HW 11226-DEL

#1 - H. A. Winne, Schenectady
#2 - Zay Jeffries, Pittsfield
#3 - C. G. Suits, Schenectady
#4 - R. C. Muir
#5 - J. R. Rue
#6 - C. N. Gross
#7 - A. B. Greninger
#8 - F. R. Creedon
#9 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
#10 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
#11 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
#12 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
#13 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
#14 - 700 File
#15 - 700 File
#16 - 700 File

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October 25, 1948

HANFORD WORKS
MONTHLY REPORT
SEPTEMBER 1948

This Document Consists of

271 Pages [redacted]

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GENERAL SUMMARY

SEPTEMBER - 1948

A total of 97.2 tons of metal was discharged during the month as the three piles operated at an average efficiency of 75.2 percent. The power level was 275 MW during operation except at 100-B Area, which operated at reduced levels after September 23, 1948, due to water in the graphite arising from a ruptured tube.

The 300 Area canning production again was at a new record with 146 tons of acceptable slugs produced. The canning yield was 90.5 percent--an increase of 1.5 percent over August. The Melt Plant produced 71 tons of billets. On September 20, 1948, the operating schedule was reduced from 7 to 6 days per week.

A total of 39 batches were processed through Isolation. The waste losses for all separations activities averaged 2.7 percent for the month. On September 13, 1948, all operations in the S Division were returned to a 40 hour basis. At the same time, the isolation Building was placed on a three-shift, five-day basis.

On September 13, 1948, the 200 Areas Power operations were returned to a 40-hour per week basis.

The planned six-day work week was reduced from 100% to approximately 10% in the Maintenance Division as of September 4, 1948.

Accelerated construction activities have improved the completion dates of the badly needed decontamination sand filters in the 200 East and West Areas.

By persistent effort the Traffic Section of the Transportation Division continues to gain concessions in the matter of freight rate tariff reductions, as shown in that division's report.

A very surprising and unexplained phenomenon was encountered when it was discovered that about half of the four-inch, alpha-rolled, lead-dipped slugs examined after normal irradiation had grown longer and thinner while the remainder had grown shorter and thicker.

It has been demonstrated that purified graphite can be prepared by merely gas baking the bars after the second pitch impregnation and then purifying directly. Production costs on this material are lower than those of regular purified graphite, it expands less under pile irradiation, is as strong as regular material, and has reasonable satisfactory machining characteristics.

The quality of all types of graphite deliveries continued to drop during the month. This drop was the result mainly of a general density decrease.

The water which entered the graphite of the B Pile from a leaking process tube produced reactivity loss of 118 inhours. Some water had been removed at month-end but no recovery of reactivity had occurred.

[redacted]

Pile tests show that Van Stone corrosion can be reduced markedly by providing cathodic protection (magnesium gaskets) or by elimination of the galvanic cell (all-aluminum nozzles).

Expansion of pile graphite has deformed vertical rod thimble No. 27-F sufficiently to prevent complete insertion of the rod. Near by thimbles in the F Pile and Thimble No. 27-D show evidence of similar deformation.

Separations Plants production tests on the reduction of process volumes have shown that 30% volume reduction may be optimum before encountering higher waste losses. Reasons are being sought for the accumulation of by-product precipitate in 13-1 at B Plant. Reduction of metathesis time cycles is to be obtained by a slight rearrangement of process flow. Continued studies of various sands for use in filtering ventilation air discharge have shown that crushed flint from the American Graded Sand Company has filtering and non-packing properties superior to other sands recently tested. Tests with a scrubber column, electrostatic precipitator, and cyclone separator have also been continued.

Uranium transfer H.E.T.S. measurements carried out on the 16-inch Redox Scale-Up Column have values ranging from 2.6 to 9.8 feet. The column was proved to be vastly overdesigned for throughputs possible with the Raschig ring packing used, however, A 5-inch column packed with 1/2-inch Raschig rings was found to have an H.E.T.S. value of ca. 1.5 feet at throughputs equivalent to nearly 1.2 long tons of uranium/day. An 8-inch column similarly packed also gave an H.E.T.S. value of ca. 1.5 feet at throughputs equivalent to 2.1 long tons of uranium/day. It is believed that the quoted throughput on this latter column is still far below flooding and the study of this column is being extended. These studies point up the possibility of short (30 feet or under), small diameter (6 to 8 inches) columns being feasible for Redox production plant operation. Initial studies carried out with the 1/100th scale S.O.D. mixer-settler units have pointed up the need for redesign of these models. Installation of the full-scale mixer-settler unit is nearly completed.

The Research Section has demonstrated in the laboratory that ruthenium volatilization from oxidized dissolver solution increases with time, temperature, and air sweep. Decontamination factors obtainable by the adsorption of zirconium and columbium on glass wool have been measured. The effects of small amounts of Si, Sn, Cu, Al, and Fe on extraction stage heights have been investigated. Quadratic equations have been developed for the solubility of hexone in various Redox process solutions. Redox cross-over oxidation studies have been continued to measure the effects of hydrogen peroxide oxidation on ruthenium and cerium decontamination, the reactivity of hydrogen perioxide and sulfamic acid, and the effect of plutonium concentration on the rates of its oxidation by dichromate.

300 Area Plant Assistance personnel continued to supervise the rolling of uranium rods for Hanford at Lockport, N.Y. and Aliquippa, Pa. Examination of a single uranium rod produced experimentally at Aliquippa by a combination forging-rolling operation indicates that this 2-step fabrication process may yield a superior rod with considerable operating economy. Further trials are being scheduled.

Preliminary arrangements were made with the Industrial Heating Engineering Division in Schenectady, and with the Knolls Atomic Power Laboratory, to utilize equipment of the latter for induction heating trials with uranium rods and slugs. If successful, considerable simplication of the canning operation may be possible.

In the Operational H. I. Division survey findings in general were normal. The active particle deposition continued to be of prime concern.

In the Control and Development Section, samples of water, air and vegetation showed essentially no deviation from the normal pattern. The bioassay analyses showed no results above the warning limit for the plutonium excretion test. Uranium content of three urine samples fell in the 50 to 70 ug/Liter range.

In the Biology Division, monitoring of mammals and fish proceeded with special incident except in the 200 N Area where the program was abruptly terminated by predators. A study of the effects on aquatic life of pile effluent water, which has not undergone decay in the basin, will begin next month.

There was no evidence of injury to any employee during the month due to radiation.

Toxic effects of carbon tetrachloride resulted in hospitalization of four sub-contractor employees. Its use has been discontinued as a degreasing agent in the sub-contractor program in favor of less toxic agents.

Records are now being kept to indicate approximate total lifetime exposure of employees to radiation. Recent animal experiments have indicated a need for such data.

Clinic and hospital treatments decreased moderately but were roughly double the twelve months previous figures.

Public health activities were satisfactory with a low incidence of communicable disease.

Effective September 1, 1948, the Employee and Community Relations Division, and the Labor Relations and Wage Rate Division were removed form the Service Divisions and combined into a separate Division known as the Employee and Community Relations Division.

Firm orders have been placed for all steel requirements for the fourth quarter of 1948 with the exception of galvanized sheets. Additional allocation of sheets has been requested.

Request was received from the Atomic Energy Commission to submit estimates of requirements of all forms of Aluminum for 1949.

Commitments have been made and orders placed covering requirements of Aluminum and Aluminum products through June, 1949.

There were two major injuries for the month making a total of 12 for the year and a cumulative frequency rate of 0.957 for 1948.

Operation of the 723 Laundry was reduced to a two-shift operation because of reduced volume. Operation of the 200-West Laundry continues on a six-day basis.

Approval was received from the Atomic Energy Commission to reduce and/or combine certain Patrol post requirements, and place Patrol Division operation on an 8 3/5 hour shift schedule. These changes will effect a considerable saving in Plant Protection costs.

[redacted]

Open requisitions for additional personnel increased from 553 at the beginning of the month to 613 at the end of the month. Due to the additional lay-offs, plus terminations of temporary, total plant roll decreased 158.

There were 1,569 employee contacts made by the Employee Relations Group. All supervisory group given information on Employee Savings and Stock Bonus Plan through meetings conducted by Employee Relations Counselors. Fifteen suggestion awards, totaling $120 were granted during September.

Community wage survey in Spokane, Seattle, and Tacoma, Washington; and Portland, Oregon, are presently in progress. Non-exempt job classification manuals completed, and limited distribution made to supervision. General review of non-exempt job classifications in 2 divisions in progress. Number of investigations conducted during the past month in various divisions for the purpose of assigning classification to new jobs and reviewing existing jobs.

On September 1, the "Proposed Cost Control System" recommended by T. R. Evans for the manufacturing, related service divisions and general divisions and the "Proposed Accounting System for Richland Village and Kadlec Hospital Activities" recommended by the auditing firm of Touche, Niven, Bailey and Smart, were made effective.

The New G. E. Employees Savings and Stock Bonus Plan which is effective as of October 1, 1948, required considerable time in writing up instructions, routines, and notifying Supervisors of the provisions of the Plan and furnishing them with necessary forms and booklets.

The Richland Public Schools were officially opened on September 7, 1948, with an enrollment of 5,500 students and 224 teachers.

One hundred and two ranch type houses were completed and accepted for allocation during the month. Also, during this period 223 house leases were authorized. Requests for alteration permits were granted to 101 tenants for miscellaneous, minor alterations in Village houses.

Construction was started on a furniture store building on George Washington Way, immediately north of the Villager Office. This building is being built on a ground rental basis by the business operators.

Similar contracts have been made for a printing plant and food store.

Six Univeyor trucks have been received and are in operation. The use of these trucks has increased the efficiency of coal handling three hundred percent.

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Hw-11226 de

STAFF

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

HW-11224
HW-11226-A

FORCE REPORT
SEPTEMBER 1948

	Non-Exempt		Exempt		Total	
	8-31-48	9-30-48	8-31-48	9-30-48	8-31-48	9-30-48
GENERAL	14	14	6	6	20	20
LAW DIVISION	4	3	4	4	8	7
DESIGN & CONSTRUCTION DIVISIONS						
Administrative	35	30	6	6	41	36
Construction	314	281	250	208	564	489
Construction Accounting	14	15	-	-	14	15
Design	189	152	135	117	324	269
Procurement	40	35	62	60	102	95
North Richland Realty	301	272	22	24	323	296
MANUFACTURING DIVISIONS						
Administrative	1	2	3	4	4	6
"P" Division	297	301	62	62	359	363
"S" Division	236	243	57	57	293	300
Power	335	336	87	80	422	416
Maintenance	524	521	80	72	604	593
Project Engineering	74	75	51	54	125	129
Electrical	222	228	43	44	265	272
Instrument	157	162	44	44	201	206
Transportation	679	671	64	67	743	738
Accounting	-	-	1	2	1	2
TECHNICAL DIVISION	472	470	227	235	699	705
MEDICAL DIVISION	425	417	99	99	524	516
H. I. DIVISION	201	205	87	86	288	291
ACCOUNTING DIVISION	239	242	37	36	276	278
SERVICE DIVISIONS						
Plant Security & Service	1006	993	123	123	1129	1116
Labor Relations & Wage Rates	5	-	5	-	10	-
Purchasing & Stores	156	157	22	22	180	179
EMPLOYEE & COMM. RELATIONS DIV.	71	71	18	23	89	94
COMMUNITY DIVISIONS	798	800	135	152	933	952
GRAND TOTAL	6811	6696	1730	1687	8541	8383

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S

PERSONNEL DISTRIBUTION - SEPTEMBER 1948

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
GENERAL										
Clerical	-	-	-	-	-	-	-	-	6	6
Total	-	-	-	-	-	-	-	-	14	14
	-	-	-	-	-	-	-	-	20	20
LAW DIVISION										
Clerical	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	3	3
	-	-	-	-	-	-	-	-	7	7
DESIGN & CONSTRUCTION DIVISIONS										
Administrative										
Supervisors	-	-	-	-	-	-	-	-	5	5
Engineers	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	24	24
Others	-	-	-	-	-	-	-	-	6	6
Total	-	-	-	-	-	-	-	-	36	36
Construction										
Supervisors	-	-	-	-	-	-	14	51	-	65
Engineers	24	-	-	-	10	1	6	29	20	90
Clerical	13	-	-	-	1	-	41	105	8	168
Others	15	-	-	-	2	-	125	3	21	166
Total	52	-	-	-	13	1	186	188	49	489
Construction Accounting										
Supervisors	-	-	-	-	-	-	-	-	-	-
Clerical	-	-	-	-	-	-	-	-	15	15
Total	-	-	-	-	-	-	-	-	15	15

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
DESIGN & CONSTRUCTION DIVISIONS										
Design										
Supervisors	-	-	-	-	-	-	-	-	14	14
Engineers	-	-	-	-	-	-	-	-	123	123
Clerical	-	-	-	-	-	-	-	-	73	73
Others	-	-	-	-	-	-	-	-	59	59
Total	-	-	-	-	-	-	-	-	269	269
Procurement										
Supervisors	-	-	-	-	-	-	3	-	12	15
Clerical	-	-	-	-	-	-	-	-	34	34
Others	-	-	-	-	-	-	10	-	36	46
Total	-	-	-	-	-	-	13	-	82	95
North Richland Realty										
Supervisors	-	-	-	-	-	-	-	24	-	24
Engineers	-	-	-	-	-	-	-	4	-	4
Clerical	-	-	-	-	-	-	-	33	-	33
Others	-	-	-	-	-	-	-	235	-	235
Total	-	-	-	-	-	-	-	296	-	296
MANUFACTURING DIVISIONS										
General										
Supervisors	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	6	6
"P" Division										
Supervisors	9	12	16	-	-	17	-	-	8	62
Operators	30	37	27	-	-	193	-	-	-	287
Clerical	2	2	2	-	-	5	-	-	3	14
Total	41	51	45	-	-	215	-	-	11	363

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MANUFACTURING DIVISIONS										
"S" Division										
Supervisors	-	-	-	22	29	-	-	-	6	57
Operators	-	-	-	105	124	-	-	-	-	229
Clerical	-	-	-	4	9	-	-	-	1	14
Total	-	-	-	131	162	-	-	-	7	300
Power										
Supervisors	20	21	18	5	9	1	2	-	-	76
Operators	82	76	73	24	30	10	-	-	-	295
Clerical	2	1	2	-	1	-	2	-	-	8
Others	7	8	7	4	5	4	2	-	-	37
Total	111	106	100	33	45	15	6	-	-	416
Maintenance										
Supervisors	2	8	7	6	16	7	16	-	3	65
Engineers	-	-	1	1	1	1	5	-	6	15
Mechanics	30	27	61	42	95	63	110	-	-	428
Clerical	1	1	2	2	2	2	3	-	1	14
Others	3	1	11	4	18	4	30	-	-	71
Total	36	37	82	55	132	77	164	-	10	593
Project Engineering										
Supervisors	-	-	-	-	1	-	-	-	13	14
Engineers	-	-	-	-	4	1	-	-	33	38
Drafting Personnel	-	-	2	-	5	3	-	-	35	45
Clerical	-	-	1	-	1	-	-	-	15	17
Others	-	-	1	-	2	-	-	-	12	15
Total	-	-	4	-	13	4	-	-	108	129

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MANUFACTURING DIVISIONS										
Electrical										
Supervisors	2	2	3	2	3	2	2	-	25	41
Electricians	12	13	12	12	12	13	-	-	99	173
Clerical	1	-	1	1	1	1	2	-	4	11
Others	1	2	2	2	3	4	1	-	32	47
Total	16	17	18	17	19	20	5	-	160	272
Instrument										
Supervisors	3	4	2	2	4	6	-	-	6	27
Engineers	-	-	1	-	1	8	-	-	7	17
Mechanics	7	5	8	5	12	21	-	-	8	66
Clerical	1	1	1	1	1	3	-	-	5	13
Others	11	9	8	9	7	30	-	-	9	83
Total	22	19	20	17	25	68	-	-	35	206
Transportation										
Supervisors	7	2	2	2	2	1	9	-	42	67
Drivers (Based on areas served)	9	13	32	32	39	24	20	-	86	255
Mechanics	12	2	1	1	5	-	3	-	75	99
Trainmen	11	4	4	4	4	2	-	-	7	36
Laborers	5	12	9	6	21	8	2	-	48	111
Clerical	-	-	1	1	-	1	-	-	26	29
Others	8	9	10	7	23	4	11	-	69	141
Total	52	42	59	53	94	40	45	-	353	738
Manufacturing Accounting										
Supervisors	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	2	2

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
TECHNICAL DIVISION										
Supervisors	-	7	-	7	15	35	-	-	12	76
Chemists-Engineers-Physicists-Metallurgist-Technical Graduates	2	10	15	22	34	143	-	-	19	245
Laboratory Assistants	8	16	34	38	63	107	-	-	1	267
Clerical	-	1	-	1	3	41	-	-	34	80
Others	-	-	-	-	1	36	-	-	-	37
Total	10	34	49	68	116	362	-	-	66	705
MEDICAL DIVISION										
Physicists	-	-	-	-	-	-	7	12	25	44
Dentists	-	-	-	-	-	-	-	2	12	14
Technicians	-	-	-	2	-	-	-	9	28	39
Clerical	2	-	-	2	-	1	-	30	86	121
Others	12	5	-	3	4	2	16	28	228	298
Total	14	5	-	7	4	3	23	81	379	516
H. I. DIVISION										
Supervisors	1	1	3	4	8	15	-	-	7	39
Engineers	4	4	7	13	10	9	-	-	-	47
Clerical	-	-	-	-	1	3	-	-	4	7
Others	8	17	14	29	53	53	15	-	8	198
Total	13	22	24	46	72	80	15	-	19	291
ACCOUNTING DIVISION										
Supervisors	-	-	-	-	-	-	-	-	33	33
Clerical	-	-	-	-	-	-	-	-	245	245
Total	-	-	-	-	-	-	-	-	278	278

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
SERVICE DIVISIONS										
Plant Security & Service										
Supervisors	15	9	7	10	10	12	25	-	35	123
Office Machine Operators	-	-	-	-	-	-	-	-	51	51
Inspectors	4	3	3	3	3	3	4	-	1	24
Patrolmen	51	118	72	68	105	87	30	-	34	565
Firemen	57	-	-	-	-	12	-	-	23	92
Laundry Operators	-	-	-	-	6	-	-	-	2	8
Clerical	-	-	-	-	-	-	18	-	34	52
Others	5	7	6	9	40	18	3	-	113	201
Total	132	137	88	90	164	132	80	-	293	1116
Purchasing & Stores										
Supervisors	-	-	-	-	-	-	-	-	22	22
Clerical	-	1	-	1	-	-	-	-	155	157
Total	-	1	-	1	-	-	-	-	177	179
EMPLOYEE & COMMUNITY RELATIONS DIVISION										
Supervisors	-	-	-	-	-	-	-	-	23	23
Clerical	-	-	-	-	-	-	-	-	63	63
Others	-	-	-	-	-	-	-	-	8	8
Total	-	-	-	-	-	-	-	-	94	94
COMMUNITY DIVISIONS										
Supervisors	-	-	-	-	-	-	-	-	152	152
Others	-	-	-	-	-	-	-	-	800	800
Total	-	-	-	-	-	-	-	-	952	952
GRAND TOTAL	499	471	489	518	859	1017	537	565	3428	8383

HW-11226-DEL

DECLASSIFIED
WITH DELETIONS

MANUFACTURING DIVISIONS

SEPTEMBER 1948

SUMMARY

For greater clarity and convenience of reference, the summary is being presented in sub-divisions:

OPERATIONAL

A total of 97.2 tons of metal was discharged during the month as the three piles operated at an average efficiency of 75.2 percent. The power level was 275 MW during operation except at 100-B Area, which operated at reduced levels after September 23, 1948 due to water in the graphite arising from a ruptured tube.

The 300 Area canning production again was at a new record with 146 tons of acceptable slugs produced. The canning yield was 90.5 percent—an increase of 1.5 percent over August. The Melt Plant produced 71 tons of billets. On September 20, 1948 the operating schedule was reduced from 7 to 6 days per week.

A total of 39 batches were processed through Isolation. The waste losses for all separations activities averaged 2.7 percent for the month. On September 13, 1948 all operations in the S Division were returned to a 40 hour basis. At the same time, the Isolation Building was placed on a three shift, 5 day basis.

On September 13, 1948 the 200 Areas Power operations were returned to a 40 hour per week basis.

MECHANICAL

The planned six day work week was reduced from 100% to approximately 10% in the Maintenance Division as of September 4, 1948.

Accelerated construction activities have improved the completion dates of the badly needed decontamination sand filters in the 200 East and West Areas.

By persistent effort the Traffic Section of the Transportation Division continues to gain concessions in the matter of freight rate tariff reductions, as shown in that division's report.

The Material Control Section of the Maintenance Division was dissolved. The activities and some of the personnel of this group have been transferred to the Purchasing and Stores Divisions. Other personnel have been transferred to available clerical jobs.

C. N. Gross

C. N. CROSS, MANAGER
MANUFACTURING DIVISIONS

P DIVISION

SEPTEMBER - 1948

I. GENERAL

All piles operated at 275 M.W. throughout the month except for the outages listed under Area Activities in this report and except that B Pile operated at reduced levels subsequent to September 22 as discussed under Operating Experience. Pile Tube No. 1569-B ruptured on that date, necessitating a cessation of operation. The tube was replaced on September 23 and pile operation was resumed at a reduced level to allow the free moisture in the graphite packing to evaporate at a safe rate.

A total of 97.4 tons of metal was discharged from the piles.

The 300 Area canning production amounted to 146 tons of acceptable slugs, thus setting a new record for 4" slugs. The canning yield was 90.5 percent as compared with 89 percent in August.

Effective September 20, the Melt Plant in the 300 Area was placed on a three-shift, six day week schedule. Previously it had operated seven days a week.

During the month distribution was made of "The Pile Primer", a supervisory training book prepared by a group of P Division supervisors.

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - September

Beginning of Month:	359
End of Month:	363
Net Increase	4

Six operators were hired, one was transferred from the Construction Division, and one was transferred from the Stores Division, all being assigned to the 300 Area. Five operators voluntarily terminated from the 300 Area. Two operators returned from a leave of absence. One steno-typist terminated.

As of September 30, 1948, the work status of employees of the P Division was as follows:

	Six Day Schedule	Five Day Schedule	Total
Monthly	52	10	62
Weekly	298	3	301
Total	350	13	363

Frank Snyder, Shift Supervisor, moved from the 300 Area to 100-F Area on September 22, 1948.

On September 25 supervisors of the Design-Construction liaison group, (Gordon Lewis, John Miller, Douglas Montgomery), commenced three-shift coverage of the graphite stacking work at Pile DR.

III. AREA ACTIVITIES

PILE SUMMARY	PILE B	PILE D	PILE F
Time Operated (%)	83.8	87.7	68.9
Operating Efficiency (%)	71.6	85.9	68.2
*Power Level (M.W.)	275***	275	275
*Inlet Water Temperature (°C)	16.7	16.7	16.9
*Outlet Water Temperature (Maximum °C., 10 tubes, .240" zone)	48.3	59.5	59.3
Number of Scrams	0	0	0
Number of Purges	1	1	1
Helium Consumption (cu. ft.)	72,732	56,551	89,239
Metal Discharged (tons)	36.0	27.7	33.5
Inhours Gained (this month)	7**	9	3
*Inhours Poisoned	287	473	330
*Inhours in Rods	92	52	71

* Month end figures.
** Does not allow for temporary effect of water in graphite.
*** At 180 M.W. on September 30, 1948.

PILE BUILDING

Outage Breakdown

Date of Outage	Scheduled Metal Discharged	Scheduled Maintenance	Unscheduled	Length of Outage (Hours)
9-2-48	D			19.0
9-3-48	F			23.1
9-7-48	B			19.3
9-10-48	D			17.3
9-12-48	F	F		175.7
9-16-48	B			18.7
9-21-48	D			22.2
9-22-48	B		B*	69.3
9-28-48	D			20.3
9-30-48			B**	9.5
9-30-48			D**	9.5
9-30-48	F			25.6

* Shutdown began 16.5 hours earlier than scheduled because of ruptured Tube No. 1569-B.

** A pole top fire on the 230 K.V. loop necessitated a Critical Y condition.

Operating Experience

Production tests having operational significance are reported below:

105-52-P (Graphite Expansion - Gun Barrel Clearance)
Sum clearance measurements were made on a total of 13 tubes at D Pile, the clearance being 3/8" or more in all cases.

105-168-P (Replacement of Pile Helium Atmosphere with Carbon Dioxide)
The percentage of carbon dioxide in the gas circulating system at D Pile was maintained at 40. No noticeable change in operating conditions occurred.

105-197-P (Spline and Reel Segmented Discharge)
Tubes No. 1667-F, 1668-F, 1679-F, and 1680-F were discharged successfully on September 18.

105-214-P (Silica Feed Reduction)
At B Pile on September 27 the amount of sodium silicate added during the treatment of process water was reduced from a nominal 4.5 to 3.5 p.p.m. No unusual effects have been observed; the pressure drop increase in process tubes has been normal.

By September 20, the B Pile effluent water activity had decreased sufficiently to permit removal of one-half of the Building 107 Retention Basin from service as is done at 107-D.

The B Pile was shut down on September 22 because of a water leak in Tube No. 1569-B. The leak was located at a point 19 feet 2 inches from the rear Van Stone flange; the tube was replaced on September 23. A considerable amount of free water accumulated in the lower part of the graphite packing. Following startup, the pile has been operated at reduced levels to maintain the graphite temperatures on the fringe of the "wet zone" at no higher than 100° C to prevent steam formation. (A detailed report of this incident is being prepared and will be issued separately).

Mechanical Experience

All vertical and horizontal rods are in satisfactory operating condition except that there is evidence of binding on Vertical Safety Rod No. 27 at F Pile. Borescope examination of No. 27 thimble at both D and F Piles shows indications of rubbing and wear.

Repairs were completed on the leaks reported last month in the effluent water line near the 1904-D Building at the point where the DR effluent line will enter.

P Division

A section of the D Pile effluent water line was damaged during excavation for the DR Pile tie-in junction box near Storage Building No. 103-D. The damage was repaired by pouring a concrete collar around the pipe.

The installation of a trial electric drive on Horizontal Rod No. 4 at B Pile was completed on September 24 and tested on September 26. Operation was satisfactory.

The leaking thimble in "A" Experimental Test Hole at F Pile was replaced without incident on September 12.

Tubes No. 0468-F, 0469-F, and 0571-F were discharged September 14 to evaluate the use of a "cocktail shaker" segmented discharge device furnished by the Design Division. The device functioned satisfactorily. During the discharge of Tube No. 0571-F a slug became lodged on the tip off and required the use of a hydraulic ram before it could be cleared. The rear gunbarrel was pushed downstream approximately three feet, damaging the bellows. The tube was replaced, the bellows covered with a rubber boot to prevent gas leakage, and the gunbarrel pushed back into position.

Tube No. 1788-F was discharged with difficulty on September 12. The tube will be replaced next month.

The new steel effluent line at F-Area was tied into the water system during the week commencing September 13 and was placed in service with no unusual difficulty. Some revision of the vent line will be required since it entrains water which spills over on the roof of the pile building.

The "soft spot" in the F Pile downcomer was replaced during the week commencing September 13. An inspection of the baffles showed them to be in good condition except for a minor crack in the No. 4 baffle.

Pile Development

Rotameters were installed in all D Pile water sample rooms to permit an instantaneous water flow indication. This will eliminate the catch sample method previously used.

During September, a quadrant power level indicating system was installed for test purposes at F Pile. The system consists of an ion chamber installed in each of Tubes No. 0353, 0394, 4453, and 4494, connected to an indicating device in the control room. Initial tests have been satisfactory.

An air jet was installed in the condensate pot of the No. 1 Drier in Building 115-F. This device, which is working satisfactorily, eliminates the use of valves in draining the condensate pots.

GAS PROCESSING BUILDING

Operations were normal.

P Division

Work on the tie-in of the DR-D gas system was continued. Inlet and exit lines within the Building 115-D tunnel were connected to the Building 105-D loop and blanked off.

SPECIAL HAZARDS

The old "A" and "B" Test Hole thimbles at B-Area were removed from their lead shields and buried on September 9.

A test well was drilled in F-Area east of the Retention Basin and below the earth trench in that vicinity to determine if ground waters were contaminated. No contamination was found, either in the water table or the soil.

300 AREA - METAL FABRICATION

Production Statistics

Production for the month of September was as follows:

Billets Produced	71 Tons
Rods Machined	202 Tons
Acceptable Pieces Canned	146 Tons

Melt Plant

The casting yields were as follows:

	% Yield		
	August	September	To Date 1948
Billet	64.4	61.1	68.6
Solid Material	86.0	84.2	86.6

The Melt Plant was operated on a three-shift, seven-day week schedule until September 20 at which time it was placed on a three-shift, six-day week schedule in order to free a supervisor for the 100 Areas.

The amounts of TXB and solid scrap used in furnace charges were altered on September 14 to conform to scrap accumulation rates. A normal charge now consists of approximately 300 pounds of TXB and 250 pounds of solid scrap. The increase of TXB in charges has had an adverse effect on quality and yield. Additional amounts of oxide remain in the crucibles which tends to interrupt the flow of molten metal near the end of the pours. A study is being made to determine the optimum electrical input for melting.

