory of scintillation type counters.
 Toxicity of Hexone.
 Name and address of current secretary of Institute of Mathematical Statistic
 Timing meter clock to measure the hours a machine is in use.
 Methods for ventilating air raid shelters.
 Information available on flow of liquid through a gauze or screen.
 Theory of flow of gases under very low pressures and through capillary tubes
 Information on the organization of the engineering departments of large chemical companies.
 The (n,p) cross section of MG 24.
 The physical properties of "Permifill", and a vendor.
 Information on the career of Col. Leon B. DeLong.

Expanding work volume necessitated a review of the work flow and job assignments in the Library. New job descriptions are being drafted to incorporate these changes and will be submitted to the Wage Rates Division for new grade assignments.

A 32-volume run of "Applied Chemistry Reports" issued annually by the Society of Chemical Industry, London, was received and added to the Library's periodicals reference files.

Arrangements have been completed with the Weekly Payroll Section for the preparation of approximately 300 addressograph plates to expedite the Plant-wide distribution of such items as the Information Bulletin, Nuclear Science Abstract, etc., distributed through the Plant Library. The plates will be used in the addressograph machine currently operated by the 300 Area Classified File

Classified Files

Work volume statistics for the Classified Files were as follows:

	<u>June</u>	<u>July</u>
Documents routed	11,738	14,578
Documents issued	6,188	6,058
Reference services rendered	4,400	4,775
Registered packages prepared for offsite	224	278
Inter-area mail sent via transmittal	35,005	33,949
Holders of Classified documents whose files were inventoried: (a) Because of normal perpetual inventory procedure (b) Because of transfer of work assignment (c) Because of termination	14 7 4	1 4 2
Inventory reductions:		
Copies of documents destroyed	8,222	4,942
Copies of documents downgraded	211	251
Copies of documents declassified	49	64

	<u>June</u>	<u>July</u>
Classified documents located which were unaccounted for in previous inventory	15	42
Standard storage cartons of material retired to the Records Center:		
Unclassified and Official Use Only	25	0
Classified	88	0

Work on the inventory of classified documents in the Central Files is proceeding satisfactorily. The check of the 300 Area Classified Files is approximately 80% complete and that of the 700 Area Classified Files approximately 65% complete. Inventory of the documents charged to G. W. Watt, Hanford Consultant, was returned and all documents have been accounted for.

The reduction of document inventory is also proceeding satisfactorily, and a substantial number of classified documents were removed from future accountability by destruction. In this connection, all classified documents are being reviewed before destruction to make certain the yellow file copy has been provided. In instances where it has not, a copy is being mailed to Schenectady for the yellow file. Similar reductions of classified document inventory are apparently occurring at other sites. Both the Argonne National Laboratory and Knolls Atomic Power Laboratory recently returned large numbers of early Hanford-originated classified documents. After checking, these were destroyed.

The task of retiring the "S" Division run books to the Records Center, which began in May, was completed. A total of 279 standard storage cartons of classified material, representing an accumulation since August, 1946, was retired from Buildings 271-T, 271-B, 231, 234-5, and 2704-Z. Clerical assistance was also given in setting up more satisfactory office records on these run books. A file which cross references the batch or run number to the document number was brought up-to-date to include the material retired.

A request to add the name of Russel H. Ball of the University of California Radiation Laboratory to the distribution list for the Technical Activities Report - Graphite Studies Group was received from the Hanford Operations Office. The request was approved by the Materials and Information Branch of the A.E.C. in Washington, D.C.

A third periodic notebook certification was made satisfying the requirements of the A.E.C. Patent Branch, Washington, D.C. These certifications, made every six months, indicate the inclusive numbers of the classified notebooks which have been issued during the period and affirm that they are in the custody of the site Classified Files.

Information distributed by the Isotopes Branch of the Oak Ridge A.E.C. will be handled in the future through the Technical Information Section in accordance with a change in distribution policy recently announced by the Chief of the Technical Reports Branch of the Isotopes Division. Direct distribution to project personnel will be discontinued, with the belief that wider distribution can be obtained by clearing these matters through our Technical Information Section and analogous organizations at other sites.

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The occasion of returning to the Argonne National Laboratory a large number of classified documents transmitted here for L. W. Fromm, of Argonne National Laboratory, has indicated the need for the development of classified files procedures in connection with personnel from other sites temporarily located here. Such questions as the following will have to be resolved: Should classified documents sent here for their private attention be set up and handled through the Hanford Classified Files? Who should issue documents which they originate while they are in residence here? Should they be allowed to remove from the site classified documents routed to them? The assignment to Hanford of J. P. Cook from Westinghouse and S. A. McKnight from du Pont indicate the need for resolving these matters promptly, and plans are underway to do this.

Time was spent during the month by the Section Chief on activities as Chairman of the A.E.C. Technical Information Panel Committee on Library and Document Control. Committee members are investigating the type of main entry to be used in the reports index for the various A.E.C. installations, and also the problems of abstracting and indexing metallurgical project reports. A recommendation was also made regarding prompt notification of changes in the subject headings guide (CA-1927).

A report entitled "Standard Distribution Lists for United States Atomic Energy Commission Non-Classified Research and Development Reports" (TID-4500) was received. It replaces the former "Distribution List for Non-Classified Research and Development Reports" first issued November 15, 1950. This new distribution list uses the same category breakdown as the previous report, which was described in our monthly report of November, 1950, and on which information was circulated by letter to Plant personnel December 20, 1950. The preface indicates that if the five categories employed (Chemistry, Health and Biology, Instrumentation, Metallurgy and Ceramics, and Physics) prove to be too broad and recipients receive more unclassified reports than they desire, future consideration will be given to further subdivision.

A lengthy list of documents "administratively declassified" in the Argonne National Laboratory was received, presumably so that we might declassify any Hanford copies. It may be advisable for the Hanford Works Non-Technical Document Review Board to similarly circularize other installations giving them a list of documents administratively declassified here.

The Section Chief gave four talks during the month to the Technical Graduates at Carmichael Junior High School on requirements of technical reporting at Hanford. A bibliography of available books on technical report writing was prepared by the Library to accompany the talk and more extensive Plant-wide circulation of it is planned. The Branch Library temporarily maintained at the School for these classes was closed on July 27, 1951.

Central Reporting Service

Work volume statistics for this unit were as follows:

	<u>June</u>	<u>July</u>
Ditto masters run	696	515
Mimeograph stencils run	850	1,109
Ditto copies prepared	28,884	21,203

Technical Services Division

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	<u>June</u>	<u>July</u>
Mimeograph copies prepared	77,034	108,868
Formal Research and Development Reports issued	7	11
Formal Reports in Process	10	15
Reports abstracted	308	194
Volume of unclassified mail handled by the 300 Area Mail Room	27,837	29,913

The Abstracting Unit issued one bibliography during the month "Water Requirements for the Cooling System of the Hanford Reactors," (HW-21220). The rough draft of another bibliography "Zirconium and Its Alloys" was completed but it is not planned to issue this as a formal report. It was recently learned that the Technical Information Services at Oak Ridge is at work on a similar bibliography, and arrangements have been completed to have them review this draft for inclusion in the master bibliography. Another draft of the bibliography "Summary of 105 Production Tests" is being typed.

Reproduction of Sections A and B of the Hanford Works Technical Manual has been completed and it appears probable that the deadline of August 31 for completion of the assignment will be met.

INVENTIONS

All Technical Services Division persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions were made in the course of their work during July 1951 except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Inventor(s)

Title

None

Signed

T. W. Hauff
T. W. Hauff, Division Head

TWH:JMF/jw

MEDICAL DEPARTMENT

JULY 1951

General

Personnel Changes

The roll remained constant at 281.

Visits

Dr. Norwood attended a meeting in the New York office called by Mr. L. Boulware for the discussion of annual physical examinations for top executives and lower levels of supervision. Mr. M. J. Smith attended a hospital accounting institute at Indiana University.

Dr. George A. Hardie, Medical Branch of A. E. C., spent one day at this project discussing medical problems.

Industrial

Employee physical examinations changed little, from 2539 to 2554.

Dispensary treatments decreased slightly from 10,210 to 9,715.

Two major and 13 sub-major injuries were treated as compared with 2 major and 15 sub-majors in June. No major and only one sub-major injury was sustained by a G. E. employee.

"First Aid" was the monthly health topic.

Sickness absenteeism (weekly roll) for July decreased by .11% to 1.42% while that for monthly roll employees increased by .11% to .75%.

Kadlec Hospital

The average daily census changed from 88.2 to 87.8 (75.0 adults, 12.8 newborn).

The census was 74.2 a year ago.

The occupancy rate for mixed service (all services except Obstetrics) was 74.6%.

Nursing hours per patient day were 3.80 for the mixed services and 4.06 for obstetrics.

The ratio of inpatient hospital employees to patients (excluding newborn) for June was 2.08.

Public Health

With the subsidence of the measles epidemic, the incidence of communicable disease reached the lowest value for the year.

Costs (June)

Medical Departments costs, before assessments to other departments, were as follows:

	<u>May</u>	<u>June</u>	<u>June Budget</u>
Industrial Medicine (Oper.)	\$ 41,383	\$ 41,729	\$ 40,500
Public Health (Oper.)	10,707	11,605	12,207
Kadlec Hospital (Net)	27,713	30,057	26,834
Hospital assessments to other departments and workmen's compensation	3,067	3,643	3,167
Subtotal - Medical Dept. - Operations	82,870	87,034	82,708
Construction Medical (Industrial and Public Health)	14,799	14,452	13,364
Total Operations and Construction	\$ 97,669	\$101,486	\$ 96,072

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MEDICAL DEPARTMENT

JULY 1951

General (Continued)

The net cost of operating the Medical Department, before assessments to other departments, was \$101,486, an increase of \$3,817 and \$5,414 above the budget.

Total revenue decreased by \$5,137, largely due to decrease in Kadlec Hospital census. While salaries were down due to the shorter work month, this was more than offset by increased purchases, primarily consisting of food supplies, pharmacy supplies and household and property supplies.

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COST SUMMARY - FISCAL YEAR 1951

KADLEC HOSPITAL

(Amounts in Thousands)

	FY 1951 <u>ACTUAL</u>	FY 1950 <u>ACTUAL</u>	FY 1951 <u>BUDGET</u>
<u>Expenses</u>			
Administration	\$ 143	\$ 99	\$ 143
Dietary	103	91	96
Household & Property	46	30	43
Professional Services	529	483	516
Other - Net	81	85	64
Total Expenses	<u>902</u>	<u>788</u>	<u>862</u>
<u>Revenue</u>			
Room and Board	264	203	261
Other	<u>361</u>	<u>277</u>	<u>325</u>
Total Revenue	<u>625</u>	<u>480</u>	<u>586</u>
<u>Net Cost</u>	<u>\$ 277</u>	<u>\$ 308</u>	<u>\$276</u>
<u>In-Patient Statistics - Adults</u>			
Number of Patient Days	29 010	22 536	28 100
Cost Per Patient Day	\$29.24	\$31.12	\$29.81
Revenue Per Patient Day	\$18.29	\$16.63	\$17.21
Average Stay (number of days per patient)	5.1	5.1	
Average Daily Census	79.5	61.7	77.0
Nursing Hours Per Patient Day -			
Mixed Services (Med., Surg., Ped.)	3.35	3.59*	
Obstetrical Service	4.67	5.46*	
Employees Per Patient (excluding new born infants)	1.85		

*Last six months only

Net hospital operating costs were \$33 000 less in FY 1951 as compared to FY 1950. Revenue was \$145 000 greater and total expenses were \$114 000 higher than FY 1950.

Net costs being \$33 000 less in FY 1951 were due to (1) a much higher adult patient census in FY 1951 as compared to FY 1950 and (2) a lower number of employees per patient day in FY 1951. The average number of adult patients per day in FY 1951 were 79.5 as compared to 61.7 in FY 1950, a difference of 17.8 adult patients per day. Nursing hours for mixed services were .24 less per adult patient day in FY 1951 and nursing hours for obstetrical services were .79 less.

Gross costs increased \$114,000 in FY 1951 over FY 1950 due to (1) a greater number of employees because of the higher patient census (2) salary increases during FY 1951 amounting to approximately 12%, and (3) higher administrative costs resulting from doctors and dentists going into private practice on May 1, 1950. Certain overhead costs charged to the clinic prior to May 1, 1950, were charged to Kadlec Hospital after that date.

Revenue increased \$145 000 due to (1) higher patient day census numbering 17.8 more adult patients per day in FY 1951 as compared to FY 1950, and (2) revenue averaged \$1.66 more per adult patient per day in FY 1951 than in FY 1950.

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INDUSTRIAL MEDICAL

(Amounts in Thousands)

	FY 1951 <u>ACTUAL</u>	FY 1950 <u>ACTUAL</u>	FY 1951 <u>BUDGET</u>
Administration	113	122	119
Household & Property	23	26	20
Professional Service	409	432	412
Other - Net	75	81	75
Total Expenses	<u>620</u>	<u>661</u>	<u>626</u>
Less: Revenues	19	10	12
Net Cost of Operations	<u>601</u>	<u>651</u>	<u>614</u>
Average Number of Employees	14,083	10,093	
Cost Per Employee Per Year	\$42.68	\$64.50	

Note-Employee figures include General Electric Company employees, Sub-Contractor employees, and Atomic Energy Commission employees.

Net costs were reduced \$50,000 in FY 1951 as compared to FY 1950. Total expenses were reduced \$41,000 and revenues increased in the amount of \$9,000.

The reduction in net costs of \$50,000 was largely due to reduced number of employees and increased efficiency of operation. Minor reductions in cost in FY 1951 as compared to FY 1950 are due to changes in prorating Administrative, X-ray and Laboratory costs to Industrial Medical Sections. Cost per employee reduced from \$64.50 in FY 1950 to \$42.68 in FY 1951, a reduction in the amount of \$21.82 per employee.

Revenues increased in the amount of \$9,000 in FY 1951 primarily due to pre-employment examinations given by the Industrial Medical Section to employees of Holmes and Narver Company and Waale-Camplin Company for which the Industrial Medical Section was reimbursed directly by these companies for this service.

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PUBLIC HEALTH

(Amounts in Thousands)

	~~DECLASSIFIED~~ FY 1951 ACTUAL	FY 1950 ACTUAL	FY 1951 BUDGET
Administration	\$ 41	\$ 34	\$ 42
Household & Property	8	3	8
Professional Services	63	65	66
Other	23	20	22
Total Expenses	135	122	138
Less: Revenues	1	4	2
Assessments to Other Divisions	3	-0-	
Net Cost	<u>\$131</u>	<u>\$118</u>	<u>\$136</u>
Cost Per Capita			
General Public Health	\$2.60	\$1.72	
Bedside Nursing	.45	1.29	
Mosquito Control	.62	.23	
Milk Sanitation	.12	.30	
School Nursing	.44	.67	
Health Education	.36	.24	
Welfare	1.11	.68	
Total	<u>\$5.70</u>	<u>\$5.13</u>	

Note-Unit factors based on a population of 23,000 in Richland.

Net Public Health operating costs increased from \$118,000 in FY 1950 to \$131,000 in FY 1951, a difference of \$13,000. Gross costs increased \$13,000 and revenues decreased \$3,000. Public Health cost per capita increased \$.57 in FY 1951 as compared to FY 1950.

Increased costs in FY 1951 were due to (1) higher prorata share of Medical Department's overhead costs charged to Public Health after clinic doctors and dentists went into private practice on May 1, 1950, (2) salary increases in FY 1951 amounting to approximately 12%, (3) loaned labor for the mosquito control program was billed to Public Health at a higher rate than previous years, and (4) revenues were \$3,000 less, due to doctors making their own home calls rather than sending Public Health nurses to the home to give shots as was the usual practice in past years.

Administrative, Household and Property and Other costs increased \$15,000 in FY 1951 whereas professional services costs decreased \$2,000. Direct costs of the Public Health Program were actually reduced, whereas indirect expenses increased.

Note - Assessments to Other Divisions in the amount of \$3,000 in FY 1951 represents cost of maintaining space for clinic doctors from June through December and the community divisions from January through June FY 1951.

MEDICAL DEPARTMENT

JULY 1951

Industrial Medical Section

General

The total number of physical examinations remained about the same as the previous month, 2,539, as compared to 2,554. General Electric employees sustained only 1 sub-major injury. Sub-contractor employees sustained 2 major injuries and 12 sub-major injuries. The MJQ First Aid station in the 200 W area discontinued service and was moved to the 100 C area. Part time first aid service was begun at the hot semi-works location in 200 East area. The total number of treatments administered decreased from 10,210 to 9,715. Temporary suspension of annual examinations and modification of the interval examination schedule continued due to the lack of industrial physicians.

The chemical hazards committee met on July 18th. A report on "Health Hazards of Pesticides" was prepared and submitted to the users of these materials. The proposed use of mercuric nitrate was discussed and other hazards considered were carbon monoxide, metallic mercury, ditto fluids, and type cleaners.

The Health Activities committee met on July 19th and the Health topic, "First Aid" was presented. Material on this subject was prepared for distribution to all employees. The distribution of health topic material was reviewed and improvements in distribution effected.

Absenteeism for weekly employees due to all causes decreased by .11% to 2.26%, while absenteeism due to sickness decreased by .11% to 1.42%. Absenteeism for monthly employees due to all causes decreased by .19% to 1.00%, while absenteeism due to sickness increased by .11% to .75%.

Dr. George A. Hardie, Assistant to chief (Industrial Health) Medical Branch of the AEC Division of Biology and Medicine was a visitor for one day during the month. Industrial Medical problems here and at other AEC installations were discussed.

Medical testimony was given in several Department of Labor hearings during the month.

The net cost of operations increased \$405 as compared with the previous month. This was due to an increase in continuity of service charges due to increased salaries and clerical work load.

Industrial Medical Costs:

	Increase or (Decrease) over Previous Month	June	May	June Budget
Administration	\$ (86)	\$ 8,210	\$ 8,296	\$ 8,937
Household & Property	139	1,648	1,509	1,300
Professional Services	722	27,373	26,651	26,250
Total Direct Expense	775	37,231	36,456	36,487
Accrual for Public Liability Claims	0	150	150	0
Transferred from Other Divisions	(78)	5,317	5,395	5,070
Less: Revenue	351	969	618	1,057
Workmen's Compensation	(59)	450	509	700
Net Cost of Operations	405	41,279	40,874	40,500

The net cost of operations increased \$405 as compared with previous month.

MEDICAL DEPARTMENT

JULY 1951

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Industrial Medical Section (Continued)

	June	July	Year to Date
<u>Physical Examinations</u>			
<u>Operations</u>			
Pre-employment	493	339	2184
Rehire	53	47	387
Annual	49	23	1861
Interval	348	235	1953
Visitor	2	2	6
A. E. C.	23	4	140
Re-examination and rechecks	150	136	1037
Termination	210	189	1149
Sub-total	1328	975	8717
<u>Sub-contractors</u>			
Pre-employment	312	356	2315
Rehire	308	382	2316
Recheck	72	87	623
Termination & Transfer	519	754	4336
Sub-total	1211	1579	9590
Total Physical Examinations	2539	2554	18307
<u>Laboratory Examinations</u>			
<u>Clinical Laboratory</u>			
Government	119	30	606
Pre-employment, termination, transfer	7814	7236	46187
Annual	336	133	9747
Recheck (Area)	1803	1199	10129
First Aid	18	20	120
Clinic	807	552	13458
Hospital	4142	4301	31065
Public Health	11	14	168
Total	15050	13485	111480
<u>X-Ray</u>			
Government	11	3	86
Pre-employment, termination, transfer	1197	1079	7339
Annual	55	27	1849
First Aid	231	214	1348
Clinic	320	323	1993
Hospital	294	325	2065
Public Health	4	6	46
Total	2112	1977	14726
<u>Electrocardiographs</u>			
Industrial	6	6	138
Clinic	4	8	35
Hospital	36	26	226
Total	46	40	399
<u>Allergy</u>			
Skin Tests	2	0	17

MEDICAL DEPARTMENT

JULY 1951

Industrial Medical Section (Continued)

	June	July	Year to Date
<u>First Aid Treatments</u>			
<u>Operations</u>			
New Occupational Cases	374	389	2325
Occupational Case Retreatments	1202	1180	7520
Non-occupational Treatments	2742	2432	19513
Sub-total	4318	4001	29358
 <u>Construction</u>			
New Occupational Cases	876	1135	6344
Occupational Case Retreatments	3872	3620	22568
Non-occupational Treatments	1104	929	7182
Sub-total	5852	5684	36094
<u>Facility Operators</u>	40	30	244
Total First Aid Treatments	10210	9715	65696
 <u>Major Injuries</u>			
General Electric	0	0	3
Sub-contractors	2	2	24
Total	2	2	27
 <u>Sub-major Injuries</u>			
General Electric	1	1	12
Sub-contractors	14	12	74
Total	15	13	86
 <u>Absenteeism Investigation</u>			
Total No. calls requested	12	9	83
Total No. calls made	12	9	83
No. absent due to illness in family	0	0	0
No. not at home when call was made	3	1	16

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HANFORD WORKS

ABSENTEEISM REPORT

July 1951

ABSENTEEISM ALL CAUSES BY DIVISION

	WEEKLY			MONTHLY		
		%			%	
Manufacturing	1854	1.34	Medical	1101	.33	1.13
General Accounting	1198	2.10	General Accounting	821	.34	1.64
Municipal, Real Estate & General Services	3052	2.32	Health Instrument	278	.75	3.11
Medical	1198	2.33	Municipal, Real Estate & General Services	298	.84	
Health Instrument	1198	2.43	Purchasing & Stores	20	.87	
Employee & Community Relations	1198	2.49	Technical, Engineering & Construction	20	.88	
Plant Security & Services	1198	2.78	Manufacturing	20	.15	
Technical, Engineering & Construction	1198	2.79	Plant Security & Services	20	.14	
Purchasing & Stores	1198	2.84	Employee & Community Relations	20	.36	

	ALL CAUSES				SICKNESS ONLY				AVERAGE DAYS LOST DUE TO SICKNESS BY EACH EMPLOYEE			
	Male	Female	Total	% Inc (Dec)	Male	Female	Total	% Inc (Dec)	Male	Female	Total	
WEEKLY ROLL 7-2-51 to 7-30-51	1854	1198	3052	2.26 (.11%)	1101	821	1922	1.42 (.11%)	.22	.46	.28	
MONTHLY ROLL July 1951	377	20	397	1.00 (.19%)	278	20	298	.75 .11%	.14	.36	.15	

Comparison of present year to date total absenteeism figure with the 1950 figure shows an increase of .59% (Weekly)

Combined total weekly and monthly 2.00%.

MEDICAL DEPARTMENT

JULY 1951

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Hospital Section

General

The Medical Department's roll remained unchanged during the month at 281.

The average daily adult census decreased from 76.7 to 75.0, as compared to 63.9 a year ago. This represents an occupancy percentage of 72.8% broken down as follows: Mixed Service (Medical, Surgical, Pediatrics)- 74.6%; Obstetrical Service - 65.5%. The minimum and maximum daily census during the month ranged as follows:

	<u>Minimum</u>	<u>Maximum</u>
Mixed Service	50	75
Obstetrical Service	9	17
Total Adult	62	85

The average daily newborn census increased from 11.5 to 12.8, as compared to 10.3 a year ago.

Nursing hours per patient per day:

Medical, Surgical, Pediatrics . . .	3.80
Obstetrical	4.06

The ratio of inpatient hospital employees to patients (excluding newborn) for the month of June was 2.08. When newborn infants are included, the ratio is 1.78.

The net expense of the Richland community medical program for June, 1951 was \$30,057, as compared to \$27,713 for May. Summary is as follows:

Kadlec Hospital net expense \$30,057
 This is an increase of about \$2350 over May. The additional expense results from approximately \$2300 increase in supply costs charged for during this month; a reduced revenue of about \$4350 due to lower patient census; and deductions for workmen's compensation costs reduced by \$250. These increases in net expense were not sufficiently offset by a reduction in transferred charges of approximately \$3750 and an increase in assessments to other divisions of \$800.

Mr. M. J. Smith, Accounting Supervisor, attended an Accounting Institute at Indiana University, Bloomington, Indiana. This institute was sponsored by the American Association of Hospital Accountants in cooperation with the American Hospital Association was held from July 15 through July 20.

Work is progressing satisfactorily on the hospital construction and remodeling program. It is expected that the addition to the obstetrical wing will be available for occupancy within a few day. The major installation of kitchen equipment was completed during this month.

MEDICAL DEPARTMENT

JULY 1951

Hospital Section (Continued)

<u>Kadlec Hospital</u>	<u>June</u>	<u>July</u>	<u>Year to Date</u>
Average Daily Adult Census	76.7	75.0	81.4
Medical	22.8	21.0	25.7
Surgical	28.3	30.4	31.5
Pediatrics	12.6	10.5	15.0
Obstetrical	13.0	13.1	12.2
Average Daily Newborn Census	11.5	12.8	11.9
Maximum Daily Census:			
Mixed Services	77	75	
Obstetrical Service	19	17	
Total Adult Census	90	85	
Minimum Daily Census:			
Mixed Services	53	50	
Obstetrical Service	7	9	
Total Adult Census	63	62	
Admissions: Adults	495	480	3671
Discharges: Adults	511	463	3659
Newborn	74	80	499
Patient Days: Adult	2302	2323	17893
Newborn	344	397	2523
Total	2646	2720	20416
Average Length of Stay: Adults	4.5	5.0	4.9
Newborn	4.6	5.0	5.1
Occupancy Percentage: Adults	74.5	72.8	81.9
Newborn	82.1	91.4	85.0
(Occupancy Percentage based on 103 adult beds and 14 bassinets.)			
Avg. Nursing Hours per Patient Day:			
Medical, Surgical, Pediatrics	3.68	3.80	
Obstetrics	4.23	4.06	
Avg. No. Employees per Patient (excluding newborn)	2.08		
Operations: Major	72	69	561
Minor	88	100	629
E.E.N.T.	79	38	509
Dental	2	3	25
Births: Live	67	81	492
Still	1	0	2
Deaths	5	6	33
Hospital Net Death Rate	.51%	.37%	.31%
Net Autopsy Rate	20.0	33.3	30.3
Discharged against advice	3	1	8
One-day Cases	131	90	746
Admission Sources:			
Richland	77.0	76.6	75.5
North Richland	10.1	9.7	11.2
Other	12.9	13.7	13.3

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MEDICAL DEPARTMENT

JULY 1951

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Kadlec Hospital (Continued)

Admissions by Employment:

	<u>June</u>	<u>July</u>	<u>Year to Date</u>
General Electric	72.1	71.0	72.5
Government	2.8	2.1	2.5
Facility	4.6	3.9	4.5
Sub-contractors	16.5	17.9	15.2
Schools	1.2	1.3	1.5
Military	1.2	.6	1.9
Others	1.4	3.1	1.8
Hospital Outpatients Treated	431	426	3112

Physical Therapy Treatments

Clinic	99	40	938
Hospital	59	75	541
Industrial: Plant	130	88	949
Personal	8	33	147
Total	296	236	2575

Pharmacy

No. of Prescriptions Filled	2905	2884	21947
No. of Store Orders Filled	571	686	4927

Patient Meals

Regulars	3667	4133	28433
Specials	1088	1340	8813
Lights	11	0	103
Softs	1167	747	9736
Tonsils & Adenoids	162	56	1100
Liquids	200	167	1399
Surgical Liquids	76	52	540
Total	6371	6495	50124

Cafeteria Meals

Noon	1433	1529	10037
Night	242	252	1608
Total	1675	1781	11645

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MEDICAL DEPARTMENT

JULY 1951

Public Health Section

General

The communicable disease incidence was down to the lowest level experienced this year. This was chiefly due to the subsidence of the measles epidemic which we have experienced. However, there was a slight rise in the number of cases of mumps reported. To date, we have not had any Poliomyelitis reported but the State of Washington incidence indicates there are approximately 50% more cases reported up to the present time than for the same period last year.

The nursing home visits were down approximately 15%, due to the lighter communicable disease case load. There was an increase in maternal and child welfare services due to a shift of emphasis of the program since the communicable disease picture has changed.

The four Richland teachers enrolled in the Section for field experience completed their course. A report on this program will be made next month to a group representing the University of Washington, Richland School District and our local health department.

Routine inspections of food handling establishments were made, with satisfactory results. Proper food handling methods are continually being stressed and as a result there is much improvement along this line.

Field inspections and laboratory tests indicate the milk supply to be of good quality. Two producers were rejected during the month for failure to comply with sanitation requirements. Proper cooling and refrigeration of milk seems to be the most prevalent problem.

Insect and rodent control complaints have become more numerous. Plans are being formulated for the baiting of the North Richland garbage dump with Warfarin in the near future, to eliminate the infestation.

An increase of dog bites and nuisance complaints has been noted.

Results of bacteriological examination of water obtained from the swimming pool indicates an efficient operation.

There has been a noticeable increase in adult mosquitoes in the community. This is due largely to over-watering on the part of the residents. Mosquito control operations consisted of spraying periphery of village with aircraft and power equipment. The residential areas are being treated with 5% emulsifiable DDT. A fogging machine is being used in the evenings when no wind is prevalent. Riverside Park is being sprayed weekly with DDT emulsion, with excellent results.

Mosquito control operations during the month of August will be concentrated to a greater extent in the residential areas, which appear to be the major source of difficulty, since the outlying areas have been brought under control.

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MEDICAL DEPARTMENT

JULY 1951

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Public Health Section (Continued)

General (Continued)

Complaints were received on the taste and odor of sanitary water supplied by the North Richland well field. A check on this indicated that a new type of weed killer used in the canal feeding the well field was the cause of this unusual condition. No morbidity was traced to this occurrence and the condition was cleared up by natural dilution in 72 hours.

The social service counselors assisted in making plans for several physically handicapped children to attend a special camp. Camp experience was also made possible for a number of youngsters who, because of difficulties in family relationships, emotional problems, etc., were in need of the benefits derived from a period of supervised group living.

In addition to these special summer projects, the usual number of requests were made for various kinds of social service, including marital counseling, parent-child relationships and counseling around difficulties arising from illness, vocational adjustment and economic emergencies, etc.

MEDICAL DEPARTMENT

JULY 1951

Public Health Section (Continued)

	June	July	Year to Date
<u>Education</u>			
Pamphlets distributed	10000	10000	70591
News Releases	0	0	0
Staff Meetings	1	0	10
Classes	3	12	21
Attendance	121	48	256
Lectures & Talks	1	0	35
Attendance	25	0	890
Films Shown	3	3	25
Attendance	121	25	1134
Community Conferences	14	25	211
Radio Broadcasts	0	0	0
<u>Immunizations</u>			
Diphtheria	2	1	103
Diphtheria Booster	181	7	272
Tetanus	4	2	592
Tetanus Booster	188	7	416
Pertussis	2	1	19
Pertussis Booster	179	7	245
Rocky Mountain Spotted Fever	2	0	8
Rocky Mountain Spotted Fever Booster	0	0	2
Typhoid	1	0	17
Typhoid Booster	0	0	0
Smallpox	31	1	48
Smallpox Revaccination	205	5	238
Tuberculin Test	3	3	27
<u>Social Service</u>			
Cases carried over	86	94	591
Cases admitted	23	7	116
Cases closed	15	18	113
Remaining case load	94	83	595
Activities:			
Homes Visits	8	12	164
Office Interviews	206	194	1547
Conferences	84	44	495
Meetings	14	6	101
<u>Sanitation</u>			
Inspections made	113	148	946
Conferences held	14	16	79
<u>Bacteriological Laboratory</u>			
Treated water samples	214	231	1364
Milk samples (inc. cream & ice cream)	21	11	90
Other bacteriological tests	222	195	1743
Total	457	440	3197

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MEDICAL DEPARTMENT

JULY 1951

Public Health Section (Continued)

Communicable Diseases	June	July	Year to Date
Amoebic Dysentery	0	0	1
Chickenpox	7	1	374
Erysipelas	0	0	7
German Measles	12	12	78
Gonorrhea		1	1
Histoplasmosis	0	0	1
Impetigo	0	0	3
Influenza (Upper Respiratory Infection) . .	0	0	3092
Measles	189	14	1115
Meningitis	0	0	2
Mumps	1	6	13
Salmonellosis	0	0	2
Pinkeye	0	0	13
Rheumatic Fever	0	0	2
Ringworm	0	2	16
Roseola	1	0	14
Scabies	1	1	4
Scarlet Fever	2	2	50
Syphilis	0	1	21
Tuberculosis	0	1	8
Whooping Cough	0	3	7
Total	213	44	4824
 Total No. Nursing Field Visits	 732	 596	 5953
Total No. Nursing Office Visits	107	57	879

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MEDICAL DEPARTMENT'S PERSONNEL SUMMARY

July 31, 1951

	Physicians	Nurses	Anesthetists	Nurse Aides	Orderly & Amb. Dr.	Technicians - Clin. Laboratory	Tech. - X-Ray	Tech. - Bact. Lab.	Tech. - Phys. Ther.	Secretary	Clerical - Other	Steno. & Typist	Office Mach. Oper.	Telephone Oper.	General Clerk	Pharmacist	Dietitian	Cook	Kitchen Worker	Soc. Serv. Couns.	Sanitarian	Health Educator	Janitors	Records Supv.	Accounting Supv.	Adm. & Assistant	Others	TOTAL	
1100																													
Area																													
Department Admin.	2	2								2	1	1	1	3	11										2	3	2	1	31.0
Industrial	2.5	9		1								2	1		8.375								4.6						28.5
Hospital	2	56	3	24	6	8.8	4	1	1			4			11.5	3	2	5	11				7.8				7	157.1	
Public Health	1	7										2			1.125					3	2	1	.6					17.7	
Industrial	2.2	1				2	1								6								.7					12.9	
Public Health		2																					.3					2.3	
M.J. - 4		1																										1.0	
100-B	.1	4													.25													4.4	
100-D	.1	1				.1									.25													1.5	
100-F	.1	4													.25													4.4	
100-H	.1	1				.1									.25													1.4	
241-S		1																										1.0	
200-E	.2	4				.1									.333													4.6	
200-W	.3	5				.8									.333													6.4	
300	.2	2				.1									.333													2.6	
M.J.-1	.2	2													1													3.2	
White Bluffs		1																										1.0	
TOTAL	11	103	3	25	6	12	5	1	1	2	1	9	2	3	40.999	3	2	5	11	3	2	1	14	2	3	2	8	281.0	

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* 4 part-time and temporary nurses included
 ** 1 temporary nurse-aide included

Number of employees on roll:
 Beginning of month 281
 End of month 281
 Net increase 0

1100000

HEALTH INSTRUMENT DIVISIONS

JULY 1951

Summary

There were five informal and two Class I special hazards incident investigations.

The continued emission of I¹³¹ from the separations plants contaminated vegetation to excessive levels over an area in excess of 20,000 square miles. Corrective measures applied in mid-month were expected to restore this type of contamination to normal levels.

Some peculiar results in the measurement of active particle concentrations in the atmosphere of the states of Washington, Oregon, Idaho and (western) Montana were suggestive of contributions from extraneous sources.

The hazards produced by plutonium dissemination from Concentration Buildings have been borderline to critical for some time, and more emphasis is to be applied in this field.

Another month passed without overexposure or near-overexposure in tritium handling activities. This hazard problem now appears to be substantially under control.

In biological research, an incredible rate of conversion of hydrogen to water by organisms, not classically recognized as hydrogen users, was detected by tritium tracer methods. This item of basic scientific significance developed from the purely practical question of the greatly increased hazard due to released tritium gas being converted to tritiated water.

In all other matters, the findings of the divisions showed no significant deviations from expected patterns.

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Health Instrument Divisions

DECLASSIFIEDHEALTH INSTRUMENT DIVISIONSJULY 1951Organization

The composition and distribution of the force as of 7/31/51 was as follows:

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200-E</u>	<u>200-W</u>	<u>300</u>	<u>700</u>	<u>P.G.</u>	<u>Total</u>
Supervisors	1	1	7	2	3	12	12	6	-	44
Engineers *	4	4	31	5	6	23	14	3	-	90
Clerical	-	-	3	1	1	3	3	5	-	16
Others	14	18	57	12	40	92	62	11	7	313
Total	19	23	98	20	50	130	91	25	7	463

* includes chemists, biologists, etc.

Number of employees on PayrollJuly 1951

Beginning of month

450

End of month

463

Net increase

13

Added to the roll were an engineering assistant, 12 technical graduates, 5 inspectors, 5 laboratory assistants, a reproduction and photo assistant, 2 general clerks, and a steno-typist.

Removed from the roll were a staff assistant, a pencil supervisor, a radiation engineer, a technologist, an inspector, 3 laboratory assistants, 2 personnel meters clerks, 3 general clerks, and a steno-typist.

General

There were five informal investigations of minor special hazards incidents. Four were concerned with management of contamination, and the fifth involved improper access to a radiation danger zone. Two Class I special hazards incidents respectively concerned spread of contamination in a construction task in a tank farm, and skin contamination of a mechanic in the Isolation Building, which led to low, but measurable, deposition of plutonium in the body.

In mid-month, the corrected silver reactor began to reduce the emission of I131 by a factor of about 15 to 20 fold. Trial use of mercuric salts also reduced that portion of the iodine hazard not connected with the dissolver.

Health Instrument Divisions

At the end of the month, the contamination in a large area bounded approximately by Ellensburg, Wn., The Dalles, Oregon, Walla Walla, Wn., Lewiston, Idaho, Mullan Pass, Montana, and Spokane, Wn., still exceeded the permanently permissible limit. The involved area of more than 20,000 square miles contained, by conventional calculation, between 1000 and 2000 curies I^{131} , a surprisingly large fraction of the available existing amount of 2300 curies, based on an assumed daily emission of 200 curies.

Peculiar results in the matter of active particle concentrations in the air have been recorded in the past few months. Typical values are reported below.

ACTIVE PARTICLES PER 1000 CUBIC METERS OF AIR

Location	Vector	1950	1951						
		July	Jan.	Feb.	Mar.	April	May	June	July
Meteorology Tower 200-ft.	~ origin	2	2	49	12	5	15	7	54
200-W gate	~ origin	7	12	33	21	28	57	22	24
Pasco, Wn.	35m S 40° E	0.2	2	17	7	6	5	5	20
Benton City, Wn.	25m S 5° E	< 0.1	2	3	5	5	4	7	13
Stampede Pass, Wn.	100m N 60° W	< 0.2	< 0.2	< 0.2	8	2	3	4	0.5
Klamath Falls, Oregon	330m S 20° W	< 0.4	< 0.3	0.4	16	11	40	15	8
Meacham, Oregon	95m S 35° E	< 0.2	< 0.3	< 0.4	49	4	2	11	8
Walla Walla, Wn.	70m S 55° E	0.3	0.3	4	15	5	2	11	12
Lewiston, Idaho	125m S 80° E	< 0.3	< 0.3	63	9	5	3	14	4
Boise, Idaho	265m S 40° E	< 0.4	< 0.3	18	21	13	12	20	7
Spokane, Wn.	120m N 55° E	< 0.3	< 0.6	43	8	5	1	7	8

Data reported as of March, for example, actually covered mid-February to mid-March, and so on. The prominent increase in February and March was ascribed to the Nevada tests. However, the high values in recent months can scarcely be attributed to this source; nor is it easy to reconcile the distribution exclusively with the emissions from the Hanford Works. Difficult low-level analysis is in process to

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Health Instrument Divisions

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ascertain whether the age of the particles offers a clue to their origin.

Measured activity density of tritium (as oxides) in the atmosphere of the 100-B Area and vicinity continued to be higher than expected values, but only by a factor ~ 10 , which may well be within the uncertainty of meteorological prediction.

The hazard of plutonium dissemination from the cell vents of the Concentration Buildings, troublesome for some time, was in no way relieved.

The following trips were reported:

J.W. Healy - Chalk River, Canada
K.E. Herle - U. of Missouri, and ORNL.

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

Inventor

Title

none

none

DECLASSIFIEDOPERATIONAL DIVISION100 Areas

<u>General Statistics</u>	<u>June</u>					<u>July</u>					<u>1951 to Date</u>
	<u>B</u>	<u>D</u>	<u>F</u>	<u>H</u>	<u>Total</u>	<u>B</u>	<u>D</u>	<u>F</u>	<u>H</u>	<u>Total</u>	
Special Work Permits	545	936	524	719	2724	604	1032	743	755	3134	21715
Routine & Spec. Surveys	522	725	572	616	2435	477	676	574	483	2210	16623
Retention Basin	127	334	100	118	679	80	227	56	98	461	4036
Air Monitoring Samples	126	88	182	58	454	210	28	119	57	414	3638

Retention Basin Effluent

The activity of the water leaving the retention basin was as follows:

	<u>100-B</u>	<u>100-D</u>	<u>100-DR</u>	<u>100-F</u>	<u>100-H</u>
Power Level (MW)	415	445	537	455	545
Average beta dosage-rate (mrep/hr)	1.7	1.9	2.9	1.4	1.8
Average gamma dosage-rate (mr/hr)	4.2	4.1	5.5	4.7	4.4
Average total dosage-rate (mrep/hr)	5.9	6.0	8.4	6.1	6.2
Average integrated dose in 24 hrs. (mrep)	132	1.4	202	146	149
Maximum integrated dose in 24 hrs. (mrep)	187	166	254	216	180
Maximum integrated dose in 24 hrs. (mrep) (1951)	248	214	331	225	230

100-B AreaPile and Associated Buildings

A ruptured uranium piece was removed from tube #2169 with a maximum exposure-rate of 10 rep/hr to the hands.

The dry loading of P-10 pieces at the wash pad resulted in a maximum air sample reading of 2.5×10^{-5} μ c tritium oxide/cc of air. Urine samples from personnel involved showed less than 20 μ c tritium oxide/liter.

A sample of condensate water collected in one of the dryer rooms showed 490 μ c tritium oxide/cc of water.

P-10 Operations - 108-B Building

Four urine samples analyzed gave results above 20 μ c tritium oxide/liter, with a maximum of 38.3 μ c tritium oxide/liter obtained from a line operator.

Air samples taken in the 100-B Area and vicinity generally averaged 2×10^{-7} to 5×10^{-7} μ c T/cc.* In the hood rooms, the average was about 3×10^{-6} μ c/cc. The average activity density in the stack was 2.5×10^{-4} μ c/cc.

Metallurgical Laboratory - 111 Building

Radiation conditions were normal during this period of operation.

* all measured as oxides.

100-D Area105-D Pile and Associated Buildings.

Three ruptured pieces were removed without untoward radiation hazard.

105-DR Pile and Associated Buildings

Two ruptured uranium pieces were discharged from the pile without incident.

Three operators were sprayed with process water when a rear face cap was removed from a tube before the water pressure was reduced. The contamination was promptly removed, and no overexposure was indicated.

100-F AreaPile and Associated Buildings

Considerable difficulty was encountered removing a ruptured uranium piece from tube #4380 leading to potential exposure rates of 4 to 30 r/hr. However, personnel meters worn during the outage indicated no apparent overexposure to personnel involved.

Dryer room condensate samples showed a maximum activity density of 88 μ c tritium oxide/cc of water.

Biology Facilities

No unusual radiation condition was reported during this period.

100-H AreaPile and Associated Buildings

Four ruptured P-10 pieces and one ruptured uranium piece were removed from the pile with a maximum exposure-rate of 3 rep/hr reported.

200 Areas - T and B Plants

<u>200 Areas - T and B Plants</u>											1951
<u>General Statistics</u>											to
	<u>June</u>					<u>July</u>					Date
	<u>234-</u>					<u>234-</u>					
	<u>T</u>	<u>B</u>	<u>231</u>	<u>235</u>	<u>Total</u>	<u>T</u>	<u>B</u>	<u>231</u>	<u>235</u>	<u>Total</u>	
Special Work Permits	601	304	22	197	1124	519	265	48	279	1111	7904
Routine & Spec. Surveys	529	472	296	402	1699	498	482	471	351	1802	13109
Air monitoring samples	931	479	323	1041	2774	1155	457	382	1033	3027	20940
Thyroid checks	201	37	--	--	238	249	42	--	--	291	1083

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Health Instrument Divisions

DECLASSIFIEDAir Sample Results

In the T Plant, 623 of 1,016 air samples showed results above 10^{-12} $\mu\text{g Pu/cc}$, with a maximum of 3×10^{-10} $\mu\text{g Pu/cc}$ taken with the blocks off the dissolver cell.

Two hundred ten samples were above 10^{-10} $\mu\text{c f.p./cc}$, with a maximum of 7.9×10^{-9} $\mu\text{c f.p./cc}$ with the blocks off the dissolver cell.

In the B Plant, 81 of 375 air samples were above 10^{-12} $\mu\text{g Pu/cc}$, with a maximum of 4.9×10^{-9} $\mu\text{g/cc}$ taken during crane work with cell blocks removed. Twenty seven samples were above 10^{-10} $\mu\text{c f.p./cc}$, with a maximum of 6.1×10^{-8} $\mu\text{c f.p./cc}$ taken during crane work in the canyon.

Canyon Buildings

In the T Plant, excessive contamination around the sample ports was removed when potential exposure-rates up to 30 rep/hr were reported.

In the B Plant, decontamination of the canyon deck successfully reduced potential exposure-rates up to 30 rep/hr.

Concentration Buildings

In the T Plant, outside air samples showed concentrations of plutonium at ground level to exceed maximum permissible concentrations. At one point, 75 feet southwest of 224-T, the air concentration averaged 7.6×10^{-11} $\mu\text{g Pu/cc}$ for a two-week period, with a maximum concentration of 2.3×10^{-10} $\mu\text{g Pu/cc}$. On the building roof, a maximum air concentration of 4×10^{-10} $\mu\text{g Pu/cc}$ was reported. Cocooning of the shafted tanks was completed this month in an effort to correct this condition.

Cell roof vents indicated the following average discharge rates:

Cell vent	$\mu\text{g Pu/24 hours}$	
	224-B	224-T
A	36	--
B	45	310
C	--	370
D	60	500

Construction Areas

In the 200-East Area, removal of the 105-CR sluice pit thermohm well resulted in spread of contamination. Low level skin and clothing contamination of construction personnel resulted when a local dust storm caused further spread. Immediate decontamination efforts were successful where surveying was possible. Some spread of low level contamination to one room in the barracks at North Richland resulted, but prompt control and decontamination was effected.

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Plant Laundry

One of the 59 air samples showed a positive result, 3.6×10^{-12} $\mu\text{g Pu/cc}$, taken while processing 200 Area clothing. All air sample results were below 10^{-10} $\mu\text{c f.p./cc}$.

General

All routine thyroid checks were below the warning level.

Contamination of the ground and air due to I^{131} was detected less frequently during this period. Thirty seven thyroid checks in a non-routine series indicated positive counts with a maximum of 0.05 μc reported.

Isolation Building

Two hundred seventy three of 382 air samples taken were above 10^{-12} $\mu\text{g Pu/cc}$, with a maximum of 1.4×10^{-9} $\mu\text{g Pu/cc}$ obtained in the 903 duct system. Ninety six unregulated items and 16 floor locations were found contaminated. Contamination on a maintenance man obtained during the installation of a water-line to the Ctl condenser was not entirely removed for several days because of an irritated skin condition. However, no overexposure was indicated by bio-assay samples. Maximum levels of gamma radiation encountered were 160 mr/hr on PR containers, 28 mr/hr at process hoods, and 16 mr/hr on SC cans.

Purification Building

Air Sample Results

Two hundred and forty four of 1,033 air samples taken were above 10^{-12} $\mu\text{g Pu/cc}$ with a maximum of 2.8×10^{-8} $\mu\text{g Pu/cc}$ obtained in the ducts after the primary filtering.

Operating Section

Decontamination progressed in rooms 222, 223, and 228; however, further decontamination is necessary before mask wearing can be discontinued in these rooms.

General Building

Plutonium concentration in the exhaust air of hoods 8 through 28 increased to 10^{-8} $\mu\text{g Pu/cc}$. Failure of the filters in hood 8 was suspected.

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200 Area Control Laboratories

	<u>T</u>	<u>B</u>	<u>231</u>	<u>234- 235</u>
Items contaminated - not regulated	185	98	206	163
Skin contamination - alpha	1	1	15	4
Skin contamination - beta	4	1	--	--
Contaminated floor locations	27	46	26	56

In the T Plant, pencils worn by a laboratorian were found contaminated to 70 mrep/hr. However, there was no apparent spread of contamination.

In the Isolation building, eight of the nine skin contamination instances were attributed to inadequate personal surveys, improper glove removal, or lack of proper protective apparel.

Particulate contamination in particles per 1000 cubic meters was as follows:

<u>Location</u>	<u>June</u>	<u>July</u>
222-T Outside	89	190
Hallway	100	140
Room 7	270	810
222-B Outside	30	56
Hallway	120	190
Room 7	940	840

300 Area

<u>General Statistics</u>	<u>June</u>	<u>July</u>	<u>1951 To Date</u>
Special Work Permits	139	154	889
Routine & Special Surveys	371	332	2196
Air samples	206	244	1554

Metal Fabrication Plant

Thirty seven of 68 air samples taken were above 5×10^{-5} ug U/cc, with a maximum of 8.5×10^{-3} ug U/cc obtained during unloading of railroad cars.

Technical Building

Twenty items, not regulated with respect to handling, were found contaminated on routine surveys of laboratories. Sixty-five regulated items were discovered to have contamination above acceptable limits.

The exhaust duct filter from the junior cave in room 17 was removed without benefit of proper monitoring. Previous surveys had indicated radiation levels up to 11 rep/hr including 1 r/hr above the cave and below the filter canopy.

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Hand Score Summary

There were 51,771 alpha and 64,703 beta scores, reported. About 0.1% of the alpha, and about 0.05% of the beta scores were high. Five high alpha scores were reported with no attempt to reduce, one in 231 building, one in 3706 building, and 3 in 321 building. Where decontamination was attempted it was successful in all cases but one.

PERSONNEL METERS

Pencils

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200</u>	<u>200-W</u> Const.* 200-W	<u>300</u>	<u>Total</u>	<u>1951</u> <u>To Date</u>
Pencils read:	17,682	15,923	14,718	9,325	30,523	11,257*	37,879	26,572	163,879
Single readings (100 to 280 mr)	10	19	32	12	35	17*	57	27	209
Paired readings (100 to 280 mr)	0	1	1	0	0	0	0	0	2
Single Readings (Over 280 mr)	24	38	45	18	57	27*	101	51	361
Paired Readings (Over 280 mr)	1	0	1	1	0	1*	1	0	4
Lost Readings	0	1	2	1	1	0	1	1	7

Of the six significant pencil readings reported, only one was confirmed by badge results. This was not an overexposure.

Investigations of the above lost readings indicated no possibility of an overexposure.

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200-E</u>	<u>200-N</u>	<u>200-W</u>	<u>300</u>	<u>Total</u>	<u>1951</u> <u>To Date</u>
Badges										
Processed	3,554	2,512	2,743	1,997	2,348	549	4,586	6,913	25,202	177,908
Number readings (100 to 300 mrep)	25	55	113	42	25	0	96	95	451	2,868
Number readings (300 to 500 mrep)	1	2	17	7	1	0	1	0	29	198
Number Readings (500 to 1000 mrep)	0	0	7	2	0	0	0	0	10	70
Number Readings (Over 1000 mrep)	0	1*	0	0	0	0	0	0	1	10
Lost Readings	2	1	3	1	1	0	2	1	11	63

* Over 300 mr. gamma

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DECLASSIFIEDBadges (continued)

Lost readings were accounted for as follows:

Badge lost in area	4
Contaminated badge	1
Lost in processing	1
Light struck	4
X-ray - CW only	1
Total	<u>11</u>

Investigation of the above lost readings indicated no possibility of an over-exposure.

Badge Resume, Construction Areas

	<u>200-W Const.</u>	<u>200-E Const.</u>	<u>Total</u>	<u>1951 To Date</u>
Badges Processed	7,384	5,522	12,906	52,916
Number Readings (100 to 300 mrep)	6	32	38	172
Number Readings (300 to 500 mrep)	0	0	0	24
Number Readings (500 to 1000 mrep)	0	0	0	11
Number Readings (Over 1000 mrep)	0	0	0	1
Lost Readings	2	0	2	16
Total badges processed 1951:	Operation	177,908		
	Construction	52,916		
	Total	<u>230,824</u>		

In addition to the badge program, a total of 1,864 items of a non-routine nature was processed during the month.

<u>Slow Neutron Pencil Summary</u>	<u>100-B</u>	<u>100-D</u>	<u>100-DR</u>	<u>100-F</u>	<u>100-H</u>	<u>Total</u>	<u>1951 to Date</u>
Number of pairs issued	15	24	64	25	24	152	3,201
Number of significant readings	0	0	20	0	1	21	207
Number of significant readings (above 50 mrem)	0	0	0	0	0	0	2

Neutron Film

<u>Badges Processed</u>	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200-W</u>	<u>Total</u>	<u>1951 to Date</u>
Personnel	7	66	40	111	45	269	2,262
Special	0	0	5	0	18	23	169

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CONTROL AND DEVELOPMENT DIVISION

CONTROL GROUPS

Site Survey

The levels of radioactive contamination in drinking water supplies during July did not differ significantly from previous measurements. Detectable quantities of alpha emitters were found in the wells of Richland, Benton City, and several downstream locations along the Columbia River. Maximum measurements were obtained from the Benton City Store and Benton City Water Company wells which averaged 18 and 37 alpha dis/min/liter, respectively; uranium in these wells averaged 13 and 15 $\mu\text{g U/liter}$, as determined by fluorescence methods. The mean activity density from alpha emitters in Richland wells was on the order of 12 dis/min/liter; uranium (by fluorescence) varied from 4 to 16 $\mu\text{g U/liter}$, in these wells. Detectable quantities of uranium were noted in all wells which indicated the alpha activity above 6 dis/min/liter. The only drinking water supplies which showed the activity density from beta emitters to exceed 5×10^{-8} $\mu\text{c/cc}$ were Pasco sanitary water, 100-F sanitary water, and McNary Dam. The mean activity density at the latter two locations averaged 5×10^{-8} $\mu\text{c/cc}$, with maximum measurements at McNary Dam on the order of 1.0×10^{-7} $\mu\text{c/cc}$. Pasco drinking water averaged 9×10^{-8} $\mu\text{c/cc}$ including a maximum measurement of 1.3×10^{-7} $\mu\text{c/cc}$. Radiochemical analysis for the activity density of beta emitters in various media from the Pasco Filter Plant indicated the average to be 1.0×10^{-5} $\mu\text{c/gram}$ in the sand, 9×10^{-8} $\mu\text{c/cc}$ in backwash material from the new coal filter, 1.7×10^{-7} $\mu\text{c/cc}$ in the liquid portion of the backwash material from the sand filter, and 1.3×10^{-3} $\mu\text{c/gram}$ in the solid portion.

Small decreases (not significant) were observed in the average activity density from gross beta emitters at nearly all monitoring locations along the Columbia River. Maximum contamination was detected along the Benton County shore at Hanford, where the average activity density was 1.3×10^{-6} $\mu\text{c/cc}$ including a maximum measurement of 2.2×10^{-6} $\mu\text{c/cc}$. Spot samples from downstream locations indicated negligible activity at locations beyond McNary Dam where the average activity density was 2.0×10^{-7} $\mu\text{c/cc}$. No significant trend occurred in the activity density from alpha and beta emitters in Columbia River mud and raw water supplies taken directly from the river.

Monitoring at the 50-foot level of the 200-West Area stack indicated that the

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curies were being emitted daily. The amount of I^{131} passing through the sand filter decreased from an average of 8.8 curies in June to 3.7 curies during July. This reduction was attributed to the addition of mercuric salts and subsequent formation of a complex to hold the I^{131} in the process; four samples taken from runs in which mercury was added indicated that only 0.2 curie was being emitted through the sand filter per day.

The average radiation level in the atmosphere as measured by detachable chambers showed considerable fluctuation throughout the month. Increases approaching significance were observed at the Meteorology Tower, Redox Area, Semi-Work Construction Area, and Route 4S, Mile 2.5; maximum dosage-rates were found at military encampment PSN-330, where the average radiation level was 4.8 mrep/day. Dosage-rates slightly above background were observed in the residential areas during the earlier part of July.

With the exception of two stations in the 200-West Area (Tower #4 and Redox), the over-all activity density from filterable beta emitters in the atmosphere as measured by constant air monitors decreased by a factor of 2 near the Separation areas, and by a factor of from 2 to 6 at perimeter and residential locations. The maximum average activity density was 1.0×10^{-11} $\mu\text{c/cc}$ in the Redox Area; the maximum weekly measurement at this location was 3.4×10^{-11} $\mu\text{c/cc}$. Again, the decrease was weighted by results obtained toward the latter part of the period when dissolving was confined to 4-5L.

Fixed scrubber monitoring indicated that the activity density from I^{131} decreased by a factor of 2 to 5 near the 200 Areas, and remained essentially the same in residential areas such as Benton City and Richland. Maximum measurements were obtained in 200-East Area where the mean activity density was 1.4×10^{-10} $\mu\text{c/cc}$; in residential areas the maximum monthly average was noted at Benton City (8.0×10^{-12} $\mu\text{c/cc}$), and the maximum weekly condition was noted at Richland (1.7×10^{-11} $\mu\text{c/cc}$). The average activity density from I^{131} in 67 portable hand scrubbers which were obtained during periods when peak concentrations were observed was 2.2×10^{-8} $\mu\text{c/cc}$. Thirty samples indicated concentrations above permissible limits, with the maximum measurement on the order of 5.7×10^{-7} $\mu\text{c/cc}$.

The results obtained from the analysis of 139 samples obtained from 16 environmental locations for the activity density from P-10 indicated the average to be less than 2×10^{-8} $\mu\text{c/cc}$ in all instances. Individual samples from White Bluffs, 105-D, and Richland, showed 4.3×10^{-8} , 5.2×10^{-8} , and 2.2×10^{-8} $\mu\text{c/cc}$.

The number of particles in the atmosphere showed a general increase by about a factor of 2 near the 200 Areas; individual increases by a factor of 10 and 12 over June measurements occurred. Increases were also observed at all elevations on the Meteorology Tower where the mean concentration ranged from 2.0

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to 3.5×10^{-2} particles/meter³. Particles were also detected at all remote locations in Washington, Oregon, and Idaho.

Decreases ranging from a factor of 3 to 10 were observed in the activity density from I¹³¹ on vegetation collected from higher contamination regions around the 200 Areas. The maximum activity density from I¹³¹ was 3.5×10^{-2} μ c/gram at the 200-West Area gatehouse. This value was exceptionally high when compared to other maximum values which were on the order of 3 to 5×10^{-3} μ c/gram. The average activity density at the 200-West Area gatehouse during July was 2.4×10^{-3} μ c/gram. Small increases were noted at several perimeter locations such as Cobb's Corner and Benton City and the Richland "Y"; the average activity density in residential regions did not exceed 8.7×10^{-5} μ c/gram at any location. Maximum measurements in residential areas were found at Benton City, where a sample indicated 5.4×10^{-4} μ c/gram. Samples obtained from remote locations indicated the average activity density from I¹³¹ to be on the order of 1.5×10^{-5} μ c/gram in the region bounded by Walla Walla, Lewiston, Millan Pass (Montana), and Spokane. The maximum measurement obtained in this region was 3.0×10^{-5} μ c/gram in a sample collected at Dixie (11 miles east of Walla Walla); the average activity density from I¹³¹ in this confined region was 2.8×10^{-5} μ c/gram. Levels of contamination comparable to that in the Walla Walla-Spokane region were also detected around Toppenish, Ellensburg, and The Dalles. Samples collected in the Davenport-Moses Lake region showed negligible activity with the bulk of samples indicating values less than 3×10^{-6} μ c/gram. Samples of wheat kernels collected between Prosser and Patterson in the Horse Heaven Hills showed the average activity density from I¹³¹ to be 3.0×10^{-6} μ c/gram.

The only change observed when reviewing the results of the waste monitoring program was a significant increase in the amount of I¹³¹ discharged into the Columbia River from the Biology Farm; during July, 1.25 mc were discharged into the river daily, as compared with 0.79 mc during June.

Bioassay

Four hundred and forty-eight urine samples were analyzed for plutonium, with sixty-eight spiked and blank urine samples as controls. Alpha activity measured in the urine samples by the present T.T.A. procedure averaged 0.03 dis/min. No urine sample showed alpha activity in excess of 0.33 dis/min. The one urine sample reported last month to have alpha activity above 0.33 dis/min was re-sampled, with the results falling below the minimum detectable quantity. The average recovery yield of the plutonium-spiked controls for the month was 87%. The decrease from the usual 92-94% yield was due to the appearance of solids on the counting plates; this was traced to a new shipment of stainless steel plates which were in use the last two weeks covered by this report.

Four hundred and fifty-three urine samples were analyzed for fission product isotopes; seventy samples were processed as controls. None of the above samples

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indicated beta activity exceeding the resample limit of 10 counts/minute.

Two hundred and seventeen urine samples were analyzed for uranium by the fluoro photometric procedure. Samples were submitted after 4 days' exposure to possible uranium contamination, and again after one day of non-exposure. The employees responsible for unloading rods from cars submit samples before starting and at the completion of the work. A tabulation of the results by job classification follows:

Job Description	END 4TH DAY OF EXPOSURE <u>ug/liter</u>			END ONE DAY, NO EXPOSURE <u>ug/liter</u>		
	<u>Maximum</u>	<u>Average</u>	<u>Number Samples</u>	<u>Maximum</u>	<u>Average</u>	<u>Number Samples</u>
Canning	5	3	13	9	3	10
Machining	43	9	17	16	6	11
Melt Plant	77	19	6	10	4	4
Material Handling	13	5	8	9	5	5
Inspection	6	3	9	4	2	10
305 Building	6	3	4	1	1	1
Coverage	12	5	8	5	3	6
Clerical	11	11	1	1	1	2
Accounting	8	6	2	8	5	2
Random	5	1	33	-	-	-
			<u>101</u>			<u>51</u>

	Completion of Work <u>ug/liter</u>			Before Work <u>ug/liter</u>		
	<u>Maximum</u>	<u>Average</u>	<u>Number Samples</u>	<u>Maximum</u>	<u>Average</u>	<u>Number Samples</u>
Car Unloading	355	29	36	91	7	29

A total of 1,175 urine samples was analyzed for tritium oxide along with 144 control samples. A breakdown of the results is given below:

<u>TRITIUM OXIDE IN URINE</u> <u>uc/liter</u>						
Concentration Group	< 5	5-10	10-20	20-35	35-65	> 65
Number of samples	1,119	23	14	1	3	0
Number of individuals	195	5	3	1	1	0

Two urine samples were received from employees at an installation which had processed irradiated deuterium, which therefore contained tritium. No significant activity was detected.

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Analytical Control Laboratory

Beta counter operation improved during the month. Lost time due to defective equipment was 2.0 hours/day/set.

A summary of the work carried out during the month and for the year to date is given below:

Laboratory

<u>Type sample</u>	<u>July 1951</u>	<u>1951 To Date</u>
Vegetation	2395	11167
Water	1925	13487
Solids	362	2022
Fluorophotometer	504	4203
Special Survey Analyses	38	215
Air Sample Analyses	518	1684
Total	5742	32778

Counting Room

Beta measurements (recounts included)	6849	35650
Alpha measurements (recounts included)	3873	25260
Control points (beta and alpha)	2710	16155
Decay curve points	3149	16571
Absorption curve points	421	1892
Total	17002	95528

Thirty-eight samples were analyzed for the H.I. Operational Division during the month, and 8 retention basin effluent water samples were analyzed for beta emitters.

The presence of Si^{31} in waste effluent water has been confirmed in amounts equivalent to 5-10% of the total beta activity. The original procedure used to determine this isotope involving the distillation of SiF_4 has been replaced by a procedure using dehydration of the silica followed by washing with hydrochloric acid. It was also proven that the cross contamination of Si^{31} and In^{113} in the two procedures used for these isotopes was not significant.

Some standard solutions submitted by the National Waste Treatment Committee at ORNL for comparative calibration were measured, and all results have been forwarded to that committee. Geometry measurements made using one of the standard solutions submitted gave results within 5% of those obtained by current counting room procedures.

Further tests were made to prove the presence of tritium oxide in Chalk River

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deuterium oxide. Electrolysis of a diluted portion of this material gave hydrogen containing tritium activity equivalent to 15-20% of that present in the original solution. This percentage agrees satisfactorily with results obtained previously in electrolysis of a known tritium oxide solution. Further proof was gained by reacting a diluted portion of the sample with calcium and decomposing the resultant $\text{Ca}(\text{OH})_2$. The water of decomposition collected by heating $\text{Ca}(\text{OH})_2$ above 550°C . had an activity density equivalent to over 90% of that of the original diluted solution.

Calibrations

		<u>Number of Routine Calibrations</u>	
			<u>1951</u>
<u>Radium Calibrations:</u>	<u>June</u>	<u>July</u>	<u>To Date</u>
Fixed Instruments			
Gamma	251	259	1,837
Portable Instruments			
Alpha	255	281	2,073
Beta	554	584	4,270
Gamma (radium)	1,098	1,168	8,263
X-ray	7	15	36
Neutron	2	2	16
Total	1,916	2,050	14,658
Personnel Meters			
Beta	664	845	5,580
Gamma (radium)	5,107	3,780	45,633
X-ray	4,907	4,028	26,833
Neutron	28	28	216
Total	10,706	8,681	78,262
Grand Total.....	12,873	10,990	94,757

Synoptic Meteorology

<u>Forecasts</u>	<u>July 1951</u>	
	<u>Number made</u>	<u>Percent Reliability</u>
Production	92	87.0
24-hour	62	88.5
Special	29	79.3

The weather was featured by mostly clear skies. All but 5 days were classified as clear. Sky cover (scale 0 to 10) averaged only 1.3. There was practically no cloudiness observed after the 15th.

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Daily high and low temperatures averaged 76.7. Normal for July is 76.3. Daylight hours were, on the whole, quite warm. Daily maxima averaged 93.5, and reached or exceeded 90° on a total of 23 days. Nights, however, were invariably cool. Daily minima, which have been known to exceed 80° during heat waves of this locality, were all below 70° during the past month. The average was 59.8°.

On one day, the 5th, there was a wide departure of meteorological conditions from those which prevailed during the month. This was the only cloudy day and the only day with significant rainfall. The temperature reached a high of only 66° -- the lowest maximum ever recorded for a July day in this locality.

Precipitation for the month totaled 0.37 inch, all but 0.01 inch of which occurred on the 5th. Normal for July is 0.15 inch.

Thunderstorms occurred on the 3rd and 5th. However, there was no severe storm of any kind.

DEVELOPMENT GROUPS

Experimental Meteorology

Two field experiments on the diffusion of smoke plumes during inversion condition were conducted during the month. During these tests smoke generators were operated at the 183-foot level on the tower and on the ground at the base of the tower. Observation both visual and photographic was made by meteorologists on the ground, and by one meteorologist in an AEC patrol plane.

The wind instruments in the meteorological field station network have not been working in a completely satisfactory manner. The Leupold-Stevens instruments are not sensitive to wind direction changes when windspeeds are low (below 6 mph). The Bendix Friez instruments apparently have defective Cam followers which have caused two instrument failures.

Industrial Hygiene

Design requirements and specifications are being developed for equipment to measure the efficiencies of respiratory devices for radioactive atmospheres.

Tests were run on a number of non-radioactive hazards including the operation of "Ditto" machines, the use of mercuric nitrate in the 271-T Building, the atmosphere near the slug can welders in the 313 Building, and development of a satisfactory liquid typewriter cleaner.

Geology

Wells 361-T-17 and 361-T-18 were completed during the month, located respectively, 650 feet S. 65°E and 900 feet S. 50°E of the 241-T-361A reverse wells.

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The first samples indicated low level beta contamination but not enough samples have been obtained as yet.

Wells 231-12, 13 and 14 were drilled adjacent to the 231 sump cribs, now in use, to determine if alpha activity had moved to the south, southwest, or west from the cribs. No activity was found in any of the samples.

Attempts are being made, in conjunction with Soil Science, to measure the salt content of the water samples to determine the path of waste solutions ahead of the zones where the radioactive materials are being deposited. A significant nitrate concentration has been found in the ground water in the vicinity of 361-B reverse well.

The contaminated ground water in the vicinity of the 300 Area moved westward as the water table was raised by the Columbia River. As the Columbia River drops, the contamination appears to be moving back toward the river in a south easterly direction rather than in an easterly direction. There was no change in the height of water in the artesian well drilled to basalt near the 300 Area

Soil Science

Equilibrium experiments were performed to determine the effect of pH on the retention of radioactive isotopes of strontium, cesium, and uranium, in soils. In the very acid region (pH 1 to 2), the retention was very poor for all three elements. At a pH of about 4, the retention approached a maximum for cesium and uranium. The maximum for strontium was reached at a pH of 10.

Methods Development

Tests were made on the carrying of actinium and uranium in the electrodeposition method for plutonium. It was found that if contaminants were introduced just after the T.T.A. extraction, and prior to electrodeposition, as much as 8% of the uranium and 5% of the alpha-emitting activity in actinium deposited with the plutonium. If the contaminants are introduced initially and pass through the T.T.A. analysis followed by electrodeposition, from 0.1% to 0.2% of the actinium activity and 0.05% to 0.15% of the uranium will co-deposit. These values are based upon counting rates obtained from the low background alpha counters, and will require confirmation using the NTA filming technique. It is reasonable that they will not be changed materially when evaluated using the NTA technique; hence, if we assume 0.2% of the actinium is carried, it means that the 0.04 d/m background experienced in the Bioassay laboratory would come from 20 d/m of actinium, which is definitely not present in the lanthanum used. It would similarly require about 30 d/m of uranium per sample to give rise to this background.

As an aid to reading alpha tracks, two devices were built and tested. These

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devices provide rotating azimuthal planar dark field illumination, which when properly adjusted cause alpha tracks to gleam off and on, making it easier to identify the tracks. Such a system was developed for the Brookhaven National Laboratory.

A careful re-evaluation of all dimensions, pressures, and other variables, involved in the alcohol-argon internal counter for tritium calibration failed to reveal any error greater than 1%. Additional runs using active $\text{CO}_2(\text{C}^{14})$ independently calibrated on the mica window counters gave no more encouraging data than previously reported. Values for activity were low on the internal counter by a factor of approximately two.

Longitudinal sensitivity checks using a collimated Co^{60} gamma beam indicate an end loss for the 1" x 12" tube of only 3%, the counting rate remaining constant to within 2 cm. of the ends of the tube.

The continuous 292-T stack gas monitor was operated during the month with an attempt made to lower scrubber volume to provide better resolution. The activity data obtained in these runs and reported to the Control group showed the effectiveness of the silver reactor installed July 11-13 to replace the defective unit; the activity emission decreased by a large factor, about 15 to 20 fold.

An ion chamber designed specifically for this work was tested and calibrated. A background of 4×10^{-15} amps and a sensitivity of 3.8×10^{-19} amps/d/m/cc of I^{131} solution in the coil was obtained, a value about one-half that obtained using the steel one-liter Applied Physics Corporation chamber. With the lower activity concentration going out the stack, currents in the range of 1×10^{-14} to 4×10^{-13} amps must be measured with the constant monitor.

In conjunction with the river dilution survey, a study has been initiated to evaluate closely the retention basin effluent activity in the 100-H Area. The mobile unit is being used for on-the-spot analysis. Results indicated widely differing activity concentrations over relatively short intervals, for which at present there is no good explanation.

Electrodeposition techniques are being applied to the radiochemical analysis of Ru^{106} . Results obtained are favorable, but interference from other active ions must be evaluated.

Physics

An indium-114 gamma source was received this month, and was canned in an aluminum container which is thick enough to stop the 2 Mev betas. Decay measurements indicate a half-life of about 50 days, which is in agreement with the values in the literature.

Health Instrument Divisions

Measurements are being made to obtain calibrations for film packets used to measure beta radiations from thick uranium sources located at a distance.

During April, comparisons were made between RaBe source 68-B and Pile Technology's RaBe source #3. This latter source has since been compared with a standard source ANL #38 at the Argonne Laboratory. The result of these comparisons gave a value of 6.96×10^6 neutrons per sec. for source 68-B. This source is quoted now as 6.72×10^6 neutrons per sec. The discrepancy is removed by assuming a buildup of 0.5% per year because of the increase in the amount of Po which follows the 22 year RaD. This correction is the same as was made on source ANL #38, and this gives a value of 6.95×10^6 neutrons per sec. which is in remarkable agreement with the comparison value.

Instrument Development

The anti-coincidence scheme for rejecting background counts from scintillation counters was tried with a counter set up for detecting I¹³¹. With the circuit in operation, the background could be reduced by a factor of 14, while the sensitivity to I¹³¹ was reduced by a factor of 5, thus improving the ratio of counting rate to background. Work on this problem was interrupted by erratic operation of the RCA 5819 photomultiplier tubes which was traced to loose material, ranging from fine dust to a piece of wire, inside the tubes. Some of the tubes which will not operate properly on the small pulses obtained from the beta-gamma scintillations are still operable as alpha counters, although some have failed in this service also.

A needle probe for scintillation counting of beta-gamma emitters in tissue was built and given preliminary tests. The needle was 0.086 inches in diameter, and the crystal was 7 mm. long. This small crystal and light pipe imposed rather severe restrictions on the light collecting efficiency. Positive results were obtained, but considerable improvement was necessary.

Health Instrument Divisions

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BIOLOGY DIVISIONAnalyses Group1. Radioactivity in Carcasses

The adaptation of the chamber and vibrating reed electrometer mentioned last month for radon determination proved quite successful when tested with radium spikes. A slight modification of the methane proportional counter failed to improve its unsatisfactory counting characteristics for radon determinations.

The chemical analysis of ashes from 15 cadavers for radium content showed good agreement with the work of Bursch and Gates.

2. Alpha and Beta Analyses of Organic Material

Inactive.

3. Radioelements in Organisms in Pile Effluent

Inactive.

4. Physical Processes Affecting Methods for Isotope Use

Comparison of the local and Oak Ridge method for calibrating I^{131} solution was started to determine the reason for a consistent difference.

5. Waste Disposal Methods for Biological Specimens

Inactive.

6. Physical Chemical Methods for Dosimetry Due to Deposited Isotopes

A total of 37 samples was analyzed for Pu in conjunction with the bone deposition study.

Services

Analytical services to other biology groups consisted of calibrating 5 ORNL shipments of I^{131} , the preparation of 19 spike solutions for animal and plant feeding, and the analysis of approximately 1600 samples. These were in addition to approximately 3200 alpha and beta counts; including decay and absorption studies.

Health Instrument Divisions

Aquatic Biology Group1. Effect of Pile Effluent Water on Aquatic Organisms

The effluent monitoring studies with chinook salmon were terminated last month and were resumed in July with juvenile rainbow trout. The experimental conditions used for the salmon, involving a series of dilutions with area effluent, refrigerated area effluent, pile influent, and refrigerated pile effluent are being continued. Mortalities among the various lots were somewhat irregular due to bacterial infections usually encountered with the warm water at this period of the year. Lots held under the warmest water conditions were affected most. Prophylactic treatments were administered.

2. Biological Chains

The activity density of scales of adult trout held in 5% pile effluent and fed algae which had been immersed in pile effluent water remained about the same as last month and has not been greater than that of trout fed on uncontaminated diet. Algae growing on the walls of the 107 Retention Basin originally was used as a source of activity. When control operations eliminated this source, algae immersed in pile effluent for a period of two weeks or more was substituted; this proved unsatisfactory, however, since its activity amounted to less than one-tenth of that of the original source. A method of growing algae on laboratory pond walls has now been developed and the activity density of this new source appeared comparable with the original. A satisfactory increase in the activity density of the trout is therefore anticipated.

3. Radiobiological-Ecological Survey of the Columbia River

With the end of the freshet season and the resumption of sampling of bottom organisms, a slightly revised collecting schedule was adopted which reduced the numbers of different kinds of organisms sampled, reduced the number of points at which quantitative sampling is carried out, and concentrated ecological studies in the section immediately below the 100-F Area. Small fish were collected in abundance from all stations and an unusual gill net catch of large fish at Hanford on July 27 included three blueback salmon, one of which had been tagged by the Oregon Fish Commission. Bottom algae collections were satisfactory, new growth appearing in the littoral zone as old growth was stranded by the receding water level. By the end of the month populations of bottom invertebrates were becoming accessible. An improved design for a dredge for offshore bottom sampling was under development. Plankton were collected from the surface of the river on cross sections at 100-B, Hanford, Richland, and McNary Dam as scheduled.

With reduced river flow the activity density of the plankton increased to about 6×10^{-3} $\mu\text{c/g}$. The activity of the algae remained at the same level, while the activity of small fish tripled to 10^{-3} $\mu\text{c/g}$ with rising water

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temperatures. For large fish a maximum of 1.9×10^{-3} $\mu\text{c/g}$ was found in the liver of a sucker, this was associated with 4×10^{-4} $\mu\text{c/g}$ in the flesh. Increased activity in the organisms immediately below 100-H Area resulting from high water last month has diminished to approximately normal.

4. Control of Algae in 107 Retention Basin

No progress.

Biochemistry Group

1. Relative Biological Effects via Biochemical Systems

The inhibition of growth of L. Casei in suboptimal culture media subjected to irradiation by equivalent doses of tritium oxide and P32 was approximately the same. When the medium was subjected to an equivalent dosage of S35, the time necessary to attain half-maximum growth was much greater. The inhibitory effect on growth exerted by SO_4^{2-} which had been added as a carrier for S35 is now being investigated.

An aqueous solution of biotin (2 m $\mu\text{g/ml}$) was subjected to the irradiation effect of tritium oxide (20,000 rep) in an atmosphere of nitrogen. After lyophilization, the biotin was redissolved in water and was added to a complete culture medium for L. Casei. No growth inhibition was observed. A similar experiment with riboflavin is now in progress.

2. Absorption of Pu from the G.I. Tract

Routine daily feedings of plutonium continue at the rate of three per day per rat. On the basis of plutonium deposition in the carcass and skeleton of the rat found dead during the previous month, the gastro-intestinal absorption was calculated to be approximately 0.15 per cent of the amount fed. A control rat which had begun to lose weight was sacrificed and is now being analyzed.

3. P-10 Biological Hazards Investigations

Bound tritium in the tissues of rats during the interval of 130 to 192 days after tritium oxide administration exhibited the following biological half-life in days: brain, 200; pelt, 150; stomach, large intestine, and bone, 120; lungs and small intestine, 100; heart, 80; fat, 65; muscle, 55; liver, 45; and blood, 17 (no longer detectable).

25 An experiment was initiated to determine the effect of growth in rats on the binding of tritium. Eight rats received 10 mc of tritium oxide by intraperitoneal injection. Four animals are being fed ad libitum, but the others receive just enough food to maintain a constant body weight. After two weeks all animals will be returned to an ad libitum diet. At given intervals pairs of animals will be sacrificed and the extent of tissue binding of tritium will be determined.

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The percutaneous absorption of tritium oxide vapor in humans was described in Document HW-21778.

4. Possible Therapeutic Agents for Radiation Damage

No progress.

5. Percutaneous Absorption of Radionuclides

This project is in a preliminary phase. A bibliography on the percutaneous absorption of various substances through mammalian skin is being compiled. Equipment and various chemicals are now being assembled.

Services

The Clinical Services Laboratory is now carrying out on a routine basis colorimetric and radiometric determinations of organic and inorganic iodine in the sera of sheep. In addition, 362 hematological determinations were performed during the month of July.

The blood and urine of control and experimental sheep were analyzed for the presence of pentoses. Results were negative, in contrast to rats, in which the thyroid gland has been reported to influence the rate of urinary pentose excretion.

The acid hematin method for the determination of hemoglobin now in use in the Clinical Services Laboratory was found to compare favorably with a more complicated procedure involving a total iron analysis.

Botany Group

1. Agricultural Field Station

No report.

2. Translocation of Radionuclides in Plants

It was found in experiments on the uptake of Cs from nutrient solution by red kidney bean plants that the concentration of this element in the trifoliolate leaves was directly proportional to its concentration in the nutrient solution, in the range of 0.0001 to 100 p.p.m. The roots of the bean plants also accumulated Cs in direct proportion to its concentration in the nutrient solution, and in quantities nearly the same as those in the trifoliolate leaves. In these experiments Cs¹³⁷ was used in a concentration of 0.11 μ C/liter of nutrient solution, and over the four day growing period Cs was concentrated in the trifoliolate leaves and roots to as much as 3 times that present in the nutrient medium of pH 6.0.

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Trifoliate leaves of bean plants contained 4 mg Cs/g of fresh weight after growing four days in a nutrient solution which was of pH 6.0 and contained 0.11 μ c/liter of Cs¹³⁷ and 1 p.p.m. of Cs carrier. Leaves of tomato, Russian thistle and wheat plants grown under the same conditions contained progressively less Cs; the amount in wheat leaves was approximately 1/20 of that in the bean leaves. The roots of Russian thistle plants accumulated the greatest amount of Cs; (14 mg/g fresh wt.); progressively smaller quantities were found in the roots of tomato, wheat and bean plants. The bean roots contained about 2½ times less Cs than the roots of Russian thistle plants.

3. P-10 Botanical Investigation

Suspensions of micro-organisms were exposed to an atmosphere containing 40 millicuries of tritium gas per liter for various periods of time. The amount of tritium fixed was then determined by analyzing the bacterial cells, and the culture medium free of cells. Exchange of tritium gas with glucose and saline solutions was also tested.

The results indicated that Escherichia coli and Azotobacter vinelandii could rapidly convert tritium gas into tritium oxide. The organisms could remove approximately 95% of the tritium from the air sample without appreciably reducing the total volume of the system. Only a small trace (0.04 - 0.06%) of tritium appeared in the cells, the remainder appeared as the oxide in the culture medium. Rate studies indicated that Azotobacter vinelandii converted tritium gas at the rate of approximately 8 mc/100 mg cell N per hour when exposed to an atmosphere containing 40 μ c/ml. Long time-interval studies indicate that Escherichia coli can carry out the reaction at a faster rate. Studies on exchange reactions between tritium gas and water, saline, and glucose solutions indicate that very little tritium exchanges with these solutions. Approximately 5 μ c per 200 ml of each solution were taken up in 24 hours when the samples were exposed to the atmosphere containing 40 μ c/ml. The exchange between glucose solutions and tritium appeared to be a function of hydrogen ion concentration of the medium.

4. Effects of Radiation on Plant Life

Red kidney bean plants were grown in pile effluent water, or dilutions of pile effluent water, to which nutrient salts were added and the pH was adjusted to 4.0, 6.0, or 8.0. Solutions were changed daily over a five-day growing period. A definite chlorosis was noted in those plants growing in 100% pile effluent water, and so chlorophyll and carotenoid analyses were made of each experimental lot of plants. Green, dry and ash weights and beta activity counts were also determined. A preliminary examination of the data indicated that pile effluent water deleteriously affected the growth and pigment production of bean plants. Further statements on the results of the experiment will be possible when statistical analyses of the data are made available.

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Red kidney bean plants were also grown in chemically purified water, taken before it entered the 100-F pile, to determine whether the deleterious effects of pile effluent water were due to chemicals or to radiation. In this experiment it was found that the "pre pile water" caused chlorosis of bean leaves just as pile effluent water did. The results of this experiment are being analyzed statistically, but it is evident at this time the effects noted in these experiments are due to chemicals and not radiation.

Physiology Group

1. Biological Effects of Active Particles

The special mouse colony increased appropriately.

2. Bone Metabolism of Radioelements

The contaminated animal's excretions are being assayed daily and records kept. Since this animal displays no deleterious effects, it will be maintained on the experiment for at least one month before sacrifice.

3. Techniques in Autoradiography

No progress.

4. Inhalation of Tritium

No further progress.

Services

Approximately 150 microscope slides were prepared and processed.

Zoology Group

1. Biological Monitoring

Waterfowl

A total of 1154 waterfowl was found within the plant boundaries during the monthly aerial census, an increase of approximately 100% over last month.

Sampling of specimens from the duck colonies at 200 North Area and Hanford was initiated. Maximum activity density found in the bird from 200 North was 0.08 $\mu\text{C/g}$ in bone, with appreciable levels in other tissues. The principal isotope responsible appeared to be Sr^{89} . Only the thyroid gland of the Hanford specimen exceeded the chronic MPC (for man).

Health Instrument Divisions

Upland Wildlife

Thyroidal I^{131} dropped significantly from that of last month. Thyroid activities of rabbits taken in the vicinity of the 200 East Area waste pond were lower by a factor of four.

Thyroidal activity densities from several stations are tabulated below:

<u>Locality</u>	<u>Specimen</u>	<u>Maximum ($\mu\text{g/g}$)</u>	<u>Average ($\mu\text{g/g}$)</u>
200 West	Jackrabbit (4)	0.20	0.170
	Raven (1)	0.90	
200 East	Jackrabbit (4)	0.08	0.035
100-F	Wood Rat (2)	0.05	0.034
Prosser Barricade	Jackrabbit (6)	0.02	0.017

All values exceeded the chronic MPC of I^{131} for man. All other tissues were below the MPC.

Sheep grazing on pastures south of North Richland were found to have in situ thyroidal I^{131} from 0.3 to 0.6 μc .

2. Toxicology of I^{131} in Stock Animals

Statistical analysis of data collected during the first 15 months of the experimental studies revealed that economies could be effected in the experiment, without loss of quality of data. The radiation syndrome of the 1800 μc and 240 μc groups has been satisfactorily defined. Radioiodine feeding of these groups was terminated at 420 and 450 days respectively. These animals will be moved to the control station near North Richland after sufficient time has elapsed to allow for decay of residual I^{131} .

The extremely low level group receiving only 0.005 $\mu\text{c/day}$ has been eliminated from the study. Since a group fed one thousand times that amount has exhibited no changes in 15 months, it was considered very improbable that changes would occur at the low level during the normal life span of a sheep.

The group receiving 0.15 $\mu\text{c/day}$ and the control group were each cut to 12 original ewes and six yearlings. The elimination of these animals from the experiment has made space available for special corollary studies and for intermediate groups between the 5 and 240 $\mu\text{c/day}$ feeding levels. During August, new groups will be initiated at 15, 45, and 135 $\mu\text{c/day}$ feeding levels.

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Nine members of twin lambs (80 days old) were placed on a short-term daily feeding regimen at 480 μ c/day while the remaining nine twins served as controls. The lambs were subdivided into three experimental and three control groups to elaborate the extra-thyroidal effects of thyroid destruction by I^{131} and to determine the comparative dilution effect of I^{127} and dessicated thyroid. The arrangement of six groups of three lambs each is tabulated below:

480 μ c I^{131}	480 μ c I^{131} + 5 mg I^{127}	480 μ c I^{131} + 1 grain thyroid
Control ration	5 mg I^{127}	.. 1 grain thyroid

The test animals receiving 5 mg of I^{127} in addition to the I^{131} , exhibited a thyroid concentration about one-tenth the level that was noted when I^{131} was fed. The thyroid concentration in the group fed one grain of thyroid in addition to I^{131} was slightly lower than the group receiving I^{131} alone. Downward trends in thyroid activities have been experienced in all experimental groups since the twentieth day. Two animals showing the most drastic reductions in thyroid activity have been removed from the I^{131} regimen.

Hay grown locally has been found to contain quantities of radioiodine that will make it necessary to store it through five half-lives before it can be safely fed to control animals. Fortunately the atmospheric adsorption of radioiodine at 100-F has been controlled, thus avoiding contamination of experimental animals.

The progress report for the first year of this study is now in preparation.

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GENERAL ACCOUNTING DIVISION
MONTHLY REPORT

July, 1951

Revised Cost Accounting procedures, which have been in the development stage for several months, were made effective on July 1, 1951. General Accounting personnel, in initiating these procedures, have considered and been guided by decisions and recommendations of the Cost Accounting Committee. Although the mechanics of cost accumulation have been well established, methods of allocation to processes have not yet been fully determined.

Plant Accounting reports were revised to the extent that budgeted amounts will be entered beginning with July reports. Inventories of selected asset accounts continued during July and necessary adjustments were made to the plant ledgers. Effective July 1, 1951, complete physical inventories are being taken of completed projects before booking into Property in Service accounts. In addition to this inventory, an audit of values of certain items included in Project Completion Reports is also being made.

The Internal Audit Section completed and issued four audit reports in July. These were: (1) Review of Termination Clearance Procedures, (2) Study of Reactor and Other Special Materials, (3) Review of Procedures and Routines for Disposal of Surplus Materials, and (4) Cash Change Fund and Revenue Audits Made July 2, 1951.

In the Accounts Payable Section, where 2 003 vouchers totaling \$1 564 530 were paid in July, effort was concentrated on the clearance of old items in order that they could be transmitted to AEC Finance Division for final approval. At the end of this month, there were 57 vouchers on hand totaling \$21 996 which had been paid prior to the last 60 days and which had not been finally cleared.

Increased salary rates as a result of the general salary increase announced on June 19, 1951 were paid to weekly paid employees on a current basis effective with salary checks distributed July 6, 1951. The retroactive portion of the increase, in the amount of \$342 830, was included in checks distributed to weekly paid employees on July 20, 1951. Increased rates, as well as the retroactive portion of the general salary increase amounting to \$207 056 for exempt salaried employees were included in salary checks for the month of July, 1951.

Social Security second quarter tax reports were completed and forwarded to Schenectady for filing with the Collector of Internal Revenue. Unemployment Compensation second quarter reports were also completed and forwarded to Schenectady for filing with the various state Unemployment Compensation Divisions.

Preparation of individual insurance certificates for approximately 8 500 employees was completed during July. Preparation of individual identification cards for each insured employee was approximately 50% complete at July 31, 1951.

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General Accounting Division**DECLASSIFIED**

No funds were advanced by AEC in July as adequate funds were advanced in June to cover July expenditures. The balance in the advance account as of July 31, 1951 reflects a normal balance and is detailed as follows:

	<u>July</u>	<u>June</u>
Cash in Bank - Contract Accounts	\$ 4 199 193	\$15 433 210
Cash in Bank - Salary Accounts	60 561	50 000
Cash in Transit	340 246	-0-
Advances to Subcontractors	300 000	300 000
Travel Advance Funds	100 000	100 000
Total	<u>\$ 5 000 000</u>	<u>\$15 883 210</u>

Total cash disbursements and cash receipts, excluding advances from Atomic Energy Commission for the month of July 1951 as compared with June 1951 may be summarized as follows:

<u>Disbursements</u>	<u>July</u>	<u>June</u>
Payments to Subcontractors	\$ 4 967 865	\$ 4 800 796
Material and Freight - GE	2 360 656	2 524 942
Payrolls - GE (Net)	2 841 385	2 730 180
Payroll Tax	723 258	465 214
General & Administrative Expenses	200 000	200 000
U. S. Savings Bonds	92 536	162 098
Other	360 792	372 496
Total	<u>\$11 546 492</u>	<u>\$11 255 726</u>

<u>Receipts</u>		
Rents	146 845	128 472
Hospital	49 065	48 830
Miscellaneous Accounts Receivable	53 746	29 922
Telephone	17 463	17 684
Bus Fares	9 683	9 030
Refunds From Vendors	3 533	5 231
Scrap Sales	1 077	14 854
Sales to AEC Cost-type Contractors	25 784	7 415
Refund of Washington State Pension Awards	-0-	18 062
Dividend-Group Disability & Health Insurance	-0-	48 563
Other	5 280	10 873
Total	<u>\$ 312 476</u>	<u>\$ 338 936</u>
Net Disbursements	<u>\$11 234 016</u>	<u>\$10 916 790</u>

General Accounting Division

STATISTICSEmployees and Payroll

	<u>Total</u>	<u>Monthly Payroll</u>	<u>Weekly Payroll</u>
Employees on Payroll at beginning of month	8 650	1 986	6 664
Additions and transfers in	346	9	337
Removals and transfers out	(192)	(24)	(168)
Transfers from Weekly to Monthly Payroll	-0-	15	(15)
Transfers from Monthly to Weekly Payroll	-0-	(1)	1
Employees on Payroll at end of month	<u>8 804</u>	<u>1 985</u>	<u>6 819</u>

Number of Employees

	<u>July</u>	<u>June</u>
Bargaining group - HAMTC	3 261	3 215
Bargaining group - Building Services	70	73
Other weekly	3 488	3 376
Two platoon firemen	57	57
Executive, administrative and operating	1 364	1 361
Professional	541	545
Other monthly	23	23
Total	<u>8 804</u>	<u>8 650</u>

Number of Employees

Manufacturing	3 422	3 338
Technical, Engineering and Construction	1 958	1 932
Municipal	262	250
Real Estate and General Services	401	420
Health Instrument	456	451
Employee and Community Relations	120	117
Plant Security and Services	1 093	1 088
Purchasing and Stores	406	412
Medical	283	279
General Accounting	232	215
General Administrative	171	148
Total	<u>8 804</u>	<u>8 650</u>

Overtime Payments

Weekly Paid Employees	\$224 380	\$250 115
Monthly Paid Employees	68 109 (1)	84 384 (2)
Total	<u>\$292 489</u>	<u>\$334 499</u>

Number of Changes in Salary Rates and Job Classifications

	1 662	1 801

Gross Amount of Payroll

Manufacturing	\$1 628 651	\$1 607 919
Technical, Engineering and Construction	943 493	852 395
Municipal, Real Estate and General Services	273 750	271 102
Other	1 100 019	1 037 546
Total	<u>\$3 945 913 (3)</u>	<u>\$3 768 962 (4)</u>

- (1) Payments cover period July 1 through July 31, except in the case of Patrolmen in the Plant Security & Services Division who were paid for period June 1 through June 30, 1951.
- (2) Payments cover period June 1 through June 30, except in the case of Patrolmen in the Plant Security & Services Division who were paid for period May 1 through May 31, 1951.
- (3) Includes payments for the four (4) week period ended July 22, 1951 in the case of weekly paid employees. Also includes \$549 886 retroactive adjustment for the General Salary Increase covering the period March 19 through June 24, paid on July 20, 1951 in the case of weekly paid employees and the period March 15 through June 30 paid on July 31, 1951 in the case of monthly paid employees.
- (4) Includes payments for the five (5) week period ended June 24, 1951 in the case of weekly paid employees.

General Accounting Division

DECLASSIFIEDAnnual Going Rate of Payroll

	July	June
Base	\$38 286 038	\$37 711 846 (1)
Overtime	3 850 561	3 849 095
Isolation Pay	1 168 211	1 134 980
Shift Differential	483 738	463 222
Other	76 884	68 662
Total	<u>\$43 865 432</u>	<u>\$43 227 805</u>

Average Hourly Base Rates (1)

Bargaining group - HAMTC	2.002	2.005
Bargaining group - Building Services	1.582	1.597
Other weekly	1.700	1.694
Two platoon firemen (monthly rate ÷ 173.9 hours)	1.882	1.878
Executive, administrative and operating	2.967	2.976
Professional	2.907	2.898
Other monthly	2.349	2.364
Total	<u>2.084</u>	<u>2.089</u>

Average Earnings Rate Per Hour (2)

	July			June (1)		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	\$2.186	\$2.997	\$2.313	\$2.179	\$2.998	\$2.312
Technical, Engineering & Construction	1.774	3.006	2.180	1.773	3.006	2.182
Municipal, Real Estate & General Services	1.936	2.440	2.090	1.918	2.479	2.082
Other	1.782	2.860	1.959	1.773	2.846	1.952
Total	<u>\$1.960</u>	<u>\$2.912</u>	<u>\$2.158</u>	<u>\$1.950</u>	<u>\$2.910</u>	<u>\$2.153</u>

% Absenteeism

	July	June
Weekly-men	1.81	2.18
Weekly-women	3.25	2.80
Total Weekly	2.19	2.34
Monthly	1.00	1.19
Grand Total	<u>2.00</u>	<u>2.07</u>

Employee Benefit PlansPension Plan

Number participating at beginning of month	6 412	6 434
New participants and transfers in	84	74
Removals and transfers out	(95)	(96)
Number participating at end of month	<u>6 401</u>	<u>6 412</u>

% of eligible employees participating	94.7%	94.8%

- (1) June statistics recast to reflect the General Salary Increase announced on June 19, 1951, and paid on a current basis on July 6, 1951, in the case of weekly paid employees, and July 31, 1951 in the case of Monthly Paid employees.
- (2) Includes shift differential and isolation pay. Excludes overtime premiums, commissions, suggestions, awards, etc.

General Accounting Division

Employee Benefit Plans (continued)

Pension Plan (continued)

Employees Retired

Number

Aggregate Annual Pensions Including

Supplemental Payments

Amount contributed by employees retired

(a- Includes 6 employees who died after reaching optional retirement age but before actual retirement. Lump sum settlements of death benefits were paid to beneficiaries in these cases.

(b- Amount before commutation of pensions in those cases of employees who received lump sum settlement.

<u>July</u>	<u>Total to Date</u>
1	169-a)

\$167	\$39 275-b)
\$501	\$28 435

Insurance Plan (1)

Personal Coverage

Number participating at beginning of month

New participants and transfers in

Cancellations

Removals and transfers out

Number participating at end of month

% of eligible employees participating

<u>July</u>	<u>June</u>
8 562	8 141
320	390
(19)	(15)
(134)	(154)
<u>8 729</u>	<u>8 562</u>
97.8%	97.8%

Dependent Coverage

Number participating at beginning of month

Additions and transfers in

Cancellations

Removals and transfers out

Number participating at end of month

5 234	5 106
125	218
(3)	(3)
(69)	(87)
<u>5 287</u>	<u>5 234</u>

Claims - Disability Benefits (2)

Number of claims paid by insurance company:

Employee Benefits

Weekly Sickness and Accident

Daily Hospital Expense Benefits

Special Hospital Services

Surgical Operations Benefits

Dependent Benefits

Daily Hospital Expense Benefits

Special Hospital Services

Surgical Operations Benefits

Amount of claims paid by insurance company:

Employee Benefits

Dependent Benefits

Total

109	119
108	140
124	156
90	94
202	153
238	180
171	116
\$18 642	\$26 413
26 168	17 816
<u>\$44 810</u>	<u>\$44 229</u>

Claims - Death Benefits (3)

Number

Amount

<u>July</u>	<u>Total to Date</u>
2	66
\$10 000	\$349 812

- (1) The new Insurance Plan was made effective on December 1, 1950.
- (2) Statistics cover only claims paid and not all claims incurred during the month.
- (3) Total to date includes all claims under the old and new Insurance Plans and two deaths resulting from accidents.

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General Accounting Division

Employee Benefit Plans (continued)

Group Life Insurance

The Group Life Insurance Plan was discontinued November 30, 1950. As of July 31, 1951, 13 employees who are absent with continuous service are still participating in the Group Life Insurance Plan. They were not actively at work on December 1, 1950, and therefore were not eligible to participate in the new Insurance Plan. However, they will become eligible upon their return to work.

Group Disability Insurance

The Group Disability Insurance Plan was discontinued November 30, 1949 for all employees actively at work. However, one employee who has been absent from work since September 15, 1949, is still insured under the Group Disability Insurance Plan.

Group Health Insurance

The Group Health Insurance Plan was made effective December 1, 1949 and was discontinued on November 30, 1950. As of July 31, 1951, 4 employees who are absent with continuous service are still participating in the Group Health Insurance Plan. They were not actively at work on December 1, 1950, and therefore were not eligible to participate in the new Insurance Plan. However, they will become eligible upon their return to work. During July, 99 checks in payment of benefits of \$6,873 on 69 Group Health Insurance claims were received from Metropolitan Life Insurance Company.