On September 8 the No. 4 crucible in "A" furnace began to leak while No. 2 crucible was being poured. The pour from No. 4 crucible dropped onto the turntable and overflowed onto the furnace bottom. The molten metal cut a small hole in the furnace bottom over a supporting I-beam without breaking the vacuum, and it was not discovered until the furnace was opened. The necessary repairs were made and the furnace returned to operation without difficulty.

5

P Division

It was necessary to replace broken valve springs and plates in the Stokes finishing pump twice during the month and once in both roughing pumps. Backfires occurred in the Stokes exhaust line on September 10 and 11.

Stopper rod breakage and leakage continues to hamper melting operations, although some reduction in breakage was realized from the new type stopper rod connections installed last month. Five crucibles cracked during melting cycles accounting for additional production losses and necessitating replacement of insulating brickwork.

Machining

Machining yields were as follows:

% Yield (4" - A's)		
August	September	To Date 1948
69.7	70.1	68.6

Operation continued on a two-shift six-day week schedule. The machining yield was the highest yet achieved for 4" slugs from rolled rods.

The initial shipment of rods received this month from Vulcan Crucible Steel Company and rolled from "B" billets was superior in quality to those received previously from other locations. The average yield on the first eleven lots machined was 71.2 percent.

Eight gamma extruded and eight alpha rolled rods, containing 25-200 ppm nickel, were machined in conformance with Production Test 314-57-M, "Effect of Nickel Impurity in Uranium Billets".

Chip Recovery and Oxide Burning

The Chip Recovery yield was as follows:

% Yield		
August	September	To Date 1948
92.1	90.6	91.2

The entire Chip Recovery Process operated 21 eight-hour shifts and the press was operated an additional 8 eight-hour shifts to produce 90,272 pounds of TX briquettes in September.

A heavier oil (Calol OC Turbine No. 19) was received and tried in the hydraulic system of the Chip Recovery press. It was found that this oil offers some advantage over the A-4 oil used previously since it apparently does not thin down as readily under high temperatures.

The material burned in the oxide burner was as follows:

P Division

Weight Out - Pounds		
August	September	To Date 1943
8632	13305	73061

The burner was operated on a three-shift, seven-day week schedule until September 20 at which time it was placed on a three-shift, six-day week schedule.

It was necessary to shut down the burner on September 25 when the exhaust fan motor failed. The motor was replaced on September 27 and operation resumed.

Canning Operation

The canning yield was as follows:

% Yield (4" - A's)		
August	September	To Date 1948
89.0	90.5	88.6

Canning rejects, by cause, were:

	% Total Canned (4" A's)		
	August	September	To Date 1948
Non-Seating	4.1	3.1	4.3
Marred Surface	1.6	1.7	1.4
AlSi on Outside of Can	.6	.6	1.0
Frost Test	.7	.9	1.2
Bad Welds	2.7	1.8	1.7
Miscellaneous	1.3	1.4	1.8
	11.0	9.5	11.4

Operation continued on a two-shift, six-day week schedule.

Non-seating and bad welds continued to be the chief causes for canning rejects. Both, however, were reduced appreciably this month through additional emphasis on operating techniques and training of inexperienced operators.

The study started last month to determine if temperature variations in the canning baths might be contributing to non-seating was completed. It was found that a maximum gradient of only 3°C existed in all sections of the baths and closer control was not feasible.

On September 9 it was necessary to reject the last two hours' production (232 pieces) from C line because the tin content of the AlSi canning bath

exceeded the specification limit . The analysis of samples taken at 2:00 p.m. and 4:00 p.m. was respectively. The cause of this difficulty was not known, but it probably resulted from insufficient centrifuging or agitation of pieces in the AlSi dip bath to remove excess tin before transfer to the canning bath. Prior to this date the final analysis on canning baths had shown a tin content ranging up to about

On September 22 one canned slug taken from Truck No. 1 on G line and subjected to the cracking test for grain transformation was found to be not transformed. This was later verified by laboratory examination. It was observed that slugs dipped in the bronze bath were not reaching the normal temperature after start-up on this date because of insufficient submersion resulting from a low bath level. This condition was corrected after approximately thirty minutes operation. The 137 slugs produced during this period are being held for possible use in a production test being planned to evaluate, in pile operation, various degrees of transformation to the beta phase.

Four hundred fifty-six slugs were canned on September 3 in conformance with Production Test No. 314-57-M, "Effect of Nickel Impurity in Uranium Billets".

On September 27 work was started on Production Test No. 313-105-M, "Uranium Slug Pickling". It appears that a thirty-second pickle is adequate for "A" slugs. A longer pickle is required to clean up recovered slugs ("X" and "Z"), apparently due to the oxide being rolled into the surface during straightening.

The mortality of bronze furnace elements continues to be high because of the high operating temperatures. An attempt was made to increase element life by lowering the bath level slightly to prevent flux from splashing over the top of the crucible. In addition, an attempt was made to seal the top of the furnaces with clay to prevent flux from running down between the elements and crucibles. No appreciable gain in element life was made in either case.

One piece of Special Request ANL-114 (Thorium Oxide) and 9451 lead slugs were canned during the month.

Recovery Operation

	% Recovered		Average Wt. - Lbs.	
	September	To Date 1948	September	To Date 1948
Z Slugs	77.5	69.2	3.906	3.904
X Slugs	15.9	23.3	3.854	3.854
Rejects	6.6	7.5	--	--
	100.0	100.0		

Inspection and Testing

Autoclave rejects were as follows:

August	September	To Date 1948
.15/M	.18/M	.30/M

Twelve autoclave failures occurred in September. The chief cause for failures continued to be incomplete bonding of the cap.

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

	% Useable (4")		
	August	September	To Date 1948
Aluminum Cans	93.9	95.2	91.8
Aluminum Caps	97.5	99.3	98.4
Steel Sleeves	91.4	87.3	84.5

Material Handling

Five carloads, totaling 201 tons, of alpha rolled rods were received in September. One carload, containing 39 tons of billets, was shipped to Lockport and one carload, containing 19 tons of oxide, was shipped to the Vitro Manufacturing Company.

305 Area Test Pile

This unit was operated on a one-shift, six-day week schedule in September. A total of 153 tests was run on canned slugs, 59 on billet eggs, 389 on graphite bars, and the following on special work requests:

Request No.		No. of Tests
29	To determine the effect of carbon tetrachloride vapors on reactivity in the pile.	1
30	To obtain the absorption cross-section of floor paint to be used in 105 Building.	2
31	To obtain the absorption cross-section of flame proofing compound for use in construction of 105 Building.	2

In addition, sixteen tests were run in conformance with Production Test No. 314-57-M, "Effect of Nickel Impurity in Uranium Billets".

The test pile was shut down on September 13 to replace a faulty suspension wire in the differential galvanometer. Several new wires were tried before obtaining the required sensitivity. Operation was resumed on September 16 after a satisfactory replacement had been made and calibrated.

P Division

Special Hazards

An attempt was made to reduce airborne contamination in railroad cars during the unloading of rods by spraying and washing down with water. Air samples indicated that contamination levels could be reduced below tolerance immediately after water was applied, but tolerance was exceeded again as soon as dry areas developed on the floors of the cars or rods. Since it is not practical to keep the entire car and rods wet during unloading, the wearing of respirators will be continued until a more satisfactory means can be obtained for controlling air contamination. It was observed that cars washed in this fashion were very difficult to clean after the rods were unloaded because of dust which had been carried down into the cracks in the car floor.

A Melt Plant study of exposure of personnel resulting from the UX_1 and UX_2 problem, mentioned in last month's report, revealed that hand exposures averaged about 580 mrep and some were as high as 1560 mrep. In order to reduce exposures, operators are being rotated between the various jobs so as to spend a minimum of time on furnace charging, crucible burnout, and preparation where the higher radiation levels are present. In addition, all personnel are being further educated on special hazard problems. If this program is unsuccessful in reducing exposures below tolerance levels, it is planned to rotate Melt Plant operators as necessary with operators on other jobs in the area.

Development Work

A cylindrical metal cover was fabricated and currently is being used over crucibles during burnout in the Melt Plant. It was thought that the cover would reduce cracking and oxidation of crucibles. Results thus far are not favorable.

Eleven additional charges, consisting of solid scrap and of TXB processed from turnings cleaned in nitric acid, were melted in the Melt Plant to determine effect on casting yields. The results confirmed those reported last month. Billet yield was increased about 5% and solid metal yield as much as 9%.

Chromel alumel connectors have been ordered to replace the present brass connectors on canning furnace thermocouple lead wires. The new type of connector will be equipped with a screw locking device which will insure tight connections and eliminate possible shorting from molten metal dropping into the connection.

A new method of preparing and storing flux for use in the bronze canning furnaces is currently being investigated. This method consists of weighing the correct proportions of salts, melting them in a furnace, and pouring the resultant flux into molds. It is thought that this procedure will eliminate the necessity of pre-mixing flux, thereby eliminating the housekeeping problems associated with the mixing and handling of flux under present procedure.

S DIVISION

SEPTEMBER, 1948

OPERATING SECTION

I. GENERAL

Thirty-eight batches were started in the Canyon Buildings during September and thirty-nine batches were processed through the Concentration Buildings and the Isolation Building. The average purity for the completed batches was 98.8 percent.

The material balances for the T and B Plants averaged 95.0 and 100.2 percent, respectively, for a combined average of 97.9 percent. Waste losses for the two plants averaged 2.7 percent.

Effective September 13, 1948, all operations in the S Division were returned to a five day work week. At this time, the Isolation Building was placed on a three shift five day work week basis with the building being shut down on Saturdays and Sundays.

Canyon and Concentration Building Production Performance Data - (9-1-48 - 9-30-48, inclusive)

	B Plant	T Plant	Combined
Number of charges started	18	20	38
Number of charges completed	22	17	39
For completed charges:			
Percentage of starting product in waste			
This month	2.7(a)	2.7(a)	2.7
Last month	2.5(b)	2.4(b)	2.4
Cumulative to date	4.9(c)	4.8(c)	4.9
Percentage of starting product recovered			
This month	97.5	92.3	95.2
Last month	97.7	94.9	96.5
Cumulative to date	97.2	95.5	96.4
Percentage of starting product accounted for:			
This month	100.2	95.0	97.9
Last month	100.2	97.3	98.9
Cumulative to date	102.1	100.3	101.3
Gamma decontamination factor (log.)			
This month	7.70	7.83	7.76
Last month	7.73	7.66	7.70
Cumulative to date	7.33	7.29	7.31

(a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.032%-T Plant; 0.021%-B Plant. (b) 0.020%-T Plant; 0.025%-B Plant. (c) 0.139%-T Plant; 0.0073%-B Plant.

Isolation Building Performance Data (9-1-48 - 9-30-48, inclusive)

	% of Incoming Product			
	Prepared for Shipment	Recycle	Losses	Material Balance
Average for this month	94.9	6.98	0.01	101.9
Average for last month	92.1	8.21	0.0007	100.3
Average to date	96.1	4.37	0.10	100.6

II. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	296
End of month	302
Net increase	6

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

3 transfers from other divisions (all Weekly Roll)
1 transfer to the Accounting Division (Weekly Roll)
7 new hires (all Weekly Roll)
3 terminations (all Weekly Roll)

Changes in supervisory organization:

None

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants

Volume Reduction 221-T-13

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

At T Plant, ten runs were processed at 40 percent volume reduction with the remainder of the runs being processed at 30 percent reduction in volume. The waste losses for the 40 percent volume reduction runs were definitely higher than normal, indicating that with the present operating procedures, the critical point for volume reduction is between

30 percent and 40 percent. The average original product loss, not including the extraction losses, through the Canyon Building for the 40 percent reduction runs was 1.83 percent as compared to 1.61 percent for the 30 percent reduction runs during the month. It was necessary to rework two first cycle by-product wastes which were greater than 1.5 percent. The final waste losses for the 40 percent volume reduction runs was 1.63 percent. No adverse effects in operation of the Concentration Building have been evidenced. Thirty-five percent volume reduction will be evaluated during the coming month.

At B Plant, all runs were processed at 30 percent volume reduction. The higher than normal first cycle by-product waste losses (0.2 percent high) reported last month have been shown to be the result of an accumulation of crud in the precipitator rather than the result of volume reduction. A series of ten special runs using agitation during centrifugation removed the accumulation of crud from the precipitator but the increasing activity background in the vessel at month end indicates that further study will be required.

High Speed Centrifugation (Production Test 221-B-7)

Evaluation of Production Test 221-B-7, involving the centrifugation of the bismuth phosphate extraction precipitate at 1740 RPM rather than 870 RPM, was completed. The test was discontinued after a series of six runs at high speed, processed alternately with runs at normal centrifugation speed, resulted in a slight increase rather than decrease in extraction waste losses.

F Cell Waste Loss Study - T and B Plants

As reported last month, test runs indicate that the F Cell waste losses can be reduced by approximately 0.10 percent by flushing the precipitator with metathesis waste solution prior to the rework of the metathesis waste. At month end the installation of a new line from the F-9 waste tank to the F-1 precipitator, which will permit the flushing of the precipitator on a routine basis, was essentially complete.

Acid Flush

Acid flushes were processed through the Canyon and Concentration Buildings in both T and B Plants during the month. No undue product hold-up was indicated at either plant.

Metathesis Time Cycle Reduction - T Plant

The necessary piping was installed in Cell B of the 224-T Concentration Building to permit the metathesis of the lanthanum fluoride product cake from Section B to be effected in the spare B-4 tank rather than the F-1 precipitator. This change has reduced metathesis

time cycle by approximately three and one-half hours, permitting a net metathesis time cycle of seventeen hours. The change will be extended to Cell E in T Plant and Cells B and E in B Plant.

200 North Area

The 212-N Building was returned to the S Division by the Technical Division which had used the building for experimental purposes during the past several months. The first shipment of activated metal was placed in storage in this building on September 24, 1948.

WASTE DISPOSAL

241-TX Tank Farm - Project C-163

Work on the sub-contractor's phase of the project was nearing completion at month end. Final inspection of all eighteen tanks has been made and all are acceptable with the exception that gaskets (G-9) are yet to be installed in the tank riser flanges. Completion of this phase of the project which involves a small amount of backfilling, the installation of walkways and the painting of the 153-TX Diversion Box is expected during the first half of October.

Due to work of higher priority (291 Building Ventilation Sand Filters) very little progress was made on the General Electric phase of the job. The portion of the installation which will permit 221-T wastes to be diverted to the 241-TX tank farm is essentially complete, however.

241-BY Tank Farm - Project C-271

The project for the installation of twelve 750,000 gallon underground waste storage tanks in the 200 East Area for the storage of 221-B Canyon Building wastes was approved and the contract was let to the Morrison-Knudsen Company. The twelve tanks will be located directly north of the present 241-BX tank farm permitting wastes from the 241-BX tank farm to cascade into the new tanks, eliminating the need of the construction of additional diversion boxes. Excavation for the tanks was started by the sub-contractor on September 17, 1948 and was approximately 20 percent complete at month end.

200 Series Tank Alterations - B and T Plants

Alteration of the remaining 200 series tanks (202, 203 and 204) in the 241-B and T tank farms for use as settling tanks for Concentration Building wastes, is complete except for the installation of float gages in the 241-B tanks. Due to a slight increase in suspended solids in the effluent from the 201-B waste settling tank, it is planned to divert the 224-B Concentration Building wastes into the 202,3,4-B series in the near future.

Cribbing of Second Cycle Wastes - B and T Plants

At T Plant, the cribbing of the X-112-T tank was discontinued after approximately 450,000 gallons of waste had been jetted to the crib to permit the installation of an experimental sand filter for the purpose of determining the feasibility of removing the activity from the waste supernate by this method prior to discharging it to the ground.

At B Plant, approximately 130,000 gallons of supernate from the X-105-B tank were jetted to the crib intermittently during the month. Several ten percent nitric acid flushes of the crib were made in an effort to remove the restriction in drainage to soil reported last month. Drainage from the crib, however, remains slow though not entirely unsatisfactory. To date, no liquid has been permitted to overflow the crib into the tile field.

Waste Storage - B and T Plants

With the filling of first cycle storage tank X-109-C at B Plant on September 14, 1948, storage capacity of the 241-C tank farm was exhausted. The 221-B Canyon first cycle wastes were diverted to the X-107-BX tank at this time.

At T Plant, metal waste was diverted from the X-104,5,6-U series to the X-107,8,9-U series of tanks with the filling of the X-106-U tank in the 241-U tank farm.

Metal Waste Tank Soundings

The sounding of all metal waste storage tanks in the 200 East and West Areas was completed during the month and satisfactory data secured. Sludge layers of from two and one half to four feet in depth were indicated in the first tank of each cascade series with sludge in the second tank of each series varying from zero to one and three quarters feet. A negligible amount of sludge was indicated in the third tank of each series. The data procured have been transmitted to the Kellex Corporation.

Special Sample - Unneutralized Metal Waste

At the request of the Carbide and Carbon Chemical Company, a 100 ml sample of unneutralized extraction waste solution was taken on September 24, 1948 and shipped to site K-25.

Waste Status

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

B Plant

Bldg. 241 Tanks	Waste	Percentage Full B	C	BX	* Reserve Capacity In Batches to Process B	C	BX	Total
x101,2,3	Metal	100	100	67.2	0	0	88	88
x104,5,6	Metal	-	100	0	-	0	269	269
x201,2,3,4	Metal	0	100	-	-	0	-	0
x107,8,9	Metal	-	-	-	-	-	-	-
x107,8,9	1st Cycle	100	100	2.6	0	0	424	424
x110,11,12	1st Cycle	-	100	-	-	0	-	0
x104,5,6	1st Cycle	-	-	-	-	-	-	-
x104,5,6	2nd Cycle	72.1	-	-	158	-	-	158
x110,11,12	2nd Cycle	88.9	-	0	63	-	568	631

T Plant

Bldg. 241 Tanks	Waste	Percentage Full T	U	TX	* Reserve Capacity In Batches to Process T	U	TX	Total
x101,2,3	Metal	100	100	-	0	0	-	0
x104,5,6	Metal	-	100	-	-	0	-	0
x201,2,3,4	Metal	0	0	-	-	37	-	37
x107,8,9	Metal	-	1.0	-	-	263	-	263
x107,8,9	1st Cycle	100	-	-	0	-	-	0
x110,11,12	1st Cycle	-	100	-	-	0	-	0
x104,5,6	1st Cycle	74.0	-	-	111	-	-	111
x104,5,6	2nd Cycle	-	-	-	-	-	-	-
x110,11,12	2nd Cycle	66.0	-	-	198	-	-	198

* Tabulated below are the figures used in the calculation of the reserve capacity in batches. Effect of volume reduction program is reflected in the first and second cycle waste figures.

	B Plant	T Plant
Metal Waste	5,900 gal./batch	5,900 gal./batch
1st Cycle	3,650 gal./batch	3,700 gal./batch
2nd Cycle	2,800 gal./batch	2,700 gal./batch

MECHANICAL PERFORMANCE

B and T Plants

Bismuth Metal Dissolver - Project C-262

The installation in the 271-B Building of the necessary facilities for

the preparation of bismuth subnitrite from bismuth metal is complete except for the installation of the agitator and subsequent calibration of the dissolver. Delivery of the agitator is expected October 4, 1948.

Fan Bearing Failure - B Plant

The south fan bearing on the No. 1 stack exhaust fan at the 291-B Building failed on September 25, 1948 and was replaced. Cause of the failure has been determined to be lack of lubrication caused by the failure of the lubrication line.

Process Leaks - B and T Plants

During the installation of the cell filter in Section 13-R (first cycle by-product) of the B Canyon Building, a leak was discovered in the precipitator to centrifuge B jet assembly necessitating the replacement of the assembly. No measurable product loss was incurred as was evidenced by analysis of the cell drainage water.

At T Plant, it was necessary to replace the by-product centrifuge to solution tank jet assembly in Section 13-R which was determined to be leaking by the action of the conductivity meter.

Also at T Plant, high beta and gamma count in the cell drainage water led to the discovery of a leaking jet assembly on the 3-5R dissolver to 4-8 metal solution storage tank. Repairs were effected by replacement of the jet assembly. Analysis of the cell drainage water indicated that product losses were not of significance.

During the transfer of metal solution from the 6-1 storage tank to the 6-3 reduction tank at B Plant, erratic conductivity meter readings led to a discovery of a leaking jet assembly necessitating replacement of the assembly. Analysis of the cell drainage water indicated a total product loss of 0.24 percent of a normal run.

All of the above leaks were caused by gasket failures. Work is now in progress which will result in the development of facilities for remote replacement of gaskets on a preventive maintenance basis and to develop improved gasket types.

F-2 Centrifuge Overhaul - T Plant

The complete overhaul of the F-2 metathesis centrifuge mentioned last month was completed and the machine was returned to service placing the F-22 centrifuge in stand-by. Operation during the several runs since the change-over has been normal.

SPECIAL HAZARDS

Stack Gas Contamination

a. Sand Filters

Construction of the sand bed filter installation at T Plant

forged ahead of schedule during the month and completion during October appears to be assured. Fabrication of the stainless steel duct work by the Bremerton shipyards has been completed, and all aggregate and cover slabs necessary for completion are on hand. At month end all aggregate-layers below the 30 - 40 mesh range layer had been placed in the filter.

At B Plant, the base and side walls of the inlet duct and the filter base slab have been poured. Form work is in progress on the side walls of the filter and the precast support beams are being poured. Fabrication of the duct work is in progress. Completion of the filter may be expected in December.

As a result of somewhat higher efficiency values obtained in experimental tests on local sands which are more irregular in shape than the Monterey, California and Eau Claire, Wisconsin sands, but not available in sufficient quantity, a sample of crushed flint from the American Graded Sand Company at Eau Claire, Wisconsin was procured and tested. Particle retention efficiency of this sand compares to the Monterey and Eau Claire as follows:

American Graded Sand	crushed flint	- 99.84 percent
Eau Claire) Monterey)	on hand	- 99.49 percent

Since procurement of the crushed flint would result in a delay of approximately one month in the completion of the T Plant filter and because it has been recognized that the ultimate solution of the problem will necessitate the installation of additional filters, probably in series, with the filters now being constructed, it was decided to proceed with the installation of the 30 - 40 mesh range sand already on hand in the T Plant filter but to procure the crushed flint sand for installation in the B Plant unit.

In order that maximum particle removal efficiencies may ultimately be achieved, immediate consideration is now being given to the design of the additional filters, the design and procurement of additional fans which may be needed and all other theoretically attractive possibilities that might conceivably attain the objective sought.

b. Protection of Personnel

As a result of tests made by the Health Instrument Division which proved the Dustfo respirator to be significantly more efficient than the Martindale face mask now in use, an adequate supply of Dustfo respirators was procured and all persons entering the T and B Plant exclusion areas or working in the vicinity of the ventilation stacks are now required to wear Dustfo respirators.

c. Type 6 C. W. S. Cell Filters

Installation of C. W. S. Type 6 cell filters with a special fiberglass forefront for entrainment of moisture has been completed in the B Plant Canyon cells, with the exception of the dissolver and deep cell sections, for which specially designed filters are being made and the four sections (6, 8, 9 and 12) which the Technical Division requested to be left open until tests had been completed on the crushed flint sands. These tests are essentially complete and the installation of the filters will be completed early in October. At T Plant, the original C. W. S. Type 6 cell filters are being replaced with the modified filters as rapidly as possible.

DESIGN AND CONSTRUCTION CONSULTANT'S SECTION

Redox Development

The optimum cell size for the Redox Test Plant has been tentatively set at 8' x 25' and equipment layout and piping through concrete design are progressing on this basis. It has been shown that, exclusive of the ventilation fan and air treatment cells, two standard cell arrangements for the Test Plant will be sufficient. To maintain the cell dimensions of the Test Plant at a minimum, the current design philosophy is to install in most cases only the normal process lines, with alternate routings being provided by appropriate jumper changes in the pipe trench.

The specifications for the remote maintenance crane for the Test Plant were received during the past month and have been returned to the Architect-Engineer with General Electric's comments. The crane as visualized by the Architect-Engineer includes such features as both monocular and binocular opticals, Ward-Leonard electrical controls, pneumatic operation of lesser motions of the crane auxiliaries, and an improved system of crane control levers.

Specifications for the 200' stainless steel lined Test Plant ventilation stack of a design similar to the present stack were received during the past month. At the suggestion of the General Electric Design Division, the Architect-Engineer is currently considering a self-supported stainless steel stack which utilizes only a relatively short lift of concrete as shielding at the base of the stack. This type of design will represent a considerable saving in construction costs.

The site locations of the 202-S Building and the Redox mock-up facilities have been selected in the 200 West Area and these locations have been approved. The mock-up facilities will be designed to function with both the Redox Test Plant and the first Redox Production Plant.

The blockless canyon proposal initiated by the Redox Layout Group of Design Engineering Division and intended for inclusion in the Redox Main Plant design has been considered undesirable by the Manufacturing Division due to the special hazards conditions involved and the complexity and uncertainty at the present time of the equipment and process to be installed in the new separations buildings.

S Division

The "feasibility" report of the Redox Main Plant as compiled by the Kellex Corporation has been received by General Electric for comment. Of primary interest was the proposal for the installation of two longitudinal cells and a pipe trench in the canyon building as opposed to the present system of a number of transverse cells with an accompanying pipe trench. The longitudinal design is believed to offer decided advantages in construction costs and simplicity of piping fabrication, and, since there is no major objection from a design or operational standpoint, approval was given to continue on the Main Plant Design with this concept as a basis.

POWER DIVISION
SEPTEMBER 1948

GENERAL

On September 13 the 200 Areas power operations were returned to a 40-hour work week. It will be necessary to continue the 100 Areas Power Division on a 48-hour work week, overtime basis, until the hiring of approximately thirty operators has been completed and the new operators trained.

PERSONNEL AND ORGANIZATION

Number of employees on payroll	September
Beginning of month	415
End of month	418
Net Increase	3

There was a gain of three employees in the Division resulting from the hiring of three operators, the transfer into the Division of two exempt supervisors-in-training, the termination of one clerk, and the transfer out of the Division of one operator.

100 AREAS

A critical "Y" power condition was in effect from 2:13 p.m. September 30 to 3:45 a.m. October 1 in all the 100 Areas. The condition was caused by a line failure on the 230 KV system between the D and F Areas.

The 30-inch export water line between D and F Areas was taken out of service for approximately 28 hours on September 17 and 18 to install a 4-inch outlet for supplying water to the White Bluffs system.

The boiler feed water deaerator in the F Area power house was removed from service for re-tubing the vent condenser. All tubes were in bad condition, apparently due to corrosion. Work was completed and the equipment returned to service September 20.

The process water pressure at the F Area process pump room was decreased from 370 to 350 psi on September 20 at the request of the "P" Division.

The silicate feed to process water was reduced from 5.5 ppm to 4.5 ppm on August 26 and further reduced to 3.5 ppm on September 27 in the B Area. This was done to determine if lower feed rates are satisfactory. No adverse effects have been noted to date.

Power Division

The ferrifloc feed at the B Area filtration plant was reduced from 10ppm to 9 ppm on September 30. Results of reduction appear satisfactory. Present plans are to make similar reductions in all 100 Areas.

Construction work is progressing on all major power buildings in the H Area.

200 AREAS

All air receivers at the Canyon Building and the power house in the West Area were hydrostatically tested during the month.

On September 11 a bad water leak developed on the 10-inch raw water line supplying the West Area Canyon Building. Repairs were completed and the line returned to service on September 17.

On September 14 a complete scheduled shutdown of steam and raw water service in the West Area was effected for making repairs to all leaks and tying in the new 10-inch steam line to serve the 234-5 Building.

On September 17 a connection for a 2-inch steam line was made near the East Area Canyon Building to serve the new decontamination buildings. A similar connection was made in the West Area on September 14.

Construction is progressing on schedule for the West Area power house and filter plant extensions.

300 AREA

A complete steam service outage was effected for the entire area for approximately 12 hours on September 12 to make necessary repairs to all leaks in preparation for winter heating.

The newly installed soft water and service water pumps were put into service September 15.

The new feedwater deaerator heat exchanger and flash tank were placed in service September 13; also, the new boiler feed pump was started up on September 18. Additional work is necessary on this equipment before final acceptance.

WHITE BLUFFS

The main ice storage room has been completely emptied and removed from service for defrosting and drying out.

POWER DIVISION STATISTICS

From September 1, 1948

Through September 30, 1948

			AREAS		
			100-B	100-D	100-F
RIVER PUMP HOUSE (Building 181)					
River stage	Feet above sea level	(max)	392.4	383.8	370.1
		(min)	387.9	380.8	366.4
		(avg)	389.5	381.5	367.9
River temperature	avg. °F.		63.1	62.6	64.6
Water pumped to Reservoir	gpm avg. rate		36721	39519	32053
Water pumped to Refg. Condensers	gpm avg. rate			0	0
RESERVOIR (Building 132)					
Water pumped to Filter Plant	gpm avg. rate		31676	33612	28213
Water pumped to Condenser System	gpm avg. rate		3754	3857	3335
Water pumped to Export System	gpm avg. rate		1291	2050	505
	gpm normal rate		3846	3846	3846
Chlorine added at #1 inlet	pounds		18522	15391	11000
FILTER PLANT (Building 183)					
Filtered water to Power House	gpm avg. rate		262	276	239
Filtered water to Process	gpm avg. rate		27918	30279	25978
Filtered water to Fire & Sanitary	gpm avg. rate		110	199	153
Chlorine used in Water Treatment	pounds		7544	8629	6700
	ppm avg.		2.05	1.79	1.60
Lime used in Water Treatment	pounds		33477	26500	30230
	ppm avg.		2.9	2.2	2.9
Coaguland used in Water Treatment	pounds		131714	132410	136630
	ppm avg.		11.5	10.9	13.3
Raw Water pH	pH avg.		7.98	8.0	8.2
Finished Water pH	pH avg.		7.50	7.41	7.40
Alkalinity, M. O. - Raw	ppm avg.		62.3	58	69
Finished	ppm avg.		57.0	52	58
Residual Chlorine - Settled	ppm avg.		.38	.39	.28
Finished	ppm avg.		.10	.09	.09
Iron - Raw	ppm avg.		.08	.08	.09
North Clearwell	ppm avg.		.01	.02	.02
South Clearwell	ppm avg.		.014	.02	.02
Hardness - Finished	ppm avg.		71.7	72	68
Turbidity - Raw	ppm avg.		4.04	3.0	4.0
Filtered	ppm avg.		0	0	0
REFRIGERATION (Building 189)					
Refrigeration produced	Tons per day			0	0
Temperature, Process Water In	avg. °F.			-	-
Temperature, Process Water Out	avg. °F.			-	-

From September 1, 1948

Through September 30, 1948

POWER HOUSE (Building 184)

Steam generated - Total	M pounds	87305	94362	77235
Average rate	lbs./hr.	121088	130870	107122
225 psi Steam to plant (est.)	M pounds	76789	82917	67856
15 psi Steam to plant (est.)	M pounds	40	122	110
Coal consumed	Tons	6614	6938	5679
Coal in storage (est.)	Tons	40614	42893	43161

DEAERATOR PLANT (Building 185)

Water flow	gpm avg. rate	27668	29989	25728
Chemicals consumed:				
Dichromate	pounds	22445	20600	18400
Sodium Silicate	pounds	143100	237573	187810
Chemical Analysis:				
pH	pH avg.	7.66	7.66	7.65
Dichromate	ppm avg.	1.9	2.0	2.0
Silica	ppm avg.	4.4	5.8	5.5
Dissolved Iron	ppm avg.	.01	.02	.02
Free Chlorine	ppm avg.	.08	.07	.07

PROCESS PUMP ROOM (Building 190)

Total water pumped	gpm avg. rate	27493	29814	25553
	gpm normal rate	31416	32855	32480
Water temperature	avg. °F.	66.0	66.0	66.4

VALVE PIT (Building 105)

Chemicals consumed:						
Solids		pounds		1800	2250	1900
Chemical analysis:						
A, B, C, & D Headers						
	Standard limits					
pH	7.5-7.8	pH	(max)	7.70	7.75	7.70
			(min)	7.60	7.55	7.60
			(avg)	7.66	7.64	7.65
SiO_2		ppm	(max)	5.0	6.0	6.0
			(min)	3.0	5.5	5.0
			(avg)	4.4	5.7	5.5
$Na_2Cr_2O_7$	1.8-2.2	ppm	(max)	2.1	2.0	2.1
			(min)	1.6	1.9	1.9
			(avg)	1.9	1.9	2.0
Iron		ppm	(max)	.02	.03	.06
			(min)	.01	.01	.01
			(avg)	.016	.02	.02
Chlorides		ppm avg		2.0	1.9	1.7

From September 1, 1948

Through September 30, 1948

	Unit	200 Areas	
		200-E	200-W
Reservoir (Building 282)			
Raw Water Pumped	gpm avg. rate	1930	1915
Filter Plant (Building 283)			
Filtered Water Pumped	gpm avg. rate	437	407
Chlorine Consumed	lb.	283	257
Alum Consumed	lb.	1700	1500
Chlorine Residual - Sanitary Water	ppm	.7	.6
Power House (Building 284)			
Steam Generated - Total	M lb.	14979	19848
Steam Generated - Ave. Rate	lb./hr.	20775	27528
Coal Consumed (Est.)	tons	1169	1367
Coal in Storage (Est.)	tons	10904	11780

		300 Area
Power House (Building 384)		
Steam Generated - Total	M lb.	6889
Steam Generated - Avg. Rate	lb./hr.	9568
Coal Consumed - Total (Est.)	tons	562
Coal in Storage (Est)	tons	918
Sanitary and Fire System (300)		
Well Water Pumped - Total	gal.	28,501,000
Well Water Per Day	gal/day	950,000
Well Water	gpm avg. rate	660
Chlorine Residual	ppm	.3

MAINTENANCE DIVISION
SEPTEMBER, 1948

GENERAL:

The construction of the 291-T and 291-B sand filters are progressing satisfactorily. It is now estimated the 291-T filter should be ready to operate on October 22, 1948 and the 291-B filter on November 19, 1948.

ORGANIZATION AND PERSONNEL:

Employees on Roll	September
Beginning of Month	601
End of Month	599
Net Decrease	2

WORK ORDER SUMMARY:

Area	Backlog Mandays 10-1-48	Men on Roll	Backlog Days 10-1-48
100	4568	132	34.6
200	4452	157	28.7
300	2264	67	33.6
Minor Construction	18590	151	123.1
Total	29874	505	59.1

The total backlog decreased from 32997 to 29874 mandays during the month. The average number of days to complete all work decreased from 65.6 to 59.1 days.

100 AREAS:

An electric drive designed by the Design and Construction Divisions for #4 horizontal shim rod in the 105-B pile was installed for experimental purposes. The oil gear system was removed and all oil pipe lines connecting to the #4 unit were either blanked off at flanged connections or new blanks were made and installed so that there would be no interferences with the operation of the other oil gear units. This installation is complete except for minor adjustments which will be conducted by the "P" and Design and Construction Divisions.

Process tube #1569, 105-B Pile, was found to be leaking at a point 20 feet in from the rear of the unit. The leaky tube was removed and a new tube of type 72-S Alclad was installed.

Work is still in progress on the horizontal shim rods for the 105-DR Pile. At present there are six rods complete and the others are in process of assembly.

Rust was removed from numbers 26, 27, 28, 29, 30, 31, 32, 34, 35, and 36 vertical safety rod thimbles in the 105-D pile, using the large vacuum cleaner to suck out the dust. The rod guides and rod tips were buffed also.

A new intermediate section of #27 vertical safety rod was installed in the 105-D pile. This was necessary after the original section had split when the dowel pins were being removed.

The #1 electric fan in the 115-D Building has been put back into service. This fan was out of service while construction was building the 105-DR tunnel beneath the fan room floor.

A new orifice with 26.05" opening was installed in the 36" filter plant supply header at the south end of the 183-D head house. The 36" steel pipe was cut and a 3/4" section removed. After the orifice was installed, the pipe was re-welded and a 1/2" X 5" band over the opening. A full 1/2" X 1/2" fillet weld was made on each side of the band.

The #4 horizontal safety rod in 105-F pile developed water leaks at the coupling connections in the center portion of the rod tip. An inspection of these tubes revealed that they had corroded. Repairs were made by removing the corroded portions of the tube and installing two 10" long sleeves and one 5" long sleeve; the sleeves being attached to the tubing by brazing.

Rust was removed from vertical safety rod thimbles #18, 22, 26, 28, 29, 36, and 37. The rods and rod guides were buffed to full length. This completes the removal of rust from the thimbles.

The rear gun barrel on the tube #0571 was displaced 14" out of the 105-F unit during experimental charging operations. The gun barrel was successfully put back into its proper position. The damaged water tube was replaced with a new tube from the DR shipment.

One hundred and fifty Vanstone flanges on the 105-F unit were inspected for corrosion that could reduce the metal thickness below .030". Two new Vanstones were made on the front face and five new Vanstones on the rear face, using gun barrel cutting equipment developed last winter.

The "A" test hole thimble in the 105-F pile corroded so much that it was not usable. The thimble was removed from the unit and replaced with a new thimble fabricated in the maintenance shop.

Two "Mark II" segmental discharge machines for use on the front face of the 105-F pile were manufactured in the 1717 -F Shop. These machines were given a trial run operating from the "C" elevator.

3 Maintenance Division

200 AREAS:

Repairs to the 17-1-T Cell vessel water jacket were completed. A 4" section of the welded seam had opened. Repairs were made by re-welding.

The three caustic storage tanks at the "U" Canyon were prepared for re-activation. All piping flanges were regasketed and the steam coils were pressure tested.

The installation of manual flush-o-meter valves on urinals was completed in the "B" Canyon Building. The installation of these valves will reduce the water volume into the sanitary sewer system.

It was necessary to replace the 10 ton hook on the 75 ton canyon crane. It had been damaged while using it as an auxillary to remove a stuck key block. The block was later removed by the use of hydraulic jacks.

The F-2 centrifuge in T Concentration Building was completed by overhauling to insure smooth operation. This included bearing inspection, bumper ring replacements, renewal of G-X scrapers on the plow and replacement of skimmer.

Due to failure, in service, of the glazed tile chemical sewer in the "B" Concentration Building, it is being replaced. Replacement is being made with salvaged stainless steel pipe. Experience has proven that stainless is superior to tile in this service.

The West Area Shop completed fabrication of replacement tanks PR-3 and WR-1 for the Isolation Building. Installation will be made when operating schedules permit.

The main hoist cable drum on the North Area N Buildig crane was regrooved in place. This was accomplished with equipment previously made for this type of repair.

A leaking bell and spigot joint in the 10" raw water main, just outside the wall of the T Canyon Building, was repoured with Hydro-Tite. Lead could not be used since there was insufficient clearance for caulking and Hydro-Tite does not require caulking.

The East Area Shop completed 14 replacement pipe connector details for Canyon Building use.

The re-roofing of the high water storage tanks in East and West Area has been completed. Ladders, catwalks, and hand rails were also inspected and repaired at this time.

300 AREA:

Repairs were made to the return cylinders and a new bed plate was fabricated and installed on the Chip Recovery piers in the 313 Building.

b Maintenance Division

Numerous minor repairs were made to the firebrick in the "A" and "B" furnaces in the Extrusion Building

The 16" column on the demonstration unit in the 321 Building was removed and replaced with an 8" column.

PROJECT ENGINEERING DIVISION

SEPTEMBER 1948

GENERAL

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

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

100 AREAS

Project C-184. Animal Farm

Design is complete except for minor details awaiting outcome of tests and work on specifications is progressing. Part II of the project has been submitted for approval.

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

The new steel sewer line is now in operation. Several minor phases of the work remain to be done. Indications are that the air venting facilities included have materially reduced surging in the downcomer system.

E. R. A-1044. Outlet Charging Device

The operations test of Mark II unit was successful. The Puget Sound Naval Shipyards is now fabricating front face machines and tip-offs for limited scale operation which will start in November or early December.

E. R. A-1059. Building 105-B - 107-B Effluent Sewer Line

A steel sewer line similar to that installed in "F" Area under Project C-238 is being designed for "B" Area.

Project C-269. Temporary Radiobotany Laboratory Building

Architectural design is completed and construction will be started upon authorization of additional funds requested in Part II.

200 AREAS

Project C-273. Meteorological Station - Building 622-A

No progress with field work on account of more urgent man power and material requirements elsewhere.

1.

Project Engineering Division

E. R. 2377. Stack Gas Decontamination

The sand filter designs are essentially complete for the "T" Plant and construction on the filter is progressing ahead of schedule. All duct work for the "T" unit to be fabricated by the Puget Sound Naval Shipyards has been completed and shipped.

The "B" Area sand filter design is well ahead of the construction schedule. The Naval Yard is progressing rapidly on the fabrication of duct work for the "B" Unit and field work has started.

A project proposal to cover this work for both areas will be submitted in the near future when the cost can be more accurately determined. Tests are still continuing on sand samples and all efforts are being concentrated on procurement of material.

Project C-133. Special Test Wells 200 E and W

Essentially 67 wells have been drilled to date on this job. (93% complete)

300 AREA

Project C-223. Building 3703 - Technical Office Building

This unit should be completed and ready for occupancy during the month of October.

Project C-220. Building 3708 - Optical & Electrical Building

All reinforced concrete work has been completed.

Project C-227. Conversion of Offices to Labs - Building 3706

The Change House (Building 3707-C), which is a part of the conversion project, is scheduled for completion during the month of October.

Project C-237. Nine Tube Mock-Up.

Placing of the graphite blocks is scheduled to start approximately October 20, 1948. The unit should be ready for use two to four weeks after placing of the graphite blocks.

Project C-270. Building 3706 - Distilled Water System

The distilled water equipment has been installed and is operating satisfactorily. A water softener for the water fed to the still is on order.

E. R. A-3061. Increased Ventilation - 313 and 314 Buildings

A Suspense Code has been approved to cover emergency expenditures designed to reduce the Special Hazards associated with metal handling operations.

Project Engineering Division

E. R. A-3065. Investigate Process Sewer Effluent Pond

Preliminary surveys are nearing completion.

E. R. 4345, 4346, 4347. Building 313 Mechanization

Work is progressing on the three phases of this study. Automatic machining phase is 75% complete and the report is being prepared. Investigation of technical phases of proposed methods is in progress on the welding line analysis and improved frost test studies.

700-1100 AREAS

Project C-138. Richland Telephone Exchange

The additional building is completed and telephone equipment will be installed as rapidly as is practical after it is received.

Project C-177. 115 KV Power Transmission Line

Design is about 75 percent completed for the entire project. Work is progressing on sections 1 and 2 of the line and on the three substations.

Project C-196. Electrical Distribution Headquarters Bldg. and Conversion of Building 2713-E to Garage

The design work now progressing and is about 30 percent complete after being held up for more urgent work.

Project C-214. Rehabilitation of Plant Railroad

Design, field survey, and construction are progressing concurrently on this project. The new cut-off route west of the 100-B Area is finished.

Project C-253. Roof Replacement - North Reservoir - Bldg. 1182

Plans and specifications have been completed and this project has been transferred to Design and Construction for contractual negotiations.

E. R. 841-R. Richland Dust and Pollen Control 1948 to 1950

Project has been submitted and design work is in progress.

E. R. 990-R. Security Fences - All Areas

The project proposal has been revised to include new fencing for the exclusion areas only. Wood posts in area perimeter fences are to be replaced with treated timber. The project has not yet been approved.

Project Engineering Division

PRESENT STATUS OF WORK

Projects, Suspense Codes Authorized and Under Construction

100 AREAS

Project Number		% Phys. Complete	Date Auth	Est. Cost
C-172	Dismantling of Equipment in Demineralization and Deaerating Plants	10	8-19-47	$186,000
C-184	Experimental Animal Farm - Part I (Part II Awaiting Auth for Additional $507,000)	0	10-27-47	286,000
C-213	Fire Protection Riverland Shop	100	1-13-48	8,200
C-222	Dismantling Unoperated Equipment in 105 Valve Pits	18	2-10-48	4,000
C-238	Effluent Sewer Line 105 F to 107 F	90	3-26-48	207,000
C-269	Temporary Radio Biological Lab. 100 F Area	0	7-28-48	10,100
	TOTAL Estimated Cost 100 Area Projects			$1,001,300

200 AREAS

C-133	Special Test Wells 200 E and W	93	1-30-47	180,600
C-163	Additional Waste Storage & Tie Line 200 W (G.E.Portion Only - Subcontract not Included)	71	7-25-47	600,000
C-171	Alterations to Six Periscope Assemblies	83	8-6-47	7,200
C-225	5-6 Waste Disposal to Ground	100	3-8-48	32,000
C-262	Bismuth Subnitrate Preparation Fac.	60	7-13-48	23,000
C-273	Water Supply & Plumbing - Bldg. 622A	0	8-4-48	13,500

4.

Project Engineering Division

Projects, Suspense Codes Authorized and Under Construction - 200 Areas Cont'd

Project Number		% Phys. Complete	Date Auth	Est. Cost
SC 10155	Physical Testing Equipment	65	- - - -	$ 7,500*
SC 10225	Stack Filtration Facilities	17	- - - -	840,000*
	TOTAL Estimated Cost 200 Area Projects			$1,703,300
	300 AREA			
C-127	300 Area - Increased Capacity of Telephone Exchange (Elect. Div. Will Procure and Install Equip.)	90	5-12-47	30,000
C-189	Building 3745-A X-Ray Facility Part I. (Part II Awaiting Auth. for additional $11,000)	91	8-20-47	22,000
C-219	Construction of Additional H. I. Instruments	25	1-27-48	97,200
C-220	Optical Instrument Bldg. and Elect. Shop 3708 - 300 Area	65	1-30-48	82,000
C-227	Conversion of Offices to Labs. Bldg. 3706 & 3707-C Change House	35	3-15-48	429,000
C-237	Nine Tube Mock Up Bldg. & Equipment	36	4-12-48	106,000
C-270	Building 3706 Distilled Water System	100	7-28-48	4,800
	TOTAL Estimated Cost 300 Area Projects			$771,000
	700 - ADMIN. & GENERAL PLANT AREAS			
C-138	Richland Telephone Exchange - Bldg. 702	26	5-12-47	470,500
C-144	Additional Telephone Cables - Rich.	0	5-12-47	45,000
C-148	Combined Maintenance Shops	98	6-4-47	188,000
C-177	115 KV Power Transmission Line	43	8-14-47	1,167,000
C-195	Radio Communications for Railroad & Electrical Division	83	10-15-47	34,000

* High Spot Estimate

5.

Project Engineering Division

Projects, Suspense Codes Authorized and Under Construction - 700 Area Cont'd

Project Number		% Phys. Complete	Date Auth	Est. Cost
C-196	Electrical Distribution Headquarters Bldg. & Conversion of 2713 E to Garage	0	10-10-47	$162,400
C-209	Two Story Addition to Bldg. 703	100	12-3-47	140,000
C-214	Rehabilitation of Plant Railroad	32	2-13-48	3,214,000
C-229 *	Office Machine Repair Shop. Hut 722-L	74	3-26-48	3,700
C-256	Seal Coating of 36 Miles of Plant Highway	98	5-18-48	75,000
C-265	Additional Telephone Cable - Richland to Kennewick	10	7-29-48	30,000
C-279	Improvement to Area Administration Bldg.	0	8-20-48	98,200
	TOTAL Estimated Cost for 700 Admin. & General Plant Areas			$5,627,800
	1100 AREA			
C-134 *	Richland Village Dust Control & Landscape Program 1947 to June 1948 (Grass Planting has been Subcontracted)	61	12-19-46	250,000
C-146 *	Irrigation Extensions - Village	91	3-28-47	90,000
C-245	Remodeling of Tract House L-859	90	4-15-48	7,000
C-253 *	Roof Replacement - Domestic Water Reservoir - Richland	0	7-21-48	35,500
	TOTAL Estimated Cost 1100 Area Projects			$382,500
	TOTAL Estimated Cost for Active Approved Projects - All Areas			$9,486,400

* These projects are being transferred to the Public Works Division and will be reported by them in the future.

6.

Project Engineering Division

Project Being Routed for Authorization

841-R *	(C-282)	Richland Dust and Pollen Control 1948 to 1950.	218,000
941	(C-184) Part II	Experimental Animal Farm	507,000
990-R	(C-291)	Security Fences - All Areas	246,800
A-452	(C-276)	Overall Plant Telephone System	1,235,800
A-502	(C-284)	Transportation Consolidation	1,947,000
A-1046	(C-290)	Spectrometer Fabrication & Installation	9,000
2343	(C)	Decontamination Stations 221 T-B	33,000
2414	(C)	Waste Separation Facilities 231-W	6,200

PROJECT ENGINEERING - AREA REPORTS

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

100 AREAS

E. R. No.		% Engineering Complete
A-1004	Downcomer Design 105-F	20
A-1012	Physical Bend and Tension Testing Machine	100
A-1034	Alterations to Bldgs. 186 and 185	17
A-1044	Outlet Charging Device (Through Proposed Model III)	25
A-1046	Spectrometer Mount	100
A-1048	Revise Gas Circulating System Bldg. 105	100
A-1051	Remove Equip. in Valve Pits Bldgs. 105 B & F	52
A-1054	Design Roller Flanging Device for Van Stone Joints	50
A-1055	Design and Estimate a Radiation Shield for Top Far Side of 105 D and F	90
A-1057	Prepare Project for Earth Crib 100 B & F	80

*This project is being transferred to the Public Works Division and will be reported by them in the future.

Project Engineering Division

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

E. R. No.		% Engineering Complete
A-1058	Study & Est. Cost of Preparing "B" Area for Operation-Devise Charge Code System	100
A-1059	Prepare Project for Steel Sewer Line at 1008 Area	20
A-1060	Increased Shielding Front Nozzle Caps	80
A-1061	Estimate Cost of Slack Cable Limit Switches	35
A-1062	Prepare Project for Mark II and Mark III Machines for Segmented Discharge	80
A-1063	Poison Splines	10
A-1064	Equipment Designs for Oxygen in Pile Atmosphere	10
A-1065	Equipment Designs for Large Scale CO_2 Evaporator	20
	200 AREAS	
2277	Revise Cell Piping per Marked Prints	90
2279	Prepare Project for Regasketing Facilities 221-T & B	78
2285	"B" Jet Assembly	75
2287	Study Rail Alignment of 200 N. Cranes	70
2288	Special Test Wells 200 E & W. 67 Wells Complete	93
2309	Water Supply & Plumbing - 622 Building	95
2326	Mark Grade on Steam Line Supports 200 W	0
2327	Study Possibility & Redesigning Connector Head to Simplify Gasket Changing	80
2343	Design Equipment Decontamination Station for Small Items 221 B	100
2353	Crane Alignment & Rail Elevation 221T	70
2355	TX Waste Storage (Field Engr. for Proj. C-163)	75

Project Engineering Division

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

E. R. No.		% Engineering Complete
2368	Study & Recommend a Means of Preventing Steam Cell Piping From Creeping Through a Concrete Wall	80
2369	Prepare Project to Install Manifold Outlet Piping Tank Baffles to Permit future Use of Remaining 3-200 Series Tanks for 224-T and B Waste	95
2376	Cathodic Protection to Underground Waste Lines (Survey Work and As-Built Drawings)	95
2381	Design Acid Supply Tanks & Piping for 222B	80
2385	Steel Stack Handling Equip. 272 E & W	80
2387	Piping Changes E-I-Y Tank 224-T	100
2393	Steam Jet with Remotely Removable Features	0
2397	Specify 1-1/2" Pipe from Car Spot to 181 Tank 211 T	100
2400	Maintenance Hoist for Cranes 211 T U B	50
2401	Maintenance Hoist for Cranes 212 N P R	5
2403	Revision of 222 T & B Control Labs.	20
2414	Separation & Control of 231-W Process Wastes Project in Preparation	100
2417	Location Determination for Zone Signs & Directional Markers over BX Lines	25
2421	Procure & Install Lab. Equip. in 271 T U B Control Labs.	5
2422	Clothing Change House with Monitoring Facilities at 221 T & B	90
2423	Investigate Settling of Caustic Tanks & Recommend Remedy. (211-T Pump Relocated and Leaks Diverted to Sewer)	50
2425	Utilization of Tanks 241-U-107, 108 & 109 for Metal Waste	95

Project Engineering Division

Status of Engineering Study & Design Work In Progress During Month of September

E. R. No.		% Engineering Complete
2432	Identification of Stainless Steel Articles	0
2434	Prepare Project to Cover Mock Up Facilities for Metallurgical Studies 200-N Area. Changed to 111B Bldg	25
2435	Design Waste Disposal Sumps 222-B	5
2436	Study Ventilation & Cooling System 221-T Gallery for Improvement of Present Facilities	80
2437	Prepare Project for the Study of Process Waste Separation 200 B-T-U	2
2438	Design and Estimate Improved Well Sampling Device	0
2441	Air Sample Piping From Top of Stack 291-T-B	50
2442	Recommend Remedies for Agitator Tank Bearing Failures to Philadelphia Gear Works	0
2443	Design Piping for Parallel Operation of Cells in 221 T-B	0
2444	Design Method of Storing 42 instead of 30 Buckets per Row in 212 N P R	0
2445	Design and Estimate a Dark Room for 222-B	10
	300 AREA	
A-3057	Design Cooling Coil for Bldg. 313 Chip Recovery Press	30
A-3058	Study & Recommend Design Changes for Air Conditioning System Bldg. 321	10
A-3059	Evaluate Construction of "P" Div. Change House in the 303 Area	40
A-3060	Temporary Metal Melting and Fabrication Bldg.	60
A-3061	Increased Ventilation - 313 and 314 Bldgs.	10
A-3062	Installation of Rolling Mill in Bldg. 314	5

10.

Project Engineering Division

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

E. R. No.		% Engineering Complete
A3063	Evaluate CO_2 System for Rooms 4A and 6 Bldg. 3706	5
A3064	Study Backfiring of Stokes Pumps	20
	700 ADMIN. & GENERAL PLANT AREAS	
828	Bldg. 702 - Automatic Dial Exchange	96
872-R	Improvement to Area Administration Bldg.s	30
883	Coal Pile Survey - 300 Area	100
887	Coal Pile Survey - 100 BDF Areas	100
912-R	Acid Storage & Handling - 706 Bldg.	80
941	Designs for Experimental Animal Farm Proj. C-184	86
962	Designs for 115 KV Power Line Through Richland	75
972	Survey of Effluent Lines 100 B, D & F Areas	70
973	Designs & Engr. for Elec. Dist. Hdqts. Bldg Near 251 Sub-station & Conversion of Bldg. 2713-E to Garage. Project C-196	28
990-R	Fencing All Areas	50
997	Deodorizer for Building 705	90
A-401	Telephone Cable Layout - Bldg. 720	20
A-409	Telephone Cable Layout for Bldgs. 703, 705, 760 & 770	0
A-420	Engineering Work for Rehabilitation of Plant Railroad. Project C-214	55
A-445	Electrical Design for Bldg. 3706, 3703, and 3707	90
A-452	Prepare Project for Expansion of Main Plant Telephone System (Design Work Only)	55
A-463	Electrical Drawings for Charging Device	45
A-464-R	Metering of Power - All Process Areas	15

11.

Project Engineering Division

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

E. R. No.		% Engineering Complete
A-468	Illumination Tests - 716 Garage	100
A-485	Study for Sidewalks - 700 Area	100
A-487	Study of Lighting - Bldg. 703	100
A-489	Study Road Improvement Between Midway and Priest Rapids	50
A-490	Project for Columbia Camp Rehabilitation (Canceled)	40
A-492	Preparation of Project Additional Telephone Cable Richland to Kennewick (Design Work Only)	75
A-496	Prepare Project for Temporary Biological Laboratory Facilities - 100 F Area	50
A-498-R	Prepare Project for Addition to Fire Station 200 W Area	10
A-499	Lighting Study - Room 2240-1-2-3,703 Bldg.	20
A-502	Prepare Project for Transportation Consolidation	5
A-505	Electrical Standards	10
A-506	Project for Hanford High School Conversion	25
A-507	Project for Workshop Addition to 313 Building	10
	1100 AREA	
841 *	Design Work for Richland Dust Control & Landscape Program (Project C-134)	96
841-R *	Design work for Richland Dust & Pollen Control Project - 1948 to 1950 Program	5
A-501	Ice Flaking Machine Installation - Hospital	90
A-503	Designs for Relocation of Transformer Station Desert Inn.	100
A-508	Warning System - Richland & North Richland	0

*These projects are being transferred to the Public Works Division and will be reported by them in the future.

12.

Project Engineering Division

ENGINEERING STUDIES GROUP REPORT

Studies Completed This Month

E. R. No.		Date Completed
4330	J. I. Penn & Worthington Compressors	8-31
4324	Lubrication Survey - 300 Area	9-30

Studies Added This Month

4350	Inspection & Care of Wire Rope	8-16
4351	Asbestos Shakes vs Painted Siding	9-20

ACTIVE STUDIES

E. R. No.		% Complete
A-489S	Midway - Priest Rapids Road	70
4318	Packing & Gasket Standards	20
4326	Use of Inhibited Turbine Oil	85
4327	Maintenance of Pitched Roofs	40
4336	Review Oil Coding System	5
4339	Standard Sign Catalog	95
4341	Transportation Division Consolidation	95
4342	Analysis of Heavy Duty Lacquers	35
4343	Forced Draft Fan Inspection & Overhaul	85
4344	Operating Standards for Hydrocrane	20
4345	Automatic Machining Equipment	75
4346	Welding Line Analysis	20
4347	Improved Frost Test Line	40
4348	Soft Water System - Kadlec Hospital	40
4349	Pistol Range Sanitary System	50

Project Engineering Division

ACTIVE STUDIES

E. R. No.		% Complete
4350	Inspection and Care of Wire Rope	10
4351	Asbestos Shakes vs Painted Siding	0

BACKLOG SUMMARY

	Work on Hand 8-31 Estimated Man Days	Work Completed During Sept. Estimated Man Days	Work on Hand 9-30- Estimated Man Days
Studies	324	111	294
Proj.& Design	9,979	1,970	8,990
TOTAL	10,303	2,081	9,284

ELECTRICAL DIVISION

SEPTEMBER, 1948

GENERAL

Work Order Summary - Estimated Mandays:

Area	Work on Hand Aug. 31 Estimated Man Days	Work Completed to Sept. 30 Estimated Man Days	Work on Hand Sept. 30 Estimated Man Days
100-B	360.9	290.0	323.9
100-D	516.2	311.9	397.4
100-F	302.0	397.0	320.0
200-E	389.7	243.5	365.5
200-W	357.6	211.5	307.5
300	180.2	200.6	180.4
Telephone	1204.0	629.0	1520.0
Minor Const.	401.3	317.0	366.0
Distribution	4009.6	1198.0	3754.7
Totals	7721.5	3798.5	7535.4

The foregoing summary includes routine work as well as Project construction work and regular work orders.