Vacation Plan

Number of employees granted permission to defer one week of their 1951 vacation to 1952

	July			Total to Date			
	Weekly	Monthly	Total	Weekly	Monthly	Total	
Manufacturing	4	4	8	107	54	161	-a)
Technical, Engineering & Construction	2	8	10	20	35	55	-b)
Municipal, Real Estate & General Services	4	6	10	23	11	34	
Health Instrument	-0-	-0-	-0-	1	-0-	1	
Employee & Community Relations	-0-	-0-	-0-	1	1	2	
Plant Security & Services	7	4	11	60	24	84	
Purchasing & Stores	2	1	3	11	1	12	
Medical	-0-	-0-	-0-	4	-0-	4	
General Accounting	1	2	3	5	2	7	
General Administrative	-0-	-0-	-0-	-0-	2	2	
Total	<u>20</u>	<u>25</u>	<u>45</u>	<u>232</u>	<u>130</u>	<u>362</u>	

(a- Total to date reduced by 2 cancellations

(b- Total to date reduced by 1 cancellation

General Accounting Division

Employee Benefit Plans (continued)

		Technical, Engineering & Construction	Municipal, Real Estate & General Services	Other	Total
<u>U. S. Savings Bonds</u>					
Number participating at beginning of month	1 498	686	257	1 010	3 451
New authorizations	53	66	3	76	198
Voluntary cancellations	(22)	(10)	(2)	(14)	(48)
Removals and transfers out	(13)	(11)	(4)	(17)	(45)
Transfers in	5	3	1	5	14
Number participating at end of month	<u>1 521</u>	<u>734</u>	<u>255</u>	<u>1 060</u>	<u>3 570</u>

Percentage of Participation

G. E. Employees Savings and Stock Bonus Plan	38.7%	33.5%	34.1%	32.9%	35.4%
G. E. Savings Plan	11.9%	7.3%	9.2%	9.3%	9.8%
Both Plans	44.4%	37.5%	38.5%	38.4%	40.5%

Bonds Issued

Maturity Value	\$ 92 600	\$ 39 125	\$ 13 675	\$ 51 275	\$ 196 675
Number	1 621	702	246	954	3 523
Refunds Issued	22	15	4	25	66
Revisions in authorizations	35	20	2	24	81
Annual going rate of deductions					
G.E. Employees Savings & Stock Bonus Plan	\$612 827	\$293 041	\$ 93 747	\$374 868	\$1 374 483
G.E. Savings Plan	208 501	68 709	29 344	108 003	414 557
Total	<u>\$821 328</u>	<u>\$361 750</u>	<u>\$123 091</u>	<u>\$482 871</u>	<u>\$1 789 040</u>

Annuity Certificates (For duPont Service)

	<u>July</u>	<u>Total to Date</u>
Number issued	2	79

Suggestion Awards

Number of awards	31	1 059
Total amount of awards	\$380	\$17 490

Employee Sales Plan

	<u>July</u>		
	<u>Major</u>	<u>Traffic</u>	
Certificates issued	<u>Appliances</u>	<u>Appliances</u>	<u>Total</u>
Certificates voided	20	214	234
	1	7	8

Salary Checks Deposited

	<u>July</u>		<u>June</u>	
	<u>Weekly</u>	<u>Monthly</u>	<u>Weekly</u>	<u>Monthly</u>
Richland Branch - Seattle First National Bank	742	822	662	836
North Richland Area Office - Seattle First National Bank	11	8	12	8
Richland Branch - National Bank of Commerce	307	205	265	201
Out of state banks (Schenectady Staff)	--	3	--	3
Total	<u>1 060*</u>	<u>1 038</u>	<u>939**</u>	<u>1 048</u>
*Week ended 7-15-51				
**Week ended 6-17-51				

Special Absence Allowance Requests

Number submitted to Pension Board	<u>July</u>	<u>June</u>
	1	4

Absenteeism (Weekly Paid Employees)

January 1 to July 22	<u>1951</u>	<u>1950</u>
	2.92%	2.33%

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General Accounting Division

PERSONNEL AND ORGANIZATION

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Number of Employees

On Payroll at beginning of month
Removals and transfers out
Additions and transfers in
Number at end of month

July
215
(6)
23
232

June
204
(16)
27
215

Net increase (or decrease) during month
% of terminations and transfers out
% of absenteeism

17
2.8%
2.04%

11
7.8%
2.24%

Changes by division in number of Accounting Division employees during July, 1951
were as follows:

Name

General: No Change

Accounts Payable: Increase of one employee
One return from illness absence

Elpie K. Poe

Cost: No Change

One transfer from Plant Security and Services
One transfer to Purchasing and Stores

Patricia A. Fike
Helan M. Rogers

General Accounts: Increase of one employee
Two new hires

One termination

June K. Posner
Mary B. Pulfer
Dorothy R. Klinefelter

Plant Accounting: No Change

Weekly Payroll: Increase of three employees
Four new hires

One return from illness absence
One transfer to Technical, Engineering
& Construction
One illness removal

Hazel N. Hendrickson
Rosemary S. Hoeger
Dorothy M. Oellien
G. C. Swanson
Gladys E. Friend
Rita M. Duncan
Faye D. Russ

Monthly Payroll: No Change

Special Assignment: Increase of thirteen employees
Twelve new hires

One transfer from Rotational Training Program

Nancy F. Albritton
Catherine M. Blair
Bettie S. Brown
Billie B. Burke
Sharleen DeVine
Bettie C. Faust
Myrtle T. Francis
Elva O. Gross
Mary P. Kroger
Letitia V. F. Lamberson
June R. Schilling
Dea Ann Strand
W. I. Brown

General Accounting Division

PERSONNEL AND ORGANIZATION (continued)

Budgets: Decrease of one employee
One transfer to Internal Audit

Name
J. H. Roberts

Internal Audit: Increase of one employee
One transfer from Budgets

J. H. Roberts

Rotational Training Program: Decrease of one employee
Two new hires

R. E. Anderson
R. G. Pulfer
W. I. Brown
I. L. Burnett
A. W. Wells

Injuries

Major
Sub-Major
Minor

<u>July</u>	<u>June</u>
-0-	-0-
-0-	-0-
-0-	1

Number of Accounting Division employees as of July 31, 1951 were as follows:

	<u>Number of Employees</u>		
	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Total</u>
General	3	6	9
Accounts Payable	19	1	20
Cost	12	1	13
General Accounts	18	1	19
Plant Accounting	26	2	28
Weekly Payroll	69	6	75
Monthly Payroll	19	2	21
Special Assignment	13	2	15
Budgets	2	1	3
Internal Audit	4	7	11
Rotational Training Program	18	-0-	18
Total	<u>203</u>	<u>29</u>	<u>232</u>

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General Accounting Division

PERSONNEL AND ORGANIZATION (continued)

Non-exempt employees may be summarized as follows:

<u>Classification</u>	<u>Number as of</u>	
	<u>7-31-51</u>	<u>6-30-51</u>
Accounting A	2	2
Accounting B	3	3
Accounting C	8	8
Accounting D	7	8
Business Graduate	26	26
Clerical Working Leader	8	7
Cost Clerk A	2	2
Cost Clerk B	1	1
Cost Clerk C	2	2
Cost Clerk D	3	3
Field Clerk B	3	3
Field Clerk C	3	3
General Clerk A	20	18
General Clerk B	43	42
General Clerk C	30	17
General Clerk D	8	9
General Clerk E	2	2
Office Machine Operator A	10	10
Office Machine Operator B	6	5
Secretary B	1	1
Steno-Typist A	2	2
Steno-Typist B	8	6
Steno-Typist C	4	5
Steno-Typist D	<u>1</u>	<u>1</u>
Total	<u>203</u>	<u>186</u>

Open employment requests as of July 31, 1951 were as follows:

Accounting B	1
Business Graduate	1
General Clerk B	1
General Clerk C	8
General Clerk D	2
Steno-Typist A	<u>1</u>
Total	<u>14</u>

General Accounting Division

	<u>July</u>	<u>June</u>
<u>Accounts Payable*</u>		
Balance at Beginning of Month	\$ 164 135	\$ 148 143
Vouchers Entered	1 511 582	1 289 280
Cash Disbursements	1 564 530 DR	1 273 758 DR
Cash Receipts	282	470
	<u>282</u>	<u>470</u>
Balance at end of month	\$ 111 469	\$ 164 135
Number of Vouchers Entered	1 808	2 222
Number of Checks Issued	1 184	1 143
Number of Freight Bills Paid	235	283
Amount of Freight Bills Paid	\$ 5 000	\$ 4 207
Number of Purchase Orders Received	872	1 050
Value of Purchase Orders Received	\$ 222 032	\$ 298 783
<u>Cash Disbursements</u>		
Municipal, Real Estate & General Services	297 555	459 711
Technical, Engineering & Construction	6 218 361	5 921 241
General	4 509 012	4 166 037
Manufacturing	521 564	708 737
	<u>521 564</u>	<u>708 737</u>
Total	\$11 546 492	\$11 255 726
Material and Freight	\$ 2 360 656	\$ 2 524 942
Lump Sum and Unit Price Subcontracts	1 012 450	1 030 585
CPFF Subcontracts		
Labor	3 381 693	3 040 374
Others	573 722	729 837
Payrolls (Net)	2 841 385	2 730 180
Payroll Taxes	723 258	465 214
U. S. Savings Bonds	92 536	162 098
General & Administrative Expenses	200 000	200 000
Reimbursement of Travel & Living Expense		
Variation Account	-0-	33 554
All Other	360 792	338 942
	<u>360 792</u>	<u>338 942</u>
Total	\$11 546 492	\$11 255 726
<u>Cash Receipts</u>		
Municipal, Real Estate & General Services	\$ 115 637	\$ 115 471
Technical, Engineering & Construction	67 997	47 192
General	111 337	22 488 929
Manufacturing	17 655	33 954
	<u>17 655</u>	<u>33 954</u>
	\$ 312 626	\$22 685 546

*General Divisions Only

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General Accounting Division**DECLASSIFIED**

	<u>July</u>	<u>June</u>
<u>Detail of Cash Receipts</u>		
Advances from AEC	\$ -0-	\$22 296 611
Rents	146 854	128 472
Hospital	49 065	48 830
Telephone	17 463	17 684
Scrap Sales	1 077	14 854
Bus Fares	9 683	9 030
Miscellaneous Accounts Receivable	53 746	29 922
Sales to AEC Cost-type Contractors	25 784	7 415
Refunds from Vendors	3 533	5 231
Employee Sales	806	841
Educational Program	-0-	28
Refund from Travel Advance Account	-0-	50 000
Refund of Washington State Pension Awards	-0-	18 062
Dividend-Group Disability & Health Insurance	-0-	48 563
All Other	4 624	10 003
Total	\$ 312 626	\$22 685 546
<u>Number of Checks Written</u>		
Municipal, Real Estate & General Services	265	256
Technical, Engineering and Construction	1 220	1 078
General	1 184	1 143
Manufacturing	589	672
Total	3 258	3 149
<u>Bank Balances At End of Month</u>		
Chemical Bank & Trust Company - New York		
Contract Account	\$ 1 471 344	\$12 766 755
Seattle First National Bank - Richland		
Contract Account	2 179 820	2 269 306
U. S. Savings Bond Account	147 167	235 351
Salary Account No. 1	20 000	20 000
Salary Account No. 2	40 561	30 000
Travel Advance Account	55 053	46 241
Seattle First National Bank - Seattle		
Escrow Account	31 685	31 685
National Bank of Commerce - Richland		
Contract Account - Manufacturing	491 495	313 059
Contract Account - Municipal, Real Estate & General Services	56 534	84 089
Total	\$ 4 493 659	\$15 796 486
<u>Travel Advances and Expense Accounts</u>		
Cash Advance balance at end of month*	24 258	29 927
Cash Advance balance outstanding over one month*	7 913	9 781
Traveling and Living Expenses:		
Paid Employees	35 267	42 663
Billed to Government	31 934	38 376
Balance in Variation account at end of month	3 333 DR	-0-

*General Divisions Only

General Accounting Division

	<u>July</u>	<u>June</u>
<u>Hospital Accounting</u>		
<u>Accounts Receivable</u>		
Balance at Beginning of Month	\$ 123 356	\$ 121 154
Invoices Issued	55 193	54 927
Refunds	782	1 262
Cash Receipts	49 065 CR	48 830 CR
Payroll Deductions	5 465 CR	5 111 CR
Bad Debts Written Off	-0-	-0-
Adjustments	79 CR	46 CR
	<u>\$ 124 722</u>	<u>\$ 123 356</u>
Balance at End of Month		

	<u>July</u>	<u>Total to Date</u>
<u>Scrap Sales</u>		
Number of Sales	<u>9</u>	<u>395</u>
Revenue (excluding Sales Tax):		
Scrap Sales	\$ 1 040	\$ 364 639
Tract House Sales		
Revenue to AEC	-0-	33 449
Revenue to GE	-0-	14 498
	<u>\$ 1 040</u>	<u>\$ 412 586</u>
Total		

General Accounting Division

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ACCOUNTS PAYABLE

Volume of work decreased in July in comparison with recent preceding months. Number of vouchers booked was 1 808 amounting to \$1 511 582 compared with 2 222 in June amounting to \$1 289 280 - a decrease in volume of 18% but an increase in booked liabilities.

Number of vouchers paid (including debit items deducted from current checks) was 2 003 amounting to \$1 564 530 which compares with 1 912 paid in June amounting to \$1 273 758; an increase in volume of 5%. These vouchers were paid by 1 184 checks, a slight increase from the 1 143 checks issued in June, and averaging 1.69 vouchers per check.

On July 31, 1951 there were 1 443 vouchers on hand requiring additional supporting data before they could be considered complete and ready for audit by A. E. C. This represents considerably less than the number booked in an average month. Details as compared with June are as follows:

	July	June
Number on hand - Paid	<u>266</u>	<u>284</u>
Number on hand - Not Paid	<u>1 177</u>	<u>1 196</u>
Total	<u>1 443</u>	<u>1 480</u>

New purchase orders issued in July pertaining to General Divisions decreased from June. Details are as follows:

	July		June	
	No.	Amount	No.	Amount
New Orders Issued	872	\$222 032	1 050	\$298 783
Alterations Issued	104		116	

During July there were 44 boxes of records sent to storage in Records Center which contained approximately 7 000 finally audited purchase order files, 12 000 copies of accounts payable vouchers, and 5 000 freight bills.

Considerable time was spent during the month in expediting clearance of old vouchers which had been paid in excess of 60 days and which were still incomplete as to supporting data and for various other reasons.

COST

Operating reports for General Divisions for the month of June were issued on July 19, 1951 and detailed reports of Research and Development costs for Health Instrument Programs were issued on July 23, 1951. Normal closing schedules for June were delayed to insure that all charges applicable to fiscal year 1951 were entered into costs. Summaries of unit costs for fiscal year 1951 detailed by month were prepared for issuance to management.

Letters were issued to each General Division manager on July 26, 1951 summarizing costs incurred by his division during June, and analyzing and explaining changes in costs as compared with the previous month.

General Accounting Division

COST (CONT'D)

Work was continued in connection with determining the basis for allocation of General and Administrative and Protection of Plant and Personnel expense to areas and to processes. Tentatively it has been established that these expenses will be allocated to areas based on the number of selected employees in each area and then to processes in the ratio that individual process cost bears to total process cost.

Procedures were established for the recording and reporting of July costs in accordance with the revised cost coding system made effective July 2, 1951.

In order to equalize salary costs by month and eliminate fluctuations due to varying number of days, a schedule of accruals was established for fiscal year 1952 to compensate for unequal number of days in the various months and which will result in booking salary costs for the same number of days each month.

GENERAL ACCOUNTS

Advances from A.E.C. were reduced to a normal balance of \$5 000 000 as of July 31, 1951. The unusually high balance at June 30, 1951 was due to the fact that the advance usually received in July was received in June. The balance of the advances as of July 31 may be compared with those as of June 30 as follows:

	<u>July</u>	<u>June</u>
Cash in Bank	\$ 4 199 193	\$15 433 210
Cash in Transit	340 246	-0-
Cash in Bank - Salary Accounts	60 561	50 000
Travel Advance Funds	100 000	100 000
Advances to Subcontractors	300 000	300 000
Total	<u>\$ 5 000 000</u>	<u>\$15 883 210</u>

Travel activity of the General Divisions this month may be compared with that of June as follows:

	<u>July</u>	<u>June</u>
Number of Travel Reports Processed	<u>165</u>	<u>158</u>
Amount Reimbursed Employees	\$ 22 791	\$ 24 077
Amount Reimbursed A.E.C.	<u>20 845</u>	<u>22 133</u>
Amount Charged to Travel and Living Expense Variation Account	<u>\$ 1 946</u>	<u>\$ 1 944</u>

Considerable time and effort has been devoted to the following of all travel advances outstanding over thirty days. As a result, the open balances were reduced \$5 669 this month. All requests for cash advances are screened to determine if previous advances have been accounted for before new advances are made.

During July, charges in the amount of \$467 145 were received from the General Engineering Laboratory in connection with the Assistance to Hanford Program.

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GENERAL ACCOUNTS (CONT'D)

No Charges were received for K.A.P.L. or Research Laboratory Assistance.

General Ledger Trial Balances were received from all divisions July 19, 1951. A Pre-Closing Trial Balance was issued July 20 and reviewed with representatives of A.E.C. Finance. Closing entries were made and a Post-Closing Trial Balance was issued on July 21, 1951. Hanford Works Financial Statements and Consolidated Financial Statements were issued on July 26 and August 3, 1951 respectively.

Considerable work was expended the first part of the month in the year end closing. As a result of close liaison with the other accounting divisions, target dates were moved back and information was furnished the A.E.C. from three to five days earlier than scheduled.

Work is progressing in the descriptive write-ups of general ledger accounts. A preliminary "Application of Funds Report" was completed and work is continuing in further development of this report. Work is continuing in the preparation of a supplement to the inventory report which will summarize all inventories on the project by type of commodity.

Improvements were made in the procedures controlling shipping documents. Controls have been established to insure that value of material and equipment shipped from this project is relieved from Hanford's accounts and billed to the A.E.C. or other A.E.C. Cost Type Contractors.

INTERNAL AUDITS

During July, 1951, four audit reports were completed as follows:

1. Review of Termination Clearance Procedure - the purpose of which was to determine (1) the effectiveness of the present routines in collecting all obligations owing the General Electric Company by terminating employees and (2) the adequacy of the procedure now followed by the Employment Office of Employee and Public Relations Department in securing clearances on General Electric employees terminating their employment at Hanford Works.
2. Study of Reactor and Other Special Materials - a study to install controls over reactor and other special materials in the custody of using divisions at Hanford Works and to establish their value in inventory accounts.
3. Review of Procedures and Routines for Disposal of Surplus Materials - a study to review the routines for the disposal of surplus materials at Hanford Works which have been formulated by Stores Unit in compliance with procedures outlined by Atomic Energy Commission.
4. Cash Change Fund and Revenue Audits Made July 2, 1951 - unannounced audits performed jointly by representatives of General Electric Company and General Accounting Office, of several cash change funds representing 60% of the outstanding funds at Hanford Works, including the verification of revenues on hand to be deposited and the review of internal controls and safeguards for the handling of cash and related documents. The audit

General Accounting Division

INTERNAL AUDITS (CONT'D)

report recommended procedures to be followed by custodians in handling all cash funds.

In addition, working papers relating to physical inventories of eight inventory sub-accounts, completed by Inventory and Audit Section of Purchasing and Stores Divisions, were reviewed for accuracy and completeness of inventory data and for appropriateness of write-off adjustment.

Instructions were issued to Stores Division on the Pricing of Salvage Materials Transferred to A.E.C.

Beginning June 29, 1951, a personnel check of all employees on the job at Hanford Works was begun. As of July 31, 1951, this audit was nearing completion.

MEDICAL ACCOUNTING

The balance in Accounts Receivable increased \$1 366 during the month; from \$123 356 in June to \$124 722 in July. Sales increased \$266 over the month of June.

Out-patient invoices numbered 2 009 and amounted to \$9 766 as compared to 1 952 invoices amounting to \$9 361 in June. This represents an increase of 57 invoices and \$405 in amount.

In-patient revenue decreased \$139 in July, due primarily to the decrease in the adult patient-day census from 76.7 in June to 75.0 in July.

A total of 11 claims in the amount of \$410 were submitted this month to Fort Lewis for services rendered military personnel. Reimbursement on 29 claims in the amount of \$1 185 on prior months billings was received during the month.

Blue Cross claims paid during the month numbered 35 and amounted to \$2 101.

Listed below is a summary of activity to date on accounts submitted to Yakima Adjustment Service for collection:

	<u>Number</u>	<u>Amount</u>
Accounts Submitted	169	\$29 467
Accounts Returned as Uncollectible	48	10 195
Collections by Yakima Adjustment Service	54*	2 955
Accounts Recalled 10% Basis (Balance Owing)	9	1 576
Accounts at Yakima Adjustment Service 7-31-51	81	14 741

* Includes 31 accounts paid in full and 23 accounts partially collected.

The Medical Divisions Monthly Cost Statements have been revised for the month of July in accordance with the new procedure of considering work performed by other divisions as direct charges rather than assessed charges from other divisions. All cost will be shown on the statements by function without regard to who performs the work. Because of this change it was necessary to re-work and recast the budget.

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General Accounting Division

MEDICAL ACCOUNTING (CONT'D)

M. J. Smith attended the American Association of Hospital Accountants institute held at the University of Indiana from July 15, 1951 through July 20, 1951. Much useful information, regarding cost analyses, credit and collections, work procedures etc., was obtained at these meetings. As a result of information obtained certain changes are planned which will result in improved accounting procedures in general at Kadlec Hospital.

PLANT ACCOUNTING

The monthly Plant Accounting Report "Changes in Plant Accounts" was revised and in the future will show a comparison with budgeted amounts and in general will be less detailed. In order to provide comparison with budgeted amounts, projects included in the budget for fiscal year 1953 and revision of the budget for fiscal year 1952 were reviewed and the amounts expected to be transferred to completed plant within the current fiscal year were estimated. To this amount was added amounts provided for in the equipment budget. As a result of this review it is estimated that the completed plant accounts will increase during fiscal year 1952 in the following amounts:

(amounts in thousands)	<u>Asset</u>	<u>Reserve</u>
Plant and Equipment in Service		
Production Facilities	\$ 113 503	\$ 2 797
Research Facilities	12 293	257
Medical Facilities	845	16
Community Facilities	9 479	295
General Facilities	11 248	399
Total	<u>\$ 147 368</u>	<u>\$ 3 764</u>

Inventories of selected asset categories continued in the outlying areas. During the month inventories were completed of instruments (measurement and control), Health Instruments, police and fire fighting equipment. In addition, Plant records pertaining to the Railroad System are being reviewed with the cooperation of Transportation personnel to determine if any adjustments are needed.

In the future, inventories of completed projects will be taken upon receipt of Project Completion Reports. In the past, Project Completion Reports have been accepted as the basis for adding newly constructed facilities to the Plant Records. It is now felt that an inventory is necessary at the completion of the work to insure accurate recording of the assets.

Schedules and other work papers preparatory to the allocation of depreciation to Processes, Community, or to A.E.C. are being prepared.

The annual Plant Accounting Statement summarizing changes in Plant Accounts for fiscal year 1951 and showing balances in all Subsidiary Plant Accounts as of June 30, 1951, is nearing completion and should be ready for distribution during the week ending August 24.

The Audit Section of the A.E.C. Office of Finance continued their audit of Plant Accounting Records during the month of July.

General Accounting Division

PAYROLLS

During the month of July, there were 192 removals from payroll including 46 leaves of absence and 7 transfers to other units of the Company. There were 346 additions to the payroll including 15 employees re-engaged with continuous service. The result is a net increase of 154 employees on the payroll.

Second Quarter reports for Social Security Tax purposes were prepared for approximately 9,100 employees and were forwarded to General Office for filing with the Collector of Internal Revenue.

Second Quarter reports for Unemployment Compensation purposes applicable to the states of Washington, Oregon, New York, Illinois, Pennsylvania and Wisconsin were prepared and forwarded to General Office for filing with the various State Unemployment Compensation Divisions.

Oregon State Income Tax withheld from employees claiming residence in the State of Oregon was paid to the Oregon State Tax Commission on July 18, 1951.

A tabulation of all college graduates in the Technical Divisions was prepared for General Office. The tabulation consisted of name, division, classification and annual base rate.

Increased salary rates as a result of the General Salary Increase announced on June 19, 1951 were paid to weekly paid employees on a current basis effective with salary checks distributed July 6, 1951. The retroactive portion of the increase to weekly paid employees in the amount of \$342,830 was included in checks distributed on July 20, 1951. For exempt salaried employees, the retroactive portion of the General Salary Increase amounting to \$207,056 and the increased rates were included in salary checks for the month of July, 1951.

Military Duty Allowance of \$363.25 was paid in July to one weekly paid employee and \$1,235.01 was paid to two employees on the monthly payroll. To date, Military Duty Allowance of \$20,220.51 has been paid to 56 weekly paid employees and 7 monthly paid employees.

There were 173 employees, as of July 31, 1951, in the Armed Forces of the United States, as follows:

	Called to Duty	Volunteered For Duty	Total
Reserve Officers	12	3	15
Enlisted Reserve	44	6	50
National Guard	6	-0-	6
Selective Service	37	-0-	37
Voluntary Enlistments	-0-	65	65
Total	99	74	173

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New authorization cards for check off of Union Dues were received for 39 employee members of six unions affiliated with the Hanford Atomic Metal Trades Council and 2 employee members of the Building Services Employees International Union, Local 201.

Check off of Union Dues is in effect for 896 employee members of 12 unions affiliated with the Hanford Atomic Metal Trades Council and 26 employee members of the Building Service Employees International Union, Local 201.

Nineteen weekly salary time cards were received late in Weekly Payroll during the month of July, as follows:

<u>Week Ended</u>	<u>Number</u>
7- 1-51	5
7- 8-51	7
7-15-51	1
7-22-51	6
Total	<u>19</u>

Work has continued on several sections of the proposed Appendix C to the Prime Contract.

During July, a total of 196 man hours was expended on the "Digest of a Special Payroll Analysis".

A report was prepared during the month showing the number of employees, by divisions and by areas, using the various shift schedules. During the week ended July 1, 1951, 90 of the 132 official shift schedules were used. The report also included the number of employees who use weekly time cards in the 700, 1100, 3000 and Pasco areas.

In addition to regular payroll work, approximately 134,000 items were addressographed for other divisions in July.

During the month of July, 500 U. S. Savings Bonds having a maturity value of \$24,875 were withdrawn from the Employees Savings and Stock Bonus Plan by 75 employees. 830 U. S. Savings Bonds and 3,025 Custody Receipts having a maturity value of \$238,000 covering purchases by employees through payroll deductions in June were delivered to employees on July 27, 1951.

In July, checks were delivered to 17 participants in the G. E. Employees Savings and Stock Bonus Plan who withdrew, during 1951, U. S. Savings Bonds purchased in 1948 or 1949. These checks cover income for the years 1949 and 1950 on General Electric Company common stock which has been credited to their accounts.

Replacements were requested for 7 Custody Receipts which were reported lost by 5 employees during the month of July.

During July, there was an increase of 119 in the number of participants in the G. E. Savings Plans.

Authorizations for deductions from payroll for the purchase of safety shoes were received from 140 weekly paid employees.

In July, 6,545 items covering rents and telephone charges to be deducted from salaries were submitted to payroll, as follows:

House Rents	3,205
Dormitory Rents	770
Trailer Rents	100
Barracks Rents	328
Telephone Accounts	<u>2,142</u>
Total	<u>6,545</u>

At the request of Division Managers or their authorized representatives, approximately 350 salary checks were held in the Payroll Division. These checks were delivered by payroll representatives to individual employees who were scheduled off on Thursday and Friday and who called at the Payroll Division for their checks.

Approximately 70 salary checks were released to a representative of the Employee and Community Relations Division for delivery to employees absent due to illness. A total of 569 salary checks which includes 524 checks covering payment of the salary adjustment, and 58 withholding statements were mailed direct to employees who have been removed from the payroll.

Four garnishments were pending at June 30, 1951. Two garnishments were received in July. Five of these six cases were dismissed in July, two with payment to the court and three without payment. One garnishment was pending at July 31, 1951.

At June 30, 1951 there were four lost salary checks not reissued. Four salary checks were reported lost in July. Four of these checks were replaced during the month, and one was found and returned to the employee's supervisor. There were three lost salary checks not reissued at July 31, 1951.

A total of 1,053 employees were scheduled to begin their 1951 vacations in July. Division Managers or their authorized representatives approved deferment of one week of the 1951 vacation to 1952 for 20 weekly paid employees and 25 monthly paid employees. As of July 31, 1951, 232 weekly paid employees and 130 monthly paid employees had deferred one week of their 1951 vacation to 1952.

During the month of July, 67 employees became eligible for participation in the General Electric Pension Plan. Enrollment cards were received from 48 employees and 19 elected not to participate. At July 31, 1951, there are 36 employees who were participating in the Pension Plan, but who have suspended contributions.

Preparation of individual insurance certificates for approximately 8,500 employees was completed during July. Preparation of individual identification

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cards for each insured employee was approximately 50% complete at the end of the month.

At July 31, 1951, there were approximately 1,000 employees having preferential rates as a result of the salary rate revision made effective July 19, 1948. During July, preferential rates were eliminated in 28 cases where employees were transferred or reclassified.

During July, 777 claims for disability benefits, surgical benefits and hospital benefits under the Insurance Plan were processed and forwarded to Metropolitan Life Insurance Company. In July, 875 checks totaling \$51,683 for 678 claims were received from the Insurance Company and forwarded to the employees or to hospitals and surgeons in accordance with authorization of the employees.

Bank reconciliations completed:

Weekly Salary through #253, week ended July 1, 1951
Weekly Salary Vacation through #253, week ended July 1, 1951
Bond Account - June
Monthly Payroll #58, June 1951

PLANT SECURITY AND SERVICES SECTION

MONTHLY REPORT - JULY 1951

SUMMARY

There were no major injuries during the month. There have been four major injuries for the year to date for a frequency rate of 0.40.

Hanford Works was advised that it had received the National Safety Council's Distinguished Service to Safety award for the second consecutive year.

There were six industrial area fire alarms during the month. No loss to government property resulted.

The 200-West Laundry changed from a one to a two shift operation in order to handle increased volume. As soon as the additional shift is fully staffed the laundry will revert to a standard five day week.

Procedures Analysis activities resulted in a savings of \$16,105 of which \$11,710 is on an annually recurring basis.

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PLANT SECURITY AND SERVICES
MONTHLY REPORT -JULY 1951

ORGANIZATION AND PERSONNEL:

Number of employees on payroll:

	<u>Beginning of Month</u>	<u>End of Month</u>	<u>Increase</u>	<u>Decrease</u>
Staff	3	3		
Patrol and Security	634	628		6 (a)
Safety and Fire Protection	145	149	4 (b)	
General Service (Building & Laundry Service, Office Service, Records Control and Procedures Analysis)	290	302	12 (c)	
TOTALS	1,072	1,082	16	6

NET INCREASE: 10

(a) - Patrol and Security

- 12 - New Hires
- 1 - Returned from Leave of Absence
- 5 - Transferred to other Divisions
- 3 - Removed from Roll due to Leave of Absence
- 11 - Terminations

(b) - Safety & Fire Protection

- 6 - New Hires
- 1 - Rehire
- 1 - Returned from Leave of Absence
- 1 - Removed from Roll due to Leave of Absence
- 3 - Terminations

(c) - Building and Laundry Service

- 16 - New Hires
- 2 - Transferred from other Divisions
- 2 - Removed from Roll due to Leave of Absence
- 5 - Transferred to other Divisions
- 5 - Terminations

Office Service

- 14 - New Hires
- 1 - Transferred from Municipal
- 8 - Transferred to other Divisions
- 2 - Removed from Roll due to Leave of Absence
- 1 - Termination

Records Control

- 1 - Returned from Leave of Absence
- 1 - Transferred from Technical Services

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Plant Security and Services

SAFETY & FIRE PROTECTION

Injury Statistics

Days since last Major Injury 71
Accumulated Exposure Hours since last Major Injury 3,507,780
Major Injury Frequency Rate (1/1/44 through 7/31/51) 0.78

	June	July	Year to Date	Comparative Period, 1950
Major Injuries	0	0	4	2
Sub-Major Injuries	1	1	11	17
Minor Injuries	334	330	2,151	2,180
Exposure Hours	1,521,907	1,530,625	9,977,934	8,647,647
Major Injury F/R	0.00	0.00	0.40	0.23
Major Injury S/R	0.00	0.00	0.045	0.002
Penalty Days	0	0	450	0
Actual Days Lost	0	0	35	15
Minor Injury F/R	2.19	2.16	2.16	2.43

ESTIMATED MEDICAL TREATMENT TIME REQUIRED

1,354 hours 1,328 hours 8,890 hours

SUB-MAJOR INJURY NO. 205

An officer of the North Richland Fire Department was injured when he fell from the running board of a fire truck while answering a fire call. Injured was standing on the running board holding to a 1" pipe which is designed for use as a hand hold as well as a support for a light. He was holding to the support with his right hand and signalling instructions with his left hand to the men on the tail board of the truck. He lost his hold on the rail and fell to the pavement when the truck was braked for a stop at the scene of the fire. He fell on his right side, causing abrasions on the right elbow and it is probable that his foot was fractured when it struck against the pavement.

Safety Activities

The use of eye protection and the requirements and regulations covering same is being stimulated throughout all industrial areas.

Special efforts have been put forth by each Safety Engineer to help in reducing the increase in minor injuries. There is some improvement.

The National Safety Council recently forwarded to the Hanford works the Distinguished Service to Safety certificate. This award marks the second successive year of such recognition. Notice of same was circulated on an "As We See It" to all members of supervision.

Contact with sub-contractors repairing and reconditioning buildings in the 700 Area was made and satisfactory working conditions established to protect operational personnel from injury during the progress of their work.

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Plant Security and Services

Safety Activities (Contin)

A general safety survey of conditions and practices at Kadlec Hospital is being conducted by this office and some progress is being made. This survey is under the direction of the 300 Area Safety Engineer.

Fire Protection Activities

Fire protection surveys were completed on Buildings 1701-D, 1709-D, 1720-D, 2713-W, 275-W, and 321.

All fire hydrants in the 200-S Area were put into service.

Seventy-five new employees of the 200-E and 200-W Areas were given Fire Protection Orientation.

Instructions on the operation of the 4-pound Dry Chemical extinguisher were given to 240 employees of the "P", Technical and Instrument Divisions in the 300 Area.

All sprinkler systems in the 300 Area are having alarm valves taken down and necessary repairs made.

There were 253 Fire Department drills conducted by the training officer.

The A shift at White Bluffs Fire Station completed the 16 hour Standard First Aid Course.

Industrial Fires

<u>Division</u>	<u>Area</u>	<u>No. of Fires</u>	<u>Cause</u>	<u>Loss</u>
Power	300	1	Coal pile fire resulting from spontaneous ignition.	None
Instrument	300	1	Debris ignited by welding spark.	None
None	Outer	1	Lightning ignited grass and sage.	None
Patrol	Outer	1	Firing of 37 mm gun ignited grass.	None
Health Instrument	Outer	1	Smoke bomb attached to a balloon for experimental purposes sent up. Bomb came off and fell into grass, causing fire.	None
Electrical	100-B	1	Short circuit in fence lighting system.	None
TOTAL INDUSTRIAL FIRES		6	TOTAL LOSS	None

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Plant Security and Services

GENERAL SERVICE

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Building and Laundry Service

<u>Plant Laundry (Building 2723)</u>	<u>July</u>
Pounds Delivered	162,841
Pounds rewash	37,133
Total Dry Weight - Lbs.	199,974

<u>Richland Laundry (Building 723)</u>	<u>June</u>	<u>July</u>
Flatwork - Pounds	50,114	57,200
Rough Dry - Pounds	16,127	18,207
Finished - Pounds	2,033	2,584
Estimated Pieces	89,439	102,168
Total Dry Weight - Lbs.	68,274	77,991

Effective this month, the 200-W Laundry volume is recorded as pounds delivered and pounds rewash only. All clothing that is processed in this laundry and is delivered or rejected to be rewash is accurately weighed and recorded, to be charged against the Building from which this clothing came. This procedure is not only a more accurate method of allocating laundry costs to the various process buildings serviced, but it also eliminates the need for counting each individual piece which is a much slower method and not nearly as accurate.

Also effective this month, the 200-W Laundry converted from a one shift to a two shift operation. The increased volume of work expected from the new Redox Area was the reason for the added shift. Although this laundry is currently working a six-day week, it is also anticipated that as soon as sufficient help is procured, we will be able to revert to a standard five-day week.

Office Service

Central Mail

Handling of classified scrap through the Mail Room was discontinued this month. Each office is handling its own at the request of the Security Division.

<u>Types and Pieces of Mail Handled:</u>	<u>July</u>	<u>June</u>
Internal	961,759	666,701
Postal	81,272	69,452
Registered	1,407	1,174
Insured	412	321
Special Delivery	258	233
Total Mail Handled	1,045,108	737,881

Plant Security and Services

Central Mail (Contin)

	<u>July</u>	<u>June</u>
Total Postage Used	\$2,743.67	\$2,003.20
Total Teletypes Handled	6,728	5,109
Total Store Orders Handled	318	214

Office Equipment

Requisitions for office furniture and machines authorized for procurement by approval of Appropriation Request No. 28-B were prepared and submitted this month.

A procedure was adopted which provides better accountability for office machines issued to Atkinson-Jones Company.

A shipment of one hundred and forty-five 5-drawer file cabinets was received from the Federal Bureau of Supply, having been purchased by the A.E.C. They were found to be of very poor construction and not acceptable. An inspector from the F.B.S. examined the files and agreed they were of very poor quality. Negotiations are in progress for replacement of these files, and an emergency purchase is being processed through G.E. Purchasing to provide a supply of file cabinets pending settlement with the A.E.C. of the original order.

	<u>July</u>	<u>June</u>
Office Machines repaired in shop	272	270
Office Machine service calls	561	439
Total Machines Serviced	833	709

Central Printing

The Xerography process was utilized to capacity and with good results. The first issue of the new "Organization and Policy Guide" was produced, using this medium to shorten the time interval required to complete the work.

A second operator has been hired for the "Chief 22" press, thus insuring production from this machine on a two-shift basis.

A revised listing of offset duplicating equipment required to establish area duplicating rooms is being prepared for submitting to the A & B Committee. The request to procure this equipment has been forwarded by the A.E.C. to the U. S. Bureau of Printing for approval.

Two printing jobs for the Schenectady Office were contracted for during the month.

	<u>July</u>	<u>June</u>
Multilith Orders:		
Received	385	256
Completed - Day Shift	191	326
Completed - Night Shift	173	-
On hand	92	71

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Plant Security and Services

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Stenographic Service

The volume of work in this section fell off somewhat this month, eliminating the need for Saturday work.

A large job was performed for Housing Division, consisting of the folding, stuffing, and arranging in alphabetical order of the letters to lease holders announcing the deferred rent increase date.

<u>Breakdown of Hours:</u>	<u>July</u>	<u>June</u>
Dictation and Transcription	8:30	6:00
Machine Transcription	21:20	20:45
Letters	47:20	113:30
Rough Drafts	31:30	57:10
Stencils, dittos, and duplimats	718:20	736:00
Miscellaneous	661:15	524:45
Meeting Time	18:45	0:00
Training	161:00	425:30
Absentee Time	0:00	0:00
Holiday and vacation	0:00	0:00
Unassigned Time	24:00	248:00
Total	1,692:00	2,131:45
Employees loaned to other divisions	1,296:00	1,046:45
Total Hours Available	2,988:00	3,178:30

Duplicating Service

The work load in Duplicating increased considerably over previous months. Space for laying out work is critical and makes collating of large volume orders very difficult.

<u>Stencil and Fluid Duplicating</u>	<u>July</u>	<u>June</u>
Orders received	996	732
Orders completed	1,013	706
Orders on hand	26	43
Number of stencils	3,317	2,152
Number of Copies	597,966	390,905
Number of Dittos	1,658	1,319
Number of Copies	53,226	55,804
Collated orders	33	17
Collated copies	106,210	17,750

Records Control

Quantity of records received, processed and stored:

Administrative Division	1	Standard Storage Carton
Employee & Community Relations	5	" " "
Engineering and Construction	136	" " "
General Accounting Division	81	" " "

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Plant Security and Services

Records Control (Contin.)

Health Instrument Divisions	103	Standard Storage	Cartons
Instrument Division	1	"	"
Manufacturing Accounting	54	"	"
Medical Division	22	"	"
Municipal, Real Estate & General Services	6	"	"
"P" Division	7	"	"
Plant Security and Services	16	"	"
Project Engineering	9	"	"
Purchasing Division	10	"	"
"S" Division	1	"	"
Technical Services	81	"	"
Transportation Division	17	"	"

550 Standard Storage Cartons

Persons provided records service:	469
Records cartons issued:	472
Records destroyed:	6 linear feet of duplicate non-record material
Filing service provided:	486 records filed with records already in storage
Percentage of Records Service Center vault occupied by records excluding Civilian Defense portion:	68.5%

Reorganization in which groups were transferred intra-divisionally required reinventorying records still held in active files. This work has increased materially in recent months and requires approximately one-half time of one man.

Work is being continued to complete preparation of schedules to be submitted to the Atomic Energy Commission for approval of retention schedules providing for destruction of unimportant records. This work is considerably delayed due to the Accounting Divisions delay in agreeing to retirement periods.

The Standardized Filing Manual has been completed and sent out for printing.

A draft of the proposed introductory training program of clerical personnel in standardized filing by the Training Group has been submitted for approval.

A file specialist has been added to Records Control to train and assist clerical personnel in establishing standardized files.

Standardized filing was installed in three offices during July.

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Plant Security and Services

Procedures Analysis**DECLASSIFIED**

	<u>June</u>	<u>July</u>
Printing orders received:	335	405
Printing orders cancelled	20	15
New numbers assigned	119	109
Forms designed	25	51

The Security Patrol Forms and Procedures report is complete. Copies of the report have been approved and printed. Total annual saving incurred from this survey is as follows:

Printing, labor and material	\$888
Filing labor and material	934
Clerical effort eliminated by discontinuing unnecessary forms	3,750
TOTAL	\$5,572

Systems Equipment Survey - Excess Materials -- Typing procedure for distributing lists of material to prospective bidders has been reviewed and a recommendation for the use of Elliot Addressing machines has been made. The new procedure will reduce typing work load from 48 to 4½ man hours per week. Cost of equipment and supplies for one year is approximately \$350. Annual savings resulting from this survey are \$3200.

New Lease Forms - Rent increase procedures -- The new type lease has been returned from the printer and is ready to be utilized. The initial annual savings were based on 6,050 new leases. Total savings including clerical effort, cost of forms, and postage charges are \$3,714. Recurring annual savings after first year will be proportionate to leases issued (approximately 2000 annually) or \$1006.

The IBM survey has been completed and a recommendation report submitted recommending a centralized plant tabulating service. It is indicated from the survey that an immediate annual savings of approximately \$150,000 in equipment rental and operating labor is possible. Additional savings will result from further application of equipment to other activities. The proposed recommendation will make tabulating services available to departments, who under an individual operating program could not justify the cost of this type of equipment. The \$150,000 annual savings now possible is only a small portion of the total savings that could result from a centralized tabulating service.

Savings created this month are listed below:

	<u>One Time</u>	<u>Annual Recurring</u>
Forms Control	\$ 681	\$1,932
Procedures	3,714	9,778
TOTAL	\$4,395	\$11,710

Total savings for July - \$16,105.

Plant Security and Services

PATROL AND SECURITY

There were 333 General Electric employees given orientation talks which dealt with plant safety and security rules, also a brief resume of plans and policies of the General Electric Company for its employees.

One hundred and seventy-three General Electric employees were given termination interviews, at which time the terminated employees were asked to sign Security Termination Statement and Security Acknowledgment, Atomic Energy forms #136 and 15 respectively. Both of these forms and their meanings were discussed with the employees.

There were 202 security meetings held and attended by 2,734 employees.

The following security education items were issued during the month:

Four items appeared in the Works NEWS concerning the subject of Security.

A security poster bearing the inscription "It's the Little Drip That Gives Away Our Secrets" was distributed as follows:

On July 2, 150 were posted in the operations busses and 150 in the construction busses.

On July 30, 379 copies of this poster were posted in the areas.

A representative of the Security Division showed the following films during the month:

"Fitting 'U' Into Security" at two meetings with 60 people in attendance.

"Sabotage" at sixteen meetings with 480 in attendance.

A representative of the Security Division gave a security talk at two meetings with 60 employees in attendance.

Ninety-three employees of the General Electric Company received a "Q" security orientation talk from a representative of the Security Division during the month.

The following emergency plans were placed into effect during the month throughout the plant areas:

Number of practice evacuations held:	3
Number of practice blackouts:	14
Number of practice mobilizations:	14

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Plant Security and Services

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Patrol and Security (Contin.)

The post known as the "190-D Building Escort (M & K)" was discontinued July 1 in the 100-D Area.

Operation of the 181-D Building Tower was discontinued on the No. 2 shift on July 1 in the 100-D Area.

A representative of the Security Division visited the Kellogg Corporation to conduct a security survey for accountability of classified material July 2 through 5. He also reported to Mr. B. R. Prentice and J. R. Evans, located at the General Engineering Laboratory and Knolls Atomic Power Laboratory respectively, and contacted each of them regarding security matters on July 6.

On July 5, a new post was activated at the 241-BY Tank Farm, 200-E Area, which will require one man on the No. 2 shift.

Effective July 14, the new Construction fence, 100-B Area, was completed around the North Construction Area with the fence crossing the Patrol Road at the 181-B Building being closed off making the road a dead end at this point.

On July 16, the 108 Rover, 100-B Area, was discontinued on the No. 2 shift Mondays through Saturdays.

The 181-B Tower, 100-B Area, will be manned during the hours of darkness only as of July 16.

On July 17, a fingerprint viewer and fingerprint camera were established in the 212-P Building, 200-N Area (a Security "Exclusion" Area) for the purpose of determining adaptability for use at certain "exclusion" area locations within the perimeter barricades. The Operating Division, 200-E Area, was contacted and cooperation was requested in conducting this experiment. Several employees were fingerprinted by use of the camera and slides developed. Several technical difficulties caused suspension of the experiment pending repairs on fingerprint viewer. Due to the extent of re-design then found necessary, further experimentation at the 212-P Building was considered impractical and all equipment was transferred to the 770 Building, Richland, where work could be performed with less loss of time. Repairs were effected and current plans are being developed to conduct experimentation at the above site using building personnel in carrying out the identification experiments. It is now apparent that considerable redesigning and development will be required before the system will reach the stage of perfection required to conduct conclusive tests as to its adaptability.

A memorandum was issued to all Superintendents and Division Heads on July 23 entitled "Clearance for Off-Site Visits" regarding advance notification to the Security Office for visits of Works personnel to the Kellogg Corporation, New York, and Knolls Atomic Power Laboratory, Schenectady.

Field Security Inspection activities:

Contacts made regarding classified documents and prints:	41
Searches made for classified documents and prints:	13
Documents and prints located:	54

Plant Security and Services

Patrol and Security (Contin)

Investigations conducted in search of classified documents and prints charged to terminating personnel:	6
Security violations investigated regarding improper storage or unattended classified material:	15
File cabinet combinations changed:	21
Contacts made to inform custodians to change combination as they were overdue:	27
Classified scrap burning details:	4

The training courses received at the Patrol Training School during the month of July were as follows:

Pistol	1	hour
Hazards Disclosure	1	hour
Health	1/4	hour
Security	3/4	hour
Safety	1/4	hour
M-8	4 3/4	hours

During the month, 279 Security Patrolmen attended classes at the Training School.

A total of 798 pat searches were made during the month. Escorts handled totalled 590.

The Patrol Division made 22 ambulance runs for the Medical Division during the month.

Arrangements have been made to provide additional coverage for the 101 Area. All outside Patrol crews have been instructed to circle the fence line of this area whenever they are in the vicinity and to be alert for fire hazards or unusual incidents.

There were 4,116 badge transactions completed during July including "A", "B", "C" and temporary type badges.

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HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING JULY 31, 1951

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass Areas</u>
MEDICAL DIVISION						
I. Visitors to this Works						
S. T. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Medical consultation	W. D. Norwood, M.D. P. A. Fuqua, M.D.	7-30-51	7-31-51	X	
COMMUNITY DIVISIONS						
I. Visits to other Installations						
A. J. DeLong to: Knolls Atomic Power Lab. Schenectady, New York	Interview for employment at their request	W. H. Milton, Jr.	7-5-51	7-6-51	X	
ENGINEERING AND CONSTRUCTION DIVISIONS						
I. Visitors to this Works						
A. A. Batza General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	4-2-51	1-1-52	X	200-W 234, 235 200-W Const 234-5 Const
J. E. Brown, Jr. General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	7-24-51	8-3-51	X	200-W 234, 235

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Class.	Unclass Areas
F. J. Champlin General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	6-4-51	7-13-51	X	200-W 234, 235 200-W Const. 234-5 Const
E. P. Diehl General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	7-24-51	8-4-51	X	200-W 234, 235 200-W Const. 234-5 Const
A. E. Dreves General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	7-23-51	8-17-51	X	200-W 234, 235 200-W Const. 234-5 Const.
J. N. Hall General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	7-24-51	8-17-51	X	200-W 234, 235 200-W Const. 234-5 Const.
W. A. Hartman General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	4-2-51	1-1-52	X	200-W 234, 235 200-W Const. 234-5 Const.
M. W. Hively General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	7-24-51	8-3-51	X	200-W 234, 235 200-W Const. 234-5 Const
E. Long General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	6-26-51	8-18-51	X	200-W 234, 235 200-W Const. 234-5 Const.
J. L. Matrone General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	7-16-51	8-1-51	X	200-W 234, 235 200-W Const. 234-5 Const.