Efforts are being directed toward reduction of planned six day work week to a minimum. In the 100 Areas, 100 B and 100 F have been returned to a five day basis. The 100 D Area, with much construction work developing on day to day basis as related to 105-DR, is temporarily on a six day week. All other sections of the division are on a five day schedule except the Dispatchers, Substation Operators, Telephone Section and shift coverage in the 300 Area.

The attached load chart for the peak day of the month, September 29, shows a peak of 55.3 MW for the entire project with a coincidental demand of 19.3 MW on the 66 KV system between 6:00 and 7:00 p.m. The 66 KV system peak of 20.0 MW occurred between 8:00 and 9:00 a.m. This chart shows seasonal demand, mainly reflected in 66 KV system increased lighting and heating, especially prefab in the morning.

The Division has participated in committee meetings concerned with reduction of peak, as well as overall electrical load on the system, particularly 66 KV, as a part of a general program initiated by the Bonneville Power Administration as a water conservation measure during the coming winter season throughout their territory. In addition to Bonneville Power Administration requirements as transmitted by the Atomic Energy Commission, our own situation requires conservation until at least one transformer is energized on the new 115 KV system since the Village peaks this winter are expected to exceed combined Village transformer ratings (66 KV) by some 30 percent because of load added during the last year, mainly housing.

Electrical Division

Under Project C-177 (new 115 KV system), Subcontractor efforts remain directed toward completing the transmission line and substation steel and foundations. It is now expected that their subcontractor work in the station will be complete towards the end of October; thus, enabling the Electrical Division to start electrical work within the station to supplement work now being done on 7.2 KV feeders preparatory to cut-over. Transformer delivery has been delayed by suppliers but, after active expediting, the first Village transformer will now be delivered in early November and the remaining three in December. All efforts remain directed towards energizing the south station in Richland, using at least one transformer by early December. Further studies with Design and Construction are under way relative to North Richland 115 KV service.

The principle work done in Standards Committee during the month was final review and approval of some thirty standard drawings pertaining to 13.8 KV for immediate issuance.

Project proposal for expansion of 251 Substation and addition of feeders to 200-E and 200-W was reviewed in final form, as required by additional process plant now planned for these areas.

Similarly, consolidated project for telephone system was reviewed in final form, and appropriation request was made.

Semi-final review of revised departmental Safety Handbook has been made, and final draft is expected to be ready during the coming month.

An agreement has been made with Project Engineering to direct all electrical prints and data for review to the Electrical Superintendent's office in order to avoid confusion. The Superintendent's office will be responsible for proper review within the Electrical Division organization.

ORGANIZATION AND PERSONNEL

During the month, there were six terminations, including one Electrician retired. The remainder comprised one Electrician, one Telephone Serviceman, one Lineman and two Helpers.

There were three new hires; namely, two Electricians B and one Helper. Three Helpers were transferred in from the Transportation Division; labor crew now assigned to pole butt treatment. One Electrician and one Helper were transferred in from the Design Division.

Mr. O. Magachon has been transferred in from Construction as an Assignment Engineer, assigned to the Distribution Section.

Mr. R. D. Huffman was upgraded to Foreman in charge of 100-B Area to replace Mr. G. L. Givan who has been moved to 100-DR for final inspection and start-up of this area with ultimate intentions of moving Mr. Givan to 100-H as Electrical Foreman.

Number of employees on payroll:	September Exempt	Non-Exempt
Beginning of month	43	222
End of month	46	224
Net increase	3	2

Electrical Division .

AREA ACTIVITIES

1. 100 Areas

A. General

In future reports only items of special interest will be listed under area sub-headings; items pertaining to normal maintenance and operations as well as minor changes will be excluded.

Critical power "Y" was established for the 100 Areas at 2:13 p.m. on September 30 due to a pole top fire on the 230 KV line, structure No. 61, between 100-F and 251 Substation. Normal power was restored at 3:48 a.m. on October 1.

B. 100-B Area

Work was completed on the installation of swivel hangers and the relocation of lights over the filter beds in the 183 Filter Plant Building.

105 Pile Building

The installation of conduit and wiring for the 14 strain gages on the pile unit is 95 percent complete.

Considerable time was spent in completing the installation of trial electrical drive for the No. 4 horizontal rod. The initial trial operation was completed on September 25. The trial was very satisfactory. Additional tests will be made October 5.

C. 100-D Area

In continuation of last month's report, a large proportion of time was utilized for requirements of 100-DR construction program. Stand-by time for movement of equipment appears to be diminishing. Switchgear, control and annunciator circuits have been checked and final connections will be made shortly for 200 h.p. filter supply pump motor in the 182 Building. The following additional items pertaining to 105-DR construction were completed.

The conduit run was completed and wires were installed for the Instrument Panel Hi-Tank connections to overhead cable at the 182 Reservoir Building.

The conduit installation from the 105 Pile Building monitor room to the 105 DR aerial cable was completed and ready for construction ties.

The necessary conduit runs for construction ties in the 115 Building were completed except for a short run in the tunnel.

A change in plans made it necessary to make a second relocation of the re-use pump motor conduits in Process Water Building 190. This work has been completed and wires have been installed for all ties in the 190 pipe tunnel.

105 Pile Building

The brushes and brush mechanisms on the vertical safety rod clutches are being cleaned and checked each shutdown day. This program seems to have eliminated our difficulties due to clutches slipping.

A Sola regulated voltage transformer was installed for Beckman voltage supply in the storage room.

D. 100-F Area

The lighting in the Technical Division Laboratory in Building 185 was completely rebuilt. Old fixtures were removed and 18 new industrial type 4 lamp fluorescent fixtures were installed to give an average illumination of 50 foot candles.

105 Pile Building

Conduit and wiring were installed on the front face of the unit for new Beckman chambers on all four corners of the front face.

A pilot light was installed on the emergency lighting throwover switch to indicate when the switch is in the proper position.

Vertical safety rod clutch rectifiers which were damaged by the high voltage surges in July were replaced with new rectifier units.

Hanford

The old High School Building in Hanford was reconnected and lighting circuits were checked. The boiler feed pump was serviced and reconnected. An extra receptacle was installed in the gymnasium for use in presenting movie and slide films for special programs.

2. 200 Areas

A. General

Cathodic protection of the stainless steel waste lines has proceeded in a satisfactory manner during the past month. A patrol of the lines showed all connections to be secure.

On September 16, 1948, the test samples of stainless steel pipe buried in the 200 East Area were removed from the ground for inspection. Corrosion was present on the pipe which had no protection. The protected pipe showed no evidence of corrosion. These pipes will not be reburied.

The test samples buried in the 200 West Area will be removed from the ground on October 11, 1948.

Other experimental work on corrosion is being continued as outlined in previous reports in an effort to finalize these studies and to assure that the pipe areas are completely protected.

B. 200-E Area

An air conditioning unit was installed on the new Precipitator Building located in the "B" exclusion area.

In conjunction with the Maintenance Division, two centrifuge units for the 221 Buildings were purchased from Spare Parts and installed in the "mock" cell in the 272 Building. These units were wired, test run, and are ready for service.

Electrical work concerned with Project C-106, Sand Filter Installation, is 30 percent complete and is proceeding in accordance with progress of Maintenance Minor Construction forces.

On September 3, 1948, the 8-2 centrifuge motor in the 221-B Canyon Building was connected to run on high speed. This is the only centrifuge motor in the 221-B Canyon Building that is connected for high speed.

On September 9, 1948, the left hand impact wrench on the 75 ton crane in the 221-B Canyon Building failed. The motor will still run, but will not produce sufficient torque to do its work. The trouble probably is mechanical; however, the wrench will be inspected as soon as the Canyon conditions will permit.

All Beckman conduits from the 221-B Canyon Building to the Pipe Gallery have been sealed off except in sections 3, 4, 5, 6, and 7 in the Canyon. We are unable to get into these sections because of the special hazard conditions.

The conduit runs from the Pipe Gallery to the Operating Gallery in sections 12 and 13 are contaminated to the extent that replacement is necessary. This conduit is being replaced as conditions permit.

There were twenty-eight motors repaired in the 200 East Area Electric Shop during the month.

C. 200-W Area

The transformers and substations used by Morrison-Knudsen Company in the construction of the 241-TX waste tank farm were removed from service on September 8, 1948. The 2300 volt primary line was terminated at "D" road as future plans will utilize this line. Transformer and substation were transported to the 200 East Area for 241-BY Tank Farm construction.

On August 31, a voltage dip activated the emergency light relays in the 221-T Canyon Building. When the voltage came back to normal, one relay failed to drop back, with the result that the emergency lights completely discharged the battery bank. These relays have given trouble since start-up. An order has been obtained to replace all of these relays with a solenoid type which we believe will eliminate this trouble.

On September 7, a roof fan motor in the 224-T Process Building was replaced by a motor from Spare Parts. Either the starting winding or the centrifugal switch failed. Since this motor is very "HOT", a special work place will be established in order to disassemble this motor for examination. Unless repairs are of a minor nature, the motor will be buried because of the special hazard conditions.

Heavy winds caused the wires to swing together on feeder E8-L9 relaying oil circuit breaker E8-X9 open at 2:45 p.m. on September 14. Sufficient clearance has now been provided on feeders L-1, L-9, L-10, and L-16 to prevent recurrence.

3. 300 Area

The "A" pot furnaces in the 313 Material Preparation Building continue to fail owing to the higher operating temperature now required. Maintenance costs have increased considerably and it is unlikely they can be lowered as long as the furnaces are operated at this higher temperature. If the maintenance cost continues excessive, consideration should be given to operating one or more of the two lines which are on "standby". If that is impractical, a change of design in the furnaces should be made as the present heating element will not stand the excessive temperature now in use (725°C). The other furnaces in use are operated at a lower temperature and maintenance is very minor. Three failures occurred during the month.

A test was made on the two induction furnaces in the 314 Building, Melt Plant Addition, in an effort to determine the cuase of hunting between the two generators. One generator was loaded with a coil in one furnace and the other generator with a coil in the second furnace so as to provide a maximum distance between coils and with a minimum magnetic linkage between coils. With these operating conditions, no hunting was evident.

A single phase condition occurred on the 66 KV system on September 25, followed by a complete outage on the 300 Area from 10:44 a.m. to 11:24 a.m. A 75 h.p. motor on the air conditioning system of the 3706-A Building (Laboratory) was burned out as well as several primary fuses.

Control circuits for Wells 3 and 4 were installed and connected during the month.

Service was provided to Buildings 3707-C and 3703.

4. Distribution and Transmission

During the month, the services of the personnel of one entire line crew remained assigned to various escort duties for movement of construction equipment so as to protect overhead lines and personnel, mainly in Richland and vicinity.

The following work was done on pole treatment and replacement program during the month.

	Inspected	Condemned	Treated	Replaced
200-E Area	188	90	98	25
200-W Area	196	82	114	

This pole treatment crew was also used for other duties during the month, especially grading and cleaning substation yards.

During the month, 59 distribution transformers were checked and tested for Design and Construction and 23 were tested for Electrical Distribution.

Electrical Division

The following radio equipment was serviced during the month:

Two way radio mobile units serviced	100
Two way radio mobile units installed	35
Two way radio mobile units removed from service	5
Stationary units overhauled	5
Stationary units serviced	7

Stationary unit WGMR-1, located at Substation A-8, was permanently removed from service during the month.

At 2:13 p.m. on Thursday, September 30, the line patrolman, while on routine inspection of the 230 KV lines, reported a fire on structure A6-8-61 located just north of Gable Mountain in the 230 KV line. When discovered, the pole was 90 percent burned through and the double cross-arm was completely burned off at pole. A critical "Y" condition was established in all areas and line A6-8 was taken out of service. Repair work was started immediately and heavy timbers were bolted to the pole just below the burned spot in order to provide necessary clearance for the cross-arm and static wires above the conductors. New cross-arm material was spliced onto the existing cross-arm between the center pole and the one burned off. Some seven or eight insulator units which were broken when the top section of the structure fell also had to be replaced. Work was completed and the "all clear" was given to each of the 100 Areas by 3:48 a.m. on Friday, October 1, making a total time of 13 hours and 29 minutes that the system was on critical "Y".

Metering potential and current transformers were installed at the 100-H Construction Substation.

Line work in Richland, 1100 Area, has continued at a high rate as required by construction work in the Village, such as providing overhead clearance for movement of equipment, transformer settings and lines to construction, flood lighting, service to new housing, etc.

Extensive rebuilding of the 7.2 KV feeders along Van Gieson Street is now under way in order to provide service to the "G" and "F" Housing Areas. Also, we are in the process of constructing and rebuilding the 7.2 KV feeders from Station No. 1 and along Kuhn to provide a dual feed to the "F" Housing Area. The above work is approximately 50 percent completed.

Approximately the full time of one line crew was spent on rerouting and rebuilding the 7.2 KV lines at Station No. 1 in order to provide for the cut-over from the 66 KV system to the new 115 KV system. This work is being performed on Project C-177.

Work of relocating substations for the Desert Inn is now underway. Extension of the 7.2 KV lines and construction of the new substations is approximately 50 percent complete.

On Saturday, September 25, during a high wind storm, the jumper on the 66 KV bus broke loose causing an outage to the 300, 3000 and North Richland Areas. The load was transferred to the Pasco Substation, repairs were made and the system was returned to normal.

Electrical Division

Power Supply Interruptions

Date	Area	Circuit Affected	Duration	Remarks
		230 KV		
Sept. 30	All	Critical "Y", Polo Fire	13 hrs. 29 min.	Polo fire
		66 KV		
Sept. 13	Richland	700 and 800 Street Lights	1 hr. 23 min.	Bad relay
Sept. 16	Richland	700 Street Lights	58 min.	Unknown
Sept. 25	300	From B-43 to B-280	6 hrs. 43 min.	Single phase riser burnt off
Sept. 25	66 KV Line	All 66 KV and 6.9 KV from Hanford	1 hr. 2 min.	Repair riser
Sept. 25	Richland	700 street lights	4 hrs. 12 min.	Relay grounded
Sept. 26	Pasco	Fence lights, Warehouse	3 hrs. 39 min.	Open circuit
Sept. 26	Richland	700 Series circuit	All night	Bad current transformer

5. Telephone Section

A 25 pair cable on Van Giesen Street was replaced by a 100 pair cable in a new location to provide additional clearance for widening of the street.

A 25 pair cable at the Columbia High School was relocated and replaced with a 50 pair cable to allow for a parking area and for landscaping.

Two new 102 quad underground cables were installed and spliced in along Williams Street and George Washington Way. This will serve as underground trunk lines for the areas and also eventually provide service to the "A" Housing Area.

Installation of 52 quad cable on the north side of Van Giesen from George Washington Way to the present area trunk cable has been started. When completed, this will permit removal of the existing trunk cable from the proposed commercial area north of Williams Blvd.

Seven additional toll circuits were placed in service between Richland and Pasco, making a total of 37 in use.

Work was started on Project C-144 for expanding the telephone cable facilities in Richland (old portion). This is about 8 percent complete.

Installation of equipment in the North Richland exchange to increase it from 300 lines to 600 lines is about 40 percent complete.

Electrical Division

The following number of lines and sides were vacant on the Richland switchboard as of midnight on September 30.

Class	Lines Vacant	Sides Vacant
1500 Series	9	24
Resident Numbers	26	284
Office Numbers	30	35

Under Project C-127, the installation of an additional 100 lines was completed in the 300 Area exchange. Full benefit will not be derived from this service until additional trunking can be provided. This trunking is under construction on Stevens Drive and will also be started in the 700 Area on October 4. Overhead cable from the end of Stevens Drive to the 300 Area will also have to be completed by construction forces.

Equipment for 20 additional lines was installed in the 100-F exchange, making this a 100 line equipped office.

Installation of 13 and 27 quad cables between "BY" station and the White Bluffs exchange was completed.

Trunk lines from the White Bluffs exchange to the Richland exchange were increased from 12 to 20.

The 101 Building at Hanford was changed from the Richland exchange to the 100-F exchange, and the number of lines to the 101 Building was increased to eight.

A five pair "in-out" cable terminal was installed on Pole No. 388 of the Richland-BY trunk cable and telephone service was provided to the Benton Switching Station from the 300 Area exchange.

The following telephones were moved during the month:

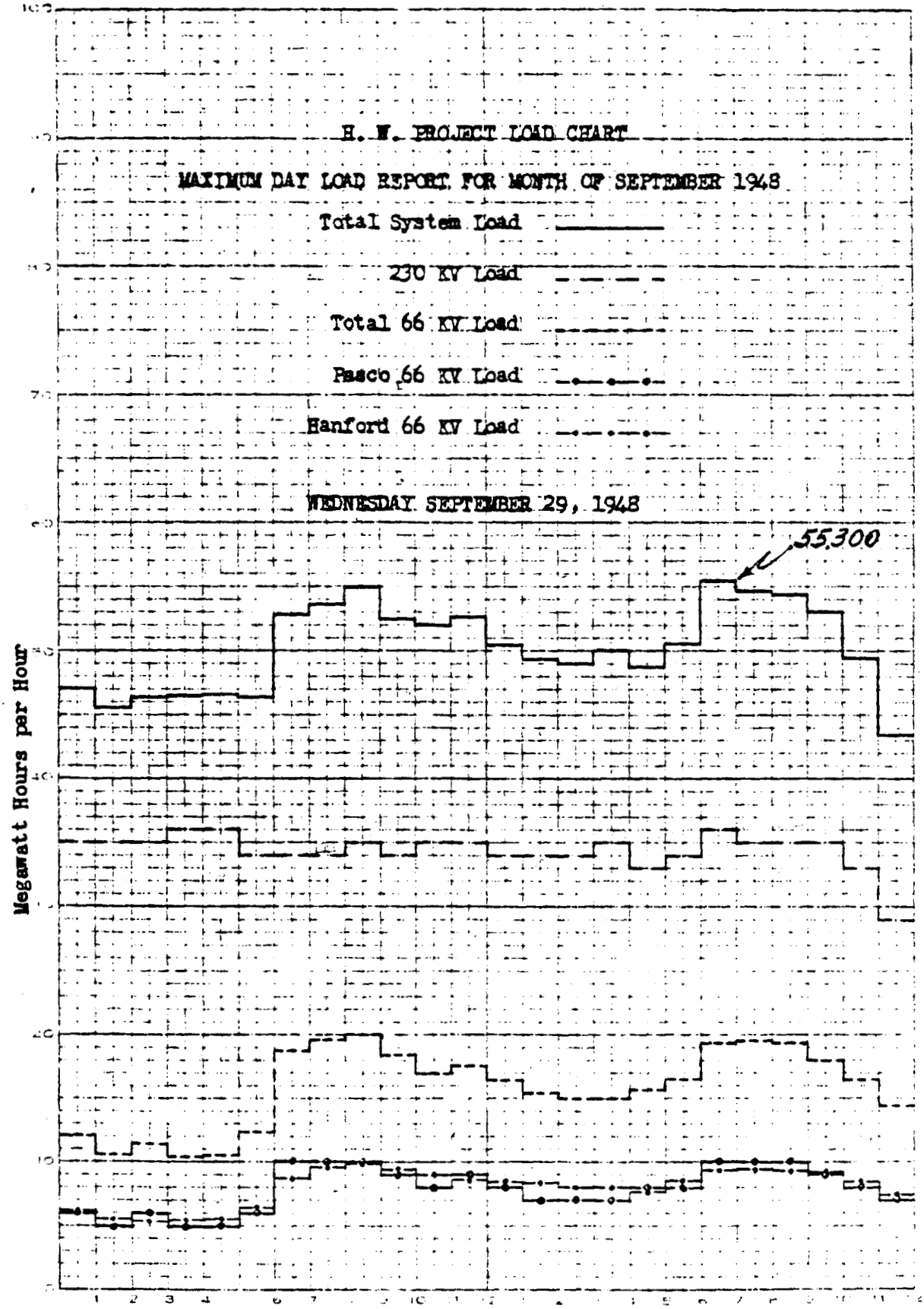
	Installed	Removed
All work areas (active)	35	10
Richland	277	295
North Richland	61	41
White Bluffs and 100-H	25	16
Hanford	4	0
Total	402	362

FOR MONTH ENDING SEPTEMBER 30, 1948

ITEM		ENERGY - MW HRS. August	ENERGY - MW HRS. Sept.	MAX. DEMAND - KW August	MAX. DEMAND - KW Sept.	LOAD FACTOR - % August	LOAD FACTOR - % Sept.
230 KV SYSTEM							
A-2 Out	(100-B)	7,340	6,590	11,300	11,100	87.3	82.5
A-4 Out	(100-D)	7,790	7,580	12,500	13,000	83.8	81.0
A-6 Out	(100-F)	6,770	5,880	11,600	11,400	78.4	71.6
A-8 Out	(200 Areas)	2,000	1,890	3,300	3,300	81.5	79.5
TOTAL OUT		23,900	21,940	38,700**	38,800**	-	-
MIDWAY IN		24,175	22,261	36,000*	36,000*	90.3	85.9
Transm. Loss		275	321				
Per Cent Loss		1.1	1.4				
66 KV SYSTEM							
B1-S1 Out	(Richland)	1,797	2,291	4,000	6,300	60.4	50.5
B1-S3 Out	"	1,318	1,580	2,800	4,500	63.3	48.8
B1-S2 Out	"	2,030	1,987	4,797	4,161	56.9	66.3
B3-S4 Out	(300 Area)	190	182	432	420	59.1	60.2
B3-S5 Out	"	642	588	1,440	1,320	59.9	61.9
B1-S4 Out	(N. Richland)	1,814	1,776	3,110	3,514	78.4	70.2
B7-S10 Out	(White Bluffs)	426	393	1,260	1,102	45.4	49.5
B9-S11 Out	(100-H)	77	72	560	640	18.5	15.6
Hanford Out		300	302	500	500	80.6	83.9
TOTAL OUT		8,594	9,171	18,899**	22,457**	-	-
Hanford In		4,738	5,220	12,200*	19,600*	52.2	37.0
Pasco In		4,141	4,254	11,600*	15,200*	48.0	38.9
TOTAL IN		8,879	9,474	23,800**	34,800**	86.5	37.8
Transm. Loss		285	303				
Per Cent Loss		3.2	3.2				
PROJECT TOTAL							
230 KV (Item 5)		23,900	21,940	38,700**	38,800**	-	-
66 KV (Item 15)		8,594	9,171	18,899**	22,457**	-	-
TOTAL OUT		32,494	31,111	57,599**	61,257**	-	-
230 KV (Item 6)		24,175	22,261	36,000*	36,000*	86.5	85.9
66 KV (Item 18)		8,879	9,474	23,800**	34,800**	86.5	37.8
TOTAL IN		33,054	31,735	50,400	55,300	88.1	79.7
Transm. Loss		560	624				
Per Cent Loss		1.7	2.0				

*Coincidental Demand
**Non-Coincidental Demand

Average Power Factor - 230 KV System--98.5
Average Power Factor - 66 KV System--92.9



INSTRUMENT DIVISION

MONTHLY REPORT

SEPTEMBER, 1948

October 5, 1948

GENERAL

At the request of the Power Division the Instrument Division has assumed the responsibility of maintaining the controls on the air condition systems in the 200 Areas. An engineer has been assigned to study the systems, initiate a preventive maintenance program, set up adequate spare parts, and train mechanics in air conditioning service.

Organization and Personnel

Number of employees on payroll:

Beginning of Month	200
End of Month	206
Net increase	6

Reason: Ten new hires, four terminations.

100 AREAS (Reference Report No. HW-11162)

The following construction jobs have been completed in the 100-D Area prior to the tie-in with 100-DR:

1. Calibration and check on all 80 RXG Beckmans.
2. Gas analysis equipment removed from #1 Purification in 115-D.
3. Revised the L-2 panel in 190-D and added instruments for 100-DR service.
4. Changed orifice plate and instrument range on the south 36" raw water inlet to 183-D.
5. Changed control lines on 190 D-L-1 panel.
6. Orifice changed in discharge line from #1 pump in 190-D.

100 AREAS (Cont.)

Four (Quadrant Monitor) process tube ion chambers have been installed 83" from front Van Stone flange in tubes 0353, 0394, 4453, and 4494, 105-F Area. High voltage and signal cables were run from the control room to these chambers connecting them in parrallel to the Rubicon galvonometer. Initial readings have been taken during shutdown and start-up procedures with generally satisfactory results. Further tests will be made during the shutdown and start-up scheduled September 30, 1948.

Removed "A" hole galvonometer chamber so leaking thimble could be replaced in 105-F. Found the chamber so corroded it had to be replaced by spare and masonite-steel plug in such bad condition that it was disposed of along with the thimble.

Investigation of deaerator cyclic level changes in 184-F revealed no controller difficulty. On advice of the Instrument Division the vent condenser was dismantled and approximately 35% of the tubes were found leaking or completely broken. After necessary repairs the system was returned to normal operation and stable level control.

Project C-172

Approval of the Power Division has been granted and preliminary arrangements begun on a new paint job for No. 10 "R" panel 185-B. This panel, a prototype, will be displayed for the approval of responsible Power, Project Engineering, and Instrument supervision before alteration is begun on remaining installations.

200 AREAS (Reference Report No. HW-11163)

An accuracy test was made of the Ring Balance liquid level meter used for weight factor determination on 8-1 tank in Building 221-B. A similar test was made of the same instrument in 221-T last month. The maximum error of the meter was found to be less than 1% and the average error less than 0.5%.

As the time required for maintenance of poppy probes is quite a large item, an attempt to reduce this time was made by designing a new insulator. This not only resulted in considerably less time required for installation of new wires but also appeared to give better stability. The experimental probe was turned over to the Health Instrument Development Section. They combined features of this probe with other features they feel desirable and have put three experimental probes in the field for test.

Project C-163 - Waste Line Thermocouples

Only one seven line station was installed this month. This work has been slowed down due to Minor Construction being diverted to other work.

Instrument Division

300 AREA (Reference Report No. HW-11164)

Project C-171 - Crane Periscope

The installation of improved crane optics was completed in 200 West Area. The two objective ends remain to be installed in 200 East. The parts that must be removed are contaminated and the necessity for operating under Special Work Permit procedures has slowed the work.

Project C-219 - Additional Health Instruments

Investigation of the failure of 20 CP survey meters to pass calibration test showed that the trouble could not be cured by careful matching of high resistors or by careful dressing of leads. As the most rapid cure, separate calibration potentiometers are being provided for each range.

The calibration difficulties experienced with the CP survey meters have been encountered with the Juno instruments and are being solved in the same way. Fabrication, except for the changes, is essentially complete on the 20 being made here.

The necessary information on the probe type CP meters has been received from the H. I. Development Section and the reproduction prototype is under construction.

The Machine Shop has completed all the chambers and the cases have been partially completed for the neutron survey meters. A verbal approval of the prototype was received at the end of the month and, upon receipt of written confirmation, it will be possible to start production on these instruments.

The Machine Shop is making 180 of the bent pencil type and the handles of the 2 x 9 probes. A satisfactory prototype 2 x 9 cases was received from the vendor. The 180 of this type probe were ordered from this vendor without insulators or handles.

Maintenance Section

5 New five kilogram balances were received from Seederer-Kohlbrusch Company in very bad condition. With the permission of the manufacturer they are being repaired here. Three of them have been completed to date.

The problems of no seats in slug canning and dipping operations continues. A block has been made so that all thermocouples can be precalibrated in our small furnace and it is planned to use canning pot thermocouples for eight hours only from now on. The present freeze test will not be used which means that the operation of the Micromax instruments will have to be checked by comparison with a portable potentiometer.

Development Section

Development Section Assignments for September:

1. Photoelectric Position Indicator for Slug Marking.
2. Power Level Indicator for 100 Areas.
3. Cover Motion Recorder for 100 Areas.
4. Thimble Poppy Probe.
5. Monitoring Alpha Emission in a Liquid.
6. General

Instrument Division

300 AREA (Cont.)

Monitoring Alpha Emission in a Liquid

It has been proven possible to monitor the alpha emission in a liquid by flowing the liquid close to the thin window of an ion chamber. A solution of ½ gram of uranium per cubic centimeter of water gave a chamber current due to the alpha emission of 2.1×10^{-13} amperes with a sensitive area of 40 square centimeters supported 1/16 of an inch above the liquid surface. Further development is contingent on the Redox group's requirements.

Design Section

A job for the construction group which is still under design is of special interest. It is required to determine the deviation from vertical of the vertical rod holes in the new units. A design using a taut cable which can be reeled out is under consideration. The cable will be fed from a reference point directly above the hole and the lower end will be accurately centered in the rod hole. The deviation of the cable from the center as it enters the hole will be a direct measure of the deviation from vertical.