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Date Class.</u>	<u>Unclass Areas</u>
P. P. Palker General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	7-8-51	9-2-51	X	200-W 234, 235 200-W Const. 234-5 Const
R. N. Poole General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	5-1-51	8-1-51	X	200-W 234, 235 200-W Const. 234-5 Const.
L. D. Singloton Hadley Associates Burlington, Vermont	Consultation and installation of equipment on 432 Project	W. P. Ingalls	7-16-51 8-1-51	8-1-51 8-11-51	X X	200-W Const. 234-5 Const.
N. H. Wood General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	4-2-51	1-23-52	X	200-W 234, 235 200-W Const. 234-5 Const.
J. C. Coons General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	7-5-51	7-28-51	X	200-W 234, 235 200-W Const. 234-5 Const.
E. J. Hatfield, Jr. General Engineering Lab. Schenectady, New York	Consultation and installation of equipment on 432 Project	W. P. Ingalls	7-16-51 8-1-51	8-1-51 8-11-51	X X	200-W 234, 235 200-W Const. 234-5 Const.
B. R. Prontico General Engineering Lab. Schenectady, New York	Consultation on Construction Program	V. D. Nixon	7-30-51	7-30-51		X 700-760
K. O. Donolian Kellogg Corporation New York, New York	Consultation on Project C-431-B	V. D. Nixon J. R. Wolcott	7-9-51	7-13-51		X

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass Areas</u>
G. White, Jr. Kollon Corporation New York, New York	Consultation on Project C-431-B	V. D. Nixon	7-1-51	7-2-51	X	
C. M. Barr Bumstead & Wolford Seattle, Washington	Inspection on Project C-433	J. R. Kelly J. L. Boyd	7-27-51	7-27-51	X	300-382
C. J. Judson Bumstead & Wolford Seattle, Washington	Inspection on Project C-433	J. R. Kelly J. L. Boyd	7-27-51	7-27-51	X	300-382
J. W. Burton Roberts Filter Company Darby, Pennsylvania	Inspection of Roberts' installations	J. W. Conley W. Schildknecht	7-19-51 7-24-51	7-20-51 7-24-51	X 200-W Const X Richland Barricade	
S. Dunning Sheldon Dunning Company Seattle, Washington	Vendors consultation	L. H. Hasselblad	7-18-51	7-18-51	X 200-W Const 202-S Canyon 221-U	
C. G. Minger Amercoat Corporation Los Angeles, California	Vendors consultation	L. H. Hasselblad	7-18-51	7-18-51	X 200-W Const 202-S Canyon 221-U	
J. A. Dwyer Crano Company Chicago, Illinois	Inspection of Crano installation	T. H. Williams	7-11-51	7-11-51	X 202-S Canyon	
A. M. Houser, Jr. Crano Company Chicago, Illinois	Inspection of Crano installation	T. H. Williams	7-11-51	7-11-51	X 202-S Canyon	
L. C. Ford General Electric Company Pasco, Washington	Inspection of GE installation	H. M. Parker	6-22-51	6-23-51	X 202-S Canyon 277-S	

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass Areas</u>
II. Visits to other Installations						
V. G. Blanchette to: Kellogg Corporation New York, New York	Discuss electrical and instrumentation design for Project C-431-B	G. White, Jr.	7-2-51 7-5-51	7-3-51 7-5-51	X X	
W. J. Davis to: Kellogg Corporation New York, New York	Consultation on design of 105-C Building	G. White, Jr.	7-2-51	7-3-51	X	
J. J. Gately to: General Engineering Lab. Schenectady, New York	Consultation on Project C-413, RMB Line	C. W. George E. P. Diehl	7-16-51	7-20-51	X	
H. E. Grantz to: Knolls Atomic Power Lab. Schenectady, New York	Consultation regarding tool dolly, Project C-431-B	B. E. Prentice W. H. Milton, Jr.	7-24-51	7-31-51	X	
R. C. Mann to: Foxboro Company Foxboro, Massachusetts	Expedite, inspect and consult on Project C-362	J. Dobson S. U. Kirk	7-25-51	7-31-51		X
R. C. Mann to: Kellogg Corporation New York, New York	Expedite, consult and inspect on Project C-362 instrumentation	J. S. Atwood	7-31-51	8-10-51	X	
J. J. Owens to: Charles T. Main, Inc. Boston, Massachusetts	Audit of books, accounting and related matters in connection with reimbursement of CPFF contract	A. B. Bell	7-24-51	7-27-51	X	
E. F. Smith to: General Engineering Lab. Schenectady, New York	Consultation on 432 Project equipment installation and design	C. W. George	7-16-51	7-20-51	X	

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass</u>	<u>Areas</u>
J. R. Carroll to: Washington Iron Works Seattle, Washington	Obtain vendor to manufacture special shielding test assembly	O. S. Nugent	7-30-51	7-30-51		X	
F. Clomanson to: Crawford Doherty Foundry Portland, Oregon	Expedite pattern and casting of third safety system	V. P. Stirnweis	7-25-51	7-5-51		X	
G. S. Cochran to: General Engineering Lab. Schonectady, New York	Liaison with GEL on 432 Project	C. W. George	7-9-51	7-20-51		X	
F. C. Fisher to: Puget Sound Navy Shipyard Bremerton, Washington	Fabrication of "B" block	S. L. Allison	7-20-51	7-20-51		X	
J. M. Fox to: Electric Steel Foundry Portland, Oregon	Expedite delivery of order HMC-9482	Mr. DeWeese	7-11-51	7-11-51		X	
C. W. Harrison to: Puget Sound Navy Shipyard Bremerton, Washington	Fabrication of "B" block	S. L. Allison	7-20-51	7-20-51		X	
R. C. Hollingshead to: Johnston Pump Company Los Angeles, California	Design consultation with vendor	Mr. Brown	7-17-51	7-17-51		X	
R. C. Hollingshead to: Stearns-Roger Mfg. Co. Denver, Colorado	Design consultation with vendor	Mr. Rosengren	7-19-51	7-19-51		X	
C. E. Kent to: Electric Steel Foundry Portland, Oregon	Expedite delivery of order HW 9482 Special consultation with EXCO on HMC 9482	Mr. DeWeese Mr. DeWeese	7-11-51 7-17-51	7-11-51 7-17-51		X X	

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass</u>	<u>Areas</u>
R. T. Jasko to: Washington Iron Works Seattle, Washington	Obtain vendor to manu- facture special shielding test assembly	O. S. Nugent	7-30-51	7-30-51		X	
D. L. Peterson to: General Engineering Lab. Schenectady, New York	Discuss design changes in tool dolly specifications	L. G. Gitzendanner	7-9-51	7-10-51		X	
W. R. Thorson to: Teed and Northrup Co. Seattle, Washington	Discuss design details on equipment on order from them	M. Zavers	7-30-51	7-31-51		X	
W. R. Thorson to: General Electric Co. Seattle, Washington	Discuss design details on equipment on order from them	S. White	7-30-51	7-31-51		X	
T. Williams to: Crano Company Chicago, Illinois	Engineering consul- tation	P. M. Weiss	7-30-51	7-31-51		X	
T. Williams to: Stearns-Rogers Mfg. Co. Denver, Colorado	Engineering consul- tation	Mr. Rosengron	8-2-51	8-3-51		X	
EMPLOYEE AND COMMUNITY RELATIONS DIVISION							
I. Visitors to this Works							
L. L. Ferguson Knolls Atomic Power Laboratory Schenectady, New York	Contracts conference Contracts Admini- stration	C. C. Tallman J. N. Dupuy G. C. Butler	7-23-51	7-27-51		X	
H. E. Scott Knolls Atomic Power Laboratory Schenectady, New York	Contracts conference Contracts Admini-	C. C. Tallman J. N. Dupuy G. C. Butler	7-23-51	7-27-51		X	

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C. F. Steele
Knolls Atomic Power Laboratory
Schenectady, New York

Contracts Conference
Contracts Administration

C. C. Tallman
J. N. Dupuy
G. C. Butler

7-23-51 7-27-51

X

ELECTRICAL DIVISION

I. Visitors to this Works

C. J. Murphy
North Electric Company
Gallion, Ohio

Inspect telephone
equipment in area
exchanges

H. A. Carlberg

7-9-51 7-15-51

X X

Richland
Barricade

HEALTH INSTRUMENT DIVISIONS

I. Visitors to this Works

F. V. Cipperley
Idaho Operations Office
Arco, Idaho

Study personnel meter-
ing information

H. A. Mulcahy

7-30-51 8-19-51

X

II. Visits to other Installations

J. W. Hoaly
to: Atomic Energy Project
Chalk River, Ontario, Canada

Deliver talk on radio-
activity of pile water

Dr. Cipriani

7-23-51 7-25-51

X

K. E. Herde
to: Oak Ridge National Lab.
Oak Ridge, Tennessee

Waste disposal controls
and discuss current
problems

C. L. Connor
K. Z. Morgan

7-11-51 7-12-51

X

J. W. Porter
to: Radiation Laboratory
Berkeley, California

Inspect facilities
and discuss biological
problems

M. Calvin

7-9-51 7-10-51

X

INSTRUMENT DIVISION

I. Visitors to this Works

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass</u>	<u>Arcons</u>
W. A. Burt Minneapolis-Honeywell Minneapolis, Minnesota	Service ventilating system	J. H. Kolly	7-20-51	7-27-51		X	300 3717
MANAGEMENT							
I. Visits to other Installations							
D. W. McLonegan to: Argonne National Laboratory Chicago, Illinois	Discussions of educational policy	J. C. Boyce	7-25-51	7-26-51		X	
"P" DIVISION							
I. Visits to other Installations							
J. E. Groover, Jr. to: General Electric Company Lockland, Ohio	Interview for employment	J. P. Moore	7-23-51	7-24-51		X	
J. E. Groover, Jr. to: Oak Ridge National Lab. Oak Ridge, Tennessee	Interview and inspection of ANP Project, K-25 Bldg.	R. C. Mark	7-25-51	7-25-51		X	
E. S. Whittaker to: Knolls Atomic Power Lab. Schenectady, New York	Investigation of transfer	M. Davis L. L. Ferguson	7-9-51	7-10-51		X	
"S" DIVISION							
I. Visitors to this Works							
A. D. McLeod Marino & Industrial Supply, Inc.	Inspection of equipment	V. R. Chapman	7-19-51	7-19-51		X	
II. Visits to other Installations							

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Class	Unclass
T. C. Kilgress to: Knolls Atomic Power Lab. Schenectady, New York	Interview for transfer	D. E. Irwin L. L. Ferguson	7-9-51	7-12-51	X	
MAINTENANCE DIVISION						
I. Visitors to this Works						
A. E. Boas Worthington Pump & Machinery Seattle, Washington	Inspection of equipment	J. F. Heberer	7-16-51	8-5-51	X	100-D 190R
C. H. Sandall Westinghouse Corporation Los Angeles, California	Inspection of equipment	J. F. Heberer	7-26-51	7-27-51	X	100-H 190-H 100-B 190-B

POWER DIVISION

I. Visits to other Installations

C. H. Teague
to: Erie City Iron Works
Erie, Pennsylvania

Check on boiler
capacities for 200-W
Construction Projects

7-16-51 7-23-51 X

TRANSPORTATION DIVISION

I. Visitors to this Works

F. D. Robinson Madern Machinery Co., Inc. Spokane, Washington	Service newly purchased Universal Rock Crusher	E. G. Jones A. F. Mitchell	7-30-51	8-3-51	X	200-E XXX White Bluffs
J. W. Guimond Madern Machinery Co., Inc. Spokane, Washington	Service newly purchased Universal Rock Crusher	E. G. Jones A. F. Mitchell	7-30-51	8-3-51	X	200-E XXX White Bluffs

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Name - Organization Purpose of Visit Person Contacted Arrival Departure Restricted Data Class Unclass Arms

PLANT SECURITY AND SERVICES DIVISION

I. Visits to other installations

R. E. Jaynes
to: General Engineering Lab.
Schenectady, New York

B. R. Prontico

Consultation on
security matters at
Kollox

7-6-51

X

R. E. Jaynes
to: Knolls Atomic Power Lab.
Schenectady, New York

J. S. Evans

Consultation on
security matters

7-6-51

X

R. E. Jaynes
to: Kollox Corporation
New York, New York

G. E. Sago

Security survey

7-2-51

X

PURCHASING AND STORES DIVISIONS

I. Visitors to this Works

G. Hixon
Inland Motor Freight
Kennebec, Washington

H. H. Hart

Deliver material on
order HW 81759-M

7-9-51

X

100-B 105

H. Brockman
West Coast Fast Freight
Kennebec, Washington

H. H. Hart

Deliver material on
order

7-10-51

X

100-F 189
100-D 189

C. Froauff
Lee & Estes
Kennebec, Washington

H. H. Hart

Deliver material on
order HW 75251

7-10-51

X

300 303-J

G. Hixon
Inland Motor Freight
Kennebec, Washington

H. H. Hart

Deliver material on
order HW 81759-M

7-11-51

X

100-D 105

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>	
					<u>Class</u>	<u>Access</u>
H. Brockman West Coast Fast Freight Konnawick, Washington	Deliver material on order HW 83001-M	H. H. Hart	7-11-51	7-11-51	X	100-F 189
C. Frenuff Leo & Estes Konnawick, Washington	Deliver material on order	H. H. Hart	7-11-51	7-11-51	X	300 303-J
B. V. Brown Inland Motor Freight Konnawick, Washington	Deliver material on order HW 81733-M	H. H. Hart	7-13-51	7-13-51	X	200-W 271-T
N. Schmitt Inland Motor Freight Konnawick, Washington	Deliver material on order HW 81733-M	H. H. Hart	7-13-51	7-13-51	X	200-W 271-T
G. Hixon Inland Motor Freight Konnawick, Washington	Deliver material on order HW 80318	H. H. Hart	7-16-51	7-16-51	X	100-D 105
	Deliver material on order HW 80133	H. H. Hart	7-18-51	7-18-51	X	100-F 105
	Deliver material on order	H. H. Hart	7-23-51	7-23-51	X	100-D 105
	Deliver material on order HW 81759-M	H. H. Hart	7-26-51	7-26-51	X	100-D 105
H. Woody Leo & Estes Konnawick, Washington	Deliver material on order HW 81756-M	H. H. Hart	7-18-51	7-18-51	X	200-E 271-B
M. Brill Leo & Estes Konnawick, Washington	Deliver material on order HW 81748-M	H. H. Hart	7-18-51	7-18-51	X	200-W 271-T
	Deliver material on order HW 81756-M	H. H. Hart	7-20-51	7-20-51	X	200-W 271-T
					X	200-E 271-B
W. Weigand Leo & Estes Konnawick, Washington	Deliver material on order HW 85708	H. H. Hart	7-31-51	7-31-51	X	103-F 141-M

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II. Visits to other Installations						
G. Q. Mathews to: General Electric Company Lackland, Ohio	Interview for employment transfer	J. P. Moore	7-24-51	7-27-51	X	
H. A. Hauser to: General Eng. Lab. Schenectady, New York	Placement of order	B. R. Prentice	7-23-51	7-24-51	X	
H. A. Hauser to: Allen Tool Works Syracuse, New York	Placement of order	M. Allen	7-25-51	7-25-51	X	
H. A. Hauser to: Farrell - Birmingham New York, New York	Placement of order	A. Kuhns	7-26-51	7-26-51	X	
H. A. Hauser to: Balmar Corporation Baltimore, Maryland	Placement of order	Mr. Lewis	7-27-51	7-27-51	X	
H. A. Hauser to: Reed Standard York, Pennsylvania	Placement of order	Mr. Freed	7-27-51	7-28-51	X	
H. A. Hauser to: S. Morgan Smith, Co. York, Pennsylvania	Placement of order	Mr. Hennessey	7-28-51	7-28-51	X	
H. A. Hauser to: Chester Jensen Company Chester, Pennsylvania	Placement of order	J. Miller	7-30-51	7-30-51	X	
H. A. Hauser to: Sun Shipbuilding Co. Chester, Pennsylvania	Placement of order	J. Pew	7-30-51	7-30-51	X	

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Class	Unlass
						Areas
H. A. Hauser to: General Machine Products Philadelphia, Pennsylvania	Placement of order	G. N. Pfundt	7-30-51	7-30-51		X
H. A. Hauser to: M. L. Bayard Company Philadelphia, Pennsylvania	Placement of order	Mr. Kligman	7-30-51	7-30-51		X
H. A. Hauser to: American Machine & Foundry Buffalo, New York	Placement of order	Mr. Linton	7-31-51	7-31-51		X
W. W. Koehig to: General Electric Company Schenectady, New York	Consultation on procurement of materials	L. D. Niles	7-23-51	7-27-51		X
W. W. Koonig to: General Electric Company Lockland, Ohio	Interview for employment	E. V. Claxton	7-30-51	7-31-51		X
L. G. Jones to: Electric Steel Foundry Portland, Oregon	Coordinate production of cast pots	Mr. DeWeese	7-6-51	7-10-51		X
L. G. Jones to: J. M. Gauntlett Co. Seattle, Washington	Supervise inspection	Mr. McCarthy	7-17-51	7-18-51		X
L. G. Jones to: Puget Sound Sheet Metal Works Seattle, Washington	Supervise inspection	G. Dexter	7-17-51	7-18-51		X
L. G. Jones to: Bay Company Tacoma, Washington	Establish procedure for inspection of sub-contract	Mr. Ash	7-17-51	7-18-51		X

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass</u>	<u>Arms</u>
L. G. Jones to: Southwest Welding & Mfg. Co. LA to permit taking one inspector for re-assignment Alhambra, California	Re-align workload in Co. LA to permit taking one inspector for re-assignment	Mr. Lindmo	7-26-51	8-2-51		X	
L. G. Jones to: Western Gear Works Los Angeles, California	Re-align workload in LA to permit taking one inspector for re-assignment	Mr. Naysmith	7-26-51	8-2-51		X	
L. G. Jones to: National Supply Company Los Angeles, California	Investigate source of critical material for C-431-B Project	Mr. Merkeley	7-26-51	8-2-51		X	
L. G. Jones to: Johnston Pump Company Los Angeles, California	Investigate source of critical material on C-431-B Project	Mr. Brown	7-26-51	8-2-51		X	
L. G. Jones to: Byron-Jackson Los Angeles, California	Investigate source of critical material on C-431-B Project	Mr. Shanklund	7-26-51	8-2-51		X	
C. P. Lawson to: Roberts Filter Company Philadelphia, Pennsylvania	Expedite material	L. P. Carmon	7-9-51	7-9-51		X	
C. P. Lawson to: Builders Providence Providence, Rhode Island	Expedite material	M. E. Rogers	7-10-51	7-10-51		X	
C. P. Lawson to: Chapman Valve Company Indiana Orchard, Massachusetts	Expedite material	F. Rarahan	7-11-51	7-11-51		X	
C. P. Lawson to: Foster-Whoelet Corp. Carteret, New Jersey	Expedite material	L. Lonsdale	7-13-51	7-14-51		X	

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Name - Organization

C. P. Lawson
to: Potter Brumfield
Princeton, Indiana

C. P. Lawson
to: Masker Steel
Evansville, Indiana

C. P. Lawson
to: Crane Company
Chicago, Illinois

C. P. Lawson
to: Taylor Forgo
Chicago, Illinois

TECHNICAL DIVISIONS

I. Visitors to this Works

A. A. Batza
General Engineering Laboratory
Schönectady, New York

W. A. Hartman
General Engineering Laboratory
Schönectady, New York

C. V. Moore
Knolls Atomic Power Laboratory
Schönectady, New York

A. Glassner
Argonne National Laboratory
Chicago, Illinois

<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>	
				<u>Class</u>	<u>Doless</u> <u>Arons</u>
Expedite material	Mr. Biorhaus	7-16-51	7-16-51		X
Expedite material	Mr. Wilson	7-16-51	7-16-51		X
Expedite material	P. M. Weiss	7-17-51	7-17-51		X
Expedite material	Mr. Boldt	7-17-51	7-17-51		X
Discuss GEL irradiation and P-10 consultation	H. L. Henry H. F. Zuhre	7-6-51	7-6-51	X	100-B 108 100-F 105
Discuss GEL irradiation and P-10 consultation	H. L. Henry H. F. Zuhre	7-6-51	7-6-51	X	100-B 108 100-F 105
Observe fuel rod irradiation drop tests, discharge and assembly	R. E. Nathor J. B. Lambert R. Loyso	7-16-51	8-4-51	X	100-B 105 100-D 105 100-H 105 100-F 105 101 300 303
Consult on joint problems and research program in P-10	E. A. Eschbach W. L. Schalliol J. C. L. Chanton R. E. Nathor	7-29-51	8-5-51	X	300-3706 100-B 105, 108, 100-H XXX

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>	
					<u>Class.</u>	<u>Unclass Areas</u>
R. O. Bolt Radiation Laboratory Berkeley, California	Discuss irradiation	R. E. Mathor	7-24-51	7-26-51	X	700 Area
R. W. Lockhart Knolls Atomic Power Laboratory Schenectady, New York	Shielding conference	R. L. Dickman	7-9-51	7-11-51	X	100-D 105
H. H. Barschall Los Alamos Scientific Lab. Los Alamos, New Mexico	Consultation on cross section and neutron measurements	P. F. Gast J. E. Faulkner	7-30-51	8-2-51	X	300 303, 305 200-W 222-S, 202-S Canyon 202-S Silo 101 100-D 105 100-H 105
R. E. Blanco Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss chemical processing	F. J. Laitz	7-10-51	7-11-51	X	300 3706 222-S 277-S 202-S Canyon 202-S Silo
G. W. Watt University of Texas Austin, Texas	Research and Development consultation	R. B. Richards	7-17-51	7-26-51	X	300-XXX 200-W 221-T, 231, 234, 235 200-E 221-B 224-U 221-U Const 234-5 onst 277-S 202-S Canyon 202-S Silo 100-B 105, 108

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A. C. Jealous Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss final results on scale-up studies and Purex Process	R. B. Richards	7-25-51	7-27-51	X	300 3706 200-W 222-S, 231 277-S 202-S Canyon 202-S Silo
J. E. Conway E. I. du Pont de Nemours & Co. Oak Ridge, Tennessee	Discuss final results on scale-up studies and Purex Process	R. B. Richards	7-25-51	7-27-51	X	300 3706 200-W 222-S, 231 277-S 202-S Canyon 202-S Silo
R. A. Hanson Internat'l Business Machines Kennewick, Washington	Service IBM equipment	P. Thompson	7-1-51	7-31-51	X	101 300 3706
C. G. Kruse Internat'l Business Machines Kennewick, Washington	Service IBM equipment	P. Thompson	7-1-51	7-31-51	X	101 300 3706
M. E. Norby Internat'l Business Machines Richland, Washington	Service IBM equipment	T. W. Hauff	7-27-51	7-27-51	X	300 3706
II. Visits to other Installations						
J. H. Bach to: Knolls Atomic Power Lab. Schenectady, New York	Metallurgical consultation on reactor material program	A. U. Seybolt	7-16-51	7-20-51	X	
J. H. Bach to: Battelle Memorial Inst. Columbus, Ohio	Discuss testing of aluminum	H. Nelson W. Simmons	7-23-51	7-24-51	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Class.	Unclass.
						Areas
L. R. Boyd to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discuss ORNL 106	J. H. Gillette	8-2-51	8-4-51	X	
L. R. Boyd to: Knolls Atomic Power Lab. Schenectady, New York	Discussion concerning Hanford irradiation	C. E. Weber	8-6-51	8-18-51	X	
O. H. Greager to: Knolls Atomic Power Lab. Schenectady, New York	Technical consultations regarding assistance to Hanford Program	K. H. Kingdon	7-17-51	7-19-51	X	
O. H. Greager to: General Engineering Lab. Schenectady, New York	Technical consultations regarding assistance to Hanford Program	M. A. Edwards	7-17-51	7-19-51	X	
W. R. Lewis to: Oak Ridge National Lab. Oak Ridge, Tennessee	Give lecture to Reactor School on Pile Tech.	N. F. Lansing	7-9-51	7-10-51	X	
R. H. Layse to: General Engineering Lab. Schenectady, New York	Follow C-410 assembly fuel testing and discuss in-pile tests	C. D. Carroll	7-14-51	7-28-51	X	
R. H. Loyse to: Knolls Atomic Power Lab. Schenectady, New York	Follow C-410 assembly fuel testing and discuss in-pile tests	E. L. Brundige R. Cumerow L. F. Collin	7-14-51 7-30-51	7-28-51 8-4-51	X X	
W. J. Ozeroff to: Knolls Atomic Power Lab. Schenectady, New York	Hanford assistance program	H. Hurwitz	7-17-51	7-20-51	X	
C. M. Slansky to: Radiation Laboratory Berkeley, California	Discuss separations processes	G. T. Seaborg	7-5-51	7-6-51	X	

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Name - Organization

D. E. Stephens
to: Applied Science Corporation
Princeton, New Jersey

J. Dunn
to: Johnston Pump Company
Los Angeles, California

Purpose of Visit

Discuss NORD-10135

Pump meeting

Person Contacted

D. E. Woodbridge

- -

Arrival

7-10-51

7-16-51

Departure

7-12-51

7-18-51

Restricted Data
Class. Unclass

X

X

Areas

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PURCHASING AND STORES DIVISIONS

SUMMARY

JULY 1951

Personnel of the Purchasing and Stores Divisions showed a net decrease of four as shown below:

	<u>TOTAL PERSONNEL</u>		
	<u>6-30-51</u>	<u>7-31-51</u>	<u>Net Change</u>
Exempt	86	88	2
Non-Exempt	<u>328</u>	<u>322</u>	<u>-6</u>
	414	410*	-4

*Not included on our rolls: Manager and two trainees.

Monthly reports of inventories, receipts and usage of tin and lead were prepared and transmitted to NPA with information copies to the Atomic Energy Commission. The tungsten allocation request was forwarded to the National Production Authority for our subsequent month's tungsten requirements.

Three National Production Authority directives to suppliers were received. Three requests were acted upon by NPA with letters to suppliers involved, requesting action on their part to deliver as required. Five approvals for use of DO-E-3 by our suppliers were received in reply to vendor assistance requests, and three melt schedules approved.

A weekly status report has been initiated which will provide up-to-date information concerning all requests for priority rating and directive assistance.

Three requests for establishment of ceiling prices for scrap sale materials were processed and ceiling prices developed were transmitted to the Stores Section.

The July work load in Purchasing remained constant, based on number of purchase requisitions processed. 2581 purchase requisitions were received, 2217 orders and alterations placed, 876 open requisitions at month's end. The dollar value of orders and alterations placed during July amounted to \$1,424,724.84.

Negotiations with Iron Fireman Manufacturing Company on their \$30,000.00 claim resulted in a settlement for \$3,724.00, which represented additional costs directly attributable to project requirements.

An agreement was reached with Southwest Welding & Manufacturing Company on the factors on which extra charges would be considered in connection with orders for C-362 vessels.

Rigid design requirements on vertical and horizontal rods required for 105-C presented difficulties in getting orders placed. Three quotations were received on vertical rods, but none on horizontal rods. This necessitated a trip East to personally contact a selected list of fabricators. The American Machine & Foundry Co. of Buffalo, N. Y., was the only company willing to accept an order for horizontal rods, and their proposal was contingent upon also receiving an order for

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PURCHASING AND STORES DIVISIONS
SUMMARY

the vertical rods. Commission approval was secured and orders placed. Delivery was promised to meet our requirements.

Bethlehem Steel Corporation returned our order for September requirements for "B" block steel plate, although we had received verbal assurance from NPA that it would be accepted. In that the entire program would be disrupted if this steel were not received on time, it will be necessary for representatives of both G.E. and the Commission to visit Washington, D.C.

Progress was satisfactory on the "B" block fabrication at the Puget Sound Naval Shipyard.

Contracts for yearly requirements of steam coal and Sodium Bismuthate were awarded.

Essential Materials for Redox and TBP production are being scheduled as rapidly as storage facilities become available. Chemicals are being stockpiled for future use.

The work load of the Inspection and Expediting Section increased during July. Additional inspection personnel will be assigned to Bremerton Naval Shipyard for C-431-B project.

One additional field expeditor was assigned to the East Coast Area concentrating on critical orders for the TBP project.

Of the 2631 purchase requisitions processed through screening, 1061 items were furnished from plant sources. 54 items of stainless steel not immediately available on the open market were furnished to fabricators from plant inventories.

Maintenance materials and supplies disbursed from operations inventories were valued at \$240,811.73. Receiving reports issued totaled 5440.

Materials and equipment valued at \$243,980.07 were disbursed from the 10.20 Account, Construction Held Materials. In addition, materials valued at \$18,820.11 were withdrawn for use by operations forces, and materials valued at \$988.45 were shipped as directed by the Commission. Excess materials totaled \$15,302.63.

Materials and equipment valued at \$81,886.72 were disbursed from the 10.10 Account, Excess Materials.

The first sale conducted under the Surplus Sales Program was consummated during the month. Three additional sales are currently in process.

The Stores Unit has vacated and transferred Warehouses No. 3 and 105 at White Bluffs.

An agreement has been reached to eliminate the proposed \$40 switching charge on express cars handled in regular service to and from Hanford Works. Negotiations are under way for elimination of the proposed switching charge of \$165 on express cars handled in special service.

Total savings for July of \$17,924.86 resulted from rate reductions obtained from the carriers.

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PURCHASING & STORES DIVISIONS
STAFF SECTION
JULY 1951

GENERAL

Records pertaining to the Surplus, Salvage & Scrap Section are being reviewed in order to write a brief, documented history of this Section.

PERSONNEL

	As of 6-30-51			As of 7-31-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Admin., Costs & Budgets	2	1	3	2	1	3	0	0	0
Audit & Inventory	2	9	11	2	11	13	0	2	2
Priorities	1	12	13	1	14	15	0	2	2
TOTALS	5	22	27	5	26	31	0	4	4

SAFETY AND SECURITY

Safety and Security Meetings Scheduled 1
Number attending 12

STATISTICS

The following schedule reflects controlled materials allotment balances (top figure) and allotments used or extended to suppliers and subcontractors during July (lower figure):

		<u>OPERATIONS</u>				
Item No.	Controlled Material	Unit Meas.	3rd Qtr. 1951	4th Qtr. 1951	1st Qtr. 1952	2nd Qtr. 1952
	Carbon Steel (including	Short	53.00	66.00	78.00	82.00
10	Wrought Iron)	Tons	22.44	1.16	1.00	.00
	Alloy Steel (excluding	Short	2.00	1.00	1.00	1.00
20	Stainless Steel)	Tons	.92	.50	.50	.00
			34800	30000	30000	30000
30	Stainless Steel	Lbs.	8060	5277	0	0
	Copper & Copper Base		10000	10000	10000	5000
40	Alloy Brass Mill Products	Lbs.	8898	0	0	0
			11000	6000	6000	4000
50	Copper Wire Mill Products	Lbs.	7612	511	6	0
	Copper & Copper Base Alloys		4000	4000	2500	1200
60	Foundry Products & Powder	Lbs.	0	0	0	0
			160,000	160,000	114,000	114,000
70	Aluminum	Lbs.	130,106	113,000	90,000	90,000

Cont'd

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PURCHASING & STORES DIVISIONS
STAFF SECTION

STATISTICS (Cont'd)

CONSTRUCTION

Item No.	Controlled Material	Unit Meas.	3rd Qtr. 1951	4th Qtr. 1951	1st Qtr. 1952	2nd Qtr. 1952
	Carbon Steel (Including	Short	7000.00	12000.00	2000.00	800.00
10	Wrought Iron)	Tons	6193.68	10309.28	10.35	.00
	Alloy Steel (Excluding	Short	50.00	20.00	12.00	12.00
20	Stainless Steel)	Tons	12.08	6.00	1.00	.00
			683,200	289,000	169,000	199,000
30	Stainless Steel	Lbs.	600,878	64,237	3,300	0
	Copper & Copper Base		39,000	35,000	9,000	8,000
40	Alloy Brass Mill Products	Lbs.	10,674	6,250	1,250	0
			85,000	68,000	31,000	17,000
50	Copper Wire Mill Products	Lbs.	69,148	39,205	1,086	0
	Copper & Copper Base Alloys		9,500	3,000	2,000	1,200
60	Foundry Prod. & Powder	Lbs.	2,900	1,500	100	0
			38,000	83,000	26,000	12,000
70	Aluminum	Lbs.	37,325	73,834	1,360	0

Due to an alteration in schedule of plant production, it was necessary to apply to Atomic Energy Commission for a supplemental allotment of aluminum, which was promptly received from the Commission.

Monthly reports of inventories, receipts and usage of tin and lead were prepared and transmitted to NPA with information copies to the Atomic Energy Commission. The tungsten allocation request was prepared and forwarded to the National Production Authority for our subsequent month's tungsten requirements.

Ten requests for expediting assistance, six requests for vendor priority assistance and two requests for melt schedule approval assistance were received during the month.

Seven expediting assistance requests were processed and forwarded to the Atomic Energy Commission, three were disposed of by obtaining satisfactory delivery promises and returned to the Expediting Unit for follow-up. Five requests for vendor priority assistance were processed and forwarded to the Atomic Energy Commission and two requests for melt schedule approvals were processed and forwarded.

Three National Production Authority directives to suppliers were received in answer to our requests. Three requests were acted upon by NPA with letters to the suppliers involved, requesting action on their part to deliver as required. Five approvals for the use of DO-E-3 by our suppliers were received in reply to vendor assistance requests and three melt schedules were approved.

A weekly status report has been initiated which will provide up-to-date information concerning all requests for priority rating and directive assistance. A case number designation was also assigned to each individual submission. This case number will be used on each future assistance request, for ease in filing and identification.

PURCHASING & STORES DIVISIONS
STAFF SECTION

AEC transmitted to us one application for V-Loan and requested information with regard to status of orders involved, performance of the vendor and acceptability of the vendor's fabricated items. Information was compiled and a reply made to the Commission.

A listing of charges for services which are currently being made by the Community Division to the tenants in Richland was prepared and forwarded to the District Office of the Office of Price Stabilization for filing in compliance with ceiling price controls.

Three requests for establishment of ceiling prices for a number of scrap sale materials were processed and the ceiling prices developed were transmitted to the Stores Section.

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PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION - PURCHASING
JULY 1951

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The July work load based on number of purchase requisitions processed thru Purchasing remained constant. 2581 purchase requisitions were received and assigned as compared with 2342 in June. Orders and alterations placed totaled 2217 as compared with 2005 the previous month. Open requisitions in the Purchasing Division at month end totaled 876.

The dollar value of orders and alterations placed during July amounted to \$1,424,724.84.

Effectuated final completion on approximately 48 purchase orders for C-187-D equipment which had been held open after receipt of material pending final adjustment of price.

The \$30,000.00 claim submitted by the Iron Fireman Manufacturing Company on orders HW 53221 and HW 53225 was settled for \$3,724.00 which represented additional costs directly attributable to project requirements.

An agreement was reached with Southwest Welding & Manufacturing Company on the factors on which extra charges would be considered in connection with orders HWC 9488 and HWC 10003 for C-362 vessels. Work on these orders were not interrupted during the negotiations.

Arrangements were completed with the Schenectady Office of the Nucleonics Department for the procurement of the Tool Dolly for project C-431-B. A Hanford Works purchase order will be placed on a company selected and approved by the General Engineering & Consultant Laboratory. G.E.C.L. will do all the engineering and expediting on the order.

Rigid design requirements on the vertical and horizontal rods required for 105-C presented difficulties in getting orders placed. Three quotations were received on the vertical rods but no quotation was received on the horizontal rods. As a result it became necessary to make a trip East to personally contact a selected list of fabricators. The American Machine and Foundry Company of Buffalo, N.Y., was the only company willing to accept an order for the horizontal rods and their proposal was contingent upon also receiving an order for the vertical rods. Commission approval was secured and orders for both rods were placed with American Machine and Foundry Company. Delivery was promised in time to meet our requirements.

Bethlehem Steel Corporation returned our order for the September requirements for "B" block steel plate after we had received verbal assurance from the NPA that it would be accepted. After repeated efforts by telegram, telephone and letters failed to get appropriate action it was decided near the month end that representatives of both GE and the Commission should make a personal visit to Washington, D.C. in an attempt to get the steel on time, since this steel, if not received on time, would disrupt the entire program.

The Masonite Corporation was furnished a complete listing of sizes and quantities of "B" block Masonite required. Satisfactory delivery was promised.

Progress was satisfactory on the "B" block fabrication job at the Puget Sound Naval Shipyard. Materials had begun to arrive and work was starting on Masonite, tie rods, tubing and plate. The necessary tooling which is being supplied by General Electric and the Commission was approximately 80% complete at month end.

Release was secured on the requisitions for the Radio Metallurgy Building which had been held up previously.

PURCHASING AND STORES DIVISION
PURCHASING DIVISION - PURCHASING

Complete approved design drawings for the 105-C structural steel had not been received by month end but assurances were given that they would be furnished in early August.

Contracts for yearly requirements steam coal and Sodium Bismuthate were awarded to Bair Collins Coal Co., Kemmerer Coal Co., and General Chemical Division, Allied Chemical & Dye Corporation respectively.

N.P.A. directives were secured against Reynolds Metals Company and Aluminum Company of America to assure delivery of Aluminum Silicon during August and September.

Essential Materials for Redox and TBP production are being scheduled as rapidly as storage facilities become available. Nitric Acid and Aluminum Nitrate are stock piled for future use.

PERSONNEL

	As of 6-30-51			As of 7-31-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Purchasing - Constr.	10	14	24	10	12	22		-2	-2
Purchasing - Opr.	7	17	24	7	17	24			
Clerical	1	31	32	1	31	32			
TOTALS	18	62	80	18	60	78	-	-2	-2

SAFETY AND SECURITY

Safety and Security Meetings Scheduled 1
Number of employees attending 45
Minor Injuries 0

STATISTICS

	G	D	TOTAL
Requisitions on hand 7-1-51 (includes 78 assigned to Gov't.)	519	307	826
Requisitions assigned during July	1683	898	2581
Requisitions placed during July	1663	868	2531
Requisitions on hand 7-31-51 (includes 77 assigned to Gov't.)	539	337	876

	NUMBER	VALUE	
H.W. Orders Placed	1235	\$490,826.94	
H.W. Alterations Placed	130	34,939.74	
Total	1365	\$525,766.68	
H.W.C. Orders Placed	704	\$1,563,619.36	
H.W.C. Alterations Placed	148	668,661.20	Cr.
Total	852	\$ 894,958.16	
A.E.C. Orders Placed	91	\$ 124,234.65	
D.C. Orders Placed	38	531,621.40	

Gov't Transfers $\frac{OR}{0}$ $\frac{ORC}{0}$

Return Orders Issued 153

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PURCHASING AND STORES DIVISIONS
INSPECTION-EXPEDITING DIVISION
JULY 1951

GENERAL - The Supervisor of Inspection completed a one-week tour of the Los Angeles and Bay Area to reassign and observe inspectors. Numerous inspection problems were handled as well as obtaining expediting information.

The Supervisor of Expediting made a two-week tour of the East and Middle-West covering a number of critical orders.

The work load of the Inspection and Expediting Section increased during the past month, primarily due to new orders placed for Project C-431-A and B. A great amount of time is being spent coordinating the various components required for fabrication on this Project.

The Inspection and Expediting Section have been requested to furnish services for a number of A.E.C. orders on Project C-431-B, as well as for the Hot Semi-Works Sub-Contractor.

The remaining items for MJ-1 Project have been reduced to two (2), both orders having been placed in July.

INSPECTION SECTION - A number of changes in inspectors' locations have been arranged. These changes were necessary due to the completion of MJ-1 fabrication orders and the starting of C-431 fabrication orders. Orders for Project C-431-A and B will require several resident assignments of inspectors for periods up to six-months duration. These, along with shielding fabrication orders, comprise the main addition to work load and develops the need for additional personnel. The less difficult components of Project C-431 are being added to the assignments of existing inspectors; thus, for the time being creating an overload for inspectors until Separations Division work is complete.

The setting and alignment of equipment for the fabrication of shielding for C-431-B Project is well under way in the Bremerton Naval Shipyard. Additional inspection personnel will be assigned to this job in the next month.

Contacts are being made with vendors for orders placed by A.E.C., and a preliminary review indicates that requirements of sub-orders placed by these vendors will necessitate close follow-up from an inspection and expediting standpoint. Some of the prime orders on the equipment will require the services of resident inspectors.

The Inspection Section is working in close cooperation with the L.S. Sub-Contractor for the Hot Semi-Works. At present it is estimated that approximately 30 or more sub-vendors will be involved in both fabrication and material orders. One of our resident inspectors in the Seattle Area has been designated as reviewer on orders placed by this Sub-Contractor. During this review the specifications and inspection requirements will be discussed and comments offered. It is felt that this procedure will provide a more integrated program and will represent a benefit to the Project as a whole.

PURCHASING AND STORES DIVISIONS
INSPECTION-EXPEDITING DIVISION

Statistics:	Number of open orders requiring inspection	572
	Number of open orders being inspected	451
	Number of new orders requiring inspection	77
	Number of open requisitions requiring inspection	117
	Number of completed orders (cancelled, waived)	93
	Number of open orders requiring inspection - sub-vendor	29
	Number of open orders being inspected - sub-vendor	18
	Number of completed orders - sub-vendor	2

Personnel:

	<u>July 1, 1951</u>	<u>August 1, 1951</u>
Exempt	28½	29½
Non-Exempt	20	25
TOTAL	48½	54½

EXPEDITING SECTION - One additional field expeditor was assigned to the East Coast Area concentrating on critical orders for the TEP Project. The office force is spending considerable time on TEP due to the great number of orders for limiting material required by the field. Essentially all material to be furnished by General Electric Company to fabricators has been shipped.

The services of one engineer from the Separations Division has again been utilized on a part time basis for the expediting of critical instrument orders.

The Status Report for Project C-431-A has been discontinued in accordance with a request from the Design Division. Manpower which has been used for the preparation of this report is being shifted to active expediting.

To date 18 requests have been made to A.E.C. for priority assistance. Three directives have been issued by N.P.A.

Statistics:	HW Orders expedited in July (active)	528
	HW Orders expedited in July (routine)	1228
	HWC Orders expedited in July	1503
	Sub-vendor orders expedited in July	2500*
	HW Orders completed in July	1014
	HWC Orders completed in July	721

*Estimated

Personnel:

	<u>July 1, 1951</u>	<u>August 1, 1951</u>
Exempt	15½	15½
Non-Exempt	15	14
TOTAL	30½	29½

DECLASSIFIED
PURCHASING AND STORES DIVISIONS
STORES DIVISION

GENERAL

2631 Purchase Requisitions were processed through screening and 1061 items were furnished from plant sources. 54 items of stainless steel not immediately available on the open market were furnished to fabricators from plant inventories.

Maintenance materials and supplies disbursed from operations inventories were valued at \$240,811.73. Incoming shipments are continuing at a high level. Receiving reports issued for the month totaled 5440.

Materials and equipment valued at \$243,980.07 from 19 captions in the 10.20 Account (Construction Held Materials) were disbursed to construction forces during the month. In addition to the foregoing, materials valued at \$18,820.11 were withdrawn for use by operations forces and materials valued at \$988.45 were shipped as directed by the Commission. Materials declared excess from the above account totaled \$15,302.63.

Materials and equipment valued at \$81,886.72 were withdrawn from the 10.10 Account (Excess) for use on the project. Of this amount, construction forces withdrawals were valued at \$62,257.74.

During the month, twelve formal excess lists totaling \$281,038.41 were submitted to the Commission for disposition. Excess materials and equipment valued at \$17,199.01 were shipped from the project as directed by the Commission. Scrap sale revenue for the month amounted to \$798.53.

34 representatives of government and private businesses were escorted through our warehouses and scrap yards for the purpose of negotiating the sale of scrap and transfer of excess property.

The first sale conducted under the Surplus Sales Program was consummated during the month. Three additional sales are currently in process.

The Stores Unit have vacated and transferred Warehouses No. 3 and 105 located at White Bluffs. Warehouse No. 3 was assigned to A.&J. and Warehouse No. 105 was assigned to T.E.&C. 400,000 square feet of masonite located in Warehouse 105 was retained by T.E.&C. A letter was received from A.&J. stating they would have no further requirements for the tools located in tool warehouse at White Bluffs. Arrangements are now being made to transfer the tools to North Richland.

Building 84 which was removed from North Richland at the request of the Corps of Engineers has been placed in the North Richland Equipment Yard. Renovation has been completed and Building 84 will now be used as a Surplus Sales warehouse.

PURCHASING AND STORES DIVISIONS
STORES DIVISION

PERSONNEL

	<u>As of 6-30-51</u>			<u>As of 7-31-51</u>			<u>Net Change</u>		
	<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>	<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>	<u>Ex.</u>	<u>Non-Ex.</u>	<u>Total</u>
Administrative	5		5	5		5			
Construction Mat'l Sect.	2	33	35	2	30	32	-3		-3
Operations Mat'l Section	4	117	121	4	112	116	-5		-5
Surplus, Salvage & Scrap Materials Section	4	47	51	4	46	50	-1		-1
TOTALS	15	197	212	15	187	203	-9		-9

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	9
Number of Employees Attending	179
Minor Injuries	6

STATISTICS

Construction Materials

Items in Stores Stock	46,821
Items Added to Stock	331
Items Completely Liquidated from Stock	139
Store Orders Posted (Items)	3,558
Number of Requisitions Screened - A.J.	530
Number of Items Screened - G.E.	3,711
Number of Items Furnished from Stock	455
Value of Disbursements	\$263,788.63*
Inventory Valuation at Month End - Materials	6,054,358.59
Value of Materials Received	14,697.51
Value of Materials Declared Excess	15,302.63
*Includes \$243,980.07 disbursed to Construction & CFFC Subcontractors	
18,820.11 disbursed to Operations forces	
988.45 shipped at the Commission's direction.	

Operations Materials

Number of Items Added to Stores Stock	141
Number of Items Deleted from Stores Stock	46
Items in Stores Stock at Month End	48,248
Store Orders Posted	20,360
Number of Requisitions Screened This Month - G.E.	2,101
Number of Items Furnished from Plant Sources This Month	606
Inventory Valuation at Month End (903-All Captions, 906 & 912)	\$1,479,884.01
Inventory Valuation at Month End (Spare Parts)	1,348,443.09
Inventory Valuation at Month End (Special Materials)	3,139,033.82
Inventory Valuation at Month End (Spare Equipment Held in Storage)	262,542.04
Total Value Inventory Accounts	6,229,902.96
Value of Disbursements, not including Cash Sale Items	238,646.58*

PURCHASING AND STORES DIVISIONS
STORES DIVISION

STATISTICS (Continued)

Value of Cash Sales			\$628.09
Value of Sales, Payroll Deduction			1,537.06
Value of Materials Declared Excess			25,690.57
Value of Materials Returned to Stores Stock for Credit			11,713.37
*Includes \$59,295.58 disbursed to Construction and CFFF Subcontractors.			
<u>Surplus, Salvage & Scrap Materials</u>			
Balance of Account 10.10 as of 6-30-51			\$5,063,266.73
<u>Receipts - 6-30-51 to 7-31-51</u>			
Automotive Equipment	\$ 2,296.27		
Office Furniture	4,431.46		
Material and Supplies	28,073.37		
Miscellaneous Equipment	9,337.98		
Household Furniture & Equipment	37.50		44,176.58
Adjustments - Classes and Current Market Prices			10,399.44cr.
			<u>5,097,043.87</u>
<u>Disbursements - 6-30-51 to 7-31-51</u>			
<u>On Project</u>			
Lumber	3,579.13		
Automotive Equipment	6,870.29		
Machine Tools & Equipment	398.95		
Office Furniture	5,686.42		
Material and Supplies	31,127.91		
Miscellaneous Equipment	34,224.02	\$81,886.72*	
Stores Material Transfers		315.25	
<u>Off Project:</u>			
Automotive Equipment	10,066.31		
Material and Supplies	4,081.45		
Miscellaneous Equipment	3,051.25	17,199.01	99,400.98
Balance of Account 10.10 as of 7-31-51			\$4,997,642.89
Total Receipts to Date			35,731,440.71
Total Disbursements to Date			30,733,797.82
*Includes Disbursements to Construction	62,257.74		
<u>Scrap and Salvage Disbursed</u>			
Scrap Sales Completed	5		
Scrap Sales in Process	2		
Scrap Sales Revenue for Month of July			\$ 798.53
Total Scrap Sales Revenue to Date			70,652.14

PURCHASING AND STORES DIVISIONS
STORES DIVISION

WAREHOUSING, RECEIVING, DISBURSING & SHIPPING

Construction Materials

Store Orders Filled	3,280
Items Filled for Shipping	416
Items Excessed	61

Operations Materials

Receiving Reports Issued	5,440
Emergency Store Orders Filled	3
Shipments Processed (Containers & Materials)	310
Shipments Received	4,506
Store Orders Registered	21,593

Surplus, Salvage & Scrap Materials

Store Orders Filled	536
Truckloads of Materials Shipped	19
Carloads of Material Shipped	10

CONSTRUCTION STORES

<u>Account No.</u>	<u>Balance</u> <u>6-30-51</u>	<u>Purchases</u>	<u>Disbursements</u>	<u>Balance</u> <u>7-31-51</u>
10.16-101 Cement	Cr. 159.55	104.76	62.13	Cr. 116.92
10.16-102 Sand, Blasting Sand, Gravel	71.50	-0-	-0-	71.50
10.16-103 Plaster, etc.	Cr. 103.94	135.10	-0-	31.16
10.16-104 Lumber	6,386.27	18,611.83	2,495.58	22,502.52
10.16-105 Reinforced Steel	6,518.12	30.24	22.37	6,525.99
10.16-106 Miscellaneous	21,047.49	13,033.18	3,763.42	30,317.25
10.16-107 Plumbing	66,827.03	3,737.58	1,709.06	68,855.55
10.16-108 Electrical	75,639.78	24,692.76	3,144.86	97,187.68
10.16-109 Vitrified Clay Pipe	48.42	Cr. 45.90	-0-	2.52
10.16-110 Paint, Glass	3,080.58	1,672.05	474.79	4,277.84
10.16-111 Welding Rod	1,876.17	1,205.58	641.66	2,440.09
10.16-112 Structural Steel	52,189.64	8,913.92	7,032.59	54,070.97
10.16-113 Concrete & Masonry Supplies	Cr. 570.25	149.93	262.50	Cr. 682.82
10.16-114 Thermal Insulation	45.99	-0-	-0-	45.99
10.16-115 Roofing Supplies	281.57	174.29	74.91	380.95
10.16-116 Transformers	1,606.55	-0-	-0-	1,606.55
10.16-118 Automotive	34,350.44	14,480.94	10,406.30	38,425.08
10.16-133 Small Tool Repair Parts	995.96	321.51	141.79	1,175.68
10.16-134 Clothing	5,000.76	5,473.10	1,700.60	8,773.26
TOTAL	\$275,132.53	\$92,690.87	\$31,932.56	\$335,890.84

PURCHASING AND STORES DIVISIONS

TRAFFIC DIVISION

July, 1951

GENERAL

On June 10, 1951, the Purchasing Unit advised that 450 tons of Magnetite Iron Ore had been procured for shipment by rail from Apex, Montana, to Richland for use on Project C-431-B. It was determined that the lowest applicable freight rate was \$15.88 per net ton. A thorough study of rates applicable on this commodity in other territories disclosed that this rate was too high. Accordingly, proposal was submitted to the Union Pacific Railroad to publish on short notice a rate of \$6.38 per net ton. This was acted upon favorably by the carrier and with special permission of the Interstate Commerce Commission the rate became effective July 11, 1951. This results in a reduction of \$9.50 per net ton and will effect savings in freight charges of \$4,275 on this movement.

In order to effect expedited delivery by truck from East Chicago, Indiana, to Richland, of a stainless steel tower in two pieces for use on Project C-361 it was necessary to request the carrier to assign two trucks for our exclusive use. Through negotiations with the carrier a Section 22 Quotation was issued naming a rate of \$1,286 per vehicle, which resulted in a savings of approximately \$400 in freight charges.

As a result of protest made in June to the Railway Express Agency and the three rail lines serving Hanford Works agreement has been reached whereby the proposed \$40 switching charge on express cars handled in regular service to and from Hanford Works will be permanently eliminated. Further negotiations are being carried on in an attempt to eliminate entirely the proposed switching charge of \$165 on express cars handled in special service.

As a result of rate reductions obtained from the carriers there was a total savings in freight charges for the month of July amounting to \$17,924.86. This makes a total savings from September 1, 1946, to date of \$1,602,234.97.

PERSONNEL

	<u>Total Personnel</u> <u>as of 6-30-51</u>	<u>Total Personnel</u> <u>as of 7-31-51</u>	<u>Net Change</u>
Exempt	2	2	0
Non-Exempt	8	9	1
	<u>10</u>	<u>11</u>	<u>1</u>

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	1
Meetings Held	1
Minor Injuries	0

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
 July, 1951

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STATISTICS

Savings Report

1. Rate reductions obtained from the Carriers:

<u>Commodity</u>	<u>Origin</u>	<u>Savings for July</u>	<u>Savings 9-1-46 thru June, 1951</u>	<u>Total Savings 9-1-46 to date</u>
Coal	Roundup, Mont.	\$ 5,813.48		
Lime	Evans, Wash.	462.77		
Phosphoric Acid	South Gate, Cal.	962.59		
Caustic Soda	Tacoma, Wash.	795.91		
Caustic Soda	Willbridge, Ore.	796.01		
Soda Ash	Trona, Cal.	202.00		
Iron & Steel	San Francisco, Cal.	4,153.82		
Iron & Steel	Los Angeles, Cal.	2,596.44		
Railway Express	Various	1,810.81		
Truck	Various	201.56		
Salt	Newark, Cal.	129.47		
		<u>\$17,924.86</u>	<u>\$1,584,310.11</u>	<u>\$1,602,234.97</u>

2. Freight Bill Audit	1,114.76	68,214.65	69,329.41

3. Loss and Damage and Over-Charge Claims	32.24	107,685.04	107,717.28

4. Ticket Refund Claims	666.33	16,055.67	16,722.00

5. Household Goods Claims	213.32	15,258.09	15,471.41
	<u>\$19,951.51</u>	<u>\$1,791,523.56</u>	<u>\$1,811,475.07</u>

Work Volume Report

Reservations Made	Rail	117
	Air	115
	Hotel	88

Expense Accounts Checked	89

Household Goods & Automobiles	Movements Arranged Inbound	10
	Movements Arranged Outbound	3
	Insurance Riders Issued	2
	Furniture Repair Orders	2
	Requests for Claim Billing	2
	Claims Filed	2
	Claims Collected - Number	8
	Claims Collected - Amount	\$213.32

Ticket Refund Claims	Filed	48
	Collected - Number	38
	Collected - Amount	\$666.33

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
July, 1951

Freight Claims	Filed	12
	Collected - Number	3
	Collected - Amount	\$32.24
	Over and Shorts Processed	9
	Damage Reports Processed	14
Freight Bill Audit Savings		\$1,114.76
Freight Shipments Traced		96
Quotations	Freight Rates	268
	Routes	263
Bills Approved	Air Express	42
	Boat	4
	Carloading	206
	Express	152
	Rail	282
	Truck	427
Return Orders Processed		73
Carload Shipments	Inbound - GE - AEC	371
	Others	96
	Outbound - GE - AEC	8
	Others	3

Report of Carloads Received

	<u>CMST.P&P</u>	<u>N.P.</u>	<u>U.P.</u>	<u>TOTAL</u>
General Electric Company				
Anthracite		1		1
Appliances, Electric		1		1
Asphalt	4	6		10
Bath Tubs & Fittings		1		1
Boilers		1		1
Coal	100		92	192
Caustic Soda	6	4	2	12
Chlorine, Liquid	2	2		4
Containers, Steel	3			3
Cork Sheets		1		1
Ferric Sulphate	2	2	2	6
Furnaces	1			1
Furniture		1		1
Infusorial Earth	1			1
Lime	4		3	7
Nitric Acid		11	9	20
Phosphoric Acid		1	1	2
Pipe			1	1
Punchings, Steel	1		1	2
Salt			1	1
Soda Ash	1	2	1	4
Solvent		1		1

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
 July, 1951

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STATISTICS (CONTINUED)

Report of Carloads Received (Continued)

	<u>CMST.P&P</u>	<u>N.P.</u>	<u>U.P.</u>	<u>TOTAL</u>
General Electric Company (Continued)				
Sulfamic Acid		1		1
Sulphuric Acid		1		1
Tables		2		2
Tanks, Steel			1	1
Tank Parts		1		1
Tank Heads		1		1
Tubing	1			1
Steel Bars	14	10	15	39
Steel Plates		1		1
Steel Beams	2	2		4
Mdse.	3	7	2	12
Express	3			3
TOTAL	<u>148</u>	<u>61</u>	<u>131</u>	<u>340</u>
A.E.C.				
Cabinets		1		1
Chemicals	5			5
Machinery		1		1
Lumber	8	6	4	18
Poles	5			5
Mdse.		1		1
TOTAL	<u>18</u>	<u>9</u>	<u>4</u>	<u>31</u>
Atkinson & Jones Construction Company				
Asphalt	1			1
Cement	13	2	12	27
Lumber	2			2
Pipe	4		4	8
Poles	2			2
Shingles	1			1
Steel Bars	1	1	1	3
Mdse.	3			3
TOTAL	<u>27</u>	<u>3</u>	<u>17</u>	<u>47</u>
Puget Sound Sheet Metal Company				
Steel Plates		1		1
TOTAL		<u>1</u>		<u>1</u>
F. J. Early Company				
Cement	2			2
Pipe, Sewer		1		1
Steel		4	5	9
TOTAL	<u>2</u>	<u>5</u>	<u>5</u>	<u>12</u>

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PURCHASING AND STORING DIVISIONS
TRAFFIC DIVISION
 July, 1951

STATISTICS (CONTINUED)

Report of Carloads Received (Continued)

	<u>CMST.P&P</u>	<u>N.P.</u>	<u>U.P.</u>	<u>TOTAL</u>
U.S. Army				
Air Coolers		1		1
Machinery		1		1
Trucks		8	2	10
TOTAL		10	2	12
Newport Construction Company				
Asphalt		1		1
TOTAL		1		1
L. E. Baldwin, Inc.				
Asphalt			1	1
Plasterboard			3	3
Wallboard			3	3
TOTAL			7	7
Royal Company, Inc.				
Asphalt Siding		1		1
TOTAL		1		1
Taylor Brothers				
Building Material			1	1
TOTAL			1	1
E. J. Bartell's Company				
Insulation		1		1
TOTAL		1		1
J. P. Head Plumbing & Heating Co.				
Cast Iron Pipe		1		1
TOTAL		1		1
Sound Construction Company				
Studding		1		1
TOTAL		1		1
Public Health Service				
Trucks			1	1
TOTAL			1	1
A. Ritchie Company				
Wallboard			2	2
TOTAL			2	2
H. L. Hoffman Company				
Shingles		1		1
Mdse.		1	1	2

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
July, 1951

STATISTICS (CONTINUED)

Report of Carloads Received (Continued)

	<u>CMST.P&P</u>	<u>N.P.</u>	<u>U.P.</u>	<u>TOTAL</u>
Selden, Inc. Flooring			$\frac{1}{1}$	$\frac{1}{1}$
TOTAL				
McPhail Engineering Company Insulation Shingles			2 $\frac{1}{3}$	2 $\frac{1}{3}$
TOTAL				
Bergman & Lampson Company Lumber	$\frac{1}{1}$			$\frac{1}{1}$
TOTAL				
Fred Stabbert Co., Inc. Shingles			$\frac{1}{1}$	$\frac{1}{1}$
TOTAL				
TOTAL - SUBCONTRACTORS	33	22	41	96
TOTAL - ENTIRE PROJECT	199	92	176	467

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EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

SUMMARY -- JULY, 1951

The number of applicants interviewed in July was 1,598 as compared with 1,599 interviewed in June. Of these applicants, 489 were individuals who applied for employment with General Electric for the first time. In addition, 221 new applications were submitted through the mail. Open, nonexempt, nontechnical requisitions increased from 491 at the beginning of the month to 513 at the end of the month. Total plant roll increased from 8,674 to 8,805. Turnover rate increased from 2.19% in June to 2.48% in July. During July, 51 new requests for transfer to other type of work were received in the Employment Office, and 57 transfers were effected. Advertisements were placed in newspapers in Walla Walla and Yakima, Washington, on July 28, 29 and 30, and in Spokane, Washington, newspapers on July 28, 29, 30 and 31, for patrolmen, expeditors, IHM operators, instrument mechanics, production operators, laboratory assistants and stenographers. Attendance recognition award pins and wallet cards were distributed and presented to 117 employees during July, who qualified for the one-year awards during June. Transmittal letters to superintendents and division heads who had employees qualifying for awards, suggested that the occasion of presentations should be an excellent opportunity for improving employee relations.

Two employee deaths occurred during July, and two employees retired. Two hundred and eighty-three visits were made to employees confined to Kadlec Hospital, and 41 salary checks were delivered to employees either confined at home or in the hospital. In order to help employees approaching the retirement age, a program has been developed for a series of interview-discussion conferences to be held annually with employees starting six years before retirement age, until the last year prior to retirement when two such interview-discussion conferences will be held. At month end, participation in the Pension Plan was 94.7%, in the Insurance Plan 97.8% and in the Employee Savings and Stock Bonus Plan 40.6%. As of the end of July, there were 1,018 employees registered under the Selective Service Act, and 723 military reservists on the rolls. Since August 1, 1950, 152 employees have terminated to enter military service.

The "1951 Introductory Program for Technical Graduates" was completed during July. The Training and Program Development Group conducted various classes, and in addition devoted much time to answering miscellaneous questions and helping with minor problems.

The HOBBSO Program has been completed, with a total of 176 meetings having been held, and a total attendance of 4,245.

Employee and Community Relations Divisions
Summary

Twenty-three Supervisor's Handbooks were turned in during July, but were reissued, making a total of 1,479 issued. This leaves 21 handbooks in stock. Revisions to "Address," "Pay for Holidays," and "Group Insurance" sections were sent out during the month.

An 8-Hour Nonexempt Program for "S" Division personnel was scheduled for July 28, but was postponed until August 11.

A total of 334 employees received Orientation during July, and 93.7% of these elected to participate in the Group Insurance Plan.

A member of the Training Group spent July 11 and 12 at Washington State College and the University of Idaho discussing with their faculties the subjects of Effective Presentation and Technical Report Writing. The purpose of these meetings was aimed at a closer understanding of the material being covered here and the possibility of its meeting the standards set by these institutions.

Exempt personnel appraisals were completed during the month for the Training Staff.

A special showing of the film, "By Their Works," was presented to the 300 Area Pile Technology Group on July 23, with 23 metallurgists in attendance. J. T. Stringer of the 300 Area, requested help in setting up a training program for his group. An Operations Manual was sent to him for perusal, and further contact will be made to offer additional assistance.

The News Bureau distributed 55 news releases during the month. A feature story for the MONOGRAM on radioactive by-products was written at the editor's request. The Seattle Bureau Chief for TIME, LIFE and FORTUNE Magazines spent one day in Richland and was accompanied by the News Bureau Supervisor and the AEC Public Relations Officer on a tour of the areas. Information on the Health Instrument aquatic biology division was also given him.

The News Bureau Supervisor visited the new managing editor of the Columbia Basin News to discuss plans for more complete coverage.

Eighty-five photographic assignments were completed by the H.W. Photo House, and a total of 8,584 prints were produced.

With the installation of a projection printer, the Photo House can now produce 3½" x 4" glass slides and other reduction requirements.

The supervisor in charge of civil defense public information compiled a report on publicity activities concerning the Civil Defense Control Center "Open House". The report states that local newspapers and the

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Employee and Community Relations Divisions Summary

Works NEWS published 192 column inches concerning the event, local radio stations broadcasted the four spot announcements 43 times, a letter was sent to community leaders, a plant office letter was sent to all supervisors, and an information brochure was presented to people attending the open house.

Special Programs produced Civil Defense Bulletin Nos. 3 and 5 through the plant printing shop.

Hanford Works posting service was inaugurated by Special Programs whereby poster frames were installed in 35 key locations throughout the plant for employee relations posters. Posting activities include servicing bulletin boards, information racks, suggestion system boxes.

The new booklet "Safety Is Part of Your Job" was mailed to Richland residences, accompanied by an employee news letter signed by the General Manager.

Activities in publicizing the Odd-Even Watering Plan included designing four posters for display on municipal garbage trucks, developing a limerick contest, releasing news stories and photographs through the News Bureau, producing two full-page feature stories in the Works NEWS. Radio and Special Events produced radio spot announcements to publicize the plan.

A new section of "This Way, Please . . ." was developed and sent to the printer.

Radio and Special Events previewed two sound-slide films, "Awards on Parade" and "Our Secretary, Miss Jones," which are being made ready for plant showings.

Ticket distribution and all publicity for the "House of Magic" show presentation in Richland in September was planned and started during the month.

Seven papers by Hanford Works people were processed and one speech was handled during July.

The Hanford Works NEWS carried news and features on Atomic Frontier Days, the Suggestion System, employee activities, safety, and security. Special arrangements were made to run a series of articles on Social Security.

After three negotiation meetings during July, the final Hanford Guards Union - General Electric Company contract was given to the Union for ratification by its membership. No agreement was reached with the Richland and North Richland Firemen regarding the final form of the contract. Notice of an unfair labor charge was received from the

Employee and Community Relations Divisions
Summary

NLRB in regard to the proposed rent increase. On July 5, the Company received the NLRB's report of the objections to the union shop election which were filed by the HAMTC.

Additional information was given to Wage Stabilization Board in connection with increase in rates of Draftsmen and Designers. A tabular chart was made showing rate information, platoon systems used and nonwage benefits of Fire Departments in the Northwest Area.

On July 28, 1951, the Contractors' Negotiating Committee notified the Unions of discontinuance of the Project policy of controlled wages and conditions of employment. The Davis Panel made "no recommendation in the isolation pay issue." The Plumbers have failed to meet for negotiations of their contract which expires August 15, 1951. Notice of opening of their Schedules "A" was received from the Sheetmetal Workers and Technical Engineers. The Machinists refused an offer of five cents per hour on or after August 14 (anniversary date of agreement) and five cents on January 1, 1952. NLRB Hearing on Teamster's petition for representation election was held July 10. A Chief Inspector for the Department of Labor and Industries indicated complete approval of our safety program. A meeting with six Building Trades Business Agents was held on July 26 for the purpose of allaying any fears that allegedly exist among the workers regarding work under special hazard conditions. A work stoppage involving all Newberry-Neon Electric Linemen except Maintenance occurred July 20. To date, sixteen men have returned to work. The Plumbers Union has refused to dispatch men on Urban, Smyth and Warren's requisition since June 25 in spite of layoffs by Hanley & Company totaling approximately 141 men since that date. Hearings before the local and State Joint Boards resulted in a decision that the Union would furnish men if available. The Union has not responded to this ruling. On July 2, the Plumbers' Business Agent released certain pipe which had been the subject of dispute since June 27. On July 21, this office was informed that the Plumbers will refuse to handle certain pipe designated for the new area which is scheduled for off site fabrication.

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EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

JULY, 1951

ORGANIZATION AND PERSONNEL

Employment and Employee Services

Effective July 2, 1951, a Messenger assigned to the Investigations and Files Group was upgraded and transferred to the H.I. Operational Division.

Effective July 5, 1951, a General Clerk "D" was employed and assigned to the Sign Up Group.

Effective July 9, 1951, a Steno-Typist "C" was employed and assigned to the Procurement Group.

Effective July 12, 1951, a General Clerk "D" assigned to the Sign Up Group terminated voluntarily.

Effective July 20, 1951, a Steno-Typist "C" assigned to the Procurement Group terminated for illness - Pregnancy.

Effective July 25, 1951, a General Clerk "D" was employed and assigned to the Procurement Group.

Effective July 23, 1951, a General Clerk "C" assigned to the Personnel Records Group was transferred to the Technical Division.

Effective July 23, 1951, a General Clerk "D" was transferred to the Personnel Records Group from the Technical Division.

Training and Program Development

Effective July 27, one Secretary "B" was deactivated because of pregnancy.

Community and Public Relations

Effective July 2, one General Clerk "B" was transferred from Purchasing and Stores to this division to work in the Radio and Special Events Group.

Effective July 31, one Steno-Typist "C" was employed to work in Special Programs.

Employee and Community Relations Divisions
Organization and Personnel

Union Relations

Effective July 16, the Assistant Manager-Union Relations, Subcontractor Personnel transferred to the Engineering and Construction Division.

Effective July 16, one General Clerk "C" was added to the rolls for assignment in Wage Rates.

Effective July 17, one General Clerk "C" was added to the rolls for assignment in Wage Rates.

Effective July 30, one General Clerk "D" transferred from this division to the Instrument Division.

Number of employees on roll	<u>July</u>
Beginning of month	117
End of month	118
Net Increase	1

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Employee and Community Relations

ACTIVITIES

Employment and Employee Services

Employment:

	<u>June, 1951</u>	<u>July, 1951</u>
Applicants interviewed	1,599	1,598

489 of the above applicants interviewed during July were individuals who applied for employment with the Company for the first time. In addition, 221 new applications were received through the mail.

	<u>June, 1951</u>	<u>July, 1951</u>
Open requisitions		
Exempt	3	6
Nonexempt	491	513

Of the 491 open, nonexempt, nontechnical requisitions at the beginning of the month, 316 were covered by interim commitments. Of the 513 open, nonexempt, nontechnical requisitions at month end, 373 were covered by interim commitments. During July, 162 new requisitions were received requesting the employment of 288 nonexempt employees.

	<u>June, 1951</u>	<u>July, 1951</u>
Employees added to the rolls	524	348
Employees removed from the rolls	186	217
NET GAIN OR LOSS	+ 338	+ 131

Of the 217 employees removed from the rolls, none were removed due to lack of work.

Turnover:	<u>June, 1951</u>		<u>July, 1951</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
	1.88%	3.35%	2.06%	4.05%

Over-all Turnover:	<u>June, 1951</u>	<u>July, 1951</u>
	2.19%	2.48%

During July, 50 employees terminated voluntarily to accept other employment, 27 terminated to leave this vicinity, and 20 terminated to return to school.

Employee and Community Relations

At month end there were only 6 employees in lack of work status.

Transfer Data

Accumulative total of requests for transfer received since 1-1-51	404
No. of requests for transfer received during July	51
No. interviewed in July, including promotional transfers	66
Trans. effected in July, including promotional transfers	57
Trans. effected to date since 1-1-51, including promotional trans.	286
Transfer requests active at month end	66
No. of steno trans. out of steno pool in July	10

During July, 16 people whose continuity of service was broken while in an inactive status were so informed by letter.

Advertisements for patrolmen, expeditors, I.B.M. operators, instrument mechanics, production operators, laboratory assistants and stenographers were placed in Walla Walla and Yakima, Washington, newspapers on July 28, 29 and 30, and in Spokane, Washington, newspapers on July 28, 29, 30 and 31.

Attendance recognition award pins and wallet cards were distributed and presented to 117 employees during July, who qualified for the awards during June. The awards, of course, were made by the employee's immediate supervisor. In transmitting the wallet cards and pins to the various superintendents and division heads who had employees in their organization who qualified for awards, the transmittal letter suggested that the occasion of presentations should be an excellent opportunity for improving employee relations by the supervisor not only congratulating the employee for a splendid attendance record, but also passing on other communications of a warm and friendly nature. As future award transmittals are made, plans are for the communication to include a reminder by way of suggestion to take advantage of the added opportunity for promotion improved employee relations with his presenting awards.

Employment Statistics:

	<u>6-30-1951</u>	<u>7-31-1951</u>
Number of employees on rolls		
Exempt - Male	1,919	1,935
Female	<u>55</u>	<u>55</u>
	1,974	1,990
Nonexempt - Male	4,937	4,988
Female	<u>1,763</u>	<u>1,827</u>
	<u>6,700</u>	<u>6,815</u>
TOTAL	8,674	8,805

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Employee and Community Relations

ADDITIONS TO THE ROLLS

	<u>Exempt</u>	<u>Nonexempt</u>	<u>Total</u>
New Hires	13	320	333
Re-engaged	0	0	0
Reactivations	0	15	15
Transfers (from other plants)	0	0	0
Actual additions	13	335	348
Payroll exchanges	31 ^a	1 ^b	32
GROSS ADDITIONS	44	336	380

TERMINATIONS FROM THE ROLLS

Actual Terminations	25	148	173
Removals from the rolls (deactivations)	2	42	44
Payroll exchanges	1 ^c	31 ^d	32
GROSS TERMINATIONS	28	221	249

GENERAL

	<u>6-1951</u>	<u>7-1951</u>
Applicants interviewed	1,599	1,598
Photographs taken	629	508
Fingerprint impressions (taken in duplicate)	501	466

ABSENTEEISM STATISTICS
(Weekly Salary Roll)^e

Male	2.13%	1.82%
Female	2.74	3.30
Total plant average	1.79	2.21

INVESTIGATION STATISTICS

Cases received during the month	360	426
Cases closed	344	680
Cases found satisfactory for employment	351	361
Cases found unsatisfactory for employment	5	7
Cases closed before investigations completed	32	38
Special investigations conducted	12	21

PERFECT ATTENDANCE RECOGNITION AWARDS

Total 1-year awards to date	1,395
1-year awards made during July for those qualifying in June	117

a Transferred from Weekly Payroll
b Transferred from Monthly Payroll
c Transferred to Weekly Payroll
d Transferred to Monthly Payroll
e Statistics furnished by Weekly Payroll

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294

PRIVACY ACT MATERIAL REMOVED

Employee and Community Relations Divisions

Employee Services:

The following visits were made with employees during the past month by a representative of the Employee Services Group:

Employees visited at Kadlec Hospital	283
Salary checks delivered to employees in Kadlec Hospital	33
Salary checks delivered to employees confined at home	9

As of the end of July, participation in Company Benefit Plans was as follows:

Pension Plan	94.7%
Life and Health Insurance	97.8
Employee Savings and Stock Bonus Plan	40.6

During July, an article on Dependent Insurance Coverage was prepared for publication in the Works News.

In the past month, 3 letters were written to members of deceased employee's families concerning payment of moneys due them from the Company, as well as answering other pertinent questions for them.

Two employee deaths occurred during July, namely:

Plant Security and Services; and
, Technical Services.

Two employees retired during the month, namely:

John W. Burdett, Municipal, Real Estate and General Services; and
George McGowan, Transportation (Optional).

During July, 17 letters were written to retired employees giving them information of a general nature in which they would be interested.

Four stories regarding the activities of retired employees were prepared for publication in the Works News during July, together with photographs.

Recognizing the need for providing in addition to a good Pension Plan, a program for acquainting employees approaching retirement age with the desirability of planning well in advance their eventual retirement and the adjustments necessary in the transition from an active working life to a more passive life, a study has been made of such programs in use elsewhere within the Company and by other employers, and a plan has been developed for use at Hanford Works. Commencing on or shortly after the fifty-ninth birth date for men and the fifty-fourth birth date for women employees, planned interview-discussion will be held with such employees annually until one year prior to retirement, and during the last year preceding retirement, two interview-discussion conferences will be held. The primary purpose of the plan will be to lend assistance and counsel by helping them to solve problems which may be individual, to consolidate their conclusions, and

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PRIVACY ACT MATERIAL REMOVED

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Employee and Community Relations Divisions

perhaps establish a sound basis for progress and well-laid-out program. The specific approach for conferences with these employees will, of course, vary with the individual. Initially all pre-retirement interviews will be conducted by a member of Employee Services, however, it is hoped that in time others in line and other staff organizations can be trained to assist in the program. The plan having now been formulated, the first interviews will be scheduled for August with those employees nearest retirement being contacted first.

Military Reserve and Selective Service:

The statistics with respect to employees registered under the Selective Service Act are as follows:

Employees registered under the Act	1,018
Employees registered who are veterans	520
Employees registered who are nonveterans	498
Employees classified as 1-A	295
Deferments requested to date	249
Deferments granted	137
Deferments denied and appealed at state levels	12
Deferments denied and appealed at national levels	4
Deferments requested, employees later reclassified	31
Deferments requested, later withdrawn	1
Deferments pending	64

Statistics with respect to employees who are members of the military reserve are as follows:

Number of reservists on the roll	723
Number who returned to active duty to date	75
Number who returned to active duty in July	3
Deferments requested to date	83
Deferments granted	74
Deferments pending	3
Deferments denied	3
Deferment requests recalled	3

Military terminations since 8-1-1950 are as follows:

Reservists recalled	75
Selective Service	75
Female employees enlisted	2

TOTAL 152

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Employee and Community Relations

TRAINING AND PROGRAM DEVELOPMENT

The 1951 Introductory Program for technical graduates was completed during the report period. Through the media of questionnaires, comments and suggestions, voluntarily submitted by participants, and personal conversation, it is indicated that this program apparently has been well received. However the value received is a two-way street particularly in this instance. The Labor Law Program contemplated for this fall, received a very thorough preview in the Tech Grad Program and the experience gained is of tremendous value. Similar experience was gained in the program on Effective Presentation and policies. In addition to actually instructing and leading conferences, the Training Staff personnel devoted the major part of their time serving as contact personnel for the technical graduates in questions and

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Employee and Community Relations Divisions
Training and Program Development

A request for assistance in developing a training program was made by J. T. Stringer of the 300 Area. This request was initially acknowledged by submitting an Operations Manual identifying programs already developed that could possibly meet his requirements. Further contacts will be made to ascertain what additional assistance might be rendered.

Employee and Community Relations Divisions

Community and Public Relations

PUBLIC INFORMATION - News Bureau

Coverage - A total of 55 releases were distributed during the month. Of these, 29 were sent to the "local list" which includes Columbia Basin NEWS, Tri-City HERALD, Lind Leader, Yakima Morning HERALD, Walla Walla UNION-BULLETIN, Hanford Works NEWS, Spokane CHRONICLE, and radio station KPKW, KWIE, KREW, and KIT. Eleven stories were sent to approximately 75 daily newspapers and wire services throughout the Northwest. The other 15 releases were answers to special requests from the Tri-City HERALD and Columbia Basin NEWS.

Feature Stories - A story was written on radioactive by-products at the request of the editor of MONOGRAM.

Story Topics - Important news stories released during the month concerned organization announcements, bid openings and invitations on the aquatic laboratory and production storage building, odd-even watering plan, developments in the civil defense program, records center, W.E. Johnson's speech to the Tri-City Construction Council, the reorganization of General Electric at Hanford, and rent reduction for 300 new homes.

Visitors - Jerry Hannifin, Seattle Bureau Chief for TIME, LIFE and FORTUNE Magazines, spent one day in Richland. News Bureau supervisor accompanied Hannifin and AEC public relations officer on a tour of the areas. Information was given him on the Health Instrument aquatic biology division.

Two groups of 25 each, from Joseph, Oregon visited Richland on a promotion tour for "Chief Joseph Days." Each group was taken on a tour of Richland by the News Bureau Supervisor and Supervisor of Radio and Special Events. Reprints of the MONOGRAM's Richland story were distributed.

Sherril Brown and Ken Knuckles, representatives from the Yakima Republic Printing and Engraving Company, spent an afternoon in Richland to secure information about the purchase of mats for distribution to "local" and "daily" release lists.

Other Activities - A summary of a proposed story on the records service center was prepared for the MONOGRAM.

News Bureau Supervisor visited the new managing editor of the Columbia Basin NEWS. The release of news and other services from the News Bureau were discussed and agreed on. Plans for better coverage were discussed and it is thought coverage will be more complete by the News in the future.

Arrangements were made for a dinner for 40 persons at the Desert Inn. Included were representatives of Dow Chemical, Detroit-Edison, General Electric Company and the Atomic Energy Commission.

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Employee and Community Relations

Photographic Services

Eighty-five general assignments were completed, producing a total of 8,584 prints.

Scales to be used in instruments were produced. An original scale was photographed and seventy-five positive scales 9/32" long were made and delivered to the Instrument Division.

A request for large amounts of motion picture film processing has been received for Chemical Research.

The photographing of all commercial facilities, requested by the Real Estate Division was completed this month. This assignment required the photographing of every commercial building in Richland.

A practical method of processing and producing positive black and white slides from negative film was devised by the Photo House, as part of a test being conducted of a new type of camera for photographing fingerprints directly from the finger. The problem of making positive slides was worked out at the request of Security.

Installation of a projection printer in the Photo House during the month now makes production of 3½" x 4" glass slides and other reduction photography requirements. Requests for slide work has increased daily, since slides are being found useful to members of supervision for illustrating talks. The production of 3½" x 4" glass slides is a standard which requires reduction of normal size negatives and prints. This was impossible using standard photographic equipment.

PUBLIC INFORMATION - Civil Defense Public Information

An open house of Richland's civil defense control center was publicized by the Community and Public Relations Division. Over 300 people toured the center. Local newspapers and the Works NEWS devoted 192 column inches --or more than a full newspaper page--to publicizing the event. Local radio stations broadcasted the four spot announcements furnished them, a total of 43 times, during the week's inspection of the center. Letters of invitation were mailed to 215 community leaders, and a plant office letter was sent to all supervisors. A souvenir handout sheet and a list of recommended CD home supplies were produced for presentation to visitors. Also, assistance was given in setting-up open house displays. It is believed that these publicity activities not only attracted visitors to the public inspection, but also served to stimulate interest in civil defense generally.

CD news stories, features, and pictures released to local newspapers and the Works NEWS concerned the following subjects: (1) CD control center open house; (2) Construction of air raid siren platforms; (3) Local civil defense director's attendance at a county CD meeting; (4) CD display being exhibited in various locations throughout the community; (5) Spot on the radio dial residents should tune for information in case of enemy attack; (6) Attendance of the local CD director at the federal civil defense staff college. A feature article about the local CD communications network was written for a future issue of Hanford Works NEWS.

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A display of recommended CD home supplies was exhibited at the control center, during its open house, in the windows of a local department store and the public library, and in the lobby of a local theater.

Radio spot announcements that urge residents to volunteer their services to their local civil defense unit were written and tape-recorded for release, pending approval of the local CD director and public information chairman.

The Radio script, "Survival Under Atomic Attack," together with a recording of the program, was furnished to the AEC civil defense coordinator for forwarding to state CD headquarters.

Various civil defense agencies throughout the nation were contacted in an effort to gather CD material useful in the local public information program.

A report of CD publicity activities since July 1 was prepared in rough draft form for presentation at a future meeting of local civil defense directors.

PUBLIC INFORMATION - Radio and Special Events

Radio—One sixty-second spot announcement publicizing the "Odd-Even" Plan was written, recorded, and released to local radio stations. It was broadcast locally approximately twenty times. In order to attract more listeners' attention than the straight type of commercial announcement affords, a novel script was written to include a male and female voice.

Program Development - Two sound-slide films, "Awards on Parade" and "Our Secretary, Miss Jones," were previewed, and readied for plant showings. "Awards on Parade" is built around the presentation of AEC's Safety Awards to General Electric Company, AEC Hanford Operations Office, and Kellogg Corporation. "Our Secretary, Miss Jones" was developed from a series of twenty humorous cartoons depicting typical problems faced by a secretary.

Services - Information racks in the 700-1100 Areas were serviced weekly with General Electric pamphlets.

The Public address system was installed and operated in Carmichael Auditorium for Training and Program Development's Technical Graduates School.

The "House of Magic" show was announced for September presentation and ground work for ticket distribution and other details was completed.

Papers and Speakers - The following papers for presentation/publication were handled by this unit:

- Robert V. Andrews, "Shape Factors for Conductive Heat Transfer"
- Carl A. Bennett, "Statistical Methods for Chemists and Chemical Industry"
- W. J. Dowis, "Atomic Energy and the Role of the Electrical Engineer"
- H. R. Hughes, "Engineering Study: Existing Street Lighting in the Village of Richland..."
- "Investigation of Possible Electro-Chemical Corrosion of the Village Water Mains"
- "Electric House Heating Study for Village of Richland"
- C. B. Wagner, "The 480-Volt Delta System--Grounded or Ungrounded?"

Employee and Community Relations

Mr. W. E. Johnson spoke on July 18 to the Tri-City Construction Council on "Past, Present, and Future of the Hanford Works Construction Program."

Art Work - Artwork services furnished to other units of Community and Public Relations included 29 illustrations, 10 layouts, 4 rough sketches, 4 civil defense cartoons, and 4 editorial cartoons for the Works NEWS. Finished lettering was included in these assignments.

EMPLOYEE INFORMATION - Special Programs

An employee relations poster series was started during July with posters being changed weekly in thirty-five key locations throughout the plant.

A printed civil defense information brochure was produced for distribution during the open house of the Civil Defense Control Center.

A Hanford Works posting service, which is available to all departments having material for posting on a plant-wide basis, was inaugurated during July. Posting activities during July included servicing area bulletin boards, suggestion system boxes, odd-even watering plan posters, attendance recognition plan posters. In addition, a survey of locations for placing employee information booklet racks was made.

G-E photo news service posters will be installed on a weekly basis throughout the plant. This employee information service, initiated during July, involved placing poster frames in convenient locations in all areas.

G.E. Insurance Plan identification cards for distribution to all participating employees were produced at the request of Employee Services.

An employee news letter written for the general manager's signature was produced and mailed to all employees' homes accompanying the new safety booklet, "Safety is Part of Your Job."

Medical Divisions was advised from a public relations standpoint on releasing results of a recent hospital cost survey to those hospitals which participated in the survey. It was recommended that the survey explain in detail the reasons salaries are higher at Kadlec if the survey is to be released.

The August health bulletin on first aid was written and produced, together with a health leader's discussion guide, and distributed to all employees. A member of Special Programs attended the Community Health Activities committee as the secretary. A story entitled "To Your Health," on the July health topic of rabies, was prepared for the Works NEWS.

Public relations letter was written for the signature of the Manager, Municipal, Real Estate, and General Services Divisions concerning racial discrimination in response to a letter from a Richland resident.

A listing of Kadlec Hospital fire prevention equipment and controls was prepared for use by a local newspaper in developing a story on how well protected the hospital is in the event of fire.

Civil Defense Bulletin Nos. 3 and 5 for Richland and North Richland were produced through the plant printing shop.

Employee and Community Relations Divisions

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Discussions with two visiting representatives of the Republic Printing Company resulted in an understanding of the types of printing offered by that firm. They were advised of the methods through which they could request bids on Hanford Works printing.

Municipal Divisions' annual report, and assistance available through Special Programs, was discussed with F. X. Olanie.

Display type employee recruitment advertisements were written and placed in Spokane, Yakima, and Walla Walla daily newspapers at the request of Employment.

One thousand Attendance Recognition Plan award pins, and 750 insert discs, were ordered at the request of Employment.

A Union Relations News column discussing current developments in the Hanford Works Union Relations picture was prepared for publication in the Hanford Works NEWS.

Odd-Even watering plan promotion activities carried on during July included the following: A series of four posters were designed for display on municipal garbage trucks; a Limerick contest, including the limerick, was developed; a contest poster and entry blanks were produced and placed in all Richland grocery stores and other key locations; news photos for release by the news Bureau to local newspapers were arranged, a spot-radio announcement was produced by Radio and Special Events. In addition, Special Programs also produced two full-page feature stories for Works NEWS as well as other news stories and pictures.

A new section of "This Way, Please--" on the new Uniform Filing System was developed and sent to the printer for production.

EMPLOYEE INFORMATION - Works NEWS

During the month the following projects within the community and the plant were publicized:

Civil Defense Program was promoted in connection with the public inspection of the Civil Defense Control Center. Pictures were run of all heads of the various activities and there was an accompanying story.

Odd-Even Limerick Contest publicity was started during the month.

Atomic Frontier Days promotion was given in cooperation with publicity representatives for the sponsoring organization. Every attempt was made to present information from the plant angle where possible.

Suggestion System promotion was given through a feature which included pictures of winners and a story.

Outside activities of Company employees furnished material for a feature on the man whose activities with boys in community have included planting gardens and stock raising. Other features included a mountain climbing club which is composed of Company employees.

Employee and Community Relations Divisions

Safety promotion was devoted to elimination of hazard of fires caused by careless smokers. Article included actual photographs of cigarettes left to burn in buildings, and emphasized care that should be exercised at this time of the year in the Areas because of threat of grass fires.

Records Center provided an exclusive story based on a letter congratulating Records Center Supervisor and Hanford Works for establishing the first center of its kind in the country.

Safety Award given to Hanford Works by the National Safety Council for the second time provided another exclusive.

Special arrangements were made by the Works NEWS to run a series of articles requested by the Yakima Social Security Office.

Security requests for space to promote security films was arranged for future issues.

Despite replacement for regular assistant to the editor, one 12-page paper was published during the month, along with two 8-page issues, and one four-page, the latter during the holiday week.

EMPLOYEE INFORMATION - Women's Activities

One woman's page appeared in the Works NEWS during July. Six stories and outlines were prepared for the Company-sponsored summer recreation program, including a series of pictures plugging the summer band concert at Riverside Park. Two stories were written for the North Richland Recreation program.

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Employee and Community Relations Divisions

DECLASSIFIEDHanford Works Photo House

	2" x 2"	2" x 4"	5" x 7"	8" x 10"	Portrait	Negatives	Black & White 35mm	3 1/2" x 4" Slides
<u>Engineering and Construction Divisions</u>								
Project Engineering				11		3		
Reactor Division				13		14		
Realty Engineering				32		15		
<u>Employee & Community Relations</u>								
Employment	1940					388		
News Bureau		4	23	16		21		
Special Programs			19	11		28		
Works NEWS			84	7	8	88		
<u>Health Instrument Division</u>				7		7		8
<u>Manufacturing Divisions</u>								
Manufacturing				3				
Transportation				19		7		
S Division			2			2		
<u>Medical Divisions</u>							10	20
<u>Municipal, Real Estate and General Services Divisions</u>								
Community Safety			10	4		11		
Community Facilities				144		51		
Library				11				
Instrument				60		56	75	
Parks and Recreation				32		19		
<u>Plant Security & Services</u>								
G.E. Security	4612	965						
Staff Organization								
Rotational Training		145-			28	29		
<u>Technical Divisions</u>								
Pile Technology			12	19			15	
Technical				13			16	
<u>Miscellaneous</u>								
A.E.C.	132					33		
Civil Defense			92	13		30		
Police		9	66	4		45		
Nucleonics Department				14		9		
TOTAL	6684	1123	308	433	36	856	116	28

	May	June	July
Total Prints	7,129	8,955	8,584
Total Negatives	608	774	856
Total Assignments	102	89	85

11999.80

NEWSPAPER SPACE REPORT

June, 1951

As compiled from Nucleonics Department News Bureau clipping files

SUBJECT	NEWSPAPER	DATE	COLUMN INCHES	PHOTOS
Bids for street improvement	Walla Walla Union-Bulletin	June 21	2	2
	Portland Daily J. of Commerce	June 28	3	
	Seattle Journal of Commerce	June 26	3	
Bids for community construction and recreation	Tri-City Herald	June 1	2	
	Walla Walla Union-Bulletin	June 24	2	
	Columbia Basin News	June 27	5 1/2	
		June 30		
Civil Defense	Columbia Basin News	June 13	2 1/2	
	Ellensburg Record	June 13	2	
	Olympia Daily	June 14	2	
	Tri-City Herald	June 22	4	
Civil Defense organization changes	Walla Walla Union Bulletin	June 24	4	
	Columbia Basin News	June 29	3	
Commercial Facilities	Walla Walla Union-Bulletin	June 28	2	
Recreation	Spokane Chronicle	June 7	1 1/2	
	Walla Walla Union-Bulletin	June 8-28	17	
	Columbia Basin News	June 26		4
Defense Bond program	Tri-City Herald	June 26		2
Organization Changes	Walla Walla Union-Bulletin	June 6-29	19	
	Columbia Basin News		4	
	Tri-City Herald		8	
Appointment of J.S. McMahon	Yakima Herald	June 24		1
	Columbia Basin News	June 23		1
	Spokesman Review	June 23		1
	Tri-City Herald	June 24		1

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SUBJECT	NEWSPAPER	DATE	COLUMN		PHOTOS
			INCHES		
Promotion of R. T. Cooke	Walla Walla Union-Bulletin Tri-City Herald Columbia Basin News	June 29 June 29 June 29	2½ 4 3		
H.E. Callahan's speech in Seattle	Columbia Basin News Seattle Times Seattle Post-Intelligencer	June 1 June 4 June 4	7 1 3½		1
G.L. Brown's speech in Pasco (Kiwanis)	Columbia Basin News	June 15			1
Attendance plan at H.W.	Walla Walla Bulletin Columbia Basin News	June 8 June 12	4 6		
Hanford Contract renewed	Medford Tribune) Bremerton Sun) Yakima Herald) Baker (Oregon) Herald) Tacoma Tribune) Walla Walla Union-Bulletin) Ellensburg Record) Tri-City Herald) Spokesman-Review) Port Angeles News) Longview Daily) Albany (Oregon) Herald)	June 28	32		
Employment opportunities	Yakima Herald Mt. Vernon Herald Issaquah Press Tri-City Herald	June 1 June 1 June 7 June 15-17 12	3 4 11½ 12		
Safety	Prosser Bulletin	June 21	2		
Mosquito drive	Walla Walla Union-Bulletin	June 6	5		

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SUBJECT	NEWSPAPER	DATE	COLUMN INCHES	PHOTOS
H.W. Sheep farm	Corning (Calif.) Republic	June 6	1	1
	Grandview Herald		1	1
	San Clemente (Calif.) Herald		1	1
TOTAL				17
			193	

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DECLASSIFIEDUnion Relations and Wage Rates

Union Relations - Operations Personnel:

This office held three negotiation meetings during July with the Hanford Guards Union, Local No. 21, and on July 24 we submitted to the Union copies of a proposed contract which was apparently agreeable to their negotiators, and on which they were to secure ratification of their membership. Formal ratification had not been secured at month-end but was considered imminent.

Only one negotiation meeting was held during July with Richland and North Richland Firemen. The Company had previously presented to the Union a contract draft for their review but no agreement had been reached on any of its articles. The Company is presently awaiting word from the Union as to resumption of negotiations.

On July 9, this office received from the National Labor Relations Board a notice of Charge Against Employer, wherein the NLRB has charged the Company with an unfair labor practice incident to the proposed raise in house and dormitory rents in Richland. The Company advised the NLRB that Mr. Gerald De Garmo, Attorney, of Seattle, was representing the Company in this matter and that the NLRB could expect to hear from Mr. De Garmo in the immediate future.

On July 5, the Company received from the NLRB a digest of objections to the recent union shop election which apparently warranted further review by the NLRB. A hearing on this subject was to be scheduled at some future date.

During the month, the Company transmitted to the NLRB necessary papers pertaining to a consent election in the case of production Chief Operators. No word has been received as of this date concerning the election details.

Grievance Statistics:

Sixteen grievances were received during the month, bringing the total received this year to 85.

Grievances were sent in this month from the following divisions:

Health Instrument - Operations	1
Housing & Real Estate Maintenance	1
Manufacturing - Instrument	4
Manufacturing - Maintenance	2
Manufacturing - Power	1
Manufacturing - "P" Division	4
Manufacturing - "S" Division	2
Public Works	1
Total	16

Employee and Community Relations Divisions

Employee grievance reports were received regarding the following subjects:

Jurisdiction	1
Overtime Rates	3
Sick Leave	1
Seniority	1
Wage Rates	9
Miscellaneous	1
Total	16

The status of grievances received in 1951 as compared to those received during the same period in 1950 is as follows:

	<u>1951</u>	<u>1950</u>
Received in July	16	24
Received thru July 31	85	126
Settled satisfactorily, Step I thru July 31	35	90
Pending at Step I thru July 31	6	--
Settled Step II thru July 31	17	14
Pending at Step II thru July 31	33*	22
At arbitration	4**	--

*Including nine grievance received in 1950.

**Including one grievance received in 1950.

Nine per cent of the total grievances received this year have been submitted by employees outside the bargaining unit.

One meeting was held during the month for the purpose of processing grievances at the Step II level.

Union Relations - Subcontractor Personnel:

By letter of July 28, 1951, the Contractors' Negotiating Committee notified the individual unions signatory to the Master Agreement, together with the Electricians (Wiremen), of the discontinuance of the Project policy of controlled wages and conditions of employment.

The Isolation Pay issue before the Davis Panel was returned to the local level on July 5, 1951. The Panel concluded "that it should issue no recommendation in respect to the Unions' request for an increase in job isolation pay." The Local Unions have declined to comment on this matter. Our contention that the "duration" feature of the original Isolation Pay agreement has not ended was strengthened by a decision from the Kentucky Court of Appeals. This body ruled that an agreement reached in 1946 to last "for the duration" of a construction project (estimated 1949) is still binding even though construction extended into 1951.

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The Plumbers Union has not replied to Urban, Smyth and Warren's offer to meet with them "at an early date to receive and discuss the Union's proposals" regarding contract negotiations. There is a good deal of speculation at this time on the legality of the Union's failure to negotiate and the status of the Hanford Works Addendum after August 15, 1951.

Notice of a desire to open their Schedules "A" for negotiations was received from the Sheet Metal Workers and the Technical Engineers Unions. No date has been set for meetings.

Negotiations with the Machinist Union were conducted during July. It appeared that the Union's primary concern was the recognition of their jurisdictional claims to work outside the White Bluffs machine shop. However, later it became evident that the Union confidently expected they would have no difficulty in obtaining the balance of the ten per cent wage increase allowable under Wage Stabilization. They were informed by Atkinson-Jones that the ten per cent was a ceiling only and any increases would have to be approved on the basis of a prevailing rate. At later negotiations they were offered a wage increase of five cents an hour effective on the date of agreement, but not prior to August 14 (anniversary date of agreement) and five cents an hour effective January 1, 1952, in order to maintain the twenty cents differential over Heavy Duty Mechanics established in 1950. The Union refused this offer in favor of making an area survey to justify the full ten per cent allowable (thirteen and one-half cents).

A hearing was conducted July 10 by the NLRB as a result of the Teamster's petition for a representation election. At the hearing no objections were voiced by either party.

On July 17, a Chief Inspector for the State Department of Labor and Industries was escorted through the construction areas for the purpose of checking safety methods used during the application of Amercoat paint and cutting stainless steel. The Inspector expressed complete approval with our safety program.

A meeting was held on July 26 with business representatives of six Building Trades Unions for the purpose of allaying any fears that allegedly exist on the job regarding work under special hazard conditions. It appears that anxiety does exist among men on the job, and Health Instrument representatives effectively answered many of the questions posed by the Business Agents. A trip to the area is scheduled for August 2 for the purpose of acquainting the Business Agents with the physical setup of the change houses and the procedure utilized on work under special hazard conditions.

Requests for Reimbursement Authorizations handled during the month:

1. Electrician Linemen - Overtime
2. Painters - Classification and Rate
3. Plasterers - Wage Rates
4. Carpenters - Meal Time Duty Status
5. Plumbers - Vacation Plan
6. Elevator Constructors - Wage Rates

Employee and Community Relations Divisions

Reimbursement Authorizations received during the month:

1. Plumbers - Vacation Plan
2. Elevator Constructors - Wage Rates

Work Stoppages - Actual or Threatened:

A work stoppage involving all Newbery-Neon Electric Linemen except Maintenance occurred on July 20. The action was in protest over the termination of a Union Steward which had been accomplished with the concurrence of the Union. The Manager and Assistant Manager of the Local Union were summoned to the Project, and at a Union meeting on July 20, the men agreed to return to work on Monday, July 23, with the issue remaining unsettled. Linemen reported to work on Monday, July 23, did not actually perform any work, but rather picked up their tools and began termination. Maintenance coverage was not affected by the work stoppage. Newbery-Neon Electric is in contact with Line District Headquarters in San Francisco and is insisting upon immediate replacements. To date, sixteen of the men have returned to work. No new hires have been received from the Union.