700 AREA (Reference Report No. HW-11165)

Maintenance Section

Six Taylor flow recorders have been calibrated and installed in the irrigation pump houses and are ready for the construction subcontractor to connect them to the orifice tap lines.

Four of the chlorine scales have been calibrated and adjusted.

Tube Shop

Four GL-617 neutron chambers have been reclaimed by replacing connectors and cleaning insulators. Two of these are in use and the other two have performed satisfactorily under a 105 pile. The remaining chambers could not be reclaimed by external cleaning, and three of them have been cut open to give access to the inside insulating surfaces. To date one chamber has been cleaned, resealed, refilled, and tested for current leakage. Its performance was comparable to that of a new chamber.

Production Report

10 Mica Window Tubes
59 Thin Wall Glass Tubes
6 Replacement wires for Simpson Chambers

At the request of Mr. Roos of the 3000 Area Safety Division, a type H Leak Detector was provided to determine the concentration of CCl_4 in air. A mixture containing 100 ppm of CCl_4 in air was prepared, and probed with the sensitive element of our type H Leak Detector. This gave a reading of 2.0 major divisions on the least sensitive (100X) scale. This reading was reproduced several times before the mixture in the flask became diluted.

700 AREA (Cont.)

A similar mixture of 100 ppm CCl_4 in air gave 2.4 major divisions on the medium (10X) scale. It was inferred the leak detector could give semi-quantitative results over the range bounded by these points, in which Mr. Roos was interested, and the instrument was sent out to 100-DR for field use. (100-D personnel used it to show that the ventilation in a suspected building was sufficient to keep the concentration of CCl_4 well below the tolerance level of 100 ppm. However, it did show some high readings in an outdoor location, where compressed air was being used to blow CCl_4 off metal parts that had been cleaned.)

DESIGN AND CONSTRUCTION

100 Areas (Reference Report No. HW-11166)

General

A program of studies for improvement of instrumentation for any new pile areas constructed was mapped out. An estimate for the expense of carrying out these studies was given for incorporation in the project proposal to be submitted.

100-H Area

The design for thermocouple installation to measure the process tube discharge temperatures was modified removing this from the nozzle and placing it at the pigtail connection to the corssheader. This requires redesign of the bends in the well and revision of the jig for making these bends. Work is under way to prepare a specification for the complete assembly of these thermocouples. This will be handled as a purchase order to have this work done outside as was done for 105-DR.

The Power Division requested additional instrumentation for water flow measurements in various lines in these buildings. A meeting was held to determine their exact needs and feasibility of providing same. It was decided to install a flowmeter in the 42" line between 181 and 182 Buildings and to install manometers to measure the back-wash water flowrate in the 183 Building.

Follow up is being given the concrete work in the 105-H Building to insure facilities are provided for proper instrument installation.

100-DR Area

1. The Main Control Desk for 105-DR was moved from the White Bluffs Instrument Shop to the Control Room at 105-DR. The work of wiring all devices on this board to terminal points for connection to external circuits is now about complete. Wiring to remote locations is under way.

2. All of the equipment has been assembled on the Miscellaneous Panel Board in the Control Room and wiring of these devices to terminal points is near completion.

3. The Temperature Monitoring Equipment was received on September 28, and moved into the Control Room. This complete delivery of all equipment required for this room and the walls can now be finished.

DESIGN AND CONSTRUCTION (Cont.)

100-DR Area (Cont.)

4. The prefabrication of copper tubing for the pressure monitor system is complete and 1/3 of this tubing has been installed in place. Connections at front face of pile must await installation of tubes. The panels will be moved in place as soon as all tubing is placed on racks. No gauges have as yet been installed but will be as soon as conditions permit.

5. All efforts of the Instrument Division men in this area have been concentrated on installation of thermocouples inside the pile. This is the most difficult phase of the entire job from the standpoint of close tolerances and scheduling of work to avoid holding up the packing layup. Overtime work by all men has been necessary to insure proper installation.

6. The gas sampling system tubing is complete and was thoroughly tested. The Instrument Division accepted the responsibility to ascertain that the gas ducts were thoroughly clean and that no dirt could enter the unit from this source. Acheck was made of this before packing was started. This check required some 12 hours to complete.

Building 190-D

The instrument work in this building is progressing as rapidly as pump discharge piping is changed.

Redox

The August Progress Report of the Instrument and Mechanical Development at Kellex was reviewed. There were no comments given on this report as the instrument projects outlined were in the preliminary stage which seemed to warrant further investigation and development.

Demonstration Unit

The instrumentation for the 5" column was completed. The 16" column interface control system was cross-connected with the 5" column so that this could be used on either.

Scale-Up Unit

The 16" column is being removed and will be replaced with an 8" column. Instrumentation for 16" column will be used. The differential tap connecting will be paired to each transmitter to reduce number of liquid filled lines.

Horizontal Contactor Unit

The instrument installation is following the installation of other equipment as closely as possible. The change over valves for instruments on the Scale-Up Instrument Board are installed and copper tubing lines run to the H. C. Unit. The level control units are being fitted to pump suction tanks.

DESIGN AND CONSTRUCTION (Cont.)

234-5 Project

A study was made and report written on the ventilation control system for this building. This was done by reviewing the various proposals submitted by instrument vendors. Giffels and Vallet are now preparing specifications and purchase requisitions for this equipment. B. E. Woodward is now in detroit to go over these with Giffels and Vallet from an instrument viewpoint.

All outstanding design was reviewed and a critical list of drawings remaining was made up. As of this date only the piping drawings and some details for these panels remain to be done.

J. E. Kaveckis visited Schenectady to review with them the instrumentation planned for the mechanical lines. In the course of discussion it developed that difficulty may be experienced with the Pirani Gauge installation for heads 25 and 26 in that the gas used here may affect the elements of this gauge. A mock up of this installation will be made to determine if such is the case and to develop means of getting around this difficulty. A report on all phases of the work discussed during this visit will be made with suggestions from an instrument maintenance point of view.

Work of assembling equipment on the various instrument panels for this project was began during this month at the Instrument Shop in White Bluffs. Some departure from the original design has been necessary to achieve a more pleasing appearance to some of the panels.

TRANSPORTATION DIVISION

MONTHLY REPORT

SEPTEMBER 1948

GENERAL

Absenteeism in the Transportation Division for the month of September was 1.81% which is approximately the same as for the month of August.

A new Cost Code System was placed into effect September 1, 1948. Four major Section Codes were provided for the Transportation Division as follows: Transportation General (410), Railroad (411), Automotive (412), and Labor (415).

ORGANIZATION AND PERSONNEL

G. T. Richards, General Clerk B, and L. M. Warden, Field Clerk B, were upgraded to Labor Foreman and Shift Foreman respectively effective September 1, 1948. C. L. Working, Design and Construction Division, was transferred into the Division as a Labor Foreman effective September 15.

Force of the Transportation Division for September was as follows:

Number of employees on payroll		
Beginning of month		743
End of month		738
Net decrease		5
New Hires	15	
Transferred from other Divisions	5	
Total	20	
Terminations	19	
Transferred to other Divisions	6	
Total	25	
Net decrease	5	

The force of Morrison-Knudsen, Track Maintenance Subcontractor, was 229 which is a decrease of 23 from the previous month.

OPERATIONAL ACTIVITIES

1. Railroad Operations

Railroad operations continued in a routine manner with train movements being effected as scheduled. Commercial and Process tonnage was near normal as 5,271 cars were handled during September compared with a peak of 5,527 in August. Process movements for 100-B Area became a part of regular service.

Non-routine work consisted of work train service for the Helen line change which was completed and is now in service. Work train service was also provided for the Richland line change which was completed and placed in service September 28, 1948.

Radio installation in the Riverland Train Dispatcher's Office is now working satisfactorily. Radio equipment on the four 80-ton General Electric Locomotives has been placed in operation.

2. Repairs

The 18 hopper cars which were leased from the Milwaukee have been received, inspected, leased signs installed, and released to Operations for service.

Baldwin locomotive 39-3724 has been taken out of service for wheel replacement and repairs to the traction motors.

Steam boilers at the Riverland Roundhouse were inspected and cleaned. New grates were installed in preparation for heating Alco engines during the winter months. A steam jet system was installed on Alco locomotive 39-3730.

3. Track Maintenance

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

a. General. Received allocation and have requisitioned all rail and fastenings to complete Project C-214.

b. 100-B Area. The coal track which was recently re-laid with 100 pound rail has been surfaced and tamped.

c. 200-West. Resurfaced coal track over pipe excavation. Shortened coal track 66 feet and moved bumping post ahead to facilitate the construction of heavy equipment road. Replaced ties on 221-T and 221-U leads.

d. The railroad Track Maintenance Subcontractor was engaged in the following work in addition to that of a more routine type.

1) Project C-185 (Richland By-Pass) Grading was completed, ties and rail placed, two temporary turnouts installed, 75% of ballast unloaded and 3.3 miles of track raised.

2) Project C-214 (Rehabilitation of Plant Railroads) Revision on F track was completed. Old track from Florence to near 100-B Area was salvaged. Re-laid one mile of 90 pound rail on F line south of 100-B Area. Approximately 20,000 tie renewals were completed during the month.

AUTOMOTIVE OPERATIONS AND REPAIRS

1. Automotive Operations

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

Twenty-seven of the new GMC suburban type coaches have been placed in Area service. Two coaches are being used to complete the comprehensive Driver Training Program. Results have been very satisfactory as 113 Bus Drivers have completed their training satisfactorily.

Special 15 minute Village Local bus service was provided on Labor Day during the peak periods for the "Atomic Frontier Days" celebration in Richland.

Effective September 7, the Pistol Range-Richland bus route was re-established.

b. The extent of Area bus traffic is indicated by the monthly total passenger count of 118,632 and the extent of Village Local bus traffic is indicated by the monthly total passenger count of 62,587. This compares with the passenger count of September 1947 which was 84,020 for Area traffic and 53,379 for Village Local traffic.

c. The extent of automotive equipment usage is indicated by the monthly total mileage of 1,312,900 as compared to the total mileage for September 1947 which was 994,359.

d. Off-the-Plant special automobile trips (company business and official visitors) totaled 225.

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

2. Repairs

The Repairs Section received 235,768 gallons of gasoline, 62,732 gallons of Diesel fuel and 5,430 gallons of kerosene during the month for Project use.

Winterizing of automotive equipment was begun during the month and is approximately 70% complete.

Twenty-seven GMC coaches, 15 Ford pickups, and 67 new Buick sedans were prepared for service.

LABOR SECTION ACTIVITIES

1. Roads and Streets

Project C-256 (Seal Coating of Plant Highway System) Approximately 34 miles have been completed to date.

Crushed and stockpiled 2,400 cubic yards of road aggregate.

Paved 1,350 feet of 20 foot roadway west side of 100-B Area. This job required 400 tons of pre-mix material and 300 Man-hours.

2. Areas

Work in the Areas of a non-routine type was as follows:

a. 100-D

Project C-238 (Effluent Sewer Line 105-F to 107-F) Excavated 1,750 cubic yards of earth and placed six cubic yards of concrete on the 105-DR effluent line.

b. 100-F

Project C-238 (Effluent Sewer Line 105-F to 107-F) Backfilled 4,400 cubic yards of earth on the 107 effluent line and 105 effluent line valve pit. Placed 131 cubic yards of concrete. Breaking and removing concrete at the 105 valve pit and 1608 Building required 500 man-hours.

c. 200-East

Suspense Code 10225 (Precipitator Building ABC) Excavated 3,350 cubic yards of earth and placed 96 cubic yards of concrete on the 291-B Sand Filter Building construction.

Project C-133 (Special Test Wells) Wells 25-70, 43-88.5, 34.5-69.5, 39-79 and 60-80 were completed at depths of 460, 203, 325, 295 and 198 feet respectively. Wells 62.5-90, 34-88.5, 25-80, and 34-51.5 have present depths of 163, 218, 105 and 105 feet respectively. Footage on all wells drilled to date totals 14,512.

Project C-225 (5-6 Waste Disposal near 361-B Tank) Bladed and fine-graded in and around crib, completing this Project.

Project C-228, Excavated 250 cubic yards for 200 series waste tanks and backfilled 1,250 cubic yards of earth to complete this phase of the work.

d. 200-West

Suspense Code 10225. Excavated 100 cubic yards of earth, backfilled 650 cubic yards of earth, and placed 455 cubic yards of concrete on the 291-T Sand Filter Building construction.

Project C-163 (Additional Waste Storage) Excavated 2,780 cubic yards of earth for catch tanks. Backfilled 200 cubic yards of earth for catch tanks, 500 cubic yards for one line encasements, 4,050 cubic yards for three line encasements, 1,200 cubic yards for seven line encasements, and 100 cubic yards for nine line encasements. Placed 50 cubic yards of concrete for encasements.

e. 300 Area

Project C-104 (3707-C Building) Work is progressing as 572 man-hours were expended in placing concrete, assisting carpenters, and general cleanup.

Project C-220 (3708 Building) Placed 117 cubic yards of concrete in the roof and floor slab of 3708 Building. Expended 160 man-hours in assisting carpenters and general cleanup.

Project C-227 (3706 Building) Excavation and backfilling work continued on the 3706 Building gas, water, and sewer lines.

Project C-237 (305-A Building) One hundred sixty-eight man-hours were expended on the 305 Building fence and cleanup.

EQUIPMENT CONTROL

One hundred thirteen Buick sedans and 61 Ford pickups were transferred from the Construction Division to Operations.

Fifty miscellaneous vehicles were transferred to the Construction Division on P.I.T.'s making a total of 542 vehicles transferred to date.

TRAFFIC SECTION

1. Arrangements were made with Richland Transfer to make daily pick-ups on all General Electric Operations LCL freight shipments when consigned to Pasco and Kennewick on the Northern Pacific, Union Pacific, and Spokane, Portland and Seattle Railroads. Where shipments have been requested to Richland via truck or carloading company or to Hanford via LCL freight, the extra expense involved in this pick-up will be charged back to the vendor.

2. The North Coast-California lines approved our request of September 9, 1948 to reduce the rate on Sand from Seaside, California to Hanford to 40 cents per cwt. and an attempt is being made to secure Interstate Commerce Commission approval for publication on short notice. This will produce a savings of 2½ cents per cwt or approximately $25 per car.

3. The Washington Department of Transportation approved our request of April 21, 1948 to reduce Yakima-Hanford, Wapato-Hanford, Toppenish-Hanford and Sunnyside-Hanford Class rates to the same bases as applicable between those points and Richland and the rates became effective September 25, 1948. Savings of from 5 cents to 23 cents per cwt. will now result on any shipments between these points and Hanford.

4. On September 25, 1948 the Washington Department of Transportation approved our request to establish rates of 51 cents per cwt. minimum 10,000 lbs. and 45 cents per cwt. minimum 30,000 lbs. on Doors from Tacoma, Seattle and Vancouver to Hanford, Washington. Rates were requested April 21, 1948 and will provide savings of from 8 cents to 15 cents per cwt.

5. The Washington Department of Transportation approved rates of 32 cents per cwt. minimum 10,000 lbs. and 25 cents per cwt. minimum 20,000 lbs. on Fertilizer and Fertilizer Compounds between Tacoma, Seattle, Vancouver and Richland and Hanford, effective September 25, 1948. Reductions were requested April 21, 1948 and will provide savings of from 28 cents to 37 cents per cwt.

6. The Washington Department of Transportation approved rates of 53 cents per cwt. minimum 5,000 lbs. and 34 cents per cwt. minimum 30,000 lbs. from Tacoma, Seattle and Vancouver to Richland and Hanford on Compressed Gases. Rates were requested April 21, 1948 and will provide savings of from 25 cents to 31 cents per cwt. Likewise, from Spokane, rates approved on the same commodities were 49 cents per cwt. minimum 5,000 lbs. and 30 cents per cwt minimum 30,000 lbs. and will provide savings of from 24 cents to 30 cents per cwt.

7. Effective September 25, 1948, the Washington Department of Transportation approved our request of April 21, 1948 for rates of 50 cents per cwt. 5,000 lbs. minimum, 43 cents per cwt. minimum 10,000 lbs. and 37 cents per cwt. minimum 40,000 lbs. on Iron and Steel Articles between Tacoma, Seattle, Vancouver, and Richland and Hanford, which effects a savings of 16 cents per cwt.

8. On September 13, 1948 a check in the amount of $55,608.93 was received from the Milwaukee Road in payment of Reparation Claim O/C-57 on 1,088 cars of coal from Kleenburn, Wyoming to Hanford, Washington shipped during October and November 1948. Reparation was authorized by the Interstate Commerce Commission under docket No. 209787 in the amount of $51,874.96 plus interest at 4% amounting to $3,733.97.

9. Effective September 14, 1948 premium charge for travel on United Airlines Mainliner 300 (DC-6) was discontinued.

10. As a result of rate reductions secured from the carriers, there was a total savings in freight charges for the month of September amounting to $62,326.72.

TECHNICAL DIVISIONS

SEPTEMBER 1948

SUMMARY

Pile Technology Division

A very surprising and unexplained phenomenon was encountered when it was discovered that about half of the four-inch, alpha-rolled, lead-dipped slugs examined after normal irradiation had grown longer and thinner while the remainder had grown shorter and thicker.

It has been demonstrated that purified graphite can be prepared by merely gas baking the bars after the second pitch impregnation and then purifying directly. Production costs on this material are lower than those of regular purified graphite, it expands less under pile irradiation, is as strong as regular material, and has reasonably satisfactory machining characteristics.

Gas flushing the purification furnaces on the cooling portion of the cycle is an unimportant and perhaps unnecessary part of the process.

The quality of all types of graphite deliveries continued to drop during the month. This drop was the result mainly of a general density decrease.

A successful technique has been developed for measuring the thermal neutron flux distribution in the piles at normal operating levels.

The water which entered the graphite of the B Pile from a leaking process tube produced reactivity loss of 118 inhours. Some water had been removed at month-end but no recovery of reactivity had occurred.

Pile tests show that Van Stone corrosion can be reduced markedly by providing cathodic protection (magnesium gaskets) or by elimination of the galvanic cell (all-aluminum nozzles).

Expansion of pile graphite has deformed vertical rod thimble No. 27-F sufficiently to prevent complete insertion of the rod. Near by thimbles in the F Pile and Thimble No. 27-D show evidence of similar deformation.

Improved coatings for control rods can be made by substituting boron oxide for metallic boron during flame spraying.

Separations Technology Division

Separations Plants production tests on the reduction of process volumes have shown that 30% volume reduction may be optimum before encountering higher waste losses. Reasons are being sought for the accumulation of by-product precipitate in 13-1 at B Plant. Reduction of metathesis time cycles is to be obtained by a slight rearrangement of process flow. Continued studies of various sands for use in filtering ventilation air discharge have shown that crushed flint from the American Graded Sand Company has filtering and non-packing properties superior to other sands recently tested. Tests with a scrubber column, electrostatic precipitator, and cyclone separator have also been continued.

SUMMARY

Separations Technology Division (continued)

Uranium transfer H.E.T.S. measurements carried out on the 16-inch Redox Scale-Up Column gave values ranging from 2.6 to 9.8 feet. The column was proved to be vastly overdesigned for throughputs possible with the Raschig ring packing used, however. A 5-inch column packed with 1/2-inch Raschig rings was found to have an H.E.T.S. value of ca. 1.5 feet at throughputs equivalent to nearly 1.2 long tons of uranium/day. An 8-inch column similarly packed also gave an H.E.T.S. value of ca. 1.5 feet at throughputs equivalent to 2.1 long tons of uranium/day. It is believed that the quoted throughput on this latter column is still far below flooding and the study of this column is being extended. These studies point up the possibility of short (30 feet or under), small diameter (6 to 8 inches) columns being feasible for Redox production plant operation. Initial studies carried out with the 1/100th scale S.O.D. mixer-settler units have pointed up the need for redesign of these models. Installation of the full-scale mixer-settler unit is nearly completed.

The Research Section has demonstrated in the laboratory that ruthenium volatilization from oxidized dissolver solution increases with time, temperature, and air sweep. Decontamination factors obtainable by the adsorption of zirconium and columbium on glass wool have been measured. The effects of small amounts of Si, Sn, Cu, Al, and Fe on extraction stage heights have been investigated. Quadratic equations have been developed for the solubility of hexone in various Redox process solutions. Redox cross-over oxidation studies have been continued to measure the effects of hydrogen peroxide oxidation on ruthenium and cerium decontamination, the reactivity of hydrogen peroxide and sulfamic acid, and the effect of plutonium concentration on the rates of its oxidation by dichromate.

Metallurgy and Control Division

300 Area Plant Assistance personnel continued to supervise the rolling of uranium rods for Hanford at Lockport, N. Y. and Aliquippa, Pa. Examination of a single uranium rod produced experimentally at Aliquippa by a combination forging-rolling operation indicates that this 2-step fabrication process may yield a superior rod with considerable operating economy. Further trials are being scheduled.

Preliminary arrangements were made with the Industrial Heating Engineering Division in Schenectady, and with the Knolls Atomic Power Laboratory, to utilize equipment of the latter for induction heating trials with uranium rods and slugs. If successful, considerable simplication of the canning operation may be possible.

Several experimental lots of uranium alloy samples were received from Battelle as part of the cooperative search for an effective grain refining agent. Thus far, none of the alloying elements tried has appeared promising.

PILE TECHNOLOGY DIVISION

SEPTEMBER 1948

October 15, 1948

VISITORS & BUSINESS TRIPS

Drs. C. Starr, F. W. Brown, H. Pearlman, W. E. Parkins, and Mr. A. S. Thompson of North American Aviation, Inc., visited here on September 28-29 to discuss irradiation effects in graphite.

Dr. W. R. Kanne of KAPL visited here on September 21-23 to discuss the alpha experiment (Request 40).

Dr. H. Hurwitz, Jr., of KAPL visited here on September 21-23 to discuss assistance which KAPL could render on Hanford problems involving theoretical physics.

Business trips of Pile Technology personnel during August were as follows:

C. W. Botsford visited the National Carbon Company in Cleveland on September 27-28 to discuss the operational program in the Morganton plant.

J. M. West and P. R. Gillette attended the shielding symposium at the Oak Ridge National Laboratory on September 27-30.

A. A. Johnson visited the Argonne National Laboratory on September 30 to discuss the transfer of Request 15 (Lithium Fluoride) operations to Hanford.

R. F. Plott visited the Argonne National Laboratory on September 13-15 to discuss the formation of radio-carbon in irradiated graphite.

C. W. J. Wende visited Schenectady on September 29-30 in attendance at a meeting of the Nucleonics Committee.

ORGANIZATION & PERSONNEL

	August 31	September 30
Pile Physics Section	29	33
Pile Engineering Section	20	20
Administrative	3	3
Totals	52	56

Awaiting clearance at the end of the month were one physicist and one engineer.

Two laboratorians and two stenographers were terminated; two physicists, one engineer three laboratorians, one clerk, and one stenographer were added during the month.

PILE PHYSICS

Graphite Development

Purified graphite prepared by gas baking the bars after the second pitch impregna-

tion and then purifying directly gave functional test results equal to those of purified graphite prepared in the normal way. Production costs on this material are lower than those of regular purified graphite; it expands less under pile irradiation, is as strong as regular material, and it can be machined. Conversion of all future production of purified material to this type is being considered.

Functional tests have continued to show that graphite purified in two layer heats is of quality equal to that prepared in single layers. This is true both for the regular production and also the gas baked material.

An experimental heat, purified with no nitrogen flushing during cooling was of quality equal to regular production purified material; conversely the use of ten times the normal amount of flushing gas produced no increase in quality nor did the substitution of helium for nitrogen. Flushing appears to be an unimportant and possibly unnecessary part of the process.

Annealing experiments on a series of test hole exposures have shown that at 630°C. the c-axis recovery is practically complete for exposures lower than 400 MD/CT. At higher exposures a plot of c-axis vs. exposure gives a straight line with a slope of 0.35 Å/1000 MD/CT.

Gas baked coke showed no dimensional changes either in the parallel or transverse direction after a capsule exposure of 600 MD/CT. The c-axis increase was normal for this amount of exposure.

Molded, regraphitized Ceylon graphite exposed for 287 MD/CT in a test hole expanded almost four times as much as KC. The c-axis expansion was the same as KC. Samples of highly oriented KC, obtained by extruding a 1/2" thick board, expanded twice as much as transverse samples from a regular bar.

Total stored energy data from the National Bureau of Standards for samples exposed in helium, carbon dioxide, oxygen and helium-carbon dioxide (90-10) show that stored energy is independent of the atmosphere. This is in line with previous results which showed that the changes in other properties were independent of the atmosphere.

Measurements of the effect of annealing at various temperatures up to 1250°C. on the Hall coefficient for graphites exposed 22 MD/CT in a cooled test hole have shown that only about 65% recovery is obtained at 630°C. and that temperatures above 1000°C. are required for complete recovery. Graphitized lampblack, however, showed only a 65% recovery at 1250°C. These results show that changes in graphite structure which are difficult to remove by annealing occur at very low exposures.

Graphite Quality

Functional test data on graphite received during the month are summarized as follows:

Type	Number of Heats	Average Effective dih
CSF (purified)	81	0.896
CSNF (purified)	12	0.878
CSO (unpurified)	31	-0.002
CSN (unpurified)	30	-0.116

Pile Technology Division

The decrease in quality of all types of graphite as compared with previous production arises principally from a general decrease in density of material tested during the month.

Shielding

Magnesium oxychloride cement with an iron aggregate suffered a 50% reduction in crushing strength during an exposure of two weeks in the pile reflector. Some of the gases evolved from the cement during exposure combined with the copper capsule to produce a green substance of unknown composition. The free gases found in the capsule were hydrogen and oxygen.

In laboratory tests, gradual heating of iron aggregate magnesium oxychloride cement to 100°C. produced crumbling as severe as that previously found after rapid heating.

Power Coefficient Tests - Production Test 105-220-P

The following results were obtained from power coefficient tests in each of the three operating areas.

Area	Graphite Coefficient, ih/MW	Metal Coefficient	Over-all Coefficient	Graphite Period
B	0.48	-0.19	0.29	77 minutes
D	0.66	-0.22	0.44	105 minutes
F	0.68	-0.20	0.48	87 minutes

These results are the first obtained for the B Pile since it returned to operation in July, and the first for the D Pile since the carbon dioxide content of the gas system was raised to 40 per cent.

Further analysis of existing data has confirmed the conclusion reported tentatively last month that the graphite effect is non-linear with temperature and that the graphite coefficient per degree centigrade consequently decreases as higher graphite temperatures are attained.

Neutron Flux Measurements - Problem Assignment 8-P and Production Test 105-159-P

A successful technique for measuring the thermal neutron flux at high power levels has been developed. It consists in the exposure of a small piece of copper wire, its solution in nitric acid and the evaporation and counting of a small aliquot of the solution. The counting of samples has been continued down to background and a pure 12.8 hour half-life obtained. Numerical results will be reported when a complete set of measurements has been obtained.

Reactivity

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

	B Pile	D Pile	F Pile
In rods	92 ih	52 ih	71 ih
In Special Requests			
Within Poison Pattern	72	37	46
Outside Poison Pattern	0	10	20

Pile Technology Division

	B Pile	D Pile	F Pile
In Plant Assistance Irradiation	0 ih	40 ih	0 ih
In lead-cadmium columns	130	272	73
In bismuth columns	85	110	139
In dummy columns (including empty fringe tubes)	0	3	34
In xenon	335	482	517
In over-all coefficient	-74	-150	-127
Total cold, clean reactivity	640	856	773

The B Pile has experienced a loss of 111 inhours during the month due to a leaking process tube which admitted considerable water to the graphite packing. This water is being slowly removed by the dryers in the helium system. The loss since the leak occurred was 118 inhours indicating that 7 inhours were gained prior to that time.

The D Pile gained 11 inhours and the F Pile 3 inhours during the month. The low reactivity losses due to Special Requests in the D and F Piles result from the subtraction of the gains due to Special Request 52 from the losses due to other requests.

Status of Special Irradiations

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

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
*3-3	(ORNL) Thorium	20 slugs	120 days	12/2/47	2082F	5/12/48	9/23/48	49F	
*		20 slugs	120 days	12/2/47	1579F	5/12/48	9/23/48	49F	
*		18 "	120 "	12/8/47	3274D	5/4/48	9/23/48	49F	
*		11 "	120 "	1/8/48	2066D	6/6/48	9/23/48	49F	
*		11 "	120 "	1/8/48	2666D	6/6/48	9/23/48	49F	
*		27 "	120 "	1/8/48	2682D	6/6/48	9/23/48	49F	
*		16 "	120 "	1/8/48	3169D	6/6/48	9/23/48	49F	
*		13 "	120 "	3/2/48	1579D	6/29/48	9/23/48	49F	
12-B	(UCRL) Pu^{239}	1 slug	1 year	5/25/48	1769D			200	5**

** Tube 1769D also contains 1 pc. SR-64, 4 pcs. SR-63, UCRL-100-105, 1 pc. SR ANL-111, and 2 cobalt slugs.

Pile Technology Division

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
13-5(ORNL)	Be_3N_2	19 slugs	6 mo.	2/2/48	1569D	8/4/48			
		19 "	6 "	1/18/48	2374D	6/29/48			
		53 "	6 "	5/12/48	2374F				18
		53 "	6 "	5/12/48	1569F				18
		38 "	6 "	6/6/48	3169D				17
		39 "	6 "	8/4/48	1569D				17
		53 "	6 "	8/13/48	1579D				17
		36 "	6 "	8/4/48	1474F				16
		36 "	6 "	8/4/48	3274F				16
*15-16(ANL)	LiF	11 slugs	3-4 wks.	6/6/48	3179F	7/6/48	9/23/48	55F	
*		11 "	3-4 "	6/6/48	3169F	7/6/48	9/23/48		
*		17 "	3-4 "	6/6/48	1579F	7/6/48	9/23/48		
*15-17(ANL)	LiF	11 slugs	3-4 wks.	6/6/48	2066D	6/29/48	9/23/48	55F	
*		11 "	3-4 "	6/6/48	2666D	6/29/48	9/23/48		
*		19 "	3-4 "	6/6/48	2682D	6/29/48	9/23/48		
*		19 "	3-4 "	6/6/48	3179D	6/29/48	9/23/48		
*		11 "	3-4 "	6/6/48	3274D	6/29/48	9/23/48		
		30 "	3-4 "	7/1/48	2082B	8/4/48			
		30 "	3-4 "	7/1/48	2682B	8/4/48			
		39 "	3-4 "	7/1/48	3179B	8/4/48			
		39 "	3-4 "	7/1/48	3169B	8/4/48			
		39 "	3-4 "	7/1/48	1579B	8/4/48			
15-18(ANL)	LiF	10 slugs	3-4 wks.	6/29/48	2066D	7/19/48		55F	
		12 "	3-4 "	6/29/48	2666D	7/19/48			
		15 "	3-4 "	6/29/48	2682D	7/19/48			
		22 "	3-4 "	6/29/48	3179D	7/19/48			
		22 "	3-4 "	6/29/48	3274D	7/19/48			
		19 "	3-4 "	6/29/48	1579D	7/19/48			
		35 "	3-4 "	6/29/48	2374D	7/19/48			
		39 "	3-4 "	7/1/48	2374B	8/4/48			
		39 "	3-4 "	7/1/48	1569B	8/4/48			
		17 "	3-4 "	7/6/48	3179F	7/27/48			
		6 "	3-4	7/6/48	3169F	7/27/48			
		17 "	3-4 "	7/6/48	1579F	7/27/48			
		24 "	3-4 "	7/19/48	1579D	8/13/48			
		10 "	3-4 "	7/19/48	2066D	8/13/48			
		12 "	3-4 "	7/19/48	2666D	8/13/48			
		35 "	3-4 "	7/19/48	2374D	8/13/48			
		23 "	3-4 "	7/19/48	2682D	8/13/48			
		22 "	3-4 "	7/19/48	3179D	8/13/48			
		22 "	3-4 "	7/19/48	3274D	8/13/48			
		17 "	3-4 "	7/27/48	3179F	8/19/48			
		6 "	3-4 "	7/27/48	3169F	8/19/48			
		17 "	3-4 "	7/27/48	1579F	8/19/48			
		29 "	3-4 "	8/4/48	3169B	8/31/48			
		28 "	3-4 "	8/4/48	1569B	8/31/48			

Pile Technology Division

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
*15-19(ANL)	LiF	29 slugs	3-4 wks.	8/31/48	3169B	9/23/48		55F	
*		28 "	3-4 "	8/31/48	1569B	9/23/48			
*		29 "	3-4 "	9/23/48	3169B				30
*		28 "	3-4 "	9/23/48	1569B				29
*28-4(ORNL)	Iron	1 casing	2 mos.	6/29/48	BTHD	8/26/48	9/23/48	87B	
28-5(ORNL)	Iron Enriched	1 casing	Indef.	4/4/48	BTHD			87C	0
28-6(ORNL)	Iron Enriched	1 casing	6 mos.	4/4/48	BTHD	10/13/48T		87C	0
29-5-10(ORNL)	P_2O_5	6 casings	60 days					96B	
40-1(KAPL)	Pu	3 slugs	1 wk.					148	
*40-5(KAPL)	Pu	3 slugs	4 mo.	5/25/48	3177D	9/28/48		148	
47(ANL)	BeO	4 slugs	1-15 da.	12/21/47	3169D	1/6/48	1/14/48	127	
			1-30 da.	Has not been rec'd					
			1-90 da.	12/23/47	2666F	4/4/48	4/14/48		
			1-180 da.	Has not been rec'd					
48(ANL)	BeO	4 slugs	1-15 da.	12/21/47	3169D	1/6/48	1/14/48	128	
			1-30 da.	To be recanned					
			1-90 da.	12/23/47	2666F	4/4/48	4/14/48		
			1-180 da.	8/4/48	3876F				•
49(ANL)	Graphite-U Oxide	4 slugs	1-15 da.	12/21/47	3169D	1/6/48	2/11/48	129	
			1-30 da.	Has not been rec'd					
			1-90 da.	12/23/47	2666F	4/4/48	5/3/48		
			1-180 da.	Sample received 9/13/48					
52(ORNL)	Al-U^{235} Alloy	229 slugs	100 da.	7/27/48	100F			208	0
				7/30/48	100D				0
*55(ORNL)	Stainless Steel	4 slugs	6 mo.	2/16/43	1774D	7/19/48	9/23/48	130	
					1666D	7/19/48	9/23/48		
*56(ORNL)	Be-Cu Alloy	2 slugs	6 mo.	1/27/48	1368F	7/27/48	9/3/48	136	
*58(ORNL)	Zinc	1 casing	6 mo.	1/27/48	BTHF	7/27/48	9/23/48	138	
59(ORNL)	Antimony	1 casing	6 mo.	1/27/48	BTHF			139	0
60(ORNL)	KCl	7 casings	1-2 wks.	2/16/48	BTHD	3/9/48	4/14/48	140	
			1-1 mo.	2/16/48	BTHD	4/4/48	4/14/48		
			1-3 mo.	3/2/48	BTHD	6/29/48	8/2/48	140	
*			1-6 mo.	2/16/48	BTHD	8/26/48	9/23/48		
			3-1 yr.	2/16/48	BTHD				
61(ORNL)	Co_3O_4	1 casing	6 mo.	1/27/48	BTHF			141	0

1194875

Pile Technology Division

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
*62(ORNL)	Al-U^{235} Stainless, Be, U, Al	10 slugs	5-1 mo.	7 pcs 2/16/48 1 pc. 4/25/48	1774D 3179D 2382F	4 pcs. 3/15/48 3 pcs. 7/19/48	2 pcs. 4/14/48 2 pcs. 5/3/48 3 pcs 9/3/48	145	
*63(ORNL)	Al-U^{235} Alloy	21 slugs	7-3 mo. 7-6 mo. 7-12 mo.(4)	4/11/48 4/25/48 5/25/48	1671D 2382F 1769D	7/15/48	9/3/48	146	5
*64(ORNL)	Cu-Au Alloy	5 slugs	1-15 da. 1-30 da. 1-60 da. 1-150 da. 1-300 da.	4/11/48 2/16/48 8/4/48 2/16/48 5/25/48	2382F 3179D 2578D 1774D 1769D	4/25/48 3/15/48 10/4/48T 7/19/48	5/3/48 5/3/48 9/3/48	142	5
65-1	Li-Al alloy	49 slugs (See Request)							
*67-76(ORNL)	Various	11 slugs	6 mo.	4/4/48	2961D 1681D	9/10/48 9/10/48	9/23/48	149 thru 158	
79(KAPL)	U^{235}	Experiment being carried out by J. B. Lambert.							
80(ORNL)	HgO	4 casings	6 mo.	To be recanned				163	
81(ORNL)	Zn	3 casings	1 yr.	4/25/48	DTHF			164	0
82(ORNL)	Ni	1 casing 1 casing	1 yr. 1 yr.	4/25/48 5/12/48	DTHF DTHF			165	0 0
83(ORNL)	TiO_2	1 casing	6 mo.	4/25/48	DTHF			166	0
84(ORNL)	$AgNO_3$	1 casing	1 yr.	4/25/48	DTHF			167	0
85(ORNL)	Se	1 casing	1 yr.	To be recanned				181	
86(ORNL)	$Tl(NO_3)_3$	1 casing	1 yr.	To be recanned				181	
87(ORNL)	WO_3	1 casing	6 mo.	4/25/48	DTHF			181	0
88(ORNL)	Sn	1 casing	1 yr.	4/25/48	DTHF			181	0
89(ORNL)	Cd	1 casing	6 mo.	4/25/48	DTHF			181	0
*ANL-100	Be	5 casings	6-12 mo.	3/24/48	BTHF	3 pcs. 9/13/48	3 pcs. 9/15/48	176	0
ANL-101	U^{238}	1 recept.	4-6 mo.						
*ANL-103	Rare Earth Oxides	1 casing	3 mo.	5/12/48	DTHF	9/13/48	9/15/48	186	

1194876

Pile Technology Division

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
*ANL-104	Gd	1 casing	3 mo.	5/12/48	DTHF	9/13/48	9/15/48	187	
ANL-107	Bi	1 slug	6 mo.	8/4/48	2173F			211	0
ANL-108	ThO_2	1 slug	6 mo.					218	
ANL-109	Pa_2O_5	1 slug	3 mo.					218	
ANL-110	PuO_2	1 slug	6 mo.	8/4/48	2974F			210	9
ANL-111	PuO_2	1 slug	1 yr.	5/25/48	1769D			200	
ANL-114	ThO_2	7 slugs	3 mo.-1 yr.					215	
ANL-115	Mo	4 slugs	6 mo.-1 yr.					215	
ANL-116	Diamond, Be, C	1 casing	3 mo.						
UCRL-100	Pu	1 slug	1½-5 yrs.	5/25/48	1769D			200	
UCRL-101	Pu	1 slug	1½-5 yrs.	5/25/48	1769D			200	
UCRL-102	Pu	1 slug	1½-5 yrs.	5/25/48	1769D			200	
UCRL-103	Am	1 slug	2 yrs.	5/25/48	1769D			200	
UCRL-104	Pu	1 slug	1-3 yrs	5/25/48	1769D			200	
UCRL-105	Am	1 slug	2 yrs.	5/25/48	1769D			200	
UCRL-106	Tissue Ash	72 casings	2-3 wks(12 casings received)					189	
*ORNL-100	$CaCO_3$	8 casings	18 mo.	9/3/48	DTHF			182	0
ORNL-102	Zr	1 slug	6 mo.	8/4/48	3876F			204	
ORNL-103	Be	30 slugs	3 mo.-1 yr.					217	0
ORNL-104	Metals	8 slugs	3-6 mo.						
ORNL-105	NaCl	3 casings	6 mo-1 yr					219	
ORNL-106	Th	1000 slugs	125 days						

The following requests have been approved but the samples have not been received: ANL-105, ANL-112, ANL 113, ORNL-101, ORNL-103, ORNL-107.

PILE ENGINEERING

Corrosion and Blistering of Slugs

Examination of over 500 four inch, alpha-rolled, lead-dipped slugs at exposures of 200 and 244 MD/ton has revealed that 50 to 60 per cent of these slugs grow longer and thinner during exposure, while the remainder grow shorter and thicker. Length changes in the range of -0.1 to +0.3 inches have been observed, with diameter changes of -0.021 to 0.038 inches. Maximum observed warp was 0.010 inches. Outward appearance indicates that the decrease in diameter causes rupture of the bond between the can and slug in the region of the can ends. Also, the increase in length may introduce serious stresses tending to rupture the can weld.

Flow Laboratory tests show that anodically colored aluminum cans lose their color almost completely in three weeks exposure to process water at 60°C.

Corrosion of Process Tubes

Examination showed that the leak in the process tube at the B Pile was caused by a

small hole approximately twenty feet from the down-stream end of the tube. Pending a more complete examination after decay of radioactivity, this failure is tentatively attributed to corrosion caused by an occlusion in the metal.

Corrosion of Van Stone Flanges

Ten outlet Van Stone flanges equipped with all-aluminum nozzles and aluminum dummy slugs showed no evidence of corrosion after eight to ten months' operation. Thirty outlet flanges equipped with magnesium gaskets also showed no evidence of corrosion. Fifty per cent of the control flanges showed definite corrosion during the same period of operation. Zinc gaskets installed on the inlet flanges apparently furnish some protection, but were not completely effective. Neoprene gaskets on the inlet and aluminum gaskets on both inlet and outlet flanges showed no improvement over "Cranite" type gaskets.

The preceding data indicate that either elimination of the galvanic cell (aluminum nozzles) or provision of cathodic protection (magnesium gaskets) will effectively reduce Van Stone corrosion. Magnesium gaskets on the outlet flanges corrode too rapidly for practical use, although their behavior on inlet flanges may be acceptabl and is being investigated. Flow-cup tests on special magnesium alloys indicate that certain compositions will furnish cathodic protection and still undergo three to four times less corrosion. The feasibility of reducing the potential of the galvani cell by galvanizing the stainless steel nozzles, or by the application of some other coating is also being investigated.

Graphite Expansion

Graphite expansion at the F Pile has caused bowing of the No. 27 vertical rod thimbl to the extent that this rod will no longer operate satisfactorily. Borescopic examinations of this thimble, as well as thimbles No. 20-F, 33-F, and 27-D show that these rods have been rubbing the far side of the rod guide at the lower end, the near side of the thimble from two feet to six feet below the rod guide, and the far side of the thimble beginning eight to sixteen feet below the rod guide and continuing downward.

Deflection tests of the B, D, and F type vertical rod thimble performed on a mock-up in conjunction with the Design Division show that the maximum mid-point deflection at which the rod could be operated was 3-3/4 inches when the thimble was distorted in a cosine curve. The larger thimble and the three-inch diameter rod to be used at the H Pile performed satisfactorily in tests with a straight thimble.

The CO_2 concentration in the D Pile atmosphere was held at 40% during the month. The apparent adsorption of CO_2 on the graphite increased from 30,000 cu. ft. to 39,000 cu. ft. during this period. Unit motion data continued to indicate the rate of graphite expansion at D has been reduced.

Segmented Discharge

The improved Model II reel and spline equipment was demonstrated satisfactorily on four tubes of irradiated metal at the F Pile. This demonstration included the use of a shielding slug which is automatically inserted at the rear of the tube during the pull-back operation.

A method of removing irradiated dummy slugs from the front end of a tube by withdrawing the slugs into a cask and recharging into an empty process tube was

demonstrated on four tubes at the F Pile. Mechanical improvements are needed to speed the operation before this system can be used for initiating segmented discharge

Assistance to New Construction

Tests have shown that purified gas-baked coke has satisfactory physical properties and machining qualities providing the purification is performed at temperatures above 2200°C. Additional machining time up to a maximum of 25 per cent can be expected. Discussions with the National Carbon Company are in progress relative to conversion from purified graphite to purified gas baked coke.

Continuous monitoring of the graphite lay-up at DR has been provided by technical personnel from both the Physics and Engineering Sections. This technical coverage was provided primarily to protect the investment in high purity graphite.

Gun-barrel, doughnut assemblies of the H design and of the old design (B, D, F and DR type) are being fabricated for tests of the effectiveness of radiation shielding.

Tests on the flame-spraying of boron coatings have shown that over 50% additional boron can be obtained by the use of boron oxide-aluminum mixtures in place of boron-aluminum. The physical properties of the coating are improved, and the time of application is reduced to one tenth that of the previous process. This method is expected to give boron concentrations of 50 to 70 mg/sq cm on the H type horizontal rods.

Fabrication of the slurry-coated DR type horizontal rods has proceeded without incident. Assays show that representative samples contain 40 to 44 mg. boron per sq. cm.

Modification of the charging equipment for the "B test hole" facilities has been planned. Elimination of radiation and mechanical hazards are the primary objectives

P-10 Project

Studies are in progress regarding size, arrangement, and location of facilities for extracting tritium from irradiated lithium fluoride slugs.

Beta Experiment

Slug B-1 was discharged from tube 1481-F on September 18. This tube is being maintained as a helium tube in anticipation of recharge of another beta slug.

SEPARATIONS TECHNOLOGY DIVISION

SEPTEMBER, 1948

VISITORS & BUSINESS TRIPS

W. K. Eister, F. R. Bruce, and H. K. Jackson, of the Oak Ridge National Laboratory, visited here September 9-11 for technical consultations concerning the Redox program.

L. I. Gilbertson, of the Air Reduction Sales Company, spent September 14-15 on the site with the Stack Gas Disposal Group discussing stack gas problems.

E. Zebroski, of the Knolls Atomic Power Laboratory, arrived September 16 for a two-day visit with the Research Section, discussing the research program concerning Redox.

The A.C.S. meeting in Portland was attended by B. Weidenbaum of the Process Section.

O. H. Greager spent September 14-15 and D. W. Pearce spent September 13-15 at the Kellex Corporation in New York City for technical consultations concerning Job 11 - Metal Waste Recovery. D. W. Pearce stopped at the Argonne National Laboratory on the return trip for a one-day consultation regarding crystal structure.

H. M. Jones spent September 16-17 in New York City visiting the Kellex Corporation for consultations on the Redox program. He then visited the Fischer & Porter and Schutte & Koerting Companies in Philadelphia inspecting equipment there. While in Philadelphia, he also attended the Instrument Exhibit which was in progress at that time.

ORGANIZATION & PERSONNEL

Personnel totals in the Separations Technology Division may be summarized as follows:

	August	September
Process Section	21	22
Development Section	107	114
Research Section	22	24
Administration	3	1
	149	161

O. H. Greager was appointed Assistant Manager, Technical Divisions, on September 27. Succeeding him as Division Head is R. H. Beaton, who transferred from the Design Division on the same date.

New Hires were as follows: One technical graduate B was added to the Process Section, and eight technical graduate B employees were added to the Development Section. The Research Section added two chemists to its staff.

One chemical engineer was transferred to the Development Section from the Design Division. One clerical employee was transferred to Technical General from Separations. Two clerical employees and one chemical engineer terminated during the month.

At month-end there were one exempt and six non-exempt personnel on the rolls awaiting security clearance. These men are on loan to the Project Engineering Division until such time as they receive their final clearance.

200 AREA PLANT ASSISTANCE

Canyon Buildings

An increase in first cycle by-product waste losses (13-4BP) at B Plant was noted simultaneously with the institution of the phase of Production Test 221-T-13 which adjusted process volumes to 70% of the recent standards. This effect had not been noted at T Plant. Investigation revealed that the present Section 13 procedure (cake settling and washing in Tank 13-1) resulted in incomplete transfer of by-product cake from Tank 13-1 to Centrifuge 13-2 at B Plant. This accumulation of cake in the precipitator, when removed by acid washes and by centrifuging with agitation, was found to contain plutonium equivalent to several per cent of a standard run. The clean-out of Tank 13-1 also reduced the ionization chamber Beckman readings sharply and resulted in low gamma decontamination factors through the Canyon Building. Log decontamination factors as low as 3.78 were obtained, but satisfactory factors (above 7.0) were achieved through the Concentration Building. Efforts are being made to determine the equipment differences between T and B Plants which are responsible for these results in Section 13.

A number of runs were made at T Plant with process volumes reduced to 60% of a standard run. Erratic and high 13-4BP losses were encountered, indicating that the volume reduction program had passed the point of diminishing returns. Further runs will be made to establish the optimum volume reduction.

Production Test 221-B-7, Centrifugation of Extraction Precipitate at 1740 R.P.M., was started at B Plant. Results of three test runs showed no improvement over recent runs at the standard 870 R.P.M. and caused over-heating of the 8-2 Centrifuge. The test has been discontinued.

Concentration Buildings

Two runs, T-8-08-D-15 and B-8-09-F-3, were split in the lanthanum fluoride product precipitation section due to batch limits. The cakes from the first precipitation and centrifuging were sent to Cell F in advance of the combined second and third strike cakes, and the latter were recycled to the E-4 tank after separate metathesis.

A comparison of product analyses on 17-4P and C-4P samples of eight runs at T Plant showed as much as seven per cent discrepancy on individual runs (presumably due to variable heels in 17-4 Tank), but showed good agreement for the averages.

Cell F time cycle reduction by about 3.5 hours has been shown possible by conducting the metathesis in the unused B-4 Tank and transferring to F-1 Tank for jetting to the centrifuge. Piping changes are being made to permit this procedure to be used on all runs.

Isolation Building

About 60 pounds of filter aid accumulated on Nutsche N-1 in Cell one from past nustche cleanouts in the operating Cells three and four was sampled and found to

contain 1.6 grams of plutonium. Leaching with 30 liters of 60% nitric acid recovered 0.92 grams. Analysis of the residue before burial indicated a product content of 0.7 grams.

REDOX DEVELOPMENT

Demonstration Apparatus

Studies in the 2-inch IA Demonstration Column have been devoted to determining the individual effect of water-washed raw hexone, pretreated hexone, and IAF dichromate on IAW uranium waste losses and apparent H.E.T.S. The determinations were conducted at 100% of flow sheet throughputs (ca. 175 gal/hr./sq.ft.) using 1/4 x 1/4-inch stainless steel Raschig rings. The preliminary data from these studies are tabulated below.

Demonstration Unit Runs: Two-Inch IA Column (Compound)

Run No.	Type of Hexone in IAX	$Na_2Cr_2O_7$, in IAF	Per Cent of Feed U lost in waste	H.E.T.S., Ft. (Extraction Section)
34	Raw, Water-Washed	none	0.14	1.0
35	Pretreated	none	0.3	1.2
36	Pretreated	0.1 M	0.4	1.2

It appears that slightly higher uranium waste losses result with pretreated hexone, with or without dichromate. The higher H.E.T.S. values should be considered only "apparent," since they are based on an equilibrium curve originally obtained with pretreated hexone.

During the month two uranium H.E.T.S. studies were completed at elevated throughputs in the 3-inch IA Column under Scale-Up process conditions; i.e., water-washed raw hexone and absence of feed dichromate. The pertinent data are tabulated below.

Demonstration Unit Runs: Three-Inch IA Column (Simple)

Packing = 1/2 x 1/2-inch stainless steel Raschig rings

Run No.	Total Throughput Gal./Hr./Sq.Ft.	Total Throughput % Flow Sheet	Per Cent of Feed U Lost in Waste	H.E.T.S., Ft. (Extraction Section)
10(1)	179.0	102	2.2	1.67
15	495	283	1.4	1.34
16	854	488	0.36	1.13

(1) Reported previously

Studies are in progress at capacities approaching 700% of flow sheet throughput and equipment revisions which will allow a determination of the limiting capacity are contemplated, should this value exceed 700% of flow sheet. The capacity of the 3-inch IA Column at 488% of flow sheet is approximately 0.3 long tons of uranium per day or 1/5th plant scale.

A 4-inch stainless steel IC Column, packed with 1/4 x 1/4-inch Raschig rings, has been installed in the Demonstration Unit enclosure to replace the former 5-inch IC recovery column. Provisions are being made to allow direct cascade from present IA Demonstration Columns.

Scale-Up Studies

During the month, the former 20-ft. high, 5-inch IC Column was converted for use as a IA extraction section. The installation of "jumper" lines to the Demonstration Unit enclosure from the Scale-Up flow control system permitted H.E.T.S. studies to be conducted at elevated throughputs. Three short preliminary studies have been completed and approximate results are listed below. Scale-Up process conditions mentioned above were employed.

Scale-Up Unit Runs: Five-Inch IA Column (Simple)

Packing = 1/2 x 1/2-inch stainless steel Raschig rings

Run No.	Total Throughput Gal./Hr./Sq.Ft.	Total Throughput % Flow Sheet	Long Tons U Per Day	Per Cent of Feed U Lost in Waste	H.E.T.S. Ft. (Ext. Sec.)
1	565	325	0.55	2-3	1.9
2	845	485	0.83	0.04	1.5(1)
3	1,210	690	1.18	0.06	1.5(1)

(1) Subject to further refinement

Operation at 600% of flow sheet and above produced slight interface variations, which might be indicative of an approach to local phase build-up (flooding). The unit could not be considered inoperable, however. Further attempts will be made to determine the complete flooding point in a reproducible manner. During the final run above, uranium was being processed at about 80% of full plant capacity (nominal 1.5 long tons/day).

Four uranium H.E.T.S. studies have been completed in the 16-inch IA Column, using 1/2 x 1/2-inch stainless steel R schig rings. During this series of studies, an attempt was made to determine the variation of H.E.T.S. with feed uranium concentration and to study the effect of an aqueous 18-hole distributor located above the packing but below the aqueous-solvent interface. The results of these studies are listed briefly below.

Scale-Up Unit Runs: Sixteen-Inch IA Column (Simple)

Run No.	IAF-S Feed UNH, M	Total Throughput Gal./Hr./Sq.Ft.	Total Throughput % Flow Sheet	H.E.T.S., Ft. (Extraction Section)	Long Tons U Per Day
1-U	0.09	410	231	2.6	0.28
2-U	1.1(1)	418	240	9.8	3.60
3-U	0.4	410	231	6.8	1.26
4-U(2)	1.1	410	230	8.6	3.45

(1) Flow sheet concentration = 1.1 M UNH in combined feed and scrub (IAF-S)
(2) Eighteen point aqueous distributor employed.

It is apparent that a more favorable H.E.T.S. is produced when the quantity of uranium to be transferred decreases. A theoretical interpretation of this phenomenon is as yet unavailable. The final run (4-U) indicates that a slight improvement was produced by the aqueous distributor. The original distributor introduced aqueous phase around the periphery of the column. Such an introduction pointed to the possibility of aqueous channeling directly down the wall of the

column. The studies indicate that the effect is slight but detectable. During this period, two IC recovery runs were conducted in the 16-inch Column. Operation was steady and ICW uranium concentrations averaged less than 0.1 g./l.

Based on 3-inch and 5-inch IA studies at elevated throughputs, it became evident that the optimum H.E.T.S. probably prevailed at throughputs above 300% of flow sheet. Equipment and flow-control limitations, plus the natural difficulty of processing and recovering large quantities of feed stocks and solvents, made operation of the 16-inch Column in the 300-700% range difficult and unwieldy. Accordingly, a 20-ft. high, 8-inch IA Column was designed and fabricated. Following the above studies, this unit was erected in place of the 16-inch IA Column. An Elgin-type solvent distributor similar to those employed for the 3-,5-, and 16-inch IA Columns was fabricated for the 8-inch IA Column, but an aqueous entrance enlargement similar to that for the 16-inch unit was not included at the present time. A 10-hour run at about 500% of flow sheet throughputs in the 20 ft. 8-inch Column resulted in uranium IAW waste losses averaging about 0.1%. This would indicate an H.E.T.S. somewhere between 1 and 2 ft. Preliminary calculations are now in progress. At this capacity, uranium is being processed at the rate of 2.1 long tons per day or 140% of nominal plant capacity.

Several difficulties attendant to the above Scale-Up studies were encountered during the course of the work. During ICU evaporation, a certain amount of hexone decomposition produced offensive organic acids followed by moderate quantities of a fine white precipitate. Neutralization of excess ICU acid did not take place with aluminum cans and a mercuric catalyst at boiling temperatures. The use of aluminum foil proved successful, however. Attempts are being made to find a component which will destroy or complex the nitrite ion which acts to catalyze hexone decomposition.

Equipment Development

Investigations in the semi-works filtration test stand have revealed the following notable points:

1. Using a precoat of 53 grams of Super Filtrol per sq. ft. supported on an "F" porosity sintered stainless steel filter permitted initial IAF rates of 2.5 gal./min./sq.ft. at 14 p.s.i. pressure drop and increased the photometric clarity from 85% to 95%.

2. Continued filtration under these conditions was characterized by a gradual decrease in rate to 0.3 gal./min./sq.ft. after 2 hours.

3. Similar clarity improvement is obtained with Johns-Manville Standard Super-Cel, but rate characteristics have yet to be defined.

Preliminary hydraulic studies with IAX and IAS solutions in the S.O.D. 21-stage mixer-settler unit have revealed the following points:

1. At 1300 rev./min., using axial opposed-pitch double propellers, the passage of both phases through the unit has resulted in excessive fluctuation of the interface. No interpretation of this behavior is available as yet.

2. With no agitation, passage of the phases either individually or together through the unit results in negligible frictional pressure drop at flow rates in the vicinity of nominal 1/100th-scale capacity.

3. Under conditions of no flow and 1300 rev./min. agitation, the individual phases are pumped rapidly to opposing ends of the unit.

4. With presently designed mixing chamber entrance ports, excessive back-mixing has been observed visually.

Steps are being taken to correct the design of the 21-stage units. Installation of the 10-stage full scale S.O.D. mixer-settler unit is approximately 80% complete.

During the month, the suction ports on the G.E Turbine Pump No. 2 have been enlarged and relocated to allow increased capacity and to correct a state of impeller unbalance believed to exist when the pump was first received. After revision, the "whining" formerly observed at high discharge pressure again occurred at the same pressure. Suction lines leading to the pump will be enlarged in the hope of alleviating this unbalance.

Union Carbide and Carbon high molecular weight polythene, flame-sprayed (Schori Process) on concrete blocks, is unattacked after 22 days immersion in IAX solution. Flame-sprayed fluorothene was not satisfactorily applied to the concrete and attack of the base material resulted after 22 days immersion in IAX.