The Plumbers Union has refused to dispatch men on Urban, Smyth and Warren requisitions since June 25 in spite of layoffs of Hanley & Company totaling approximately 141 men since that date. The matter was brought before the Local Joint Board on July 18, at which time the Board ruled the Business Agent was to furnish men to Urban, Smyth and Warren if the men were available. The Business Agent maintained the position that no men were available. The matter was referred to the State Joint Board, and in a hearing on July 30 a decision was handed down that paralleled the action of the Local Board. Atkinson-Jones has indicated they will prepare a formal report to General Electric on the matter in which they will ask for Atomic Energy Commission intervention.

On July 2, the Plumbers' Business Agent released certain pipe furnished by General Electric to J. P. Head (Early mechanical subcontractor) which had been the subject of a dispute since June 29. No reason was advanced for the decision to handle this material.

On July 21, Urban, Smyth and Warren informed this office that the Plumbers' Business Agent has indicated he will not allow his men to handle certain pipe designated for the new area which is scheduled to be fabricated off the Project on General Electric purchase requisition.

Wage Rates:

The final meeting of a series of meetings with representatives of the EAMTC and Instrument Division supervision was held July 6, 1951. The discussion concerned the determination of the number of employees classified as Instrument Specialists required to perform the available work. It was concluded that two additional employees should be upgraded from Instrument Technicians to Instrument Specialists to meet this requirement.

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Employee and Community Relations Divisions

A complete wage and classification record for approximately 1400 employees was prepared and furnished to the Accounting Division for use in conducting a special review.

The change of all Wage Rate records made necessary because of the March 19 rate increase was completed during July.

Representatives of the Instrument Guild complied with a request to agree to an intermediate hiring rate for semi-experienced Instrument Trainees. The rate agreed upon was that for the 15-month progression step in the Instrument Trainee progression schedule.

The Instrument Guild also signed a negotiated agreement extending for a period of six additional months, the present understanding that an Instrument Trainee shall be upgraded automatically to the classification of Instrument Mechanic if he meets certain specified conditions. This extension expires January 21, 1952.

Additional information was submitted to the Wage Stabilization Board as further justification in connection with approval of our petition to increase rates of our Draftsmen and Designers. As of July 31, 1951, the Wage Stabilization Board has failed to make a decision in this matter.

Meetings were held with representatives of Accounting, Payroll, Employment, Methods and Wage Rates Divisions to formulate plans for placing specific records on I.B.M.-type equipment.

The semi-annual check of wage rates paid by the participants in the "General Electric Company Northwest Area Wage Survey" was in progress at the month's end.

A survey was made of Fire Departments operating in cities throughout the Northwest Area and a tabular chart was drawn up showing information regarding rates of pay, platoon systems used and non-wage benefits.

A survey of nonexempt jobs in Security and Patrol Division and in the General Services Section of Office Services Division was completed.

The first draft of employment guides for both unit and non-unit employees was completed during the month and is now being edited.

Insurance, Workmen's Compensation and Suggestion System:

Suggestion System

	<u>June, 1951</u>	<u>July, 1951</u>	<u>Total Since 7-15-47</u>
Suggestions Received	180	166	7069
Investigation Reports Completed	157	124	
Awards granted by Suggestion Committee	31	23	
Cash Awards	\$ 380.00	\$ 345.00	
Estimated Savings	2,065.65	1,887.25	

Employee and Community Relations Divisions

An employee in the Maintenance Division received the highest award for the month for his suggestion concerning the reversal of the rollers on the can opener in Building 108-B. Breakdown of savings involves information of a classified nature.

Workmen's Compensation

Two cases under litigation were closed during the month.

Life Insurance

Codo information which is known only to Home Office Life Underwriters Association has been furnished 44 insurance companies and investigation agencies during the month of July, 1951. This is in accordance with an arrangement with the Underwriters whereby employees on this project might be insured on the same basis as those working elsewhere.

Insurance Statistics

	<u>June, 1951</u>	<u>July, 1951</u>	<u>Total Since Sept., 1946</u>
Claims reported to the Department of Labor and Industries	164	138	4801
Claims reported to Travelers Insurance Company	12	6*	526

* Of the above claims reported during July to the Travelers Insurance Company one was bodily injury and five were property damage.

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MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS SUMMARY-JULY, 1951

ORGANIZATION AND PERSONNEL

Number of employees on roll:	<u>Beg. of Month</u>	<u>End of Month</u>
Administration	15	21
Accounting	30	30
Engineering & Contracts	32	0*
<u>Municipal Divisions</u> (Total 263)		
Public Works	103	104
Parks & Recreation	48	49
Police (Richland)	42	41
Fire (Richland)	53	52
Public Safety	3	3
Engineering	0*	14
<u>Real Estate Divisions</u> (Total 243)		
Housing & Real Estate Maintenance	218	250
Commercial & Other Property	13	15
<u>General Services Divisions</u> (Total 109)		
Steam & General Maintenance	63	58
Patrol (North Richland)	19	19
Fire (North Richland)	32	32
	<u>671</u>	<u>666</u>

* The Engineering & Contracts Division, as such, was decentralized as of July 1, 1951, and the personnel was distributed within the other Divisions.

There was a decrease of five employees in the Divisions during the month, of July, 1951.

GENERAL

The Starlite Roller Rink began operation during the month of July.

Total housing applications pending - 659.

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MUNICIPAL, REAL ESTATE AND GENERAL SERVICES ACCOUNTING DIVISION MONTHLY REPORT FOR JULY, 1951

ORGANIZATION

Employees-Beginning of Month	30	Exempt	5	Male	8
Transfers In		Non-exempt	25	Female	22
Transfers Out	1		<u>30</u>		<u>30</u>
New Hires	1				
Terminations					
Total - End of Month	<u>30</u>				

RENTS

<u>House Leases Processed</u>	<u>July</u>	<u>June</u>
Total active leases beginning of month	5671	5667
New leases	151	124
Cancellations	129	120
Total active leases end of month	<u>5693</u>	<u>5671</u>
Modifications	15	8

Dormitory

Total occupancy beginning of month	1056	1083
New assignments	124	127
Removals	104	154
Total occupancy end of month	<u>1076</u>	<u>1056</u>

Rental Revenue was as follows:

Equipment	\$ 12.45	\$ 30.45cr
House:		
Basic rent	198,025.22	198,856.77
Electricity	48,028.84	48,299.08
Water	7,955.32	7,992.45
Facility:		
Basic rent	47,510.66	45,042.40
Electricity	3,433.92	3,433.92
Water	490.00	490.00
Dormitory	15,303.41	14,364.98
Utilities-Electrical	<u>402.15</u>	<u>646.80</u>
	<u>\$321,161.97</u>	<u>\$319,095.95</u>

TELEPHONE

Number of work orders processed	273	270
Number of working telephones	5159	5199
Revenue including services	\$ 19,155.40	\$ 21,888.96

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Municipal, Real Estate and
General Services Accounting

MISCELLANEOUS

Invoices prepared during month
Revenue derived from invoices

<u>July</u>	<u>June</u>
273	329
\$ 1,380.09	\$ 4,643.88

ACCOUNTS PAYABLE

Statistics

Accounts Payable Vouchers	320	380
Freight Bills Processed	11	16
Purchase Orders Received	66	70
Net Amount of Purchase Orders	\$ 14,530.99	\$ 10,091.53
Receiving Reports Received	115	85
Net Amount Disbursed	\$297,555.23	\$459,710.76
Number of Checks Issued	252	244

A summary of Active Subcontracts is shown below:

<u>Subcontractor</u>	<u>Subcontract Number</u>	<u>Amount Awarded</u>	<u>Paid This Month</u>	<u>Total Paid</u>	<u>Amount Retained</u>
Newland Cafeteria	-----	\$ 210.43	\$ 6.70	\$ 210.43	\$ -0-
Richland Maintenance Co.	-----	205,552.65	7,194.06	205,552.65	-0-
Associated Engineers, Inc.	G-305	173,552.80	9,925.30	161,005.17	8,677.64
Packard Pipe & Pump Co.	G-326	14,314.00	7,816.12	13,792.34	725.91
C & E Construction Co.	G-328	180,375.20	-0-	175,540.30	9,238.96
F. O. Repine Co.	G-329	29,263.00	-0-	26,921.96	1,463.15
Erwen, Edmund P.	G-334	16,000.00	-0-	-0-	-0-
Baldwin-Dunham Co.	G-343	1,380,139.60	189,250.15	1,073,001.47	45,952.85
Roof Service, Inc.	G-350	61,319.00	15,234.05	31,434.05	3,065.95
Commercial Paint. & Dec. Co.	G-353	19,600.00	6,255.00	19,600.00	-0-
Patton & Hill	G-360	8,597.83	1,064.83	8,597.83	-0-
Motorola, Inc.	G-364	8,242.00	-0-	-0-	-0-
Weston Plumbing Co.	G-372	49,907.65	11,121.79	22,456.39	2,495.16
R. A. Neuman & Son	G-373	76,453.16	-0-	53,909.88	3,822.66
F. O. Repine Co.	G-375	42,700.00	-0-	34,534.84	2,135.00
C. T. Malcom & Co.	G-377	12,087.80	-0-	-0-	-0-
American Steel & Wire Co.	G-378	12,114.66	-0-	-0-	-0-
Associated Engineers, Inc.	G-381	26,878.75	-0-	-0-	-0-
Raeolith Flooring Co.	G-385	5,388.00	5,388.00	5,388.00	-0-
Erwen Construction Co.	G-387	9,349.50	-0-	-0-	-0-
D-H Paving Co.	G-390	220,197.83	-0-	-0-	-0-
		<u>\$2,552,243.86</u>	<u>\$253,256.00</u>	<u>\$1,831,945.31</u>	<u>\$77,577.28</u>

COST

Reports

The June Operating Report was issued July 24, 1951. The Comptrollers Appropriations Report and Supplemental Report was issued July 20, 1951.

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Municipal, Real Estate and
General Services Accounting

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SERVICE ORDER

Service Order Charges

Code	<u>QUANTITY (A)</u>		<u>LABOR COSTS</u>		<u>MATERIAL COSTS</u>		<u>TOTAL COSTS</u>	
	<u>June</u>	<u>July</u>	<u>June</u>	<u>July</u>	<u>June</u>	<u>July</u>	<u>June</u>	<u>July</u>
1	1,444	443	\$3,054.65	\$ 815.65	\$2,212.66	\$ 870.14	\$ 5,267.31	\$1,685.79
2	2,469	538	3,137.26	641.20	2,998.75	700.00	6,136.01	1,341.20
3	83	21	365.40	89.95	110.86	9.67	476.26	99.62
4	235	19	519.25	87.50	274.43	34.53	793.68	122.03
5	430	115	667.86	148.15	864.50	145.07	1,532.36	293.22
6	477	143	1,264.50	261.45	368.38	69.74	1,632.88	331.19
	<u>5,138</u>	<u>1,279</u>	<u>\$9,008.92</u>	<u>\$2,043.90</u>	<u>\$6,829.58</u>	<u>\$1,829.15</u>	<u>\$15,838.50</u>	<u>\$3,873.05</u>
(B)		-3,859		-6,965.02		-5,000.43		-11,965.45
(C)			1.75	1.60	1.33	1.43	3.08	3.03

- (A) Quantity covers the number of Service Charges made since some Service Orders include several charges.
 (B) Over (+) or Under (-) Previous Month.
 (C) Average Costs per job by labor, material, and total.

Decrease in Service Calls is attributed mainly to the fact that the June Report included six weeks ending the Fiscal Year whereas the July report covers only a three week period.

1 Plumbing	3 Heating & Ventilating	5 Lock & Key
2 Electrical	4 Glazing	6 Carpentry

WORK ORDERS

	<u>May</u>	<u>June</u>	<u>July</u>	
Active Routine	254	258	261	+ 3
Active Normal	<u>2,306</u>	<u>2,714</u>	<u>2,706</u>	- 8
	<u>2,560</u>	<u>2,972</u>	<u>2,967</u>	- 5
W. O. Received	1,310	1,596	967	
W. O. Completed	<u>1,397</u>	<u>1,184</u>	<u>972</u>	
	<u>- 87</u>	<u>- 412</u>	<u>+ 5</u>	

MUNICIPAL DIVISIONS

ENGINEERING DIVISION

JULY, 1951

ORGANIZATION AND PERSONNEL:

	<u>Exempt</u>	<u>Non-Exempt</u>
Employees - Beginning of Month	9	6
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminations	0	1
Total - End of Month	9	5

THE STATUS OF ACTIVE PROJECTS IS AS FOLLOWS:

- K-562 - Automatic Irrigation System Levee 2-C - Plans and specifications ready for subcontracting.
- L-262 - Water and Sewer - Assembly of God Church - Revising specifications for water and sewer.
- L-406 - Installation of Cyclone Fence - Barth - Materials for installation on site. No work performed by subcontractor.
- S-244 - Irrigation Ditch Fencing - Wright to Van Giesen - Chain link fence being erected by subcontractor.
- S-299 - Radio Communications System - Fire Division - Installation began August 3, 1951.
- S-307 - Guthrie-Williams 8" Water Main - Completed.
- S-405 - Street Tree Planting - Additional Erosion Control - Discontinued until fall.
- S-415 - Hospital Soft Water System - Completed.
- S-450 - Fencing Riverside Park - Revised plans and specifications and prepared contract package. At present with contract Division Head.
- S-469 - Site Preparation - New Wing - 703 Building - Contract let - Project 25% complete.
- S-479 - Fire Protection Chief Joseph School - Plans and specifications ready for subcontracting.
- C-282-R Richland Community Dust and Pollen Control - The grass seeding around Richland swimming pool was completed and turned over to the Parks And Recreation Division.

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Municipal Engineering Division

- C-3564 - Recreational Facilities for Schools and Public Grounds - Fencing Ball Park Columbia Playfield - Material for installation on site - sub-contractor to start erection as soon as fencing on irrigation canal completed.
- C-357 - Sewage Lift Station - Excavation to start 8-6-51, pipe work to follow. 25% complete.
- C-382 - Well 1100-D - Duke Well Field - Completed and in operation.
- C-400 - Reroofing, Painting, Siding, - 700 Area Buildings -88% complete, work progressing.
- C-407 - Replace bathtubs, tileboard, and linoleum - Inspection revealed pick-up work progressing.
- C-408 - Additional Erosion Control and Irrigation of Public Areas - Construction of new shelterbelt by subcontract approximately 40% complete. Work in progress consists of site grading and installation of irrigation system.
- C-425 - 1951 Park Development Program - Plans and specifications near completion, ready for subcontract on all items except installation of playground equipment and tree planting.
- C-4256 - Fencing at Columbia Playfield - Preparing specifications and drawings for chainlink fence around children's play area and tennis courts. Preparing contract package - at present with Contract Division Head.
- C-4257 - Sanitary Sewer to Comfort Station - Preparing plans and specifications.
- C-4261 - Van Giesen Street - Storm sewer approximately 75% complete. Removal of existing surfacing preparatory to subgrade preparation approximately 50% complete. No other phase of work is started.
- C-4262 - Wright Avenue - Curbs and walks approximately 50% complete. No other phase of the work has been started.
- C-4263 - Symons Street - Work not started.
- C-4264 - George Washington Way south - New fill approximately 25% complete. Nothing else is started.
- C-4265 - Swift Blvd. - Storm sewer approximately 75% complete. Nothing else started.
- C-4266 - George Washington Way north - Work not started.
- C-4267 - Chief Joseph School - Work not started.
- C-430 - Improve Lighting - 703 Building - Returned to B. R. Hennigar for assignment to others.
- C-440 - Alteration of 712-A Building - Project Proposal to AEC, awaiting approval.

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MUNICIPAL ENGINEERING DIVISION

STATUS OF ACTIVE ESRs IS AS FOLLOWS:

- 176-CA - Northwest United Protestant Church - Awaiting final inspection - 98% complete.
- 235-PW - Work for Town Planning Board - Deferred for other work.
- 369-CA - Site map CAP Field - Deferred for other work.
- 440-PW - Installation of water and Sewer Lines along Wellisian Way to Property Line of Morgan's Warehouse - 100 complete.
- 456-SS - Up-to-date Blueprints of 700 Area - ESR completed.
- 458-SS - Floors, Foundations, Load Factors - 700 Area Buildings - Drawings on 703 Building to be completed by Engineering Unit of the Community Services Section. Remainder of work to be returned to B. R. Hennigar for reassignment.
- 496-RC - Richland Lutheran Church - Front Addition - Construction progressing.
- 497-RC - Commercial Area Map Tracing - ESR continued open for work as requested by Commercial and Other Property Division.
- 510-M - Road and Streets Drawings - 1950 Construction - Deferred for other work.
- 529-SS - Remodeling 722-C Building - Being completed with the cooperation of W. C. Armstrong.
- 531-RC - Heating, Bus Depot Cafe - Deferred for other work.
- 539-RC - Desert Inn Improvement Fund - Final inspection to be made.
- 544-SD - Tree Planting for schools - Continued open as work is requested by schools.
- 547-MD - Fixed Irrigation System - Medical Division Grounds - Deferred for other work.
- 552-MF - Fire Protection - Desert Inn and Richland Theater - 90% complete.
- 561-SD - Chief Joseph Grounds - Deferred for other work.
- 562-MU - Hi-Spot Estimate for Water Expansion - Prepared Estimate and sketch as requested by H. Petty.
- 563-RC - Plot Plan East of Laundry - Work completed and submitted to Commercial and Other Property Division awaiting reply.
- 564-AEC - Staking 703 Building Addition - Work completed and ESR closed.
- 565-RC - Site South of Tract House 01224 - Deferred for other work.

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MUNICIPAL ENGINEERING DIVISION

- 566-RC - Site - Standard Oil Company of California #2 - Description transmitted to Commercial and Other Property.
- 567-MU - Cost Estimate for Water System - Work progressing.
- 568-PR - Drainage - Carmichael Tennis Courts - Being processed now.
- 569-RC - Starlite Roller Rink - Work completed - ESR closed.
- 570-M - All Saint's Episcopal - Plans have been checked.
- 571-M - Free Methodist Church - Plans checked - Awaiting start of construction.
- 572-M - First Baptist Church - Building 3% complete.
- 573-M - Westside United Protestant Church - Building 65% complete.
- 574-M - Assembly of God Church - Building 5% complete.
- 575-RC - Parking Lots - Facilities - Being processed, to H. E. Price for modification.
- 576-RC - Reorganized Church of Jesus Christ of Latter Day Saints - Legal Description - Description made awaiting drawing.
- 577-RC - All Saint's Episcopal Church - Legal Description - Description made, awaiting drawing.
- 578-PR - Inspection of Underpinnings, Social Hall - Community House - Study progressing.
- 579-ME - Goethals Drive to Williams Blvd. - Deferred for other work.
- 580-M - Check plans and specifications for AEC Airport Gas Tank - Work complete ESR closed out.
- 581-RC - Check "as built" for Latter Day Saints Church - Plans submitted, but were returned to Building Committee since they were not considered "as built"
- 582-PR - Columbia Playfield - Community Swimming Pool - Study being made.
- 583-RC - Commercial Development (East of Railroad, West of 1125 Warehouse, and South of Lee Blvd.) - Study being made.
- 584-AEC - New Central Fire Station - Plans being checked.

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CONTRACT SECTION

<u>CONTRACT NUMBER</u>	<u>SUBCONTRACTOR</u>	<u>TITLE & STATUS</u>	<u>PROJECT NUMBER</u>
G-305	Associated Engineers, Inc.	Irrigation System & Seeding, Parks and Playgrounds. Water service alteration to approximately 709 prefab houses. Work completed July 20. Contract being modified to adjust final quantities.	C-323 S-255-B C-233 C-351 C-233-A C-449 S-255-A C-376 C-282-R
G-326	Packard Pipe & Pump Co.	1100-D Well completed work July 13, 1951. Request for Modification to Contract to adjust final quantities and time is being processed.	C-382
G-328	C & E Construction Co.	Street Improvements, subcontract is being modified to adjust final quantities. All work completed May 16, 1951.	S-255-D C-359 C-374 C-386 S-432 K-535
G-329	F. O. Repine	Exterior Painting 141 Houses, 24 Dorms, 770, 770A and 770B. Work completed June 30, 1951, all exceptions taken care of July 7.	C-372
G-334	Edmund P. Erwen	Additions to Sewage Lift Station. All materials on hand July 31. Contract being modified to conform to directive time. Work will be completed September 15.	C-357
G-343	Baldwin Dunham	Rehabilitation of Prefabs and Repair Burned Prefab, 1313 Potter and alter electric service for metering on 709 houses, 633 units completed July 1. 380 units and burned prefab completed July 31. Electric metering completed on 582 units.	C-448 C-380 L-483
G-350	Roof Service, Inc.	Rehabilitation of 700 Area Buildings. Work 90% complete, 20 additional days required to complete the work. Modification is being processed.	C-400

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CONTRACT NUMBER	SUBCONTRACTOR	TITLE & STATUS	PROJECT NUMBER
G-353	Commercial Painting & Decorating Co.	Interior painting 16 Dorms. Work completed in May and contract closed out July 9.	C-387
G-358	Witzig Electric Co.	Columbia Playfield Lighting. Contract closed out July 2.	C-356-R-2
G-360	Patton & Hill	Rest Rooms Memorial Park. Complete. Contract closed out July 10.	C-356-R 2
G-364	Motorola, Inc.	Radio Communications System. All material received work to be completed by August 15.	S-299
G-372	Weston Lumbering Co.	Installation Tileboard, Linoleum, 206 houses. Work completed July 14. Exceptions will be completed August 3. Contract being modified to adjust final quantities.	C-407
G-373	R. A. Heuman & Son	Interior Painting 676 Prefabs. All work completed June 30. Subcontract has been completed; exceptions July 27.	S-379
G-375	F. O. Repine Co.	Exterior Painting 243 Houses. Contract complete June 30, few exceptions cleaned up July 7. Contract in process of closing out.	S-485
G-377	C. T. Malcom Co.	Soft Water Line to Hospital and Guthrie-Williams water line. Work is 99% complete. Contract to be closed out in August.	S-415
G-378	Cyclone Fence Division American Steel & Wire	Fencing Wright to Van Giesen, Columbia Ballfield, Barth Playlot. Contract approximately 65% complete. Additional 20 days time required. Expected completion August 26.	S-244 C-356-R-2 S-406
G-381	Associated Engineers, Inc	Shelterbelt planting. Work started first week in July. Work to be completed by October 23, 1951.	C-408

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CONTRACT NUMBER	SUBCONTRACTOR	TITLE & STATUS	PROJECT NUMBER
G-385	Raicolith Flooring Co.	Resurfacing Tennis Courts - Riverside Park & Columbia Playfield. Work completed July 7 and contract closed out July 26, 1951.	L-353
G-387	Erwen Construction Co.	Alterations to 712-A. Work started June 13. Contract modified to include excavation and backfill also to clear site at 703 Building.	C-400
G-390	D & H Paving Company	1951 Street Improvement. Notice to proceed given July 2. Work to be completed by October 30.	C-426
G-394	A. Grant	Construction Handball Court. - Bids were opened June 28 and award was approved June 29 by AEC. Contract in process of approval.	
		Steam Pit Rearrangement at Dormitories Bid opened July 12. Award recommended July 31, to Weston Plumbing Co.	S-321
		Access panels Precut Houses. Bids opened July 3. Recommendations were made July 12 to award to Baldwin Dunham Co. Contract being processed for approval.	S-477
		Replacement Furnaces "T" type houses. Bids opened July 17. Award made to Toyal Co., Inc., July 18. Contract being processed for approval	L-330

During the month of July, nineteen contracts were active, seven of which were completed and four new ones are in process for approval. Payments to subcontractors during the month was approximately \$246,050.00.

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MUNICIPAL DIVISIONS

SUMMARY

JULY, 1951

ORGANIZATION AND PERSONNEL:

	<u>BEGINNING OF MONTH</u>		<u>END OF MONTH</u>	
	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Non-Exempt</u>
Engineering	9	6	9	5
Fire	53	0	52	0
Parks & Recreation	12	36	13	36
Police	16	26	16	25
Public Works	16	87	16	88
Public Safety	<u>2</u>	<u>1</u>	<u>2</u>	<u>1</u>
	108	156	108	155

Grading of the new shelterbelt areas included under Project C-408 was started by a sub-contractor during July. This work is preliminary to the installation of irrigation systems and the planting of trees in these areas.

The sub-contractor began construction on the Fiscal Year 1951 Street Improvement Program during the third week of July. Work now underway includes curb, sidewalk, and storm sewer installation and base excavation on Wright Avenue; storm sewer and base excavation on Van Giesen Street; and placing of fill material for the widening of George Washington Way, south.

MUNICIPAL DIVISIONS

Public Works Division

July, 1951

ORGANIZATION AND PERSONNEL

	<u>Exempt</u>	<u>Non-Exempt</u>
Employees - Beginning of Month	16	87
Transfers In	-	2
Transfers Out	-	4
New Hires	-	4
Terminations	-	1
Total - End of Month	16	88

SANITATION

Weight of garbage and trash collected and disposed of during July was 1,399 tons as compared to 1,193 tons in June.

The crew of two men assigned to towing and emptying of trash trailers has been reduced to one man, and the crew of three men assigned to commercial collection has been reduced to two men since the middle of July.

EROSION CONTROL

Routine maintenance of plantings and weed control has been continued on all areas assigned to this unit. Irrigation has been performed on the midnight shift to assist in distribution of water consumption during this hot season.

Grading of the new shelterbelt areas included under Project C-408 was started by a sub-contractor during July. This work is preliminary to the installation of irrigation systems and the planting of trees in these areas.

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Municipal - Public Works

ROADS AND STREETS

The sub-contractor on the Fiscal Year 1951 Street Improvement Program started construction during the third week of July. Work now underway includes curb, sidewalk, and storm sewer installation and base excavation on Wright Avenue; storm sewer and base excavation on Van Giesen Street; and placing of fill material for the widening of George Washington Way, south.

Routine maintenance of streets, sidewalks, storm and surface drainage systems, and street sweeping was performed according to schedule.

DOMESTIC WATER

Average daily water consumption during July was 20.34 million gallons, which is an increase of 4.44 million gallons over the average daily consumption for June.

On July 23, 1951, a record peak was reached when 23.31 million gallons of domestic water were consumed. On this same day 6.96 million gallons of irrigation water were used, thus showing a combined consumption of 30.27 million gallons for both systems.

Well 1100-D, Project C-382, was placed in operation on July 10, 1951, and is presently producing 1,400 g. p. m. The project was totally completed on July 13, 1951.

Domestic Water System

	<u>Well Production</u> <u>Million Gallons</u>	<u>Avg. Daily</u> <u>Production</u>	<u>Total Consumption</u> <u>Million Gallons</u>	<u>Avg. Daily</u> <u>Consumption</u>
Richland	210.4964	6.7902	492.7781	15.8961
North Richland	270.6990	8.7322	102.2829	3.2994
Columbia Field	148.4718	4.7894		
300 Area			<u>35.8271</u>	<u>1.1464</u>
Totals	629.6672	20.3113	630.5981	20.3419

Municipal - Public Works

SEWERAGE SYSTEM

Normal operation and maintenance of the treatment plants, lift station, and collection system were continued through July.

The large volume of sewage flowing through the Swift Boulevard trunk sewer has raised the flow level in the man hole at the 761 Building to a point which has allowed back-up into the basement of an apartment house on Gilmore Avenue. Cleaning and scraping of this trunk has lowered the level sufficiently to clear the basement, and efforts are being made to further free the flow in this over-loaded line.

All equipment for installation of additional pumping facilities at the Sewage Lift Station has been delivered and the sub-contractor is scheduled to start work on August 6, 1951.

Sewerage

	Total Sewage Flow <u>Million Gallons</u>	Average Daily Flow <u>Million G. P. D.</u>	Average Rate Flow <u>Gals. per Min.</u>
Plant No. 1	53.120	1.714	1,190
Plant No. 2	<u>80.454</u>	<u>2.595</u>	<u>1,802</u>
Total	133.574	4.309	2,992

IRRIGATION SYSTEM

Routine operation and maintenance of the pressure irrigation system and gravity flow canals was continued through July.

Water to the canal system was cut off at Horn Rapids Dam on July 25, 1951 for the purpose of treating the ditches with aquatic weed killer chemicals. Service was resumed on July 26, 1951.

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MONTHLY REPORT

PARKS AND RECREATION DIVISION**DECLASSIFIED**

JULY, 1951

ORGANIZATION AND PERSONNEL

	<u>Exempt</u>	<u>Non-Exempt</u>
Beginning of month	12	36
New Hires	1	1
Terminations	0	2
Transfers - IN	0	1
OUT	0	0
	<u>13</u>	<u>36</u>

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of June 30, 1951:

Administration	6
Principals and Supervisors	11
Clerical	23
Building Custodians	47
Nursery School and Extended Day Care	11
Farm Manager	1
	<u>99</u>

CLUBS AND ORGANIZATIONS

As of July 31, 1951, organizations' personnel, exclusive of those included in the Real Estate Commercial Facilities Division report, include:

Youth Council	1
Boy Scouts	1
Camp Fire Girls	1
Hi-Spot	2
Girl Scouts	2
Justice of Peace	1
Y.W.C.A.	2
	<u>10</u>

On July 4, 1951, Richland Post 71 of the American Legion sponsored its annual pet parade and fire works display. The pet parade was held in the morning with approximately 100 children participating. The fire works display was held in the Bomber Bowl at Columbia Playfield.

The Richland Little League sponsored the Northwest District Baseball Tournament in Richland on July 27, 28, and 29. Teams from Vancouver B.C., Kirkland, Washington, Walla Walla, and Richland participated in the tournament. Approximately a total of 5,000 persons attended the games throughout the Tournament which was held at the Little League Baseball Field located in the Jefferson Playground area.

Parks and Recreation Division

The number and types of organizations presently served by the Parks and Recreation Division include:

Business and Professional Clubs	20
Churches and Church Organizations	27
Civic Organizations	5
Fraternal Organizations	24
Music and Art Associations	8
Recreation and Hobby Groups	44
School and Parent Teacher Associations	13
Social Clubs and Organizations	11
Veteran and Military Organizations	12
Welfare	6
Youth - Boy Scouts	20
Camp Fire Girls	36
Girl Scouts	49
Miscellaneous	10
Miscellaneous	9
	294

RECREATION

The summer playground work week coverage by playleaders was extended effective July 14 from five to seven days with one male playleader on duty Saturday and Sunday.

On Saturday, July 5, 1951, at 9:00 PM the first lighted night court play in Richland was made available for tennis enthusiasts when the members of the Richland Tennis Club were invited to be the first to play on the re-surfaced tennis courts at Columbia Playfield.

Thirty-one participants were entered in the Box Hockey Tournament held on July 6, 1951, at Riverside Park.

Approximately 900 persons attended the band concerts held on Wednesday July 11, and July 25, 1951, at Riverside Park.

The Bicycle Skill Contest, a special event of the summer program was held at Riverside Park on Wednesday, July 11, 1951, with 17 children participating.

On Wednesday, July 25, 1951, a Doll Show was held at Riverside Park with 51 participants and 125 spectators present.

The monthly safety meeting for the staff of the Parks and Recreation Division was held on July 30, 1951, in the lobby of Building W-20.

Attendance figures for July, 1951, at Riverside Park are as follows:

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Parks and Recreation Division

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	<u>Children</u>	<u>Adults</u>	<u>Total</u>
General Attendance	15,433	11,152	26,585
Special Events Participants	461	123	584
Spectators	404	793	1,197
Assisted Activities	256	941	1,197
Totals for Month	16,554	12,919	29,473
At end of previous month	7,351	4,204	11,555
Fiscal year totals to date	23,905	17,123	41,028

360*

Outdoor to date 41,388

*June figures did not include 360 adults under assisted activities which are here added to the cumulative total.

Below are listed organization groups and classes using the Riverside Park facilities during June, 1951:

	<u>Children</u>	<u>Adults</u>	<u>Total</u>
Oregon State Alumni	32	46	78
Office Service Group	52	68	120
Stanford Alumni	41	53	94
Colorado Alumni	28	41	69
Supervisors Association	59	96	155
Bicycle Skill Show	14	0	14
Dell Show - Special Event	51	1	52
Table Tennis Tournament - Special Event	16	0	16
Totals	293	305	598

Attendance figures for the Month of July, 1951, for the Community House were as follows:

	<u>No. of Sessions</u>	<u>Men</u>	<u>Women</u>	<u>Boys</u>	<u>Girls</u>	<u>Total</u>	<u>Sub-total</u>
Games Room	37	136	53	1,120	250	1,559	
Open Craft	10	—	12	193	118	323	
		136	65	1,313	368	1,882	1,882
Servicemen's Center	5	276	131				407
Booked Groups	45	502	237	598	388		1,746

Total - Community House 4,035

On July 16, the painting and redecorating of the Social Room in the Community House was started. This work was finished and the room was available for bookings on July 25.

Parks and Recreation Division

In July a new program was initiated when the facilities and services of the Community House were made available to the Young Adult Group of Richland; Thursdays 7:30 to 10:30 PM and Sundays (Dorm clubs) 7:30 to 10:30 PM.

MAINTENANCE

Two volleyball posts and four badminton posts were installed on the concrete slab located just north of the shuffleboard courts at Columbia Playfield.

The blacktop apron around the merry-go-round, at Riverside Park was extended 4 ft. in order to provide a much larger safety area around the apparatus.

Progress on construction work of recreational facilities at Columbia Playfield as of July 31, 1951 is as follows:

(a) Resurfacing of tennis courts (Project L-353)	100%
(b) Shuffleboard Courts (Project C-356-R)	85%
(c) Handball Courts (Project C-356-R)	*

*Light installed only.

As of July 1, 1951, custodial service at the Community House and the Richland Public Library was made the responsibility of the using Division. Custodians employed for work in these facilities were placed directly under the supervision of the Division supervisors.

Beginning July 1, 1951, maintenance of the following park areas were made the direct responsibility of School District #400 to compensate for school use of park areas adjoining all schools:

- (a) Sacajewea Playground
- (b) Marcus Whitman Playground
- (c) Jefferson Playground (north of tennis courts)
- (d) Lewis and Clark Playground

As of July 1, 1951, the Bomber Bowl is being maintained by the Parks and Recreation Division under a 60-40 agreement with School District #400. The School District to pay 60% of the cost of maintenance.

Work Orders issued to other Division during July - 23.

PARK DEVELOPMENT

Proposed Work	<u>Progress Report</u>	<u>Percentage Complet</u>
1. Playground equipment installation:		
(a) Project C-356-R		80%
(b) Project C-425 (equipment on hand)		None
2. Fence installation:		
(a) Columbia Playfield (childrens area) Project S-245		None
(b) Columbia Playfield (tennis courts) Project S-425		None
(c) Columbia Playfield (baseball field) Project L-406 (material on hand)		None
(d) Barth Playlot Project L-406		None

Parks and Recreation

Percentage Complete

(e) Riverside Park Project S-450

None

3. Grass seeding:

(a) Columbia Playfield (Community Swimming Pool)

Project C-242-R

100%

RICHLAND PUBLIC LIBRARY

Total circulation for the month was 13,414. The breakdown of the circulation is as follows:

<u>Books</u>			<u>Magazines</u>	<u>Records</u>	<u>Interlibrary Loan</u>
Adult	Juvenile	Total			
6,558	5,506	12,064	304	970	72

Pamphlets

3

Total new registration was 717 (adult, 520; juvenile, 197). Total accumulative registration to July 31, 1951 was 5,516.

Books added to the collection totaled - 762.

Pre-school story hour attendance 59. Regular story hour attendance 149.

The Children's Librarian went to Camp Fire Girls Day Camp held at Burlin Camp to tell stories and to Riverside Park for story telling.

The Librarian attended a Library Extension workshop at the University of Washington Graduate Library School as well as the library section of the Institute of Government.

The Reference Librarian attended the American Library Association National Conference in Chicago for the library.

The Library Board met July 11, due to the July 4, holiday. Mrs. Helen Chapman was welcomed as the new Board member, replacing Mr. Rubey. The matter of the Kiwanis fountain was discussed and the Board recommended location #1 be accepted (west of main entrance.)

MAJOR EVENTS DURING THE MONTH

July	4	American Legion Pet Parade & Fireworks Display	Columbia Playfield
	11	Community Band Concert	Riverside Park
	22	Kiwanis - YWCA Paper Collection	Richland
	25	Community Band Concert	Riverside Park
27- 28- 29		Little League District Tournament	Jefferson Playgro

MUNICIPAL DIVISIONS
RICHLAND FIRE DEPARTMENT

JULY 1951

Organization and Personnel:

	<u>Exempt</u>	<u>Non-Exempt</u>
Employees - Beginning of the Month	53	0
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminations	1	0
Total End of Month	52	0

Fire Protection:

Response to Alarms	18
Fire Loss (Estimated): Government	\$ 232.70
Personal	\$ 27.00
Investigation of Minor Fires and Incidents	10
Safety Meetings	8
Security Meetings	4
Inside Drills and Schools	54
Outside Drills	60
Fire Alarm Boxes Tested	188

Fire protection map display arranged in Civil Defense Control Center on July 6th.

Grass Truck detailed July 9th to stand by during controlled burning at G.E. Nursery.

Weeds removed from six fire hydrants during the month.

On July 15th, six fire hydrants in the new housing and apartment area were checked and tested. On July 24th hydrants on Van Glesen at Stevens and Thayer Drives were tested.

A total of 1,450 feet of 2½ inch hose was tested during the month.

Fire apparatus stood by at the AEC Airport five times during the month for aircraft landings or takeoffs.

Fire Prevention:

Fire Inspections:

700 Area Buildings	- 37
1100 Area Buildings	- 84
Real Estate Buildings	-107
Municipal Buildings	- 32
Hospital (including alterations)	- 4
Schools	- 8
Sub-Contractor Buildings	- 14
AEC Airport Buildings	- 5
Total	291

Fire Extinguishers:

Inspected	-309
Refilled	- 13
Installed	- 3
Removed	- 8

Standpipe Fire Hose:

Inspected	- 24

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A total of 154 manhours and \$25.47 in material costs for fire prevention work was charged to other divisions.

Conducted a fire drill in the 705 building on July 25th. Air conditioning equipment automatically shut off and building was completely evacuated in one minute.

A demonstration lecture on the use of fire extinguishers was given July 30th for Printing employees.

Assistant Fire Marshal attended Richland Traffic Committee meeting on July 10th.

With a representative of the Grinnell Company, an inspection was made July 27th of the two new sprinkler systems and alterations of older systems in Kadlec Hospital.

Fire Marshal and a Lieutenant from No. 1 Fire Station assisted a National Board of Fire Underwriters inspector check new light fixtures in Columbia High and Marcus Whitman Schools.

Inspection of the Chief Joseph School revealed that four fire hose standpipes in the auditorium were of non-standard height. Matter was referred to AEC Engineering.

Assisted Community Engineers on an acceptance inspection of the Masonic Temple and Redeemer Lutheran Church buildings.

Delivered 1300 "Instruction to Smokers" cards to the Desert Inn and Dormitory Supervisor for placement in all rooms.

Reported to AEC Fire Prevention Engineer an unsatisfactory remodelling project in the Civil Air Patrol airport operations building.

Assisted Plant Accounting Division on an inventory of fire extinguishing equipment in Richland.

Reviewed plans for remodelling 722-C Building which is to be used for typewriter repairs.

Hazardous accumulations of boxes, papers, and packing material against the exterior of residences being occupied by new tenants were reported to Tenant Relations. Arranged to have new tenants forewarned of this hazard.

Unusually hot recessed light fixtures discovered in gymnasium ceilings at Marcus Whitman and Sacajawea Schools were reported to AEC Engineering. They advise tests indicated insufficient heat to cause trouble and they considered the fixtures safe.

At request of AEC Property Section, fire extinguishers were removed from Castle Club prior to building's sale. Disconnection of electrical service and cleanup around the building were requested.

An annual inventory was made of all fire prevention equipment.

MUNICIPAL DIVISIONS
RICHLAND POLICE DEPARTMENT

JULY 1951

ORGANIZATION AND PERSONNEL

	<u>Exempt</u>	<u>Non-exempt</u>
Employees - Beginning of Month	16	26
Transfers In	0	3
Transfers Out	0	1
New Hires	0	1
Terminations	0	4
Total - End of Month	<u>16</u>	<u>25</u>

GENERAL

The time for the State Patrol representative to issue drivers licenses in Richland has been changed from Mondays and Tuesdays to Tuesdays only from 11 A. M. to 7 P. M.

During the month, a total of 242 letters were received, compared to 241 last month. These consisted of 236 inquiries on arrests and 6 requests for assistance.

During the month, 23 prisoners were processed through the Richland Jail. Thirteen of these were from North Richland.

During the month, 35 gun registrations were recorded.

During the month, 143 bicycle registrations were recorded.

During the month, 185 traffic violation reports were received. These consisted mainly of speeding, illegal parking and stop sign violations. A total of 84 other reports were received. These consisted mainly of larceny and public intoxication cases.

TRAFFIC

There were 14 reportable traffic accidents in the community of Richland during the month of July. These accidents resulted in minor injuries to five persons, major injuries to two persons, and one fatality. An accident at Adams and Cullum resulted in the one fatality, two major injuries and two minor injuries of the total. This month's total accidents was eight less than in June of this year, but three more than the same month last year. There have been 130 reportable accidents this year as compared to 111 for the same period last year. There have been 18 more persons injured in automobile accidents this year than during the same period last year. Nine of the 14 accidents were investigated at the scene and one arrest was made as a result of these investigations.

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Driving violations which contributed to the 14 accidents for this month were:

Negligent Driving	6
Failure to Yield Right of Way	4
Following Too Close	2
Improper Turn	1
Improper Passing	1

Property damage averaged \$388.20 per accident as compared to \$296.66 for the month of June and \$216.87 for July, 1950.

During the month of July, Ptm. Metz conducted bicycle safety classes at each of the five grade schools. The total attendance at these classes was 193. Two bicycle safety films were shown and instructions were given covering traffic regulations, safe riding habits, care and inspection of bicycles and night riding.

No painting of crosswalks or street center lines was requested this month due to surplus tar on the streets caused by the unusually hot weather. A survey was made of streets and crosswalks needing painting and this work will be done in the near future.

Construction on Wright Avenue and Van Giesen has caused some re-routing of traffic and the removal of many traffic control signs. Temporary signs will be used until construction has progressed sufficiently to permit re-location of permanent signs.

TRAINING

The subject for classroom training for the month was "Traffic Accident Investigation".

Training at the small arms range for the period in field instruction was as follows:

Pistol	2 hours
Machine Gun	1½ hours

Qualifications on the Machine Gun Course were as follows:

<u>Score</u>	<u>No. Men</u>	<u>Per Cent</u>
Expert	5	62%
Sharpshooter	2	25%
Marksmen	1	13%

Qualifications on the Army-L Course were as follows:

<u>Score</u>	<u>No. Men</u>	<u>Per Cent</u>
Expert	10	63%
Sharpshooter	2	13%
Marksmen	3	18%
Unqualified	1	6%

A total of 16 men reported for police training.

Richland Police Department - Continued

ACTIVITIES AND SERVICES

	<u>May</u>	<u>June</u>	<u>July</u>
Doors and windows found open	51	65	49
Children lost or found	22	13	14
Ambulance runs assisted	21	24	37
Ambulance driver provided	6	3	7
Dogs, cats reported lost or found	37	11	10
Dog, cat, loose stock complaints	30	36	30
Persons injured by dogs	11	5	5
Bank escorts & details	10	0	0
Fires investigated	20	17	23
Miscellaneous escorts	11	6	6
Complaints investigated (no enforcement action)	55	40	29
Deaths reported	1	2	0
Articles lost or found	41	28	25
Records inquiries	237	222	187
Law enforcement agencies assisted	11	21	3
Private individuals assisted	17	30	17
Plant divisions assisted	31	45	45
Emergency messages delivered	<u>52</u>	<u>50</u>	<u>60</u>
Totals	664	618	547

MONTHLY REPORT
RICHLAND POLICE DEPARTMENT
JULY, 1951

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OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
PART I				
1. Murder	0	0	0	0
2. Rape	0	0	0	0
3. Robbery	0	0	0	0
4. Aggravated Assault	0	0	0	0
5. Burglary—Break & Ent.	4	1	1	1
6. Larceny—Over \$50.00	8	1	1	2
Larceny—Under \$50.00	15	1	2	5
Bike Theft	18	0	0	18
7. Auto Theft	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>
TOTAL PART I CASES	46	3	4	27
PART II				
8. Other Assaults	1	0	0	1
9. Forgery	1	0	1	0
10. Embezzlement & Fraud	1	0	1	0
11. Stolen Prop:Buy:Rec:Poss:	0	0	0	0
12. Weapons:Carry:Poss:	0	0	0	0
13. Prostitution	0	0	0	0
14. Sex Offense	0	0	0	0
15. Off.Ag.Fam. & Child	3	0	0	3
16. Narcotics—Drug Laws	0	0	0	0
17. Liquor Laws	0	0	0	0
18. Drunkenness	4	0	4	0
19. Disorderly Conduct	17	0	4	13
20. Vagrancy	1	0	1	0
21. Gambling	0	0	0	0
22. Driving While Intox.	2	0	2	0
23. Violation Rd & Dr. Laws:				
Speeding	48	0	48	0
Stop Sign	35	0	35	0
Reckless Driving	4	0	4	0
Right of Way	5	0	5	0
Negligent Driving	4	0	4	0
Defective Equipment	4	0	4	0
24. Parking	36	0	36	0
25. All Other Traffic	29	0	29	0
26. All Other Offenses:				
Dest. of Pers. Prop.	2	0	0	2
Malicious Mischief	1	0	0	1
Vandalism	10	0	2	6
Dog Nuisance	1	0	0	1
Car Prowl	2	0	0	1
Prowlers	6	0	0	6
Illegal Use of Firearms	1	0	0	1
Investigation:	1	0	0	1
27. Suspicion	<u>5</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL PART II CASES	224	0	180	36

(Continued on Page Two)

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PAGE TWO	MONTHLY REPORT		RICHLAND POLICE DEPARTMENT		JULY, 1951
	OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
<u>PART III</u>					
28. Missing Persons		3	0	0	3
Lost Persons		9	0	0	9
Lost Animals		9	0	0	9
Lost Property		4	0	0	4
29. Found Persons		1	0	0	1
Found Animals		6	0	0	6
Found Property		<u>16</u>	<u>0</u>	<u>0</u>	<u>16</u>
TOTAL PART III CASES		48	0	0	48
<u>PART IV</u>					
30. Fatal Mot.Veh.Traf.Acc.		1	0	0	0
31. Pers.Inj.Mot.Veh.Traf.Acc.		3	0	0	0
32. Prop.Dam.Mot.Veh.Acc.		10	0	0	0
33. Other Traffic Acc.		0	0	0	0
34. Public Accidents		No Accurate Statistics Kept			
35. Home Accidents					
36. Occupational Accidents					
37. Firearms Accidents		0	0	0	0
38. Dog Bites		2	0	0	2
39. Suicides		0	0	0	0
40. Suicide Attempts		0	0	0	0
41. Sudden Death & Bodies Fd.		0	0	0	0
42. Sick Cared For		0	0	0	0
43. Mental Cases		<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL PART IV CASES		16	0	0	2
<u>COMPOSITE TOTALS</u>					
PARTS I, II, III, IV CASES		334	3	184	113

*Cases listed under "Cleared Other" are those cleared by various means other than arrest, such as: orders from prosecutor, juvenile probation officer or other situations in which a mutual agreement is obtained. They are definitely "cleared" cases and differ from the arrest column in that there were no arrests.

Property Reported Stolen During Month...\$4,482.60 (\$540.00 Bike)
Property Recovered During Month....\$3,197.10 (\$540.00 bikes)

SEE PAGE THREE FOR JUVENILES INVOLVED.

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PAGE THREE		RICH/LAND POLICE DEPARTMENT		MONTHLY REPORT FOR JULY, 1951		OF JUVENILES INVOLVED													
OFFENSES	NO.	JUVENILES	SEX	AGES															
				2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Petit Larceny	1	2	M										1		1				2
Vandalism	1	3	M													2	1		3
Disturbance	1	2	F														2		2
Illegal Use of Firearms	1	2	M											1			1		2
TOTALS	4	9												1	1	1	2	4	9

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PAGE FOUR

RICHLAND POLICE DEPARTMENT

JULY, 1951

Number of offenses known to police per 25,000 inhabitants in cities of 25,000 persons:

	Wash. Oregon & Calif. Six Months (Jan-June 1950)	One Month Average	Richland (July-Dec. 1950)	Richland June 1951	Richland July 1951
Murder	.49	.08	0	0	0
Robbery	14.3	2.3	0	0	0
Agg. Assault	10.3	1.7	0	0	0
Burglary	90.6	15.1	12	2	3
Larceny	269.6	44.9	155	17	21
Auto Theft	37.3	6.2	12	1	1
Bike Theft			134	30	18

Number of offenses known to police per 25,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

	State of Washington Six Months (Jan-June 1950)	One Month Average	Richland (July-Dec. 1950)	Richland June 1951	Richland July 1951
Murder	.53	.08	0	0	0
Robbery	10.9	1.8	0	0	0
Agg. Assault	2.7	.4	0	0	0
Burglary	80.3	13.3	12	2	3
Larceny	236.1	39.3	155	17	21
Auto Theft	30.9	5.1	12	1	1
Bike Theft			134	30	18

The portion of offenses committed by persons under the age of 25 years is shown:

	National Average (Percentage of Cases) (Jan-June 1950)	Wash. Oregon, Cal. (Actual Cases Jan-June 1950)	Richland (July-Dec. 1950)	Richland June 1951	Richland July 1951
Robbery	55.4	7.9	0	0	0
Burglary	63.0	57.0	1	1	0
Larceny	46.7	125.9	24	4	1
Auto Theft	68.7	25.6	0	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 arrests recorded is doubtless incomplete in the lower group because of the practice of some jurisdictions not to fingerprint youthful offenders."