Process Chemistry

Laboratory studies have been directed mainly toward developing a satisfactory method for hexone removal from ICU to avoid hexone decomposition during boiling. The use of hydrazine for inactivating the nitrite catalyst has proved satisfactory. Some reduction of U (VI) to U (IV) takes place, however. After neutralization of excess acid with aluminum, the U (IV) to U (VI) reaction takes place violently. The direct removal of hexone by an inert hydrocarbon solvent such as benzene, toluene, or methylcyclohexane is being studied.

The A.N.L. method for preparing ferrous sulfamate has been tested in the laboratory and found to be satisfactory. Several non-flow sheet IA and IC equilibrium studies have been completed and the data are being correlated.

REDOX RESEARCH

Ruthenium Chemistry

The study of the volatilization of ruthenium from synthetic dissolver metal solution, 2.0 M in UNH and 0.3 M in HNO_3, is being continued. Using 0.1 M $KMnO_4$ as the oxidizing agent, the effects of such variables as time of heating, temperature, and rate of flow of air bubbled through the solution are being investigated.

The percent of the total activity remaining in the residue of the still after treatment varied from 36.3% on heating at 75° for 1/2 hr. with a slow flow rate (ca. 4-8 cc/min.) to 0.2 to 0.3% with a much faster flow of air (ca. 35-45 cc/min.) on heating for 2 hours at 75°. The results show that the degree of removal of the ruthenium from the synthetic dissolver solution increases with temperature, heating time, and rate of flow of air through the still.

Zirconium Chemistry

Removal of Zr and Cb from dissolver metal solution by adsorption on glass was further tested in one run using plant dissolver metal solution (special 4-8-MS solution, ca. 50% UNH, 0.001 M H_2SO_4) of a composition very near that of Redox

production plant starting solution. Three contacts with glass wool gave decontamination factors of 1.0×10^3 for zirconium, 8.2 for columbium, and 3.2 for gross gamma activity. When the supernate from the third glass wool contact was taken through one extraction and one scrub stage under simulated process conditions, overall decontamination factors of 2.3×10^4 for gross gamma and 4.7×10^5 for zirconium were obtained.

Zirconium decontamination factors have been about 50 for the first glass wool contact and about five for succeeding contacts. In the hope of increasing the latter values, the effects of aging the supernatant from the first contact at room temperature and at 50° prior to the second contact were studied. No effect with time was observed at room temperature and at 50° adsorption of zirconium decreased with time.

Stage Heights for Uranium Transfer

Additional runs have been made in the experimental column, in which the effects of small amounts of Si, Sn, Cu, Al, and Fe on stage heights were observed. Under process conditions, these elements carry into the feed from the compound layer. When Sn alone was added as a trace element to a crystalline UNH-NH_4NO_3 solution, the H.E.T.S. was lowered to approximately the same value as when all the trace elements were added. The addition of Si alone did not lower the H.E.T.S. from that found when crystalline UNH was used. The addition of Cu, Al, and Fe combined to a crystalline UNH-NH_4NO_3 solution lowered the H.E.T.S. by approximately the same order of magnitude as that found on the addition of Sn.

Interfacial and surface tension values obtained on samples taken from the column under equilibrium conditions have failed to disclose any correlation with stage height variations.

Solubility of Hexone in Aqueous Salt Solutions

The solubility of hexone was determined in 1.0 and 2.044 M UNH, in 0.529 and 2.143 M $Al(NO_3)_3$, and in 0.5 and 1.0 M HNO_3 over the range of 0 to 140°C by the closed bulb method. These data fit a general quadratic type equation. Hexone exhibits a retrograde solubility in each case similar to that already shown for pure water. The following table gives the constants for the general equation:

$$\text{Wt.\% Hexone} = a + bT + cT^2$$

	a	b	c
0.529 M $Al(NO_3)_3$	2.286	-0.03975	0.00040
2.143 M $Al(NO_3)_3$	0.740	-0.01181	0.000119
0.500 M HNO_3	2.780	-0.04003	0.000332
1.00 M HNO_3	3.290	-0.05412	0.000446
1.00 M UNH	2.241	-0.03680	0.000341
2.044 M UNH	1.396	-0.01231	0.000117

The data were plotted according to the equation:

$$\log m_o/m = \log \gamma/\gamma_o = k\mu$$

where m and m_o are the molarities of hexone in a salt solution and water, respectively, γ and γ_o the corresponding activity coefficients, and μ the ionic strength. At room temperatures the slopes are positive but non-linear for $Al(NO_3)_3$. Nitric acid and UNH exhibit negative slopes, indicating compound formation. The slopes for all compounds vary considerably with temperature.

Effect of Bichromate on Viscosity

The effect of $Na_2Cr_2O_7$ on the viscosity of aqueous solutions has been found to be about half that of UNH or ANN on a molar basis. The effect of hexone viscosity was not determined directly, since the maximum concentration of chromium is often small enough to be obscured by other effects such as hexone reaction products and variable water content.

Cross-over Oxidation

Experiments on the cross-over oxidation have been continued with ruthenium and cerium tracers present. Simulated Column IIA batch contacts indicate that ruthenium decontamination in the second cycle would probably not be markedly improved by substituting 0.05 M hydrogen peroxide for the 0.02 M sodium dichromate specified for the cross-over oxidation in the June 1, 1948, ANL flow sheet. The distribution of carrier-free cerium tracer into hexone was, however, markedly lower in the case of a peroxide oxidized solution, a distribution ratio (hexone/aqueous) of 0.0014 being obtained for the extraction contact, as compared with 0.32 for a dichromate oxidized solution.

A study of the extent of reaction between hydrogen peroxide and sulfamic acid in Redox solutions indicated that no appreciable reaction occurred. This correlates with the failure of dichromate to oxidize sulfamic acid.

Study of the cross-over oxidation (June 1, ANL flow sheet) indicates that the rate of oxidation of Pu(IV) to Pu(VI) by dichromate is considerably faster at 1% than at 100% of plant Pu concentrations.

STACK GAS DISPOSAL

Further tests were made to compare efficiency of various sands in removal of contamination from Canyon Building ventilation air. To the data from the previously reported evaluation of several grades of sand from White Bluffs and 30-40 U.S. mesh Ottawa sand were added the results of runs with the following sands: 20-30 mesh Ottawa sand; 20-40 mesh sands from Eau Claire, Wisconsin; 20-40 mesh sand from Monterey, California; and 20-40 mesh sand from the American Graded Sand Company of Chicago. The Eau Claire and Monterey sands were samples of the material being furnished for the T Plant full-scale filter. Efficiency of these at the plant design flow rate of six linear feet per minute through a two-foot bed were 99.4% for the former and 99.6% for the latter, reflecting a slight shift of particle size distribution toward the fine end for the Monterey sand. The crushed flint furnished by the American Graded Sand Company was obtained to compare this shape of particle (flat surfaces and sharp edges) with the rounded shape exhibited by the Eau Claire and Monterey sands. Efficiency of the A.G.S. crushed silica was 99.8% under the conditions quoted above, making it two to three times as efficient as the other two sands. Consideration is being given to the ordering of A.G.S. sand for the B Plant installation.

A long-term use test of a sand filter was started with 30-40 mesh Ottawa sand early in the month. This will be checked for changes in efficiency or pressure drop with time. It will also be used to determine the fate of radio-iodine in the sand filter, since the gas sampling point used for this installation was at the 50 foot level on the B Plant stack. Monitoring filter papers and caustic scrubbers are arranged on the upstream and downstream sides of this sand filter.

A permeability meter has been set up to check pressure drop through various sands at selected flow rates. With this unit it was found that vibration of the sand bed could cause packing, with an attendant serious increase in pressure drop. The crushed flint was found superior in this respect, since its pressure drop for a two foot bed increased from 3.1 to 5.6 inches of water at six linear feet flow rate, whereas the Eau Claire sand increased from 4.2 to 8.5.

The program of scrubber tests with Canyon Building ventilation air has been completed. For this scrubber, which contained an eight inch diameter, four foot section of one-half inch Berl saddles, efficiencies ranged from 55% up to 90% (the latter with 8 CFM of air and 2 GPM of water). It was concluded that even the best obtainable efficiencies with a packed tower scrubber would not be high enough and that to obtain even these efficiencies in a plant-scale unit would require impractical column sizes and liquid flows. Tests of more efficient scrubbers using impingement or venturi principles are not planned because of procurement delays, possible difficult maintenance, a desire to avoid liquid wastes, and the sand filter results.

One additional electrostatic precipitator run was made during the month. Difficulty is still being encountered in arcing of this unit. Repair parts have been ordered.

A small cyclone separator has been tested briefly. This unit, perhaps one-tenth the size of the packed scrubber, gave comparable particle removal efficiency. Thus, for the six inch diameter cyclone, efficiencies ranged from about 46% at 50 linear feet per second throughput to approximately 88% at 90 feet per second.

Routine monitoring of ventilation air conditions at both plants continued. A new set of CWS filter frames was installed at B Plant in all canyon cells except Sections 6, 8, 9, and 12. A fibreglass facing had been added to each frame to attempt to prevent saturation of the Type 6 paper by mist or spray. At the end of the month, the sand filter test work had reached a point which permitted installation of CWS frames in the remainder of the Canyon sections.

Construction of the T Plant sand filter has neared completion, with only the three top sand layers remaining to be added at month-end. Construction of the B Plant unit has been started.

METALLURGY & CONTROL DIVISION

SEPTEMBER 1948

VISITORS & BUSINESS TRIPS

The Division had no off-site visitors during September. Business trips to other locations were as follow:

A. M. Ross spent the week of September 7 in St. Louis, Mo., attending the American Chemical Society convention.

R. Ward attended the Company's conference of metallurgy professors in Schenectady on September 8-10.

D. F. Shepard spent September 13-14 at the Argonne National Laboratory, participating in a Redox Analytical Conference. Prof. H. H. Willard attended this meeting as a Hanford consultant.

The American Chemical Society convention at Portland, Ore., September 13-16, was attended by G. H. Behling, R. J. Brouns, W. N. Carson, E. W. Christopherson, N. Endow, S. A. Hays, W. A. Mills, R. H. Moore, and M. A. Phillips.

C. G. Craig spent September 20-25 at Oak Ridge, Tenn., studying technical abstracting methods of the Technical Information Division, A.E.C.

R. D. McGreal visited the Vitro Chemical Co., Cannonsburg, Pa., on September 23-24 to observe recovery operations on uranium oxide scrap. He later spent September 29-30 at the Mallinckrodt Chemical Co. in St. Louis, Mo., for the same purpose.

T. S. Jones, R. D. McGreal, W. T. Kattner and R. Teats are following the rolling of uranium rods for Hanford which began at Lockport, N.Y., and Aliquippa, Pa., on September 27.

ORGANIZATION & PERSONNEL

Personnel totals in the several sub-divisions are summarized below:

	August 31	September 30
300 Area Plant Assistance Group	10	11
Metallurgy Laboratory Section	21	21
Analytical Section	404	397
Statistics Group	9	9
Information Group	45	44
Administration	2	2
Totals	491	484

Two mechanical engineers were transferred from the Design Division, one for the Analytical Section and one for the Metallurgy Laboratory; both will work on the design of special laboratory equipment. An exempt metallurgist was employed for the 300 Area Plant Assistance Group, and three exempt chemists were added to the Analytical Section. The latter employed also seven weekly-roll chemists (as "Technical Graduates") and six laboratory assistants, but suffered a net roll decrease of seven through the transfer of five laboratory assistants to other Technical Divisions and the voluntary terminations of nineteen people (mostly laboratory assistants). Most of these personnel left to return to school; only one resigned due to lack of housing.

At month-end this Division had 3 exempt and 23 non-exempt personnel on the rolls awaiting security clearance for classified work. Most of the latter were Laboratory assistants in the Analytical Section, but included also were two metallurgists and one chemist on loan to the Project Engineering and Construction Divisions.

300 AREA PLANT ASSISTANCE

Uranium Rolling

Uranium billets were rolled at Lockport, N.Y., and at Aliquippa, Pa., during the month under the supervision of 300 Area Plant Assistance personnel.

Examination of a single uranium rod produced experimentally by a combination forging-rolling operation during the August run at Aliquippa indicated that this rod was comparable, both physically and structurally, to normal alpha rolled uranium. In fact, slugs turned from one end of this rod were free from the piping defects normal to end slugs in straight rolled rod. For this one rod, the billet readily was forged down to a 2" square, followed by regular alpha rolling to 1.45" round. The details of this experiment are recorded in Document HW-10987 dated September 13, 1948. Arrangements have been made to get additional billets forged and rolled by Vulcan to evaluate this promising fabrication method more completely.

A check on the possibility of removing oxide from rolled uranium rods by pickling indicated that the oxide was removed effectively by a one minute immersion in the standard slug pickling solution (50% nitric acid at 60°C). Pickling caused a 0.25% weight loss with sound rods.

Uranium Machining

Results of machining of about 15 tons of the Type B uranium rods rolled during the first production run by Vulcan in August showed a rod-to-slug yield of 71.9%, which is comparable to the 72.3% yield obtained on 38 tons of Type B rods rolled by Simonds at Lockport, inasmuch as these Vulcan rods were slightly over-size in diameter.

Slug Canning

As a part of a comprehensive investigation to ascertain the causes for non-seat canning rejects, the accuracy of the instruments used to determine the composition of the Al-Si canning bath from the metal system phase diagram were checked, and it

was found that both the Brown Electronik and the L & N Micromax were equally good, and that each instrument was sufficiently accurate for this determination.

Sixteen Type S uranium rods containing 25 to 200 ppm of nickel (8 rolled and 8 gamma extruded) were processed in 300 Area fabrications. This amount of nickel did not adversely affect any of these operations. In Test Pile checks of this material, however, the extruded metal was found to have unexpectedly low reactivity (dih = -0.438) compared to that of the rolled metal (dih = -0.211). This difference may be due to the fact that the extruded rods were made from second-pour billets which may have contained more segregated impurities than were present in the first-pour billets used for the rolled rods.

Preliminary arrangements were made with the Industrial Heating Engineering Division in Schenectady, and with the Knolls Atomic Power Laboratory, to make high frequency induction heating trials with uranium rods and slugs, using a 200 KW, 3000 cycle motor-generator set available at Peek Street.

The Vitro Chemical Co. and the Mallinckrodt Chemical Co. were visited to discuss and inspect methods and equipment for dissolving uranium oxide. This study is part of an intensive 300 Area program to reduce air contamination in the processing areas. It is proposed to eliminate uranium oxide burning, and reduce handling, by dissolving the uranium fines (oxide and metal), and thus obtaining a uranium salt for chemical recovery elsewhere.

METALLURGY LABORATORY

Forged Uranium Rod

Examination of the 1.45" diameter uranium rod made experimentally by Vulcan using a combination forging and rolling process showed a fine recrystallized grain structure. Grain size estimations indicate that differences of grain size exist between different sections of this rod, but that generally its grain size is finer than that of normal alpha rolled material. These differences are considered to be due to a higher fabrication temperature, as indicated by the completely recrystallized structure; however, they are not considered significant. After the bronze dip transformation, the micro-structures of the sections of this rod were very similar to those of regular alpha rolled material.

Heat Treatment of Alpha Rolled Material

Two-minute heat treatment of numerous small samples of alpha rolled material at 690° to 700°C (1274 to 1292°F) in a laboratory tin bath, followed by quenching in water, produced a structure which had a much finer grain size than the normal bronze dip alpha rolled material. These results were checked with several full-size sections of alpha rolled rods, with results consistent with those found in the smaller size sections. This work is continuing.

Uranium Alloys

Several lots of uranium alloy samples have been received from Battelle. This metal is in the form of rolled rods 7/8" diameter x 12" long, and the pieces received reported three controls (normal unalloyed uranium) and alloys of 0.01, 0.1, and 1.0 atomic per cent each of iron, manganese, nickel, copper, titanium, tin, gold, and indium. All of the alloyed as-received samples, and the majority of the alloyed samples which had been heat treated in the alpha, beta, and gamma phases, have shown little differences in structure from those of the control samples. One exception occured in an alloy containing 1% manganese when water quenched after holding one minute at 700°C. With this same exception, these Hanford results fall in line with those reported by Battelle on these same alloys.

Examination of Irradiated Uranium

During the month the 212-N Bldg. was returned to the S Division in its original condition; however, the ground outside the building still requires danger zone restrictions. After failing in repeated attempts to remove all of the ground contamination which resulted from hot slug sectioning, ground surface has been removed to provide a maximum of 5000 c/m at any given area. Further steps are under consideration.

A project proposal was submitted to the Appropriations & Budget Committee covering conversion of the idle Bldg. 111-B (in the 100-B pile exclusion area) for interim use as a Hot Metallurgy Laboratory. This facility would allow (1) resumption of studies now displaced from the 200-N Area, as well as (2) mock-up design work on techniques and equipment to be used in planned permanent hot metallurgy facilities.

X-Ray Crystallography

Tests were completed on the reproducibility of patterns from alpha rolled, alpha extruded, and duplexed uranium. For any given surface preparation, it was found that the rolled and extruded specimens give complete reproducibility whereas the duplexed metal patterns are at best only 75% reproducible.

In the course of this investigation three different patterns were observed, the occurrence of any one of which depends upon the surface preparation of the sample. With reference only to transfer samples, the first pattern is characterized by a strong reflection from the 002 plane. This first pattern occurred with samples which had been wheel polished but not etched. With a four minute electropolish, the second pattern, characterized by a strong 021 reflection, is obtained. The third pattern, with attendant 110 reflection, is prevalent from samples which have been wheel polished and then electropolished eight or more minutes. It is believed

that the various patterns obtained from these specimens are due to the worked surface of the sample as caused by the mechanical polishing operation, and the subsequent removal of this surface during electropolishing.

During the investigation of surface preparation, an attempt was made to achieve a work-free, etch-free surface. This was accomplished by alternately polishing and then etching in a 50% nitric acid solution. The pattern obtained after the final lapping and etching operation showed a strong 110 reflection and six extraneous lines which cannot be accounted for by the Warren structure; the strongest of these lines were at the 2 θ angles of 27 and 33°. After four minutes of electropolishing, these new lines disappeared. Further work is continuing to establish the cause of their appearance.

Deformation Studies

True-stress, true-strain tests were run on gamma extruded and on alpha rolled uranium, using longitudinal specimens from production rod. Uranium has a lower yield strength and a higher rate of work hardening than iron of similar strength. The ductility of uranium is much less than that of iron, but alpha rolled uranium (due to its finer grain size) has somewhat better ductility than gamma extruded material. Modulus values determined in the test fell in the 26 to 29 x 10^{-6} psi range.

Stainless Steel Weld Tests

Samples of various stainless steels were heated by means of a welding torch for different lengths of time by the Design Division in an effort to correlate the carbide precipitation with the corrosion resistance of this material. These samples have been examined for the width of the carbide precipitation zone, and correlations have been made with the weight loss obtained in a boiling solution of 15% nitric acid, 3% hydrofluoric acid, and the balance water. On the only test completed to date on Type 304 stainless steel, results indicate that the corrosion weight loss per unit area of carbide precipitation increases with increases in precipitation.

Under this same program, samples of welded plate have been examined after bend testing and the examination shows that the welds are satisfactory in all respects.

Corrosion Tests - Redox

Waste storage tank tests of stainless T-304 and T-347 in LAW neutralized solutions (pH 2 and pH 10) at 72°C were inaugurated. To date no significant data have been obtained.

Corrosion Tests - General

Sections of a pile control rod were exposed to a humid atmosphere in order to test the protection afforded by two types of plate: (1) chrome plate, and (2) nickel-chrome plate. After 8 days exposure, plating (1) showed some evidence of plate penetration in the form of pinpoint rust spots throughout; plating (2) showed no evidence of corrosion.

General

A project proposal for temporary experimental uranium melting, casting, and fabrication facilities in the 300 Area was submitted to the Appropriations & Budget Committee for approval. These facilities, housed in a temporary building, would allow pressing metallurgical studies to proceed while a permanent metallurgical laboratory for this work is being designed and erected.

ANALYTICAL LABORATORIES

Work Volume Statistics

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

	August		September	
	Samples	Determinations	Samples	Determinations
Routine Control - 200	2080	3633	1874	3146
Routine Control - 300	1720	8996	1883	9539
Water Control - 100, 700	13512	25562	13512	25562
Redox Control	2526	7911	1991	6277
Process Reagents	936	1777	731	1411
Essential Materials	147	795	166	840
Special Samples	3599	7588	3299	8091
Totals	24520	56262	23456	54866

200 Area Process Control

General

The last shipment of 10 ml. of 8-1-MR solution to the Naval Radiation Laboratories was made on September 30. Four ml. composites of metal waste solution are being prepared for mass analysis by the Carbide and Carbon Chemical Co. at Oak Ridge, Tenn.

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

Laboratory	Ave. Geometry (%)	No. Tests
B Plant (222-B)	50.53	109
T Plant (222-T)	50.51	91
Isolation Bldg. (231)	50.48	62

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

Metallurgy & Control Division

Sample	Period Ending 8-31-48		Period Ending 9-30-48	
	Weeks Covered	Precision (±%)	Weeks Covered	Precision (±%)
8-1-MR	34	1.43	38	1.44
P-1	34	1.97	38	2.04
At	8	1.84	12	2.00

The loss of precision indicated for the AT analyses resulted from these values now being based on analyses by two chemists, using two different assay panel boards, as required for improved statistical interpretation of performance.

As an aid to increasing the accuracy and precision of the 8-1-MR assay, one experienced supervisor was assigned to contact all personnel on each shift in the B and T Plant Control Laboratories for the purpose of studying techniques and correcting erroneous practices. This assignment was completed, and close checking will be continued by the regular day-shift supervisor in both buildings. Range control charts have been set up for the 8-1-MR assay, replacing the random plus allowable chemists error chart.

The results of the synthetic 8-1-MR assays are tabulated below. The standard precipitation procedure, CA-2a, was used, and the per cent recovery based on 2.077×10^6 c/m/ml.

Month	Laboratory	Ave. Results ($\times 10^6$)	No. Assays	% Recovery
July	222-B	2.035	19	90.0
August	222-B	2.028	24	97.6
September	222-B	2.038	26	98.1
"	222-T	2.045	15	98.5

The standard iron solution used in the Isolation Bldg. Laboratory to check the chemical titration of plutonium was analyzed a total of 98 times during the month. There were 50, 37, and 11 results inside ± 1%, ± 2%, and outside ± 2% of the assay value, respectively. The average precision for duplicate titrations was ±2.23% as compared to ±2.62% for August. A summary of the results follows:

Assay Value	Group Ave.	% Diff.	Determinations	Precision (±%) Single	Precision (±%) Duplicate
10.18	10.22	+ 0.4	14	2.64	1.87
12.68	12.58	- 0.8	17	3.32	2.35
12.68	12.61	- 0.6	32	3.65	2.58
14.84	14.77	- 0.5	36	2.99	2.11

A special analyst checking program to increase the accuracy and precision of the P-1 and AT analyses has been established similar to that on the 8-1-MR assay. One shift supervisor has been assigned to study the techniques used.

The nitric acid content of all AT samples for the month of September has been determined. A nomograph chart will be prepared by the Statistics Group to use these data as an aid in determining the accuracy of the plutonium assay, plotting specific gravity vs. nitric acid vs. plutonium.

300 Area and Essential Material Control

Redox Process Control

At month end, 104 people were assigned to the Redox Control Laboratories, as follows: 71 in Bldg. 3706 (300 Area) and 33 in training in the 100 Area Laboratories. The required extra analytical capacity is available in 222-T (200-W Area) for periodic overloads.

Analytical Development - Redox

The mercury cathode electrolytic separation employed in the oxine procedure for the determination of aluminum was tested to determine its effect on aluminum losses. Results indicated that this technique has no adverse effect. A comparison of the oxine and acidimetric procedures for the determination of aluminum indicated that both methods are accurate to within 1%, and that the choice of method depends upon the analyst.

Work on the application of polarographic techniques to the determination of UNH in hexone has been started. UNH failed to give a limiting current in hexone phase samples; however, satisfactory waves were obtained when these samples were dissolved in water. An additional wave, caused by another component, was obtained using potassium chloride as the indifferent electrolyte. When the solution was buffered with acetic acid-sodium acetate, this wave was eliminated. It was also eliminated by prolonged outgassing of the KCL solution with nitrogen. Promising results were obtained using a micro platinum electrode instead of the dropping mercury electrode. Due to the lower overvoltage of hydrogen on platinum, interference from the hydrogen discharge was noted in solutions having a UNH concentration above 2 g/l.

Data obtained by X-ray absorption on standard UNH solutions containing other Redox constituents have been analyzed statistically. A working curve having a maximum error of 3 g/l of UNH has been developed. It is expected that further modification of the photometer will permit a reduction of this error.

X-ray absorption data for the analysis of UNH must be corrected for the total chromium content of the samples. Development of a direct colorimetric determination of the chromic ion is in progress, and current information indicates that such a procedure will be of sufficient accuracy for correction purposes.

In the determination of organic acids in an aqueous UNH solution, the addition of phosphoric acid prior to the vacuum distillation was found to give quantitative recovery of the organic acids in the distillate. By using methyl alcohol as the solvent and 0.1 N sodium methylate as the base, potentiometric titration of acetic acid in the presence of relatively large amounts of nitric acid was possible. In a process sample containing over 600 g/l of UNH and 50 g/l of nitric acid, it was possible to determine 5.3 g/l of acetic acid with an accuracy of 0.5 g/l.

Metallurgy & Control Division

Miscellaneous Analyses

The gas evolved from a sample of magnesium oxychloride cement under pile conditions was submitted by the Pile Physics Section for analysis. This gas was found to be essentially O_2, H_2 and N_2. No indications of Cl_2 or HCL were found.

Special Hazard Control

Effective September 27, shoe covers and laboratory coats were required for all visitors to the B and T Plant Control Laboratories (Bldgs. 222-B and 222-T).

All of the recommendations of Special Hazards Investigations #92, 94, and 96 have been put into effect with the exception of the replacement of one soapstone sink.

The construction of a dry-box for the manipulation of plutonium samples has been completed. This unit is patterned after the Berkeley-style boxes in use at other sites. As a test model, a lucite panel, equipped with glove ports, has been fabricated to fit the front opening of a K-type stainless steel hood. The relative merits of these units are not yet known.

STATISTICAL STUDIES

Hanford-Los Alamos Plutonium Measurement Differences

A study of differences in plutonium measurements at Hanford and Los Alamos is in progress. In this connection, a shift in the relationship between specific gravity and assay at Hanford is being investigated. It is planned to determine whether a correlation exists between Hanford material balances and Hanford-Los Alamos assay differences.

Analytical Laboratory Data

A calibration curve has been determined for the G. E. X-ray Photometer (by means of a multiple regression technique) for solutions containing various mixtures of UNH, $Na_2Cr_2O_7$, HNO_3, and NH_4NO_3. The multiple correlation coefficient was 0.9999.

Data have been submitted by the Analytical Section for a calibration curve for the polarographic determination of uranium.

The relationship between specific gravity, nitric acid, and chemical assay of P-1 solutions was obtained (by multiple regression technique) for the purpose of improving the control of accuracy of P-1 analyses. A similar control will be applied to the AT chemical analyses as soon as enough nitric acid determinations are available. These controls will aid in improving material balances and the accuracy of outgoing product assays.

Analysis of proportional beta counter data reveals that the standard deviations are in control, but the average counting rates are out of control. Additional tests are being made to locate the cause of this lack of control.

Metallurgy & Control Division

Chemical Research Data

From data submitted by the Chemical Research Section of the Separations Technology Division, a number of relationships have been established between various critical properties and the composition of Redox solutions. Linear equations relating density and composition in g/l, and quadratic equations relating the logarithm of the viscosity to composition in g/l, were previously obtained. Linear relationships with a high degree of accuracy have not been obtained between the logarithm of the viscosity and the composition expressed in mol fractions. Temperature corrections in the vicinity of 25°C have been developed for both the density and viscosity equations. Some further work is being done on hexone solubility in water as a function of temperature.

300 Area Plant Assistance Data

A "t" test applied to data submitted by the 300 Area Plant Assistance Group revealed a significant decrease in bad weld rejects subsequent to 300 Area process changes made on August 10.

A pile loading plan was prepared for slugs fabricated under P.T. 314-57-M.

Pile Technology Data

Data received from the Pile Technology Division are being analyzed to determine the relationship between pile exposure and slug warpage.

LIBRARY AND FILES

General

The Technical Information Division, Atomic Energy Commission, Oak Ridge, Tenn, was visited during September. The procedures and techniques of this section under A. G. Greene, Chief, were carefully studied, as were the proofs of the proposed revision of CA-1927 (List of current subject headings for the indexing of reports) which is to be available for use shortly. It is expected that this third revision of the basic list, expanding the available subject headings from approximately 940 to over 5000, will greatly aid in the current subject indexing of Hanford Works technical reports.

Plant Library

Work on the acquisition, cataloging, and circulation of books proceeded routinely. The bookcollection was greatly enriched by the addition of substantial run of the famous British scientific periodical "Nature," and a complete set of Gmelin's great basic work in inorganic chemistry "Handbuch der Anorganischen Chemie." In addition, the Library's specifications file was rounded out by the addition of Section IV of the Federal Standard Stock catalog, comprising specifications promulgated by the Federal government.