POLICE DIVISION - TRAFFIC CONTROL STATISTICS
JULY, 1951

MOTOR VEHICLE ACCIDENTS:

Richland	Total Number		Fatalities		Major Injuries		Minor Injuries	
	June	July	June	July	June	July	June	July
	22	14	0	1	0	1	5	2

ACCIDENT CAUSES:

Richland	Negligent Driving		Failure to Yield		Reckless & Drunken		Other Causes	
	June	July	June	July	June	July	June	July
	5	6	3	4	1	0	13	4

PLANT WARNING TRAFFIC TICKETS ISSUED:

Richland: NO PLANTING TICKETS ISSUED FOR JUNE AND JULY, 1951.

TRAFFIC CHARGES AND COURT CITATION TRAFFIC TICKETS ISSUED:

Richland	Speeding		Drunken Dr.		Reckless Dr.		Right of Way V.		Neg. Dr.		Parking V.		Other V.		Tot
	June	July	June	July	June	July	June	July	June	July	June	July	June	July	
	53	49	34	35	4	1	6	7	3	3	83	33	29	43	218

TRAFFIC VOLUME: Average 24-Hour Traffic Volume Count for week ending on July 27, 1951, Guthrie, west of Goethals-139.

NOTE: Traffic Control Statistics show ORIGINAL CHARGES ONLY.

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**RICHLAND POLICE DEPARTMENT
RICHLAND JUSTICE COURT CASES**

JULY 1951

VIOLATION	CASES	NO OF CONV.	NO OF FORF.	NO OF CONT.	CASES DISM.	WARR ISS.	SENT JAIL	SENT SUSP	LIC REV	CASES ORIG. PREV. MON.	CASES INCL. OTHER VIOL.	BAIL FOND.	FINES	FINES SUSP.
Dr. Lic.	24	9	8	3	4			4		1	11	\$ 32.50	\$ 65.00	\$ 45.00
Def. Equip.	7	5	1		1			2	1		3		24.70	15.00
Drunken Dr.	1	1						1					77.50	
F.T.O.P.O.	1	1						1					3.50	3.50
F.T.S.&I.	1	1						1					12.50	12.50
F.T.Y.R.O.W.	3		1		1						1	10.00	45.00	33.00
Ill. Parking	38	13	14		1		10	10		3	3	49.00	22.50	
Ill. Passing	6	2	4		4			1		3	2	27.50	167.50	
Negligent Dr.	14	5	2					2					37.50	35.00
License Plates	6	5			1			1	4				310.00	
Reckless Dr.	6	4			1			1		3		264.50	49.50	
Speeding	53	21	21	5	1		5	1		1	4	157.00		
Stop Sign	37	13	22	1				1						
Aiding & abetting in the commission of a felony.	1	1	(Taken to superior court)											
Improper keeping or harboring of animals.	1	1											27.50	27.50
Public Intox.	5	2	3							2		37.50	25.00	
Petit Larceny	2				2									
Removing barricade	1			1										
Second deg. burglary	1	1	(Taken to superior court)											
TOTALS:	208	86	76	13	15	19		23	5	13	25	\$600.50	\$890.50	\$136.50

NOTE: Two Reckless Dr. cases amended to Negligent Driving.
One Drunken Dr. case amended to Negligent Driving.

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MUNICIPAL DIVISIONS
PUBLIC SAFETY DIVISION

July 1951

Organization and Personnel:	Exempt	Non-exempt
EMPLOYEES - BEGINNING OF MONTH	2	1
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminations	<u>0</u>	<u>0</u>
Total - End of month	2	1

*One exempt employee charging full time to Civil Defense

Statistical and General:

The National Safety theme for the month of July, "Vacation Driving" was publicized with many radio spot announcements, and several newspaper articles stressing traffic safety and the July Fourth holiday, in the amount of 252 column inches.

The American Legion sponsored a fireworks display at the Columbia High School stadium which was publicized with flyers which were distributed throughout the city, as well as newspaper publicity. A large audience participated in this safe Fourth of July activity. A very small amount of fireworks was used, illegally, this first year of the fireworks ban, and a safe holiday was enjoyed by the city.

The Safety Story Teller series of "Thirteen Famous Persons" is being broadcast by Allan Grant every Monday afternoon. This series of programs are sponsored by the Richland Safety Council in cooperation with this office.

A Bicycle Safety School was conducted this month by Sergeant Dale Metz of the Richland Police Department, with a series of two sessions at each elementary school.

Safety films in the Public Safety office during the month of July were:

We Drivers	Headless Hurry - Endless Worry
Lifelines	Hook, Line and Safety
A Closed Book	Safe As You Think
A Safe Day	Look What You're Missing
Safety Ahoy	Handle With Care

These films covering traffic, swimming, boating and fire safety were used by civic organizations, personnel groups and soldiers at Camp Hanford, and had an attendance of 6395.

An article on the history of public safety in Richland, the town's traffic problems and its traffic safety record, was composed this month and sent to the National Safety Council for future publication in its Public Safety News magazine.

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REAL ESTATE DIVISIONS

SUMMARY

JULY

ORGANIZATION AND PERSONNEL:

	<u>BEGINNING OF MONTH</u>		<u>END OF MONTH</u>	
	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Non-Exempt</u>
Commercial & Other Property Divisions	7	6	7	6
Housing & Real Estate Maintenance Division	<u>21</u>	<u>197</u>	<u>24</u>	<u>206</u>
	28	203	31	212

Net increase of employees for the month of July 12

GENERAL

Starlite Roller Rink commenced operation as an outdoor roller skating rink under the management of Mr. Seldon Mason.

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HOUSING & REAL ESTATE MAINTENANCE DIVISION

July, 1951

ORGANIZATION AND PERSONNEL

July

Number of employees on payroll

Beginning of month

21 Exempt Employees
197 Non-Exempt Employees

218

218

End of month

24 Exempt Employees
206 Non-Exempt Employees

230

230

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RICHLAND HOUSING

Housing Utilization as of Month Ending July 31, 1951

Houses Occupied by Family Groups	Conventional	Block	T	Precut	Ranch	Prefab	Apt	4th Add.	Tract	Total
G. E. Employees	2205	256	9	383	830	1156	58	9	38	4944
Commercial Facilities	90	11	1	27	74	63	6		5	277
Community Activities	9			1	7	2			1	20
Medical Facilities	5	14		2	1	1				23
Post Office	7			1	3	10			4	25
A.E.C. and Other Government	95	29		15	40	19	1		4	203
School District	44	1		5	11	49	1			111
Kallex Corporation	8	5		6	10	6	1			36
Atkinson-Jones	9	13		4	11	4	2			43
Newberry-Neon	3	1		1			1			6
Vernita Orchards									4	4
J. G. Turnbull					1	1				2
Robert's Filter Mfg. Co.	1									1
V. S. Jenkins					1					1
Hanley Company					1		2			3
Urban Smythe & Warren		1			1		1			3
Charles T. Main Inc.					1	6				7
Total Houses Occupied	2476	331	10	445	992	1317	73	9	56	5709
Houses assigned-Leases written	9	2		2	1	4	1	11		30
Houses Assigned-Leases unwritten	2			1	2	1				6
Houses available for assignment	13			2	5	20		22		62
Total Houses	2500	333	10	450	1000	1342	74	42	56	5807

	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2471	51	46	2476	Plus 5
Block Type	333	4	6	331	Minus 2
"T" Type	10	1	1	10	
Precut Type	449	8	12	445	Minus 4
Ranch Type	990	20	18	992	Plus 2
Prefab Type	1305	62	50	1317	Plus 12
Apartments	72	7	6	73	Plus 1
4th Addition	3	6		9	Plus 6
Tract	56	2	2	56	
Total	5689	160	140	5709	Plus 20

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DORMITORY STATISTICS

Dormitories:		<u>Occupants</u>	<u>Vacancies</u>	<u>Total Beds</u>
Men Occupied	15	*616	---	616
Men Unoccupied	--			
Women Occupied	12	**481	---	481*
Women Unoccupied	1			

Women's Dormitories Occupied by:

GE Office	2
Education	1
Apartments	1
	<u>32</u>

*This includes 50 beds in W-17. This dormitory was opened for Men employees on March 12, 1951.

**This includes space of 2 beds in W-9 used for supply rooms and dormitory offices.

There are 239 men waiting for rooms in Richland.
There are 10 women waiting for rooms in Richland.

GENERAL

ALLOCATION SECTION STATISTICS

Houses allocated to new tenants	105	Voluntary Terminations	56
Exchanged Houses	14	R.O.F.	--
Moves (Within the Village)	37	Discharge	2
Turnovers	5	Transfers	8
Total Leases Signed	160	Retirement-Divorce-Misc.	5
Total Cancellations	140	Houses Assigned "As Is"	76
Applications Pending	659	Move off project	18
		Houses sent to Renovation	46

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DORMITORY REPORT FOR JULY

- 114 MINOR REPAIRS TO FUSES, PLUMBING, ETC.
- 17 WORK ORDERS STEAM, GLASS, EQUIPMENT, ETC.
- 119 PIECES OF FURNITURE REPAIRED.
- 13 HOUSEKEEPING CONTACTS.
- 414 LIGHT GLOBES REPLACED.
- 84 ROOMS VACATED.

LINEN LAUNDERED

- 8324 SHEETS
- 4126 PILLOW CASES
- 171 BED SPREADS
- 66 BED PADS
- 241 SHOWER CURTAINS
- 82 PAIRS DRAPES

REMARKS

Tree and shrub pruning this month of all small trees and shrubs.

MISCELLANEOUS STORES WAREHOUSE INVENTORY SUMMARY
MONTH ENDING JULY 31, 1951

	<u>EXPENDABLE ITEMS</u>	<u>FURNITURE (GEN. LEDGER)</u>	<u>FURNITURE (KARDEX CONT)</u>	<u>PLANT ITEMS</u>	<u>TOTAL</u>
BEGINNING BALANCE	\$ 45,092.21	\$ 25,275.22	(\$23,206.22)	\$ 46,123.33	\$116,490.76
RECEIPTS:					
On Purchase Orders	35.22				
On Store Orders	857.47				
From Excess					
From Housing	113.13		327.07	2,767.98	
From Dormitories			174.65		
From Other (Misc.)	94.30		19.50		
TOTAL RECEIPTS	\$ 1,100.12	\$	(\$ 521.22)	\$ 2,767.98	\$
TOTAL AVAILABLE	\$ 46,192.33	\$ 25,275.22	(\$23,727.44)	\$ 48,891.31	\$
DISBURSEMENTS:					
Cash Sales (Backcharge)	20.66				
To Excess					
To Salvage					
To Housing	1,487.07		1,524.35	2,387.72	
To Dormitories	1,346.09		51.00		
To Dormitories-Linen	60.05				
Dorm-Shades & Reflectors	54.57				
To Warehouse Supplies	160.15				
To Other (Misc.)	116.59		21.38		
TOTAL DISBURSEMENTS	\$ 3,245.18	\$	(\$ 1,596.73)	\$ 2,387.72	\$
ENDING BALANCE (1)(2)(4)	\$ 42,947.15	\$ 25,275.22	(\$22,130.71)	\$46,503.59	\$114,755.9
NET CHANGE	(1) \$ 2,145.06	(2)	(3) (\$1,075.51)	(4) \$ 380.26	\$
ENDING BALANCE GENERAL LEDGER (BALANCE-COL. 1 PLUS COL. 2)					\$28,520.40
COLUMN 3 FOR LOCATION CONTROL ONLY-COLUMN 4 MEMO ACCOUNT ONLY					

<u>EXCHANGED</u>	<u>PIECES</u>	<u>COMMENT:</u>
Dorm. Furniture	72	
Ranges	15	
Refrigerators	13	
Prefab Heaters	31	
Sent to Maintenance	104	
From Maintenance	99	

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TENANT RELATIONS WORK ORDER AND PROGRESS REPORT - MONTH OF JULY, 1951

Processing of Service Orders, Work Orders & Service Charges

	Orders Incomplete As of June 30, 1951	Orders Issued June 30-July 31	Total Orders Incomplete as of July 31, 1951
Service Orders	68	1725	220
Work Orders	2982	537	2810
Service Charges	14	281	73

Principal Work Order Loads

	Incomplete as of June 30, 1951	Incomplete as of July 31, 1951
Laundry tub replacement	172	182
Bathroom Renovation(Tub-Lino-Tile)	165	201
Tileboard Only (Bathroom)	8	11
Kitchen Cabinet Linoleum	215	161
Kitchen Floor Linoleum	16	42
Shower Stalls	129	101

Alteration Permits Issued During the Month of July totaled 114 compared to 108 issued in June.

Water Softener	2	Remove broom closet	2
Plumbing	1	Outdoor fireplace	1
Automatic dryer	3	Change position of range	3
Air conditioner	47	Doghouse	1
Fence	15	Backdoor in prefab	3
Automatic washer	16	Driveway	2
Hedge	1	Screen door over back door	1
Threshold	1	Patio	3
Basement Excavation	2	Cooling pads	2
Oil conversion	3	Electrical wiring basement	1
Water softener	1	Outside light over backdoor	2
Install light on clothes pole	1		

1316 Inspections were made during the month of July compared to 2297 made during June.

Alteration Permits	1	Leaking Basements	36
Bathtubs	79	Linoleum	151
Cupboards	4	Lot lines	7
Drainage	10	Paint	165
Driving on Grass	3	Porch and Steps	27
Floor Boards	7	Screen doors	87
Grass Seed	21	Shower stalls	13
House Siding	1	Sidewalks	81
New tenants	126	Sinks	5
Tileboard	55	Top Soil	21
Toilet Seats	5	Walls	16
Miscellaneous	126	Windows	1
Renovations	110	Cancellations	158

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REAL ESTATE ENGINEERING SECTION

July 31, 1951

Following is the status of projects being handled by this section:

- L-330 Heating Equipment in "T" Type Houses:
Bids opened 7-17-51; Royal Company of Kennewick submitted low bid. Notice to Proceed has not been issued.
- L-483 Rehabilitation of Burned Prefab - 1313 Potter:
Work complete except for painting and cleanup.
- S-321 Rearrangement of Steam Valve Pits at Dorms:
Bids opened 7-12-51; Weston Plumbing Company of Spokane submitted low bid. Notice to Proceed has not been issued.
- S-379 Interior Painting Prefabs:
Work completed 6-30-51. Final estimate being prepared.
- S-477 Service Access Panels in "U" and "V" Type Houses:
Bids opened 7-3-51; L. E. Baldwin, Inc. and Frank Dunham Company submitted low bid. Notice to Proceed has not been issued.
- C-407 Replacement of Bathtubs, Tileboard and Linoleum:
Work complete. Final inspection in progress. Subcontractor cleaning up exceptions.
- C-448 Rehabilitation of 1341 Prefab Houses:
Work 93% complete. Subcontractor ahead of schedule.

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HOUSING AND REAL ESTATE MAINTENANCE.JULY, 1951.**DECLASSIFIED**I. ORGANIZATION AND PERSONNEL:

	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Total</u>
A. Beginning of month:	13	163	176
B. End of Month:	13	163	176

II. MAINTENANCE STATISTICS (BACKLOG)

<u>JOB CLASSIFICATION</u>	<u>CRAFT CREW</u>	<u>MAN HOUR BACKLOG</u>	<u>CREW DAYS</u>
Carpenter Shop and Field Installation	Carp. Jrn. 13 pntr. Jrn. 2 Upholtr. 1 Subtotal 16	1533	12
Heavy Field Carpentry	Carpen. Jrn. 16 Carpen. Trs. 2 Lt. Tr. Dr. 1 Subtotal 19	7030	49
Lino & Tile Field Carpen.	Carp. Jrn. 19 Pntr. Jrn. 2 Subtotal 21	8362	65
Mechanical	S.M. Jrn. 4 Millwrights 4 Subtotal 8	1475	46
Plumbing and Steam	Plmr. Jrn. 6 Pl. S.F. Jrn. 3 Plmr. Hlpr. 1 Subtotal 12	2438	28
Cycle and Misc. Painting	Pntrs. Jrn. 25 Pntrs. Trs. 1 Carp. Jrn. 2 Lt. Tr. Dr. 1 Subtotal 29	2250	10
Service Section	Ser. Men 14 Lt. Tr. Dr. 4 Subtotal 18	2822	21
Renovation	Pntrs. Jrn. 15 Carp. Jrn. 1 Janitress 5 Lt. Tr. Dr. 1 Subtotal 22	2403	17

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<u>JOB CLASSIFICATION</u>	<u>CRAFT CREW</u>	<u>MAN HR. BACKLOG</u>	<u>CR. DA.</u>
Service Order	Electr. Jrn. 6	923	9
	Plmr. Jrn. 4		
	Carp. Jrn. 2		
	Locksmith Jrn. 1		
	Glazier Jrn. 1		
	Subtotal <u>II</u>		
<u>TOTAL</u>		158	

III. MAINTENANCE TRANSPORTATION FACILITIES.

<u>HEAVY MAINTENANCE TRUCK TYPE</u>	<u>NUMBER IN POSSESSION.</u>	<u>CRAFT</u>
1½ ton flatbed	11	Carpenters
Cushman Scooter	1	Carpenters
1/2 ton pickups	7	Carpenters
3/4 ton Power Wagon	1	Carpenters
3½ ton dump trucks	3	Labor
½ ton pickup	2	Labor
1½ ton with Monorail	1	Millwr.
3/4 ton Walkin	1	Millwr.
½ ton pickup	2	Millwr.
Panel	1	Sheetmetal
Panels	3	Painters
1½ ton flatbed	1	Painters
½ ton pickup	5	Plumbers
3/4 ton pickup	4	Plumbers
Subtotal	<u>41</u>	
<u>SERVICE ORDERS</u>		
1/2 ton pickup	3	Plumbers
1/2 ton pickup	4	Wlectric.
1/2 ton pickup	1	Glazier
1/2 ton pickup	1	L. Smith
1/2 ton pickup	2	Carpenters
Subtotal	<u>II</u>	
<u>RENOVATIONS</u>		
Bus	1	(Temporarily Idle) Painters
Chev. Carryall	1	Pntrs. & Janitr.
1/2 ton pickup	1	Carpenters
Subtotal	<u>I</u>	
<u>GENERAL</u>		
Sedans	2	Supervision
GRAND TOTAL	58	

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IV. PROGRESS REPORTA. PAINTING:

On the interior paint program 67 units had minor carpenter repairs and were completely painted. Two A & J houses had kitchens enameled. Fifteen basement walls were coated with water proofing material. There were 147 miscellaneous paint jobs throughout the city completed. The interior of the Housing office was painted throughout as was the Dining room in the Youth Center.

B. CARPENTRY:

The carpenter repair of houses prior to painting on exterior is being controlled through the carpenter shop. Houses repaired are as follows:

- 20 "A" houses
- 17 "B" houses
- 7 "E" houses
- 27 "F" houses
- 25 "H" houses
- 2 Tract houses
- 80 screen doors were repaired
- 30 new screen doors were installed

The usual type work continues in the Paint shop. In the Upholstery shop work such as reupholstering of 26 C chairs, 3 KV chairs, 5 KX chairs, a davenport, 4 office chairs and the repair of 16 pairs of overalls was done.

Work in the saw filing shop continues as usual.

Ladder inventory and repair continues unchanged.

- 14 Prefabs had cupboard doors changed.
- 12 houses had roofs coated
- 37 houses had concrete walks and steps
- 26 windows had new sash balances
- 15 houses had rear slabs raised.
- 9 houses had new concrete thresholds
- 4 houses had new clothes poles
- 13 houses had porch repairs made
- 2 houses had porches replaced
- 8 houses had doors repaired
- 6 houses had asbestos shakes replaced
- Necessary repairs were made to the house damaged by fire.
- Cushion ceiling was installed in Municipal Building office.
- Basement at 1820 Hunt had cracks packed with concrete and then water-proofed.
- 10 houses were jacked and shimed.
- 109 houses had new floor lino installed
- 116 houses had new floor lino worktable tops installed.
- 60 houses had bath installation
- 61 houses had tile installed in shower recesses
- 344 houses had sink, tub and tile chempointed.

C. PLUMBING:

Installed 72 bathtubs
 Installed 12 water heaters.
 Installed 2 Laundry tubs.
 Installed 60 Prefab shower valves.
 Opened 21 Sewer lines clogged with tree roots.
 Completed 18 Misc. Plumbing Work Orders.
 Completed 55 Bath-faucet repairs.
 Completed 204 Lino repairs consisting of replacing kitchen sinks
 and faucets, taking up and resetting toilet bowls
 for bathroom floor replacements.
 9 hours on Plumbing Inventory
 59 hours on Service Orders.
 Completed 19 miscellaneous Steam Work Orders.
 Steam inspections once a week on hot water tanks.

DD. MECHANICAL, SHEETMETAL:

1. The Sheetmetal group made and installed 62 Prefab shower stalls
 and fabricated an additional 40 units which are ready for in-
 stallation.
2. With the help of millwright group, they installed a complete
 new furnace at 1617 Marshall.
3. Installed drip pan under cooler at Richland Theater.

E. MILLWRIGHTS:

1. Installed new furnace unit at 1617 Marshall.
2. Removed air conditioner from new wing of Clinic, and reinstalled
 it in a workmanlike manner, with a new drip pan under the entire
 unit.
3. Removed and made necessary repairs to cooler on top of Richland
 Theater.
4. Completed routine inspection and lubrication on Ranch Houses.

F. RENOVATIONS:

Complete Paint jobs	14
Painted odd combinations	4
Cleaned only	<u>45</u>

Total houses Renovated 63

Renovations orders on hand to date 5.

All houses in renovations were repaired as required by inspection
 sheet, including carpentry, electrical, sheet metal and linoleum work

Interior Paint Program:

We completed painting the interior of 27 houses on the interior paint
 program. We cleaned and sealed the floors in 4 houses

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16 Painters
1 Truck driver
1 Carpenter
5 Janitors.

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G. SERVICE ORDER GROUP:

A total of 1,573 orders were completed by the service order group during the month of July. Approximately 88.6% of this work being done in permanent type houses. 8% for dormitories, and 4% for commercial facilities and the remainder for various other divisions.

The following is a status report of Service Orders:

On hand at beginning of the month:	68
Received during the month:	1,725
Completed during the month:	1,573
On hand at end of month:	220

H. LAFOR GROUP:

1. Grounds Maintenance: Mow and watered lawns at:

505 Goethals (Church)
Richland Laundry
Post office
770 Bldg. and W-10.
Village Pharmacy
Campbells #1 and True Oil
Grocerteria and Pennywise Drug
M. S. Warehouse
Veterans Administration
Robely Johnson and Columbia Service
New houses on Butternut Avenue
Vacant houses in Renovation
16 Downtown Facilities.
Geo. Wash. Way Apartments
All Dormitory Areas
All innerblock Areas
97 Trash pick-ups from vacant houses.

2. Routine Work Orders--Weekly:

Hauled ashes from 784 Building
Pumped out settling Basins in 784 and 78H-A Building.
Pumped out three grease traps at the Mart.
Cleaned out grease traps at Thrifty Drug
Cleaned out grease traps at Bus Depot Cafe.
Cleaned out grease traps at the Recreation Hall Facility.
Cleaned out grease traps at the Desert Inn.
Cleaned out grease traps at the Village Pharmacy.

3. Routine Work Orders--Semi-monthly:

Picked up waste oil at Wascher's Service Station
Picked up waste oil at Parcell's Service Station.
Picked up waste oil at Johnnies Service Station
Picked up waste oil at Anderson Motors.

Picked up waste oil at Associated Service Station.
Picked up waste oil at Standard Service Station.

4. Non- Routine Work Orders:

Walks excavated for concrete replacement	40
Walks cleaned up	35
Walks Backfilled.	20
Removed excess grave dirt.	5
Weed Clean-ups.	6
Holes and cave-ins backfilled.	8
Foundations excavated and backfilled.	2
Houses Renovated	4
Septic Tanks pumped	1
Top soil deliveries	12
Filled around foundations	4
Excavate and backfill sewers	7
Driveways repaired.	2
Blacktop repairs at new steps.	16
Blacktop walks replaced.	4
Oiled roads and traveled areas around Richland, Concrete and gravel	2

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COMMERCIAL AND OTHER PROPERTY
REAL ESTATE DIVISIONS

JULY, 1951

PERSONNEL:

Number of Employees on Payroll:	<u>July</u>
Beginning of month	13
End of month	13
Net difference	0

COMMERCIAL AND NONCOMMERCIAL PERSONNEL:

Number of Employees on Payrolls:

	<u>Commercial</u>	<u>Noncommercial</u>	<u>Total</u>
June	1,243	95	1,338
July	1,222	97	1,319
Net decrease			19

SUMMARY OF ROUTINE ITEMS PROCESSED:

Work Orders	22	2	24
Back Charges	6	0	6
Service Orders	19	3	22

CONTRACTS AND NEGOTIATIONS:

A. Commercial:

1. Letters of Authorization:

- (a) Anderson Motors was authorized, subject to National Production Authority approval, to construct an addition of approximately 3,700 square feet to its existing building to house a parts room, men's room-storeroom and four additional service bays.
- (b) Mr. Seldon Mason, d/b/a Starlite Roller Rink, was authorized to sell his building, located at 831 Stevens Drive, and assign his lease to Mr. Donald M. Lone, Richland, Washington, for the continued operation of an outdoor roller skating rink.

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COMMERCIAL AND OTHER PROPERTY
REAL ESTATE SECTION

JULY, 1951

- (c) Automatic Laundry Company was authorized to sell the self-service laundry business, furniture and equipment, known as "Launderland", located at 1375 George Washington Way, and sublet the space to Mr. Gordon E. Williams for the continued operation of a self-service laundry.
- (d) Spencer-Kirkpatrick Insurance was authorized to sublet space in its building to the Walla Walla District Engineers, a branch of the U. S. Army Engineers, for use as office space.

SUMMARY OF OCCUPANCY AND EXPANSION STATUS:

A. Commercial:	<u>June</u>	<u>July</u>
1. Number of Government-owned buildings	37	37
(a) Number of businesses operated by prime lessees	41	41
(b) Number of businesses operated by sublessees	15	15
(c) Total businesses operating in Government-owned buildings	56	56
2. Number of privately-owned buildings	40	41
(a) Number of businesses operated by prime lessees	38	38
(b) Number of businesses operated by sublessees	29	29
(c) Total businesses operating in privately-owned buildings	67	67
3. Total number of businesses in operation	123	123
4. Doctors and dentists in private practice, leasing space in Government-owned buildings	21	21
5. Privately-owned buildings under construction	1	0
B. Noncommercial:		
1. Government-owned buildings		
(a) Churches	4	4
(b) Clubs and organizations	9	9
(c) Government agencies	3	3
Total	16	16
2. Privately-owned buildings		
(a) Completed and in use	6	6
(b) Under construction	5	5
(c) Sites tentatively allocated or leases in process of negotiation	8	8
Total		19

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COMMERCIAL AND OTHER PROPERTY
REAL ESTATE SECTION

JULY, 1951

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3. Pasture Land Assignments

<u>June</u>	<u>July</u>
35	35

GENERAL:

A. Commercial:

1. Raemars, Inc. terminated its sublease agreement with Hughes of Richland, Inc.
2. Don's Men's Wear terminated its sublease agreement with Midstate Amusement Corporation.
3. Starlite Roller Rink commenced operation under the management of Mr. Seldon Mason.

B. Noncommercial:

1. All Saints Episcopal Church accepted, with one exception, a ground site approved by the Town Planning Board for construction of a new church.

COMMERCIAL PROSPECTS:

A number of applicants, the majority of whom were not interested in constructing privately-owned buildings, expressed an interest during the month in establishing and operating businesses in Richland. Inquiries were received concerning the following types of commercial enterprises:

Brokerage Office
Drive-In Restaurant
Ice Cream Drive-In
Jewelry Store

NONCOMMERCIAL PROSPECTS:

An inquiry was received from the Veterans of Foreign Wars relative to leasing a Government-owned building.

GENERAL SERVICES DIVISIONS
MONTHLY REPORT
JULY 1951

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MAINTENANCE AND OPERATION

General Maintenance:

Night lawn watering was started during the month with a view to conserving water supply and helping to equalize water consumption.

Routine and preventive - maintenance program was continued during the month.

Repair of household ranges and refrigerators, formerly done by us, was transferred to Real Estate, and spare units, repair parts and materials will be transferred to their inventories.

Arrangements were made with Public Works for maintenance of Van Giesen from By-Pass Highway to Yakima River Bridge, George Washington Way from Snyder Road north to Horn Rapids Road, Class "C" gravel roads south of Horn Rapids, and roadways and parking lots in and adjacent to 700 Area.

Arrangements were made with Transportation for maintenance of Stevens Drive from Snyder Road north to Horn Rapids Road and Horn Rapids Road extending west (approximately 13.6 miles) from Stevens Drive to reservation boundary.

A supply of "Polybor-Chlorate, No. 88" weed killer (non-inflammable and approved by Safety and Medical) has been obtained and will be used for killing weeds around steel and lumber storage piles in 700 Area. This product acts as a soil sterilizer.

Annual inspection and repair of steam plant and steam system is approximately one-half complete. This work includes repacking of valves, repair of traps, and boiler overhaul. No. 3 boiler is now being overhauled. No. 2 coal conveyor is partially repaired and will be completed in August.

Several new techniques were developed and put in use for replacing boiler tubes, which promises to speed up and improve this phase of maintenance work.

Installation of soft water line to hospital by subcontractor is practically complete.

Steam Operation:

One boiler was in operation for the entire month.

The last carload of coal for the month of July was received on the 5th and coal was supplied from the stockpile for the balance of the month. Carload receipts will again be used early in August.

The roofing subcontractor has installed a new roof on the 784-A Softener Plant.

It is expected that we will start supplying soft water to Kadlec Hospital shortly after August 1.

Several sections of the main steam lines were shut down during the month to replace valves and overhaul traps.

The steam line to Columbia High School was turned on July 31 to again supply steam for heating shower water at the swimming pool.

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UNCLASSIFIED

GENERAL SERVICES DIVISIONS

Page 2

Steam generated - 7,546.8 M. lbs.: steam leaving Plant - 6,414.8 M. lbs.; steam delivered - 4,734.6 M. lbs.: coal consumed - 580.50 net tons; water softened - 864,800 gallons.

NORTH RICHLAND FIRE DIVISION

<u>Alarm No.</u>	<u>Response to Alarm</u>	<u>Cause For Alarm</u>	<u>How Received</u>
76	Bks. 239 on Geo. Wash. Way	Fire Works	Verbal
77	Bks. between 3rd & 4th on G.W.W.	Accidental Alarm	Box
78	So. of Burning Pit on Horn Rapids Rd.	Embers from Burning Pit	Verbal
79	Geo. Wash. Way near Saint Rd.	Probably Careless Smoker	Verbal
80	So. of Irrigation Ditch 2 mi. west	Unnecessary Alarm	Verbal
81	John Ball School	Unnecessary Alarm	Phone
82	Bks. 240-A at 4th & Stevens	Accidental Alarm	Box
83	West of Bus Lot on Stevens	False Alarm	Verbal
84	Trailer at 1205 "H"	Undetermined when reported	Phone
85	Bldg. #74 on "W"	Welding Torch Ignited Oil	Phone
86	Lumber pile west of Hospital	Smoker's Carelessness	Verbal
87	Horn Rapids Rd. west of Col. Camp	Probably Careless Smoker	Phone
88	Sprout Rd. between G.W.W. & Davidson	Probably Careless Smoker	Verbal

There was a personal loss of \$300 on Alarm No. 84.

Investigations:

<u>Date</u>	<u>Location and Cause</u>	<u>Personal Loss</u>
7-2-51	Bks. 216-C, Rm. 24, Smoker's Carelessness	\$ 22.94
7-10-51	Bks. at 4th & "Q", Smoker's Carelessness	
7-14-51	Bks. 228-A, Rm. 16, Smoker's Carelessness	25.14
7-26-51	Flare Pot at 6th, Children Playing With Fire	
	Sub-total	\$ 48.08
	Alarm No. 84	300.00
	Grand Total	\$348.08

General:

There were four Safety and Security meetings, eleven inside drills and twenty outside drills during the month.

Seventy-four fire alarm boxes were tested.

Four 2-hour classes in American Red Cross First Aid were held in conjunction with Civil Defense.

Three area inspection tours were made.

Tanker was sent to Excess Yard to test roof on Igloo.

Auxiliary boxes in Barracks 176 were tested.

Fire Department was informed that Building 85 is to be wired with Protecto wire.

Alarm circuit #3 was put in order by Electrical Maintenance.

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NORTH RICHLAND PATROL DIVISION**DECLASSIFIED**General:

Forty-five inquiries regarding formerly employed General Electric and construction personnel were answered by the Patrol office. These inquiries came from the U. S. Navy, U. S. Army, Civil Service Commission, E. I. du Pont de Nemours & Company and the Chemical Corporation of Denver, Colorado.

Twenty-two Traffic Citation Tickets were issued, which included 8 for speeding, 5 for illegal parking, 6 for stop sign violations, 2 for no driver's license and 1 for no registration on vehicle.

During the month, 74 Traffic Warning Tickets were issued, mainly for illegal parking.

There were 4 automobile accidents in North Richland Area during the month.

All facilities, buildings, warehouses and the John Ball School were checked on the No. 1 and 3 shifts daily and on all shifts on Sundays and July 4th.

Ten hours monthly payroll and 30 hours weekly payroll were spent on Pasco escort service in July.

All Fire, Safety and Traffic hazards observed by North Richland Patrol were reported to the proper authorities.

On Thursday nights, an Appearance Officer was assigned to Judge E. W. Brown's Court in Richland to appear against persons cited to court by North Richland Patrol.

Fourteen persons were incarcerated in the Richland jail during July. They were jailed on the following charges: 2 for public nuisance, 1 for disorderly conduct, 1 for third degree assault, 1 for vagrancy, 2 for drunken driving and 7 for public intoxication.

Four firearms were registered with the Arsenal Officer during the month.

Thirty-eight firearms, belonging to personnel living in the barracks in North Richland, were released from the Contraband Room in Patrol Headquarters.

North Richland patrolmen assisted ambulance drivers on five different occasions. The time spent on this was two hours.

North Richland Patrol acted as escort for five wide and high loads to and from the Richland Barricade.

All traffic control points were covered during the hours of heaviest traffic in the North Richland Area.

In conjunction with a North Richland Realty Division request, a patrolman has been assigned to pick up dogs in the North Richland Area. This detail will be a regular assignment for the 8:00 AM to 4:00 PM shift on Tuesdays.

On three occasions, North Richland patrolmen were requested to put up barricades on surfaces that were to be blacktopped.

North Richland population is as follows: Bremerton Houses - 655; trailer camp - 3406; Men's barracks - 1404; Women's barracks - 66; total population - 5,531. There are 1213 trailer lots occupied and 193 Bremerton Houses occupied.

Unusual Incident Reports:

Public Intoxication	7	Vagrancy	1
Disorderly Conduct	2	Unattended Death	2
Public Nuisance and Lewdness	1	Threats to do Bodily Harm	1
Public Nuisance	1	Auto Accident (2 Private Cars)	3
Abuse of Children	1	Auto Accident (1 Private 1 Govt. Car)	1
Third Degree Assault	1	Excess Speed (Govt. Car)	1
Man Lying Passed Out on Ground	1	Reckless Driving	2
Family Disturbance	1	Drunken Driving	2

Special Services Performed:

Emergency Messages Delivered	42	Bicycles Reported Missing or Stolen	2
Emergency Long Distance Calls	96	Dogs Reported Lost	2
Western Union Telegrams	7	Complaints on Dogs (Trailer Camp)	6
Pacific Telegraph Telegrams	4	Billfolds Turned in to Patrol	2
Fires (Signal 12)	6	Billfolds Returned to Owners	2
False Fire Alarms	2	Disturbances Investigated	6
Reports to Maintenance	5	Suspicious Persons Investigated	3
Escorts to First Aid	5	Personnel Locked out of Rooms	12
Bicycles Found	1	Recovered Car (Owner forgot parking location)	1
Bicycles Returned to Owners	2		

Complaints Received:

Grand Larceny - 1; Petit Larceny - 2; Miscellaneous - 1.

ORGANIZATION AND PERSONNEL:

<u>Number of Employees on Roll:</u>	<u>Beginning of Month</u>			<u>End of Month</u>		
	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Total</u>	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Total</u>
North Richland Patrol	5	14	19	5	14	19
North Richland Fire	32	—	32	32	—	32
Maintenance & Operation	8	55	63	8	50	58
TOTAL	45	69	114	45	64	109

Net Decrease - 5 Employees

Personnel Changes During Month:

North Richland Patrol	<u>Non-Exempt</u>
Terminations	1
New Hires	1
Maintenance & Operation	
Transfers to Municipal	1
Terminations	3
Retirement	

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GENERAL SERVICES DIVISIONS
NORTH RICHLAND PATROL
COURT CASES
JULY, 1951

<u>VIOLATION</u>	<u>NO. OF CASES</u>	<u>NO. OF CONV.</u>	<u>NO. OF FORF.</u>	<u>CASES DISM.</u>	<u>CASES CONT'D.</u>	<u>WARR. ISS.</u>	<u>SENT. SUSP.</u>	<u>LIC. RVKD.</u>	<u>TOTAL FINES</u>	<u>TOTAL SUSP.</u>	<u>TOTAL BAIL FORF.</u>
Ran Stop Sign	7		2	1	4				\$ 72.00		\$ 15.00
Speeding	10	5	4	1							62.50
Reckless Driving	2	1			1	1			40.00		
Drunken Driving	2	1	1					2	110.00		7.00
Illegal Parking	4		2		2						
No Operator's License	2				2						
Failure to Yield Right of Way	1		1								12.50
No Valid Plates & No Registration	1	1									22.50
Public Intoxication	6	3	3						37.50		37.50
Public Nuisance	1	1									17.50
Vagrancy	1		1						17.50		
Grand Larceny	1			1			1			\$25.00	
Disorderly Conduct	1										
Third Degree Assault	1	1							27.50		
TOTAL	40	13	14	3	9	1	1	2	\$ 304.50	\$25.00	\$174.50

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ENGINEERING AND CONSTRUCTION DIVISIONSI. SUMMARYA. ORGANIZATION

Personnel changes occurring during the month were: Mr. B. K. Phillips appointed Administrative Assistant, Engineering and Construction Divisions, vice Mr. J. F. Spease, who was assigned to another Division, Mr. J. M. Frame placed on special assignment to the Separations Division, effective July 6, and Mr. W. Seeburger assigned Assistant to the Manager, Minor Construction Div. effective July 1, 1951. The Design and Development Division was established effective July 9, 1951. This new Division was assigned the following responsibilities: design service for all Divisions, development (including that through vendors and consultants), scoping and consulting service to the Plant. Mr. E. W. Seckenderff was appointed Manager of this Division to which were assigned personnel from the design groups of Project Engineering Division, Power and Mechanical Division and the Principal Engineers. Mr. S. F. Schure was appointed Assistant Manager, responsible for Design and was relieved of his duties as Assistant Manager, Project Engineering Division. Mr. O. H. Pilkey was appointed Principal Structural Engineer and Mr. J. H. Snyder was appointed Principal Civil Engineer. Other assignments in this Division were: Mr. E. P. Peabody, Designing Engineer, Electrical, Mr. H. F. Peterson, Designing Engineer, Architectural, Civil, and Structural and Mr. V. M. Wood, Designing Engineer, Mechanical.

B. FUNCTIONS

During the month, work was in progress on 114 projects of which 50 had authorized funds of \$5,000 to \$20,000 and 64 had authorized funds in excess of \$20,000. The Design and Development Division is currently engaged in a "Report on Additional Production Capacity of Hanford Works". The Reactor Division is participating in this report.

C. ACHIEVEMENTSC-187-D Redox Production Plant

Beneficial occupancy of the Redox facility was established July 18, 1951.

The following three projects (total estimated cost \$80,000) were completed during the month:

C-326 Underground Geological and Hydrological Investigation Program

This project covered the latter phases of the test-well program initiated by the Health Instrument Division in 1947 for the purpose of tracing the underground movement of wastes in the vicinity of the 200 Areas. Work was expanded to cover certain additional wells in outlying locations to give basic information on geological formations and water table depth as well as providing a point from which samples can be regularly taken in order to detect possible movement of radio-active materials in underground water flow and define the limits of each contaminated zone. A benefit realized by this project is in the establishment of the fact that radio-active materials can safely be wasted into

DECLASSIFIEDC-326 - (continued)

the ground as has been the practice since 1947. This project, along with C-133 (together costing approximately \$500,000), has been participated in by USGS. and will save several million dollars investment in waste storage facilities. One item of this project was the development of a machine which accomplishes drilling through the casing of existing wells, thereby enabling sampling for radio-activity. The aperture is thereafter plugged to prevent unwanted seepage.

C-371 Meteorological Field Stations

This project, which was initiated by the Health Instrument Divisions, provides nine automatic recording meteorological stations located on the periphery of the Hanford Works reservation. Through the operation of these stations there will be provided continuous data on wind velocity and direction for use in the investigation of air movements and control of airborne contamination with respect to areas adjacent to the Hanford Works of which the Wabluke Slope is an outstanding example.

C-415 Settling Tanks for Section 5 Wastes - Buildings 221-T and B

Prior to the completion of this project, the canyon cell drainage waste, Section 5, from the 221 Buildings were discharged directly to underground cribs and tile fields. This waste contained a large proportion of the radio-active materials in all the wastes that were disposed of in this manner. The potential hazards of discharging this radio-active waste into the ground were recognized and the project was initiated by the "S" Division to overcome this problem. New connections, lines and jumpers were designed and installed, whereby the Section 5 wastes are combined with the second cycle wastes and the existing tanks of the cascade series are utilized to settle out the sludge. The clear overflow then passes on to the existing cribs. As a result of this work, the life of the underground cribs has been extended through the reduction of radio-activity in the wastes.

Several other major projects are nearing completion and will be more detailed in Part II of this report.

Completed during July were 25 contract items (6 lump sum contracts, 13 lump sum modifications, 6 CPFF modifications), totaling a contractual increase of \$1,244,141.18 over the preceding month. The Contract Division, with the assistance of the Law Division, prepared a revised Labor Article which (1) does not include previously utilized wage and other labor controls, and (2) contains certain new Department of Labor requirements.

Reproduction output has continued to increase in total footage of paper used. Contact printing showed the greatest increase, Multilith showed a production decline due to the "farming" to the Print Shop of large orders so that deadlines could be met. Several bid assemblies were reproduced during July, the largest being for Project C-385. The Drafting Training students are ahead of the original schedule of instruction, having completed more than 50% of the scheduled work.

D. MATERIAL PROCUREMENT AND FABRICATION

Delivery dates of equipment items for Project C-362 continues to be uncertain and may affect completion. Every effort is being made to accelerate delivery as early as possible.

E. CRAFT LABOR

Failure of the Plumbers and Fitters Local Union to furnish men to a CPFF piping sub-contractor seriously affected schedules and costs of two major projects. Concerted effort was made to solve the matter; however, relief was not assured at month end. No other notable shortage existed. Voluntary terminations of the principal construction sub-contractors manual employees were 4.62%. This increase of approximately 30% over last month resulted from mass terminations over a dispute by electrical linemen. New men were dispatched by the Union and many of those who quit were rehired so that the situation approached normalcy at the end of the month.

F. SAFETY

The major injuries reported for this month reflect a considerable increase over the previous month, however, an analysis of these injuries shows that actually only four major injuries occurred in July. Of the nine major injuries reported in July, four occurred in June, and one in April. An adjustment was made in the July report to account for injuries not previously reported.

On July 1, the Safety and Fire Prevention Section of Engineering and Construction Services Division was assigned responsibilities relative to Lump Sum Subcontractors under the Project Engineering Division. This Section now has the consultant and advisory responsibility for the entire program for all Subcontractors working under the Engineering and Construction Divisions.

MONTHLY REPORT OF INVENTIONS OR DISCOVERIES

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

No inventions or discoveries were reported this month.

PERIOD COVERED BY THIS REPORT July 1 through July 31 1951.


J. S. McMahon, Manager
Engineering and Construction Divisions

July 31, 1951
Date

II. STATISTICAL AND GENERAL**DECLASSIFIED**A. STATISTICAL:C-187-D - Redox Production Plant

Separations Division - The last major equipment piece (T-196-C) necessary for canyon installation was received during the week ending July 27. Only the three by-pass valves (which are to be installed in the jumpers inter-connecting the Dissolvers and the Silver Reactors) and thermehms for temperature control remain to be shipped to complete the remote-control (canyon) portion of this installation. This equipment will be shipped during early August.

The installation of process equipment and jumpers in Cells B, C, H and J was started and should complete in early August.

All thirteen columns have been installed in the sile. Raschig rings were packed entirely in the Mock-up Building. The column carrier casks were used to transport columns between the two buildings in all cases.

The 240-S Process Waste System was accepted during the month. The sanitary waste system which is a portion of the "Waste Facilities" has also been accepted. The 284-W Emergency Generator, Waste Facilities, Water Distribution System, Steam Distribution System and Railroad have been completed but not accepted. Exceptions on these facilities are being handled rapidly to expedite turnover. July 18 the Operations Unit of the Separations Section acquired beneficial occupancy of the 202-S Building. Preliminary operations such as equipment testing and calibration are in progress.

Design and Development Division

Principal Mechanical Engineer made recommendations to Operating Department on testing of inert gas receiver being installed in new Redox Plant.

Design Section completed design of control for Canyon Crane. This work involved revisions to the control circuits for the impact wrenches. Design was started for a similar change on the Sile Crane.

C-187-E - Redox Analytical & Plant Assistant Laboratory
& Associated Waste Disposal Facilities

Power & Mechanical Division - Conversion of unassigned space for use as a Radiochemistry Laboratory is in progress. Preliminary construction work is required before operation of the building. Of this construction, ventilation system changes are 100% complete; and piping changes, 30% complete.

Design and Development Division - 28 new mechanical drawings are scheduled none of which have been approved. Work is underway on 25. Mechanical design is approximately 5% complete.

Hanley Company has started work on the tunnel piping tie-ins.

C-198 - 234-5 Building Program

Separations Division -

<u>Basic Design</u>	<u>Percent Complete</u>	
	<u>Overall Design</u>	<u>Construction</u>
100	100	100

A physical completion notice for Project C-198 was issued July 6, 1951. All construction was physically completed within the authorized scope and schedule of the project on June 30, 1951, with the exception of clean-up on shop and laboratory work and installation of minor equipment not scheduled for delivery until late 1951. The remaining construction is covered by work orders including several issued to the construction subcontractor. Additional work consisting of modifications to the remote mechanical production line installed under Phase III of C-198 will be accomplished under Project C-413. Any further charges to C-198 will be limited to design clean-up, property unitization, field supervision, liquidation of commitments and work orders, and for accounting adjustments. These charges have been estimated and accrued for in closeout.

C-199 - Expansion of 300 Area Sanitary Sewage Disposal System

Power & Mechanical Division - Design progress increased to a total of 20% of completion during the month.

Design and Development Division - The preparation of final plans and specifications will not be completed in September as scheduled.

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C-204 A&B - Public Health Unit and Addition to Hospital and Medical Arts

Power & Mechanical Division - Overall construction completion is 71% with 74% scheduled. Materials and workmanship continue to be of satisfactory quality.

Design and Development Division - There has been no design work on this project during the past month pending approval of additional funds.

C-257 - H.I. Control & Development Laboratory

Power & Mechanical Division - Overall construction is 27% complete compared with a scheduled completion percentage of 46%. Aside from being behind schedule, construction is progressing satisfactorily.

C-289-R - 200-W Laundry Addition

Design and Development Division - Drawings and specifications completed.

C-295 - Enlarging 251 Substation & Additional 13.8 KV Feeders to 200 W & W Areas

Power & Mechanical Division - Construction of the first Phase under contract G-359, Montgomery Electric Company was completed July 31st. About three weeks will be required by GE Operating forces to energize the Phase I portion prior to the start of construction by Montgomery on Phase II.

Design & Development Division - Principal Structural Engineer analyzed costs on the reaming of holes and baseplates in 251 Substation to determine if the "extra" requested by contractor was in order.

C-341 - Additions to the Richland Village Electrical Distribution System

Project Engineering Division - Work by the subcontractor is progressing satisfactorily and it is anticipated that the project will be completed on schedule. Final tie-ins remain to be done by Plant Forces.

C-349 - Hot Semiworks Parts I & II

Project Engineering Division - Construction is proceeding under the subcontract. Overall job is 29% complete and the Hoffman Subcontract is 17% complete. Certain stainless steel items are being furnished the subcontractor since delivery dates on his orders cannot be sufficiently advanced by expediting to meet the completion schedule required.

Design and Development Division - Acceptance test procedures are being developed.

C-353 - Richland Water Study

Power & Mechanical Division - Responsibility for further work was transferred to Community Real Estate and Services Section by PM-2223, dated July 28, 1951.

Design & Development Division - Principal Civil Engineer reviewed Richland Water Study.

C-360 - Pistol Range Arsenal Sanitary and Fire Protection Facilities

Project Engineering Division - This project has been returned by AEC to OR with the request that it be rescoped. The Plant Security and Services Division has requested that the arsenal be deleted from this project and the project be resubmitted for the remainder of work to be done. Revised project proposal is in preparation.

Design and Development Division - Design work for the resubmission of a revised project proposal is in preparation.

C-361 - UO3 Plant (Metal Sweetening and Conversion Facilities)

Separations Division

	<u>Part A</u>	<u>Part B</u>	<u>Overall</u>
Design Scope	100	100	100
Design Detailed Plans	100	61	94.59
Construction	48	0	43.5

Part "A"

Construction completion percentages as of July 31 are as follows:

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HW-21802

Structure

% Complete (Labor and Materials)

Part "A" Composite	48.3
2714-W Warehouse	99
224-U Process Building	42.7
Outside Facilities	77.2

Part "B"

Overall Project	43.5

A resurvey and final construction schedule reflecting firm promises on all equipment is due from Atkinson-Jones. Beneficial occupancy is scheduled for October 1..

Design and Development Division - Architectural design work for "Part B" will continue on receipt of information from the vendor.

Electrical engineering assistance to field was provided as required. Drawings were revised and relays requisitioned for changes to liquid level alarm circuits.

Field inspection of the motor control centers manufactured by Zinsco showed that they do not meet specifications. Necessary action is being taken.

The order for three turbine type chemical pumps was placed.

A portion of the drawings that necessitate changes to Part "A" in preparation for Part "B" were issued for construction. Part "B" drawings are 63.5% complete and 80% of requisitions for Part "B" have been issued.

Difficulty is being experienced in obtaining a vendor to fabricate the two 8' x 30' stainless steel tanks. Design of the tank structure and supports is being held up pending award of bid.

Principal Metallurgical Engineer made recommendations regarding material selection and heat treatments for vessels, continued study of cast pots, made a trip to Portland with regard to castings, and studied structural design of vessels and disintegration of concrete under heat.

C-362 - Waste Metal Recovery Facilities (TBP)Separations Division

<u>Phase:</u>	I	II	III	IV	V	VI	Total
% Scope	100	100	100	100	100	100	100
% Design	100	95	100	99.9	100	98	98.5

% Construction:

Actual - GE	60.8	11.4					
Actual - A-J	64.9	29.2	89.4	38.6	100	47.4	41.0
Scheduled - GE	70	15					
Scheduled - A-J	95	27	100	60	100	68.5	55.5

As of July 20, 79 drawings are required for approval from Kellex; most of which are on the "T" farm area in Phase II.

To date, 921 requisitions have been written for this project. These cover all major items required.

During the month, inventories of stainless steel materials were submitted by Hanley, U.S.W., Atkinson-Jones Receiving, Pittsburg Warehouse and General Electric Stores Division. The above inventories were compiled into one master list and all materials above the requirements stated by U.S.W. for Projects C-361 and C-362 were itemized in a letter addressed to W&C Management. In the meantime, various groups at Hanford have submitted lists of material which they require and we have effected a considerable reduction in some of the excess items.

As of July 27 the C-362 Project is 41.0% complete on a labor and materials basis, or 44.3% on a labor only basis. This compares to a scheduled 55.5% complete on a labor and material basis. To date, 32,036 cubic yards of concrete have been poured which represents 88.6% of the total estimated required amount.

Minor Construction Division - Work is progressing at 241-UR and 241-TX, Phase I. Completion of the first cascade will be accomplished two weeks after receipt of equipment. All heel, sluice and pump pits in the second cascade have been poured, portions of pipe trench painted, and piping is being installed.

Work is progressing on 241-BR, BYR and C, Phase II. All pits have been poured with the exception of 101 pump pit, and installation of pipe trenches is in progress.

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Design and Development Division - Principal Metallurgical Engineering made recommendations regarding material selection and heat treatments for vessels, studied structural design of vessels and disintegration of concrete under heat.

Field follow-up work on construction of 221-U and 271-U Building was accomplished. No further progress on design of outside electrical lines because engineers were required on higher priority assignments.

C-364 - Aquatic Biology Laboratory

Power & Mechanical Division - Four lump-sum construction bids were received at the opening July 23rd. The low bid of \$372,220 exceeded the engineers estimate, largely due to escalation in material and labor costs since the last bid opening three months ago, and due to the fact that the bid was based on a 6-day week whereas the cost estimate was based on a 5-day week. A revised Project Proposal is being submitted promptly in order to obtain the necessary additional funds to award the subcontract.

Design and Development Division - Principal Structural Engineer advised on storm drainage in the Hanford-Richland Laboratory area.

C-371 - Meteorological Field Stations

Project Engineering Division - This project was submitted at the request of the H. I. Division to provide nine automatic weather monitoring stations within a 10 to 20 mile radius of Plant operating areas to assist in the overall studies of air movement and control of air-borne contamination.

C-380 - Electricity Metering Village of Richland

Project Engineering Division - Plant forces have tested approximately 600 meters. 175 meter bases were installed on the pre-fabs during July. 212 meters have been installed on "B" houses. Prefabrication of meter assemblies for all other types of houses except Ranch houses has been completed.

C-381 - Radiochemistry Building for Hanford Works Laboratory Area

Power & Mechanical Division - Excavation and back-fill are 65% complete and forming of wall and column footings is progressing. Structural steel is scheduled for fourth quarter 1951 rolling, indicating an overall delay in the completion of the building of approximately four months.

C-385 - Radiometallurgy Building for Hanford Works Laboratory Area

Power & Mechanical Division - The hold on the purchase or engineered equipment items was released on July 13th. Proposals for construction will be advertised early in August.

C-389-R - 200-W Laundry Addition

Project Engineering Division - Funds have been authorized for 20 x 40 concrete block addition to the existing 200-W laundry. The design specifications have been completed, and advertising for lump sum bids will take place in August.

C-394 - Plot Plan & Utilities for Hanford Works Laboratory Area

Power & Mechanical Division - Thirty-four drawings out of a total of forty for this project have been checked by General Electric Company and necessary changes made. It is expected that invitations to bid will be issued during August.

Design and Development Division - Principal Electrical Engineer advised and assisted on electrical problems connected with Hanford Laboratory Area.

C-399 - P-10 C & D Part II

Minor Construction Division - Project has been completed with the exception of items to be completed on "punch" list.

Design and Development Division - Basic design work has been completed. Field checking of drawings is in progress for "as-builts".

C-403 - New Fences 230 KV and Distribution Substations - Part II

Project Engineering Division - The Project Proposal and estimate have been completed for the remainder of the fences to be installed (approximately 8300 lineal feet of fence). The estimated cost for this work is \$60,000 and includes all remaining sections of the original wooden fences. The Project Proposal is to be submitted to the August A&B Committee meeting.

Design and Development Division - Design required for Project Proposal purposes was completed.

C-404 - Primary Electric Power Lines for Hanford Works Laboratory Area

Project Engineering Division - Design work is complete. Aerial cable has not been received. Part II of the project to cover over-run in funds will be submitted to AEC approximately 9-1-51.

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HW-21802

C-404 (Continued)

Design and Development Division - Design work was completed this month.

C-406 - Mechanical Development Building-Hanford Works Laboratory Area

Power & Mechanical Division - Construction of Phase I is 80% complete and it is expected that Phase I will be completed during August. A revised project proposal requesting additional funds for the construction of Phase II of the project was submitted to AEC on July 5th. No approval has been received.

C-411 - P-10-X "J" Slug Storage and Shipping Facilities

Project Engineering Division - Plant forces have completed all fabrication work necessary for installation on the vendor's trailers.

One off-site cask has been completely assembled and is ready for testing; the steel plate components of the other three off-site casks have been cut. It is planned to conduct heat transfer tests on the present cask and to schedule a "dry run" to Arco with the cask in order to check the receiving facilities in that location before actual hot shipments are made. Work has started on the alterations to be made in the transfer area of the 105-H Building.

Minor Construction Division - Work progressing on project in 105-H transfer area, and equipment fabrication is in progress.

C-412 - P-10-X Extraction Facilities

Project Engineering Division - Design work has been completed with the exception of revisions to the glass line. The metal transfer system for the glass lines will be expedited. Metallurgical laboratory designs are progressing rapidly and architectural drawings are now completed. Arrangement drawings are progressing well and detail drawings have been started. Major material and equipment items have been requisitioned. Field work is being carried on concurrently by the Minor Construction Division along with that for Projects C-411 and C-399. The ventilation system is essentially completed with the exception of the permanent motor for the fan. Partition changes on the first floor in connection with removal of the P-10-A equipment have been completed. The emission spectrometer room on the third floor of the new H.I. station has been partitioned off.

Minor Construction Division - Work is in progress on permanent storage area, laboratory, air mask washing facilities, air samplers, ventilation controls, service piping, and gas bottle house.

C-415 - Settling Tanks for Section 5 Wastes Buildings 221-T and B

Project Engineering Division - Section 5 wastes in the 221 Building consist of cell drainage and occasionally contain appreciable amounts of radioactivity. Certain of the less active wastes have been cribbed to the ground but because of the small amounts of sludge that they sometimes carry, it has been deemed inadvisable to continue the direct cribbing practice. On the other hand, because of the expense of waste storage construction, it has been found more economical to provide a connection which will utilize the third tank of an existing cascade series to settle the small amount of sludge in Section 5 wastes and to then allow the clear overflow from the tank to enter the present waste crib. The advantages gained as a result of the more radioactive components of the Section 5 wastes (in the sludge) within an existing storage tank.

C-416 - Construction Division E&C Combined Shops

Minor Construction Division - Project Proposal for Part II being prepared.

C-418 - Additional Waste Storage Facilities for 200-W Area 241-TY

Separations Division - As of August 1, the design progress on this project is 96% and on schedule.

The finish of the tank dome ceilings was changed from Amercoat paint to Lipidolith sealer and hardener; this finish has proved adequate in the past and will be less expensive.

A contract was let to X-Ray Products Corporation, the sole bidder, covering inspection of welds of steel tank liners.

A revised construction schedule was presented by the Early Company during the month and accepted. It calls for completion of the project in mid-February, 1952. As of July 31, construction was 26.9% complete. The scheduled progress was 19.4%.

Pouring and waterproofing the tank base slabs was completed. Bottom dollars and knuckle plates were placed and welded for two tanks. Backfill was placed around the tank base slabs. About half of the encasement and diversion box concrete has been poured.

Design and Development Division - All design work was completed during the month.

DECLASSIFIED

HW-21802

C-420 - CO₂ Bulk Storage Facilities, 105 BDF & DR

Minor Construction Division - Work is progressing on piping in 100-D and F and all electrical installations.

C-421 - Library and Files Building - Hanford Works Laboratory Area

Power & Mechanical Division - Construction bids were invited on July 19 with opening scheduled for August 16th.

C-423 - Evaporation Facilities - 200 East Area

Project Engineering Division - The contract was awarded to L. H. Hoffman Company and work has been started in the field.

Minor Construction Division - Work is in progress on underground process sanitary water lines.

C-424 - Water Quality Part II

Project Engineering Division - The Project Proposal for Part II, the Inpile phase of the water quality facilities has been submitted to the Appropriations and Budget Committee and has been placed on their agenda for August 14.

C-431 - New Reactor - 100-C Plant

Completion Summary

Design

A. Waterworks				
Chas. T. Main Co.	Scheduled	58%	-	Actual 58%
B. Reactor				
G. E.	Scheduled	65%	-	Actual 65%
Kellex	"	70%	-	" 70%
Overall	"	62%	-	" 62%

Construction

A. Waterworks	No Schedule	-	"	3.7%
B. Reactor	Scheduled	1%	-	" 1%
Overall				2.3%

Design and Development Division

- A. Waterworks - Electrical design progressed on the outdoor 151-B Substation additions. C. T. Main electrical drawings and requisitions were reviewed.
- B. Reactor - Electrical information was furnished to Kellex as required. Requisitions were prepared for special lighting fixtures. Bids were reviewed on motor control centers.

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A. Waterworks

Power & Mechanical Division - Purchase orders for GE furnished equipment have been placed to the total of \$5,800,000, representing in excess of 90% of the total value required for the project. The architect-engineer, Chas. T. Main, Inc., opened its field office in North Richland on July 16th with a force of eight (8) engineers and one stenographer. A total of 131 drawings have been approved and issued for construction and no serious delays to the construction subcontractor have occurred.

B. Reactor

Reactor Division - Although the number of drawings issued by Kellex exceeds in total the number scheduled for issue according to the Kellex drawing schedule, it does not appear that sufficient effort is being supplied by the Kellex Corporation in critical areas of design. This matter will be discussed with the Kellex Project Manager the first week of August.

Moderator - Tests completed by the Technical Divisions for the removal of stuck slugs indicate that the forces required are lower than those experienced in removing similar slugs from the present reactors. The original coring pattern has been determined to be the most suitable for the "C" reactor. Studies also indicate that the insertion of insulating layers between graphite and the bottom and top thermal shields will reduce local graphite expansion significantly.

Vertical Safety Rods - The vertical safety rod assembly has been re-designed to incorporate a rubbing-type gas seal.

Ball 3X System - The Ball 3X hopper and chute arrangements have been changed to reduce the induced activity in the 3X balls when stored in the hopper within the top shield. A test was completed on the successful operation of the Ball 3X exit piping. Drawings are being modified as a result of difficulties experienced on the gland seal test. The problems of corrosion and control effectiveness are being reviewed.

Process Piping - The general arrangement drawings of the inlet and outlet face piping were completed and approved during the month.

Tool Dolly - Procurement was initiated from Hanford and will be handled through the Nucleonics Department office at Schenectady. The schedule for this item is extremely tight. In general, the design is on schedule.

Design and Development Division - Principal Civil Engineer investigated concrete problems. Principal Electrical Engineer visited Kellex in New York in connection with electrical problems. Principal Mechanical Engineer assisted with ventilation system design for 105-C. Principal Structural Engineer investigated a proposed location for 181-C, and the design of the retention basin in 107-C, and advised on design of clearwells.

DECLASSIFIED

HW-21802

C-432 - Air Raid Warning Systems - Richland - North Richland

Project Engineering Division - Subcontract was awarded N. W. Bridge & Tank Company with towers scheduled to be completed in August. Plant forces are working on the control equipment.

Design and Development Division - Sites for siren towers #2 and #3 were relocated and surveyed.

C-433 - 384 Steam Plant Addition

Power & Mechanical Division - Design progress scheduled by Bumstead-Woolford of Seattle is 2% as of July 31st.

C-434 - New Bio-Assay Laboratory

Project Engineering Division - Design and specifications are complete for lump sum contract bidding purposes. A check estimate is being made to determine if sufficient authorized funds are available for this project.

Design and Development Division - Design and specifications were completed this month.

C-438 - Ball Third Safety System

Project Engineering Division - The procurement phase of the Ball Third Safety System is being analyzed and expediting arranged to improve scheduled deliveries as required. An analysis of the necessary manpower requirements to accomplish the construction phase of this work has been prepared and even though a decision had been reached that the work should be performed by Plant forces, it now appears most unlikely that enough manpower can be set aside for this work from Plant force organizations. Though further studies of this situation will be made, it seems probable that the major portion of this work will have to be performed by the Minor Construction Division.

Design and Development Division - The induced radiation of the balls dictates that the exhaust system be designed for shielded storage capacity of six hoppers or changes of balls. The design is being developed to meet these requirements.

C-441 - Solvents Building

Project Engineering Division - A directive has been issued authorizing the design and construction of this facility. Work is now proceeding on the architectural and mechanical design.

Design and Development Division - Work was initiated on the architectural and mechanical design.

C-444 - Coating Unit for Hood 26, Building 235

Project Engineering Division - Field work is progressing on this project.

C-445 - B-y Telephone Exchange Additions and Changes

Project Engineering Division - Exchange trunking equipment is being ordered, and specifications are in preparation for incorporation into a bid assembly.

C-447 - Portable Meteorological Mast

Project Engineering Division - Authorization has been received to proceed with this project and design phases are under way.

Design and Development Division - Authorization has been received to proceed with final design work.

C-451 - Extension of 300 Area Underground Electrical Power Distribution System

Project Engineering Division - The Project Proposal was submitted to the Atomic Energy Commission for approval on April 25, 1951. Design is about 75% complete. Authorization is expected in the near future.

Design and Development Division - Design work is in progress on this project.

C-452 - Meteorology Tower Elevator

Project Engineering Division - Authorization has been received to proceed with this work. It is planned that the design, fabrication, and installation of the elevator will be performed on a lump sum contract basis. The specifications for bidding purposes are new in preparation.

Design and Development Division - Development of specifications for bidding purposes was initiated. Design is to be accomplished by subcontractor.

C-457 - Pile Technology Office Building - 100-D Area

Project Engineering Division - Directive has been issued for the design and construction of this office building to be located in 100-D Area. This building, containing approximately 5800 square feet, will be of frame construction and will contain approximately 26 offices. Construction will be performed on a lump sum contract basis and advertising for bids is scheduled for the month of August.

Design and Development Division - Design and specifications for bidding purposes were completed.

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HW-21802

C-468 - Horizontal Rod Mockup

Project Engineering Division - The Project Proposal for the horizontal rod mockup has been returned by the Atomic Energy Commission with the request that this proposed work should be included within the funds previously authorized for the C design and construction program. It has since been administratively determined that the C Area design and construction program will provide \$28,000 of the over-all cost and that the Project Proposal will be resubmitted for the remaining \$56,000 under the sponsorship of the Pile Technology Section. It now appears that the procurement problems encountered in obtaining the new type horizontal rods will necessarily delay test results until after the first of the year.

C-470 - 200-W Badge House Addition

Project Engineering Division - Lump sum bids received for this work exceeded the authorized amounts and consequently a request for additional funds was required. This project has been approved by the A&B Committee. Estimated cost is \$29,500.

ER A-457 - Telephone Cable, White Bluffs to Minor Construction Division Shop Area

Project Engineering Division - Job complete - telephone line now under acceptance tests.

ER A-1162 - Thermocouple Equipped VSR Thimbles

Project Engineering Division - A Project Proposal, Thermocouple VSR Thimbles, for the 100-B and D Areas has been prepared and is being routed for required approval signatures. This proposal will provide means for measuring temperatures of all critical moderator sections in order to permit operation at the highest permissible safe production levels. Moderator temperatures vary with the production rate and according to the position in the pile. The cost of this proposed work has been estimated at \$28,000.

ER A-3094 - 303 Mechanization

Project Engineering Division - Scope meetings have been conducted on a weekly basis and the design criteria and scope are being prepared. Plans are being made to present the scope to the Plant Scope Committee for their consideration.

ER E-459 - Electrical Service - New 703 Building Wing

Project Engineering Division - Design is 95% complete. AEC has approved funds for substation and service connections.

Design and Development Division - 5% of design was accomplished during the month. Design is now 95% complete.

ER E-460 - Telephone Line - Benton Switching Station

Project Engineering Division - Informal Request approval by AEC will be handled by Electrical Division. The design is 100% complete. Contract and bid assemblies will be prepared by Project Engineering Division.

Design and Development Division - Design was completed during the month.

ER 2503 - Duct Level Floor for Building 234-5

Project Engineering Division - This project was cancelled by the S Division on 7/3/51.

ER 2562 - Design Oxidation and Fluorination Equipment for Hood #8 Building 234-5

Design and Development Division - Design work for the installation of new electric furnaces in Hood #8 is essentially complete.

ER 2577 - Additional Casting Unit for Hood 13, Building 234-5

Project Engineering Division - This project was cancelled by the S Division on 6/15/51.

ER 2588 - Installation of Steam Boiler for 200-W Area

Project Engineering Division - A study of the possibility for increasing the capacity of existing boilers is nearing completion and recommendations will be made during the early part of August.

ER 2600 - Duct Level Safety Showers Building 234-5

Project Engineering Division - The design for this project is now in progress and a rough draft of the proposal is being prepared.

Design and Development Division - The project for covering the duct level floor has been abandoned and design is now in progress for eight safety showers to be installed at convenient locations on the duct level floor.

ER 2601 - Duct Level Elevator Stop and Air Lock Revisions

Project Engineering Division - Design for this project is complete and an estimate is being prepared for the proposal.

Design and Development Division - The design for an intermediate elevator stop at the duct level and increased size of the air lock in room number 261 was completed.

DECLASSIFIEDER 6001 - E&C Vehicle Survey

Project Engineering Division - The second phase of the study involving an investigation of the availability of bus service for construction subcontractors is nearly completed.

ER 6002 - Contract Labor Controls and Escalation Clause Study

Project Engineering Division - The study has been completed and the report is awaiting approval.

ER 6003 - Project Engineering File Study

Project Engineering Division - The study has been completed and report issued.

ER 6006 - Project Records Microfilming Cost Study

Project Engineering Division - An economic study is being made of the alternate ways by which a large number of project records may be micro-filmed including (1) having the work performed by contract and (2) doing the work by project forces on rental or purchased equipment. Work is approximately 50% complete.

ER 6007 - White Bluffs - Ice Plant Operation Study

Project Engineering Division - A study is being made to determine the economics of operating the Ice Plant with A-J personnel as compared with purchase of ice from outside manufacturers. In either case, the cost of operating the White Bluffs Water System must be considered since at the present time that work is performed by ice plant operators. Study is approximately 75% complete.

ER 6008 - Production Facilities Expansion

Project Engineering Division - Consideration is being given to the effect of alternate proposals for expansion of Production Facilities on future village housing and facility requirements. Work on this study was started July 26.

M-813 - Consolidated Maintenance Shop - 200-W

Project Engineering Division - The design and specifications for this facility are essentially completed. However, due to the increased estimated cost as compared to budget funds, and because of proposed GE operating changes, this project has been cancelled.

B. GeneralEngineering and Construction Services Division - Engineering Services Division
DRAFTING SECTIONDrafting Production

New Drawings	198
Miscellaneous	2
Drawing Revisions	159
Drawing efficiency index, man-days/drawing	5.5

ESTIMATING AND UNIT COST SECTIONEstimating:

Estimates Scheduled	55
Estimates Completed	35
Estimates Cancelled	0
Estimates to be completed	20
Total Estimated Values	\$30,000,000.00

Unit Costs:

Studies continued on C. P. F. F., Lump Sum and Minor Construction Work.

REPRODUCTION SECTIONProduction Group Activity:

Originals Handled	15,523
Prints Produced	178,275
Square Feet of Paper	647,931
Average Square Feet per Employee	32,397

Control Group Activity:

Number of Orders Processed	3,408
Number of Prints Carded	62,051
Number of Tracings Handled	11,470
Number of Prints Returned	46,452

PERSONNEL, RECORDS AND HISTORY SECTIONSecurity Clearances Processed:

Requests for Area Badges, Cancellations, Access Authorizations and Material and Package Passes	116

E & C Payroll Additions, Terminations, and Transfers:

Additions	49
Terminations	16
Transfers within E & C Division	108
Transfers out of E & C Division	10

Secret and Confidential Documents Processed:

Documents Issued, Routed or Destroyed	1,151

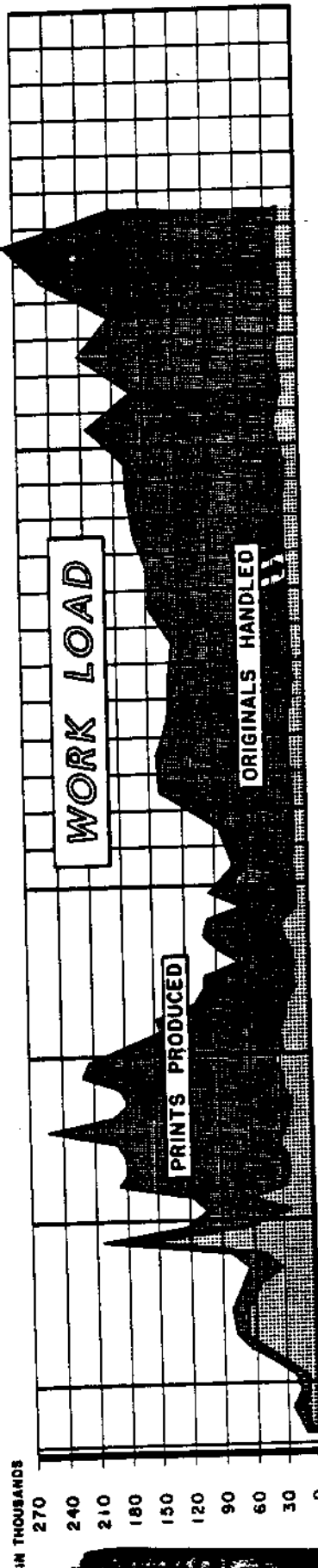
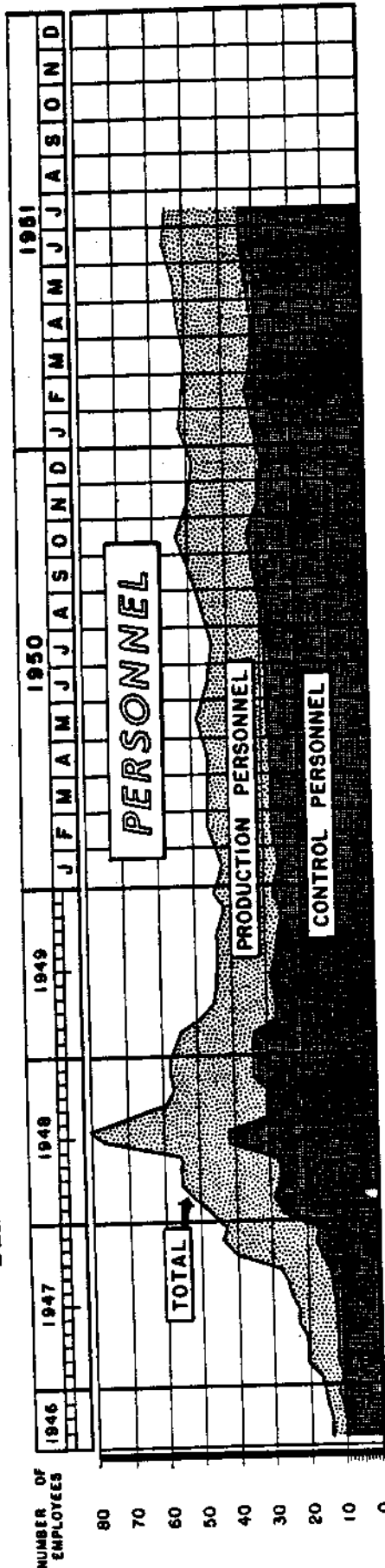
Procedures Issued:

E & C Instructions Issued	19

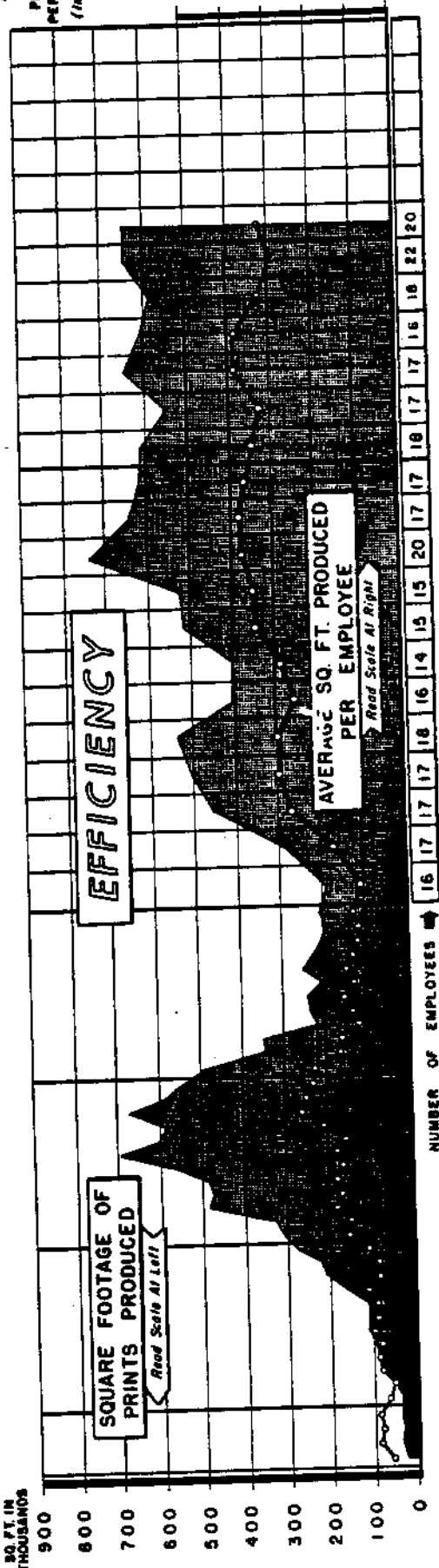
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ENGINEERING & CONSTRUCTION SERVICES DIVISION REPRODUCTION SECTION STATISTICS.

SECRET
DECLASSIFIED



AVERAGE
SQ. FT.
PRODUCED
PER EMPLOYEE
(in Thousands)



24W 21802

NUMBER OF EMPLOYEES

1110000

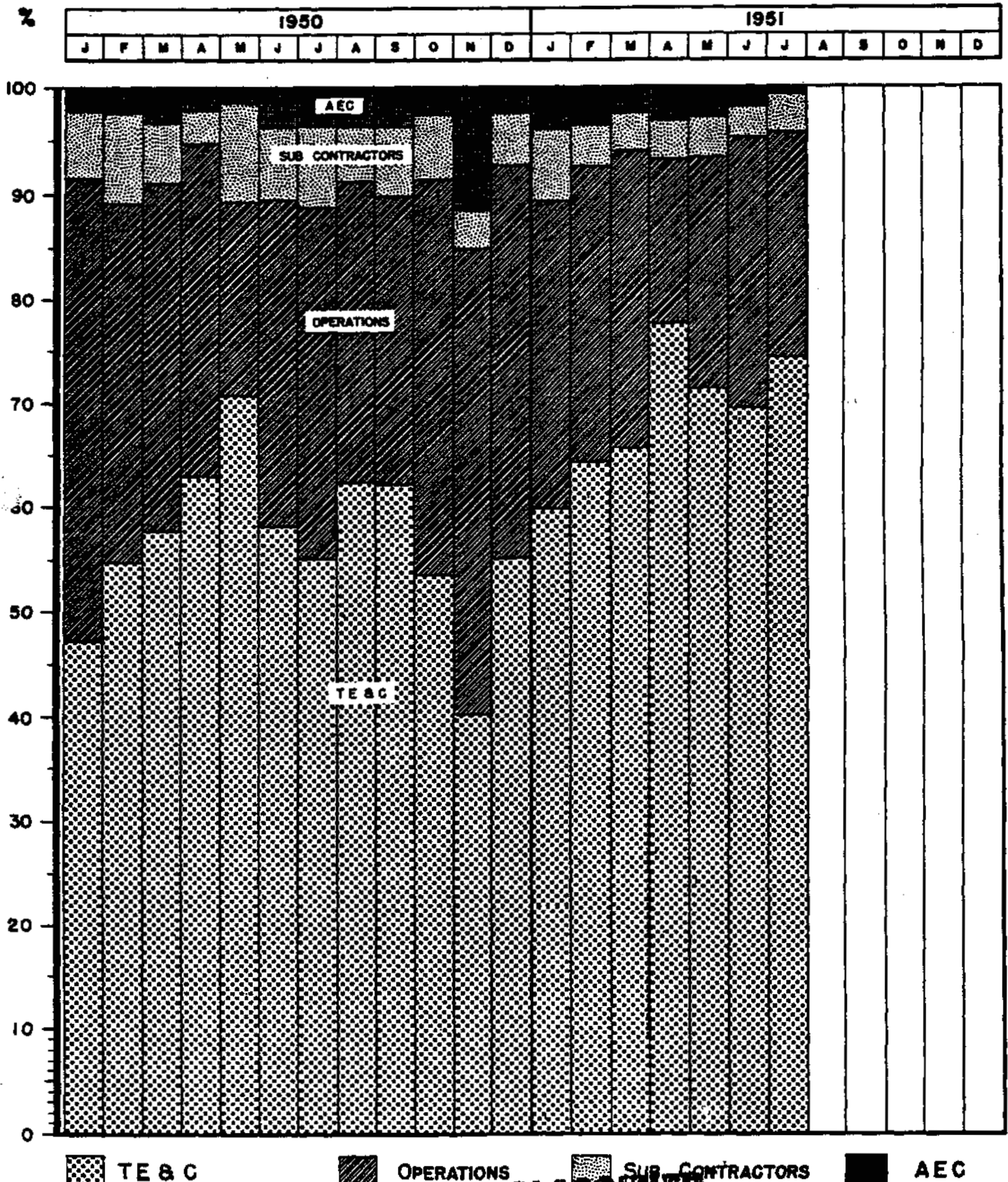
24W 21802

SECRET

ENGINEERING & CONSTRUCTION SERVICES DIVISION

REPRODUCTION SECTION

DISTRIBUTION OF WORK LOAD



1196066

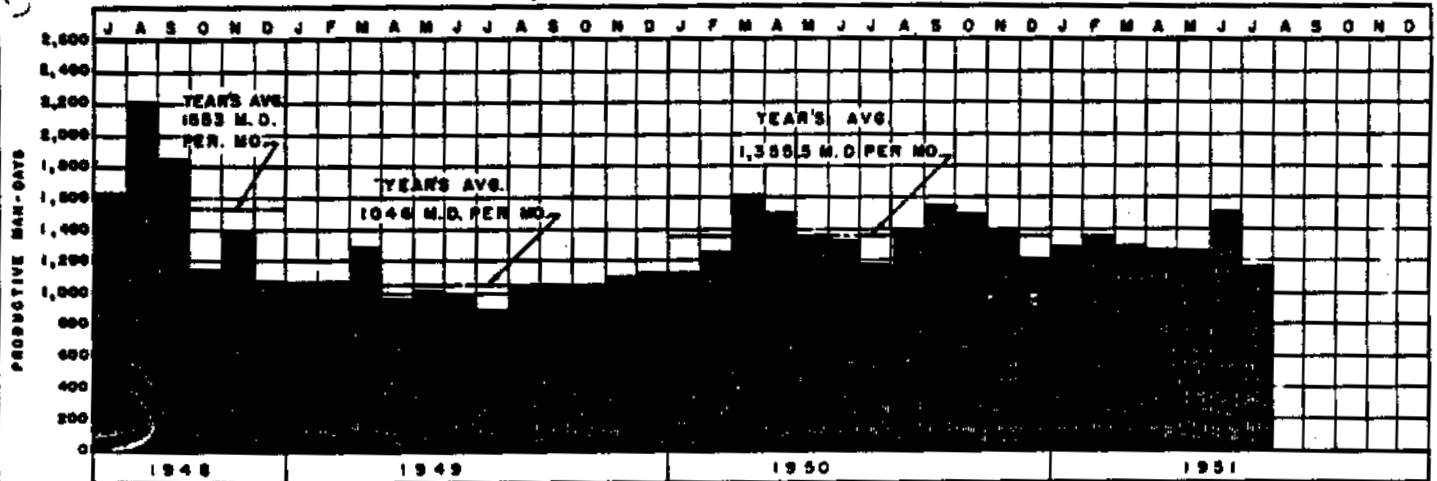
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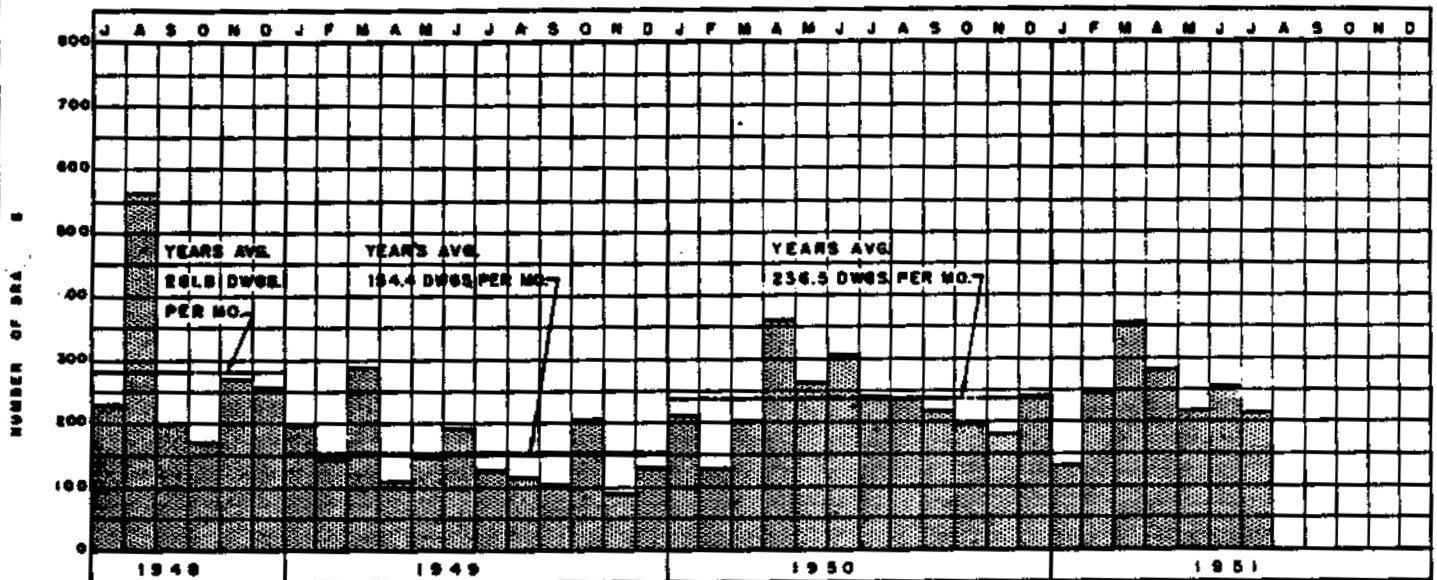
ENGINEERING & CONSTRUCTION SERVICES DIVISION

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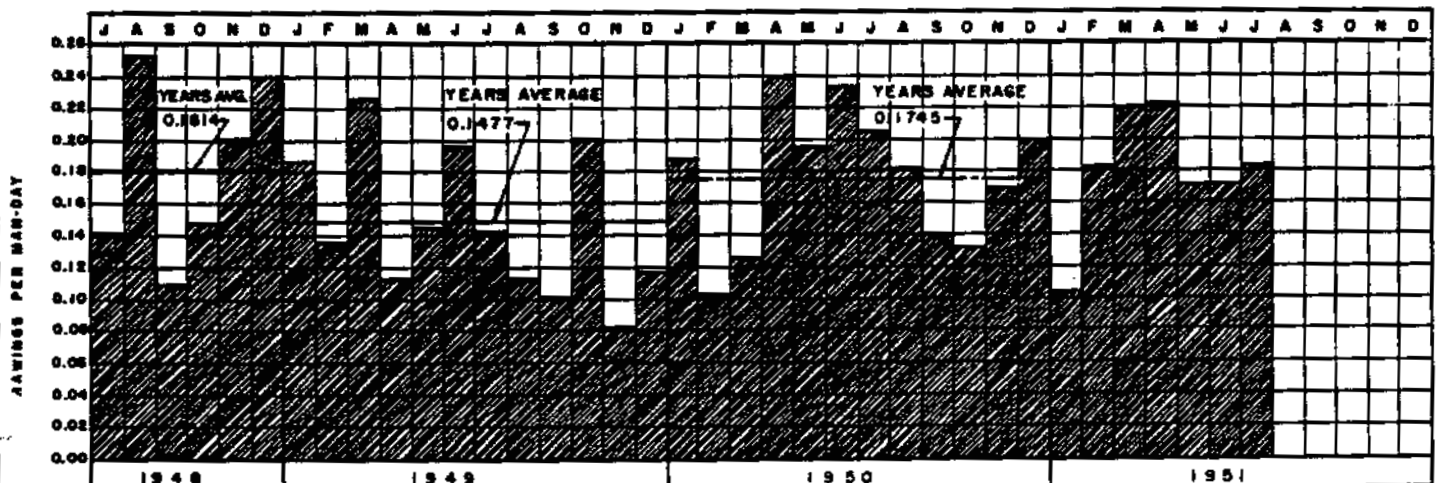
Drafting Section



MAN POWER



DRAWINGS PRODUCED



EFFICIENCY

	1948	1949	1950	1951	AVG.
DAYS	2.45	2.25	2.35	2.35	2.35
OF NUMBER	6.00	7.74	6.99	6.99	6.99
MICHAEL	6.00	6.91	6.91	6.91	6.91
WILLIAMSON	6.25	6.99	6.70	6.99	6.99
DR. ROSE	6.11	6.77	6.77	6.77	6.77

1196067

302

Status of Histories:

Number issued and recalled	18*
Number held for financial closing	16
Number ready for issue	2
Others in process	95
TOTAL	131

* In addition to the 16 listed above as being held for financial closing, 8 out of the 18 issued and recalled are being held for the same reason.

Office Services:

Number of Teletypes Sent	427
Number of Teletypes Received	511
Number of Copies of Ditto Reproduced	85,184
Number of Copies of Stencils Reproduced	72,033
Number of Pieces of Incoming Mail	365,547
Number of Pieces of Registered and Insured Mail (Outgoing)	132
Amount of Postage Used	\$625.26
Number of Store Orders Written (Stationery)	224
Number of Special Messenger Deliveries	313

Reports Issued:

Eight - covering Weekly and Monthly Forces, Visitors, Destroyed and Classified Documents.

PROJECT COST AND PROGRESS ANALYSIS SECTION

Forecasts, charts, analyses and reports were developed and issued to show progress status of E & C Projects.

Miscellaneous:

Preparation has been completed for the gathering, compiling and reporting of personnel "On-Site" figures of Architect-Engineers and AEC Administered Construction Jobs.

Construction Services Division

North Richland Camp

Population*

Trailers	-	3,366	
Barracks	-	1,622	
Houses	-	646	Net decrease 91

*Note: This does not include U. S. Army personnel.

General

The result of the survey of the coal storage pile is a total tonnage of 7,509.56 tons.

A radio interference survey made last month disclosed several leaks in electrical distribution. Those leaks have been cleared as normal maintenance, and a recheck has indicated results to be satisfactory.

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HW-21802

Utility costs were gathered, distributed, and reported to management for billing the Army and School District #400.

Reported usage of electricity by the Electrical Division at John Ball School has been determined to be incorrect. Back charges of \$525.00 to the School District 400 have been made to correct the deficiency from July 1950 through May 1951.

Steam Generating Plant

Steam generated, M lbs.	15,817.00
Oil consumed, gallons	7,789.00
Coal consumed, tons	979.00
Boiler efficiency, average%	79.16
*Steam cost, per M lbs.	\$1.37
*Computation of unit cost of steam is based on estimated cost of coal and indirect costs applicable to Steam Plant.	

Water consumption for the month was 96,076,550 gallons or an average daily consumption of 3,202,551 gallons.

Commercial Facilities

There were fifteen commercial facilities operating in North Richland during July.

Community Activities

With the summer season more than half completed, it has been gratifying to note the response and enthusiasm of the North Richland residents to our over-all program.

The Richland Youth Council has provided our playground with necessary handi-craft material, and capacity groups for these daily classes, including a few adults, attended.

The Teen-agers are meeting on the playground during the summer. No business meetings are conducted.

It was necessary to drop Sunday afternoon baseball due to the lack of local teams to supply competition.

There were 71 religious and 63 social meetings held during the month.

Office Services

Reproduction and communications continue to increase. A recent survey has been completed of furniture and equipment in the MJ-1 Area with a possibility of reassigning to a new area, the first deliveries of which were made on July 3. Additional deliveries will be made as required.

Security

Statistical Information

During the month, 379 meetings were held at which Security topics were discussed. These meetings were attended by 11,003 employees.

Security - cont'd.

The following Security Bulletins were issued:

- No. 156 - "Design and Construction"
- No. 157 - Accountability of Classified Material
of Terminating Employees

Total lost badges during July	31
Total number of Subcontractor and Vendor employees as of July 30, 1951	6,938
Total Hires	851
Total Terminations	869
Total clearances requested this month	922

Major Construction Equipment

Total Construction equipment units assigned to AJ and E&C Divisions of GE, 2227.

Total Shop equipment units assigned to AJ and E&C Divisions of GE, 797.

As a result of the survey on utilization of motor vehicles made by the Industrial Engineering Section, letters have been forwarded to all Division Managers requesting their cooperation in the reassignment of surplus vehicles as determined by this survey.

Safety (Includes all construction Sub and Sub-sub contractors working under jurisdiction of E & C Division except Minor Construction Division CPFF Subcontractor's Forces)

	<u>July</u>	<u>This Year</u>
Major Injuries	9*	34
Sub-Major Injuries	12	66
Minor Injuries	579	4395
Frequency Rate	9.17	5.140
Severity Rate	.165	.173

* Includes adjustments from previous Months.

Regular spot check inspections made in all areas for both Safety and Fire prevention conditions.

Safety meetings conducted for employees of subcontractor, 2; for E & C Divisions, 4.

A number of meetings held with members of subcontractor's personnel and with G. E. Field Engineers in regard to Safety and Fire Prevention problems.

Four inspections made this month as member of Senior Safety and Fire Prevention Committee.

One formal investigation held and reported in regard to injury and unusual incident involving employee of Industrial Electric Company, subcontractor doing work for Project Engineering Division.

DECLASSIFIED

HW-21802

Small Tools

An effort is being made by this section to determine a procedure for handling salvage and scrap materials, much of which has no value and belongs to common carriers as a result of settling of claims for damaged delivery.

Tools are beginning to move from the Hanley Subcontract in MJ-1 into the new construction areas. Surveys are being made to augment the inventories to cover the needs as they arise.

MINOR CONSTRUCTION DIVISION

This Division is currently working on 14 Projects and 28 Work Assignments; 11 Work Assignments were completed during July.

Totaled active jobs - 42.

A total of 49 requests for estimates were received during July, and Project C-362 estimate to complete was prepared.

<u>Safety</u>	<u>July</u>	<u>Total This Yr.</u>	<u>Total To-date</u>
Minor Injuries	85	425	461
Lost Time Injuries	0	2	2
Accidents (Automotive)	0	3	4
Frequency Rate	0		2.18
Severity Rate	0.120		0.106

Personnel

<u>Sub and Sub-subcontractor</u>	<u>Beginning of Month</u>	<u>End of Month</u>	<u>Net Change</u>
Non-Manual	54	56	+2
Manual	691	668	-23

III. ORGANIZATION AND PERSONNEL

Effective July 12, 1951, Mr. W. F. Garetson is appointed Acting Supervisor, Estimating & Unit Cost Section, vice Mr. G. G. Peterson resigned.

Project Engineering Division Appointments

Project Engineers:

F. A. Bowman - P-10-200 Areas

C. S. Bucholz - Electrical

H. E. Hylbak - Plant General

H. P. Shaw - 100-300 Areas

Certain other intra-divisional transfers of personnel was effected this month.

ORGANIZATION AND PERSONNEL - cont'd.

	<u>Beginning of Month</u>	<u>End of Month</u>	<u>Net Change</u>
Employees on Payroll	833	844	11
Technical Graduate Rotational Trainees	43*	45*	
Business Graduate Rotational Trainees	4*	4*	
Employees on Loan from:			
Purchasing and Stores Division	1	1	
Instrument Division	10	11	
Technical Division	2	2	
Schenectady	4	4	
	<u>897</u>	<u>911</u>	14

*Not previously reported.

PROJECT & RELATED PERSONNEL

JULY 1951

GOVERNMENT EMPLOYEES**DECLASSIFIED**

6-29-51

7-31-51

Civilian Personnel--Atomic Energy Comm.
 Civilian Personnel--G. A. O.
 Total

346
 7
 353

342
 7
 349

RICHLAND VILLAGE PERSONNEL

Comm. Facilities (inc. No. Richland)
 Goven. Agency, Churches, Clubs, etc.
 Schools
 Organizations
 Total

1243
 95
 382
 11
 1731

1222
 97
 99
 10
 1428

CONSTRUCTION SUB CONTRACTORS

Atkinson & Jones
 Newberry Neon
 Urban Smyth Warren Co.
 Hanley & Co.
 Kellex Corp.
 No. Elect. Mfg. Co.
 J. Gordon Turnbull
 Erwin Const. Co.
 J. P. Head
 Royal Co. Inc.
 Fred J. Early, Jr.
 Steel Const. Co. & Gilmore Fab. Inc.
 V.S. Jenkins
 Empire Elect. Co.
 Associated Engrs. Inc.
 Johnson Service
 Monterey Co. Plumbing Co.
 Thorgaard Plumbing & Heating Co.
 L. E. Baldwin & Frank Dunham Co.
 X-Ray Products
 Judd Co. Inc.
 Chicago Bridge & Iron
 Malarkey & Moore
 Dix Steel Bldg. Co.
 Montgomery Electric Co.
 Sound Const. & Engr. Co.
 J. G. Shotwell
 Lewis & Queen
 J. C. Whitacre Decorating Cde.
 West Coast Heating & Plumbing Co.
 Electric Smith Inc.
 Roof Service Inc.
 L. H. Hoffman
 Stier, Shelton & Schick
 Charles T. Main
 Minneapolis Honeywell Reg. Co.
 Chem. Proof Const. Co.
 F. O. Repine
 The Bay Co.
 J. A. Brunzell
 Acme Elect. Co. Inc.

4145
 385
 456
 449
 272
 2
 4
 7
 21
 11
 124
 45
 60
 2
 11
 2
 18
 2
 75
 7
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 14
 13
 25
 36
 7
 2
 19
 7
 6
 13
 55
 1
 196
 3
 11
 55
 16
 20
 2

4342
 348
 448
 272
 260
 2
 4
 2
 14
 10
 107
 3
 60
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 14
 10
 19
 26
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 6
 16
 14
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 196
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 2

	6-29-51	7-31-51
Olympic Pipe Fabricators Co.	1	1
Day Brothers	5	3
Cyclone Fence	7	7
Peter Kiewitt Sons Co.	36	7
Weston Plumbing Co.	8	0
R. A. Neuman & Sons Co.	9	0
Puget Sound Sheetmetal Works	15	18
Valley Roofing	3	8
Cement Gun Const. Co.	5	5
Packard Pipe & Pump	2	0
Home Electric & Appliance Co.	1	0
National Blower Sheetmetal Co.	5	5
Holliday & Edworthy	3	5
Northwest Painting & Roofing Co.	5	0
Elliot Bay Lumber Co.	2	0
Builders Service	5	0
Industrial Electric Co.	3	3
D. H. Paving Co.	0	66
Steel Const. Co. of Oregon	0	44
Paul Berg	0	9
L. H. Clawson Co.	0	2
G. W. Paulson	0	2
Puget Sound Naval Shipyard	0	720
Total	6727	7294
General Electric Total	8674	8805
GRAND TOTAL	17,485	17,876

DECLASSIFIED