Metallurgy & Control Division

Arrangements were worked out to undertake the task of cataloging the books in the Medical Library of the Kadlec Hospital. This included a listing of the book collection, ordering of the necessary Library of Congress catalog cards, and the carrying out of the standardized Library procedures necessary to prepare the books for circulation. The job was substantially completed, and the few remaining uncataloged items will be picked up and processed as they are returned to the Medical Library. The number of books cataloged was 201, which accounts for the low figure shown below in the library statistics covering the number of books cataloged and added to the Plant Library during the month. It is planned in the future to catalog the Kadlec Hospital books, as received, in exactly the same manner as is currently being done for the Plant Library. In addition, card entries for any medical books of plant-wide interest will be added to the union catalog of the Plant Library so that this reference material may be readily located.

Library statistics were as follows:

	August	September
Number of books on order received	287	130
Number of books fully cataloged	452	180
Number of bound periodicals processed but not fully cataloged	6	125
Pamphlets added to pamphlet file	254	1154
Miscellaneous material received, processed, and routed (included maps, photostats, patents, etc.)	34	30
Books and periodicals circulated	786	750
Reference services rendered	1005	930

	Main Library	W-10 Branch	Total
Number of books	3229	1205	4434
Number of bound periodicals	2193	100	2293

Classified Files

Work on the receipt and issuance of documents proceeded routinely. A number of basic Files procedures were amended and developed. As a result of a number of meetings with the Plant Security Division, HW Instructions Letter No. 99 was issued covering the accountability for classified material withdrawn from the Classified Files. This new procedure will require all terminees, transfers off-site, and inter or intra Division transfers to clear through the Classified Files. As a further result of these meetings, HW Instructions Letter No. 81, Supplement No. 2, was issued amending Section VI of HW Instructions Letter No. 81 concerning the procedures on processing classified matters and brought these procedures in line with the recommendations of the Classified Files.

Metallurgy & Control Division

HW Instructions Letter No. 1, Supplement No. 1 embodying procedures suggested by the Classified Files on the mechanics of handling "yellow" copy coverage to Schenectady, was prepared and issued.

An additional meeting with Plant Security and the Richland postmaster concerned the prevailing Security requirements on the packaging of classified mail, some of which apparently conflicted with certain Postal regulations. As a result of this meeting, dummy packages wrapped in accordance with Security requirements were prepared for re-transmittal by Plant Security to the AEC for clarification of this matter.

Work statistics for the Classified Files were as follows:

	August	September
Documents routed	9634	9109
Documents issued	4427	5497
Reference services rendered	7372	4609

Files Assistance Unit statistics were as follows:

Ditto masters run	757	759
Mimeograph stencils run	390	419
Ditto master copies prepared	33,011	40,275
Mimeographed copies prepared	26,240	30,041

MEDICAL DIVISION

SEPTEMBER 1948

General

The Medical Division roll remained unchanged for practical purposes as a numerical decrease of eight will be nullified as soon as replacements are available.

Two physicians and one dentist terminated to enter private practice. The two physicians will not be replaced.

There was no evidence of injury to any employee during the month due to radiation.

Forty-two subcontractor employees were seen by the industrial physicians because of toxic manifestations which might be due to exposures occurring in the use of carbon tetrachloride for degreasing purposes in the 100-DR area. Four of these employees were so sick that they had to be treated in Kadlec Hospital. These have now been discharged from the hospital with no immediately serious complications.

The use of carbon tetrachloride has been discontinued for all such construction degreasing work. Less toxic substitutes are being used.

Experiments with animals have indicated that the total cumulative exposure of an individual to radiation throughout his life, regardless of the amount of the daily exposure may be important. Steps are therefore being taken to obtain an approximate figure for such exposure of employees prior to employment here which will be added to all exposures recorded at this works.

Employee physical examinations and first aid treatments decreased slightly.

Absenteeism due to sickness remained low at 0.98%, though nearly double the figure for the previous month.

Thirteen major and sixty-two sub-major injuries were treated. Of these, one major and four sub-major injuries were sustained by G. E. employees.

The health topic was "The Common Cold".

The average daily hospital census was 88.9, identical with the previous month, but 66% higher than the census a year ago. The average hospital stay was 5.3 days.

Clinic visits were 8472, a drop of 18% from the previous month, but 113% higher than the year previous figure. Dental clinic visits dropped 30% to 2783. The figure however was 62% above the twelve months previous figure.

1 Mr. L. C. Pullen attended the annual meeting of the American Hospital Association held at Atlantic City the week of September 19th.

The incidence of communicable disease remained low.

General (continued)

Sixteen Richland children were referred to the clinic of the State Crippled Children's program in Pasco on September 30th.

Moves were made to broaden the service coverage of the Welfare Section.

The major milk vendor has agreed to supply complete laboratory facilities to improve our present sanitary control.

The sewage disposal plant in Richland is now receiving the effluent from the Imhoff Tank located in North Richland. This will eliminate the disagreeable odor which was the source of some complaints by North Richland residents.

MEDICAL DIVISION

SEPTEMBER 1948

Plant Medical Section	Aug. 1948	Sept. 1948	Year to date
Physical Examinations			
Pre-employment (G.E.)	251	317	3464
Annual	559	757	1963
Sub-contractors & food handlers	4024	3476	29753
Rechecks	535	335	5188
Interval Rechecks (Area)	625	601	6535
Terminations & Transfers (G.E.)	259	342	5907
Army & government	47	23	280
Assist to A & E Ins., Clinic, etc.	0	0	0
Total	6300	5851	53042
Laboratory Examinations			
Clinical Laboratory			
Government	402	180	582
Pre-employment, terminations, transfers	9968	12514	139531
Annual	3414	4485	12074
Rechecks (Area)	3307	3118	33451
First Aid	108	258	616
Plant Visitors	0	0	12
Clinic	3397	3780	24492
Hospital	3181	3106	27191
Public Health (Inc. food handlers)	823	803	6802
Total	24600	26244	244551
X-Ray			
Government	42	26	68
Pre-employment, terminations, transfers	1576	1889	24117
Annual	576	756	2031
First Aid	448	362	2816
Clinic	417	429	2943
Hospital	268	239	2019
Public Health (Inc. food handlers)	159	107	1585
Total	3486	3808	35579
Electrocardiographs			
Industrial	275	326	926
Clinic	21	13	106
Hospital	32	17	168
Total	328	356	1200
Allergy			
Skin tests	57	51	357

MEDICAL DIVISION

SEPTEMBER 1948

First Aid Treatments	Aug. 1948	Sept. 1948	Year to date
Occupational Treatments	3815	2958	25461
Occupational Retreatments	12086	11251	77572
Non-occupational (welfare) Treatments	7015	6333	53684
Total	22916	20542	157617

Absenteeism Investigation Report

Total No. calls requested	6	14	180
Total No. calls made	6	14	180
No. absent due to illness in family	0	0	1
No. not at home when call was made	0	0	3

General

A mobile first aid unit made from a trailer type bus was put in service in 100-H Area, thus relieving the heavy first aid load in this area. The mobile unit will be used at this location until the permanent type station is completed.

During the month there were 42 cases seen having complaints referable to exposure to carbon tetrachloride. Four cases were hospitalized but no serious complications have resulted up to the present time. The exposure was obtained on degreasing operations in the 100-DR construction area. All use of carbon tetrachloride for cleaning purposes has not been discontinued.

Interval area examinations now include questionnaires regarding x-ray exposure for diagnosis and therapy. This information will be relayed to the H. I. Division for inclusion with the employee's permanent exposure record.

The total number of examinations done during September decreased from 6300 in August to 5831. The number of examinations done in September, 1947 was 4277. First aid treatments also decreased from 22,916 in August to 20,542 in September.

Major injuries were as follows:	August	September
General Electric	1	1
Atkinson & Jones	17	11
Nettleton-Sound	1	1
Morrison-Knudsen	0	0
Sub-major injuries were as follows:		
General Electric	3	4
Atkinson & Jones	54	55
Nettleton-Sound	2	1
Morrison-Knudsen	0	2

3

Total absenteeism was 1.76%, of which 0.98% was due to sickness. Total days lost were 1340. The lowest absenteeism was in the Community Division with 1.08%, and the highest was in the Technical Division with 2.56%.

MEDICAL DIVISION

SEPTEMBER 1948

Village Medical Section

Clinic Visits	Aug. 1948	Sept. 1948	Year to date
Medical	1940	1758	12356
Pediatrics	969	833	6826
Surgical	1001	827	7450
Gynecological	612	738	4576
Obstetric (new)	118	94	786
Obstetric (recheck)	805	801	6060
Venereal Disease	691	518	5010
Ear, Nose & Throat	414	338	3009
Eye	307	265	2358
Visits handled by nurses (hypo, dressing)	2622	1508	9497
Night clinic visits	917	788	6980
Total	10294	8472	68065
Total clinic visits per day	395	326	278
Seen in Well-baby Clinic	284	386	2183

Home Visits

Doctors	201	217	2007
Nurses	91	130	1397
Total	292	347	3404

Kadlec Hospital

Census

Admissions	538	499	4456
Discharges:			
Surgical	155	142	1126
Medical	121	109	916
Obstetric & gynecologic	122	110	900
Eye, Ear, Nose & Throat	49	50	539
Pediatrics:			
Children	24	29	396
Newborn	70	67	570
Total Discharges	541	507	4457
Patient Days	2758	2368	24168
Average Stay	5.1	5.3	5.4
Average Daily Census	88.9	83.9	88.3
Discharged against advice	4	2	26
One-day cases	98	96	742

MEDICAL DIVISION

SEPTEMBER 1948

Operations	Aug. 1948	Sept. 1948	Year to date
Transfusions	50	60	354
Eye, Ear, Nose, Throat	38	28	266
Dental	3	3	11
Casts	27	21	173
Minors	76	53	540
Majors	64	64	445
Vital Statistics			
Deaths	6	3	30
Deliveries	64	65	598
Stillborn	0	1	8
Physio-therapy Treatments			
Clinic	170	75	1128
Hospital	84	95	625
Industrial:			
Plant	385	200	3447
Personal	22	80	446
Total	661	450	5346
Pharmacy			
Number of prescriptions filled	3605	3298	27120
Patient Meals			
Regulars	3698	3390	31454
Lights	35	64	447
Softs	1326	1307	13727
Surgical Liquids	108	87	820
Tonsils & Adenoids	71	68	719
Specials	1089	980	7059
Liquids	275	319	3355
Total	6564	6215	57581
Cafeteria Meals			
Breakfast	67	40	107
Noon	2687	2811	22610
Night	432	368	3124
Total	3186	3019	25841
Nursing Personnel			
First Aid Nurses	54	55	
Clinic Nurses	17	17	
Public Health Nurses	13	13	
Hospital General Nurses	76	77	
Aides & Orderlies	60	56	
Total	220	218	

MEDICAL DIVISION

SEPTEMBER 1948

General

Clinic visits decreased 18% over the previous month, but increased 113% over September, 1947. Two clinic physicians terminated their employment here to enter private practice.

There was a slight increase in the total number of hospital admissions over August, 1948. The September figure showed an increase of 36% over a year ago.

Public Health Section

Administration	Aug. 1948	Sept. 1948	Year to date
Newspaper Articles	13	22	[illegible]
Committee Meetings	1	0	[illegible]
Attendance	4	20	[illegible]
Staff Meetings	5	6	32
Lectures & Talks	3	0	38
Attendance	25	0	2191
Conferences	3	6	77
Attendance	15	35	256
Radio Broadcasts	0	0	3

Immunizations

Cholera	0	0	3
Diphtheria	453	434	2401
Influenza	0	0	29
Rocky Mt. Spotted Fever	0	2	45
Schick Test	0	0	1
Smallpox	87	151	791
Tetanus	160	61	246
Typhoid	17	0	668
Whooping Cough	147	57	332
Total	864	705	4516

Social Service

Twenty-one cases were admitted to Social Service during September. This figure added to the cases carried over from August made a total of 111. Thirty-four cases were closed, leaving the case load at 77.

Sanitation Inspections	204	379	2128

Bacteriological Laboratory

Treated Water Samples	286	195	2137
Milk Samples (Inc. cream & ice cream)	116	112	1296
Other bacteriological tests	411	295	3347
Total	813	602	6779

MEDICAL DIVISION

SEPTEMBER 1948

Communicable Diseases	Aug. 1948	Sept. 1948	Year to date
Chickenpox	3	0	92
German Measles	8	9	89
Gonorrhea	35	25	176
Impetigo	1	8	16
Influenza	1	0	66
Measles	11	3	747
Meningococcic Meningitis	1	0	2
Mumps	3	6	984
Pediculosis	0	1	5
Pinkeye	0	2	10
Ringworm	2	1	4
Scabies	4	0	37
Scarlet Fever	0	0	18
Syphilis	78	39	269
Thrush	0	0	2
Tuberculosis	5	0	12
Vincent's Infection	1	4	10
Whooping Cough	2	0	48
Malaria	0	0	1
Food poisoning	0	0	7
Total	155	98	2595
Total No. Nursing Field Visits	631	692	11709

General

There was an increase in morbidity visits during the month. Arrangements have been completed with the State Health Department to hold the first conservation of hearing clinic in Richland on October 15th. Sixteen children from Richland were referred to the State Crippled Children's Clinic in Pasco on September 30th.

Dr. John Schumacher, psychiatrist of the U. S. Public Health Service, met with representatives of the Medical Division, Public Health and Welfare Section, and administrators of Richland School District.

Miss Virginia Fenske, Child Welfare Consultant, from the State Department of Public Welfare in Olympia, met with Dr. Ralph Sachs and the Social Service Counselors for the purpose of evaluating the work of the Social Service Department to the end that a license may be obtained approving the department as a child-placing agency.

Negotiations have been completed with the vendor supplying milk to the village whereby they will provide complete laboratory facilities in order that more rigid sanitary control can be maintained over products entering and leaving their plant.

General (Public Health) continued

Sewage disposal in Richland is now receiving the effluent from the Imhoff Tank located in North Richland.

In terminating mosquito control methods for the season, a residual DDT solution is being applied to all out-buildings and other structures which normally serve as over-wintering environment for anopheline mosquitoes.

Dental Section	Aug. 1948	Sept. 1948	Year to date
Patients Treated	3970	2783	26451

MEDICAL DIVISION PERSONNEL

September 30, 1948

	Physicians	Dentists	Nurses	Aides & Orderlies	Technicians	Office Workers	Others
100-DR			4			1	
100-H			3				
234-5			2				
White Bluffs			3				
Pasco			1				
101			1				
3000	12	2	10	6	9	30	12
100-B			)			)	
100-D			5)		2*	1)	
100-F			)		2*	)	
200-E			3		2*	2)	
200-H			3		2**	)	
300			2		2**	1	
Plant General	7		16				
700-1100	25	12	109	50	28	86	68
Total	44	14	162	56	39	121	80

Number of employees on Payroll:

Beginning of month	524
End of month	516
Net decrease	8

* 1 day per week
** 2 days per week

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HEALTH INSTRUMENT DIVISIONS

SEPTEMBER 1948

Summary

The force increased by six. There were two Class I Special Hazards incidents, neither resulted in significant exposure of personnel.

In the Operational Division survey findings in general were normal. The active particle deposition continued to be of prime concern.

In the Control and Development Section, samples of water, air and vegetation showed essentially no deviation from the normal pattern. The bioassay analyses showed no results above the warning limit for the plutonium excretion test. Uranium content of three urine samples fell in the 50 to 70 μg/Liter range.

In the Biology Division, monitoring of mammals and fish proceeded without special incident except in the 200 N Area where the program was abruptly terminated by predators. A study of the effects on aquatic life of pile effluent water, which has not undergone decay in the basin, will begin next month.

HEALTH INSTRUMENT DIVISIONS

SEPTEMBER 1948

Organization

The composition and distribution of the force as of 9/30/48 was as follows:

	100-B	100-D	100-F	200-W	200-E	300	700	P.G.	Total
Supervisors	1	1	3	8	4	15	7	0	39
Engineers	4	4	7	10	13	9	0	0	47
Clerical	0	0	0	1	0	3	4	0	7
Others	8	17	14	53	29	54	8	15	199
Total	13	22	24	72	46	81	19	15	292

Number of Employees on Payroll	September
Beginning of Month	286
End of Month	292
Net Increase	6

Additions to the roll were 3 Engineers, two for the expanding Biology Program and one to Meteorology (return to roll after sickness), two Technical Graduates in the Operational Division and one in Meteorology, one Draftsman, two Laboratory Assistants and four General Clerks.

[redacted]

ing in length. Although this is partly explicable by the increased size and complexity of the organization, there is some doubt concerning the value of the detailed reporting in the Operational Division. This month, the data are presented in the customary way, and also in condensed tabular form. Opinions on the usefulness of the tabular method as a substitute are solicited.

Health Instrument Divisions

OPERATIONAL DIVISION

100 Areas

General Statistics

	August				September				1948
	B	B	F	Total	B	D	F	Total	To Date
Special Work Permits	442	777	1141	2360	565	522	1195	2282	18,405
Routine & Spec Surveys	498	399	766	1663	411	399	496	1306	9,118
107 Effluent Surveys	85	147	72	304	56	82	49	187	1,501
*Air Monitoring Samples	102	67	239	408	103	31	102	236	*

*Included with Routine and Special Surveys until July 1948.

Retention Basin Effluent

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

		100-B	100-D	100-F
Power Level	(MW)	275	275	275
Average beta dosage rate	(mrep/hr)	0.7	0.8	1.1
Average gamma dosage rate	(mr/hr)	1.7	1.9	2.3
Average total dosage rate	(mrep/hr)	2.4	2.7	3.4
Average integrated dose in 24 hrs.	(mrep)	58	65	82
Maximum integrated dose in 24 hrs.	(mrep)	77	72	101
Maximum integrated dose in 24 hrs. (1948)	(mrep)	94	115	101

An abrupt rise in the water activity at 100-F could not be explained. A maximum exposure rate of 4.8 mrep/hr was obtained on the water as it left the Retention Basin and dilution at the effluent flume was necessary.

100 Area problems are summarized in the following table:

Location	Conditions	Dosage-Rate
100 B		
Discharge Elevator	Instrument mechanic-beta-gamma contaminated. Shoes, socks, trousers, confiscated	18,000 c/m max. on clothing
"B" Experimental Hole	Gross beta-gamma contamination. Spread to "A" hole shield.	20,000 c/m, shoe covers, 110 mrep/hr, equipment
Inner Inst. Rm.	Plenum chamber work for location of ruptured tube.	112 mrep/hr, floor

Health Instrument Divisions

Location	Conditions	Dosage-Rate
Ruptured Tube	Hydrostatic tests-swab tube and replacement	320 mrep/hr -swabs
Drier Room	Condensate increased from about 2 liters/day to about 24 l/day. Held until analysis made.	3 mc/l (normal) 0.054 mc/l
100 D		
Transportation Storeroom House	Rubber glove-plutonium contamination. Source not found	5,000 d/m
100 F		
Top of pile	Work on VSRis - rust spilled Beta-gamma contamination - wrist-cleaned	1 rep/hr - rust
New Effluent Line	Tie-in new line-107 gates failed water back up in old line-under pit flooded	Low level contamination in pit
Rear Face	Van Stone inspection- glove contamination	25 mrep/hr gloves
Seal pit west of pile building	Contaminated dirt-piece of copper wire found. Source not determined	2 rep/hr. dirt 25 rep/hr. wire

Other conditions are summarized below:

100-B		
Discharge area	Slugs on tip off-3 occasions. H.M's showed pressure of two before entry-other found on entry - no overexposure. Experimental hole thimbles-buried	2.6 roentgens per hour at 3" from piece not detected by H.M. 500 mr/hr short periods 10-30 mr/hr av. exp. rate
100 D		
Top of file	Vertical rod buffing-disconnect vacuum line	380 mr/hr
100 F		

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Health Instrument Divisions

Location	Conditions	Dosage-Rate
100 F		
Experimental Level	Sample dropped-recovered Sample dissolved for decay study. Other samples removed without incident	400 mr/hr recovery 17 rep/hr surface 200 roentgens/hr E Hole
"A" Exp. hole	Thimble removed and replaced. Gas leak around new thimble	200 mr/hr at 20 ft. 75 mr/hr - gas
Effluent Water Lines	New line not covered. Danger Zone. entire length Danger Zone.required in cushion chamber also	420 mr/hr @ 2 inches valve pit 70 mr/hr @ 8 ft. valve pit 6 mr/hr inlet 107 20 mr/hr cushion chamber
Front Face	Van Stone inspection-No dummy train in some tubes	700 mr/hr
Top for edge of pile	Gamma beam - increased intensity following shut-down	3.6 mrem/hr slow neutrons
Front Face	Neutron monitor removal attempted-Pushed back-decay-removed	5 roentgens per hour 1.5 roentgens per hour

100-B Area

On three separate occasions, irradiated pieces remained on tip-offs following the discharge of specially loaded tubes. In two cases, significant readings were observed on the H. M. chambers and personnel were warned before entrance to the discharge area was attempted. In the third case, the tube involved contained poison slugs and the piece on the tip-off was not discovered until after entrance was made. This piece was dislodged at a distance of two feet where the exposure rate was less than 50 mr/hr.

An instrument mechanic, working in the discharge area, contaminated his shoes, socks, and trouser cuffs by dangling his feet over the side of the

elevator. Attempts to remove the contamination were unsuccessful and the articles of clothing were confiscated.

Gross contamination was encountered at the "B" experimental hole during the manipulation and removal of samples. Some contamination was spread to the shielding at "A" hole when the plug from the loading mechanism was placed on top of the shielding. Shoe covers showed contamination to the extent of 20,000 c/m and gloves had to be changed frequently. One high hand score was recorded and was reduced easily.

A sudden drop in power level necessitated a shutdown of the pile. An investigation for moisture in the pile was made with the plenum chamber in the inner instrument room. Low level contamination was observed during this work and during the subsequent hydrostatic tests of pile tubes. A leak was verified in tube #1569 and the tube replacement accomplished without incident.

After pile start-up, the condensate from the driers in the Gas Purification Building increased to about one liter per hour. Since this condensate normally contains about 3.2 mc/l of S^{35}, the total volume was collected for about six hours, pending an analysis at the H.I. Methods Laboratory. After it was learned that this analysis showed a S^{35} concentration of only 0.054 mc/l, the condensate was allowed to follow the normal route into the Columbia River.

100-D Area

A long gauntlet rubber glove, contaminated with an alpha emitter to the extent of 5000 d/m, was found during a routine survey of the 1713 Transportation Storehouse. A sample of the glove was sent to the H. I. Methods Laboratory for analysis and the contaminating material identified as plutonium. A complete poppy survey of the building revealed no other alpha contamination. The source of the glove could not be determined.

Surveys were made on the 56 foot level roof in the beam from the biological shield. The maximum exposure rate obtained was 17 mr/hr and appeared to be at a point between T-section plates 3 and 4. Neutron surveys indicated no change from previous results.

During discharge operations, one process tube was inadvertantly charged twice. The unirradiated metal was segregated below the chutes and recovered later at the wash pad. Individual pieces were found contaminated to the extent of 3 mr/hr at 2 inches and were decontaminated before being returned to the 300 Area.

The buffing of vertical rods and vacuuming of rod thimbles was continued during the shutdown. Contamination control was much improved and no personnel contamination was reported. Exposure rates up to 380 mr/hr were

encountered briefly during the disconnecting of the vacuum line, but average exposure rates were only about 25 mr/hr.

BF_3 surveys for fast neutrons were made at the T-section seams on the far side of the pile. Results showed no appreciable increases above previous readings.

100-F Area

The tie-in of the new effluent line was accomplished during the extended shutdown. Back pressure on the gates at the Rentention Basin was enough to cause leaks in the old line and necessitated the flooding of the near-by under pit. Low level contamination was evident over most of the pit.

Since the new line is exposed all of the way from the pile building to the Retention Basin, dosage rates are high enough to require a Danger Zone over the entire length. Dosage rates on the line at the pile building, about half-way to the Retention Basin, and at the inlet side of the Retention Basin were 420, 18, and 6 mr/hr, respectively. Exposure rates along the cushion chamber corridor inside the pile building were as high as 20 mr/hr and a Danger Zone established here.

Van Stone inspection was carried out with a maximum dosage rate of 700 mr/hr observed on tube 2858. Dosage rates were generally insignificant on the front face except for tubes having no front dummy train. Contamination was the chief hazard on the discharge face and gloves had to be changed frequently.

One of the octant neutron monitors was withdrawn momentarily from tube 0353 and immediately replaced when a dosage rate of 5 roentgens per hour was encountered. The instrument was later removed with an exposure rate to personnel of only 100 mr/hr. Additional monitors were installed in other tubes under very low exposure rates.

A special sample was inadvertantly dropped during the manipulation of the "E" experimental hole equipment. The average exposure rate to personnel during recovery was 400 mr/hr. The beam from this equipment was found to give an uncorrected dosage rate of 200 roentgens per hour with an estimated correction factor of 2 or 3. The thimble in the "A" experimental hole was replaced with little exposure to personnel. Gas leaks around the new thimble caused dosage rates up to 75 mrep/hr, during normal operation, and were immediately repaired.

A spot of contaminated dirt and a piece of copper wire were found near the seal pit west of the outer instrument room. Uncorrected surface dosage rates were 2 and 25 rep per hour respectively. The source of this contamination was not determined.

Maintenance work to vertical rods and thimbles and borescoping of vertical

thimbles was carried out with good contamination control. Exposure rates to personnel were as high as 2 roentgens per hour while filter boxes and separators were being changed.

200 Areas, T and B Plants

General Statistics

	August			September			1948
	T	B	Total	T	B	Total	To Date
Special Work Permits	326	436	762	314	468	782	6750
Routine and Special Surveys	206	246	452	540	300	840	5534
Air Monitoring Samples	479	491	970	523	478	1001	8265
Thyroid Checks	150	112	262	167	84	251	2741

Canyon Buildings

In the T Plant the removal of filters from the cell exhausts is in progress, and in one instance during this work an air sample taken at deck level showed concentrations of 3.7×10^{-6} μc f.p./liter and 5×10^{-11} μg Pu/cc. General product contamination of the canyon deck was noted from Section 7 through 20 following work on the 18-2 centrifuge and was cleaned. A sample of 100 cc of 8-3 WS solution was obtained for off-plant shipment, and one case of coverall contamination was noted. Quick detection and removal of the garment prevented overexposure.

In the B Plant removal of contaminated defective equipment from cells for burial has caused high level deck contamination, and cleanup is in progress. Maximum dosage rates of 22.5 rep per hour surface, including 1 roentgen per hour at 3 inches, have been encountered and cleaned with a maximum exposure rate of 500 mr/hr. Several cases of low level personal clothing contamination were detected during this work, and additional protective clothing was recommended for canyon work until the cleanup is completed. Replacement of contaminated instrument equipment at the Section 12 Operating Gallery panel is in progress. During canyon work, sixteen air samples showed significant concentrations, the maximum occurring during the opening and closing of Sections 11L and 11R, the filter showing a surface dosage rate of 600 mrep/hr. The installation of new cell exhaust air filters is approaching completion.

Control Laboratories

In the T Plant, 102 items, not regulated with respect to handling, were found contaminated on surveys by Technical and Health Instrument Divisions personnel. In addition, 20 contaminated floor locations were reported. Twenty-nine cases of fission product and four cases of product hand contamination were reported and all were successfully decontaminated.

In the B Plant, 205 items, not regulated with respect to handling, were found contaminated on surveys by Technical and Health Instrument Division personnel. In addition, 30 contaminated floor locations were reported. Fifteen cases of fission product and eight cases of product hand contamination were reported and all were eventually reduced. In one case of product contamination it was necessary to discontinue cleaning of a finger showing about 2000 d/m until the following day because of a tender skin condition.

Concentration Buildings

In the T Plant, maintenance work was done on the F-2 Centrifuge without spread of the high level product contamination encountered.

In the B Plant, the experimental scrubber assembly was removed from the E Cell vent line and open lines were blanked. It is planned to store this equipment in the 292-B Danger Zone.

Stack Areas

In the T Plant, particles deposited on new rough concrete surfaces of the sand filter installation have shown a maximum reading of 30,000 c/m. Installation of ductwork from the filter to the fans is in progress and has been done with a maximum exposure rate of 50 mr/hr.

In the B Plant, the #1 fan was shut down when a fan bearing overheated. Inspection of the bearing was done with a maximum exposure rate of 3.4 roentgens per hour and placement of shielding for repair work is in progress.

Waste Disposal Areas

In the T Plant, an air sample taken at the 201-T tank vent during jetting from 224 building showed concentrations of 9.5×10^{-6} μc F.P./liter and 8.5×10^{-11} μg Pu/cc. Assault masks are worn near vents when personnel entry is required. The 153-U diversion box was opened for a jumper change, which was done with maximum exposure rate of 1.2 roentgens per hour, and maximum planned exposures of 90 mr in one day.

In the B Plant, the 154-B diversion box was opened for a jumper change to divert first cycle waste to the BX Tank Farm. The exposure rate at the top of the diversion box was one roentgen per hour. Several old jumpers which had been stored on the bottom of the box were removed to the burial ground, being transported in a wooden transfer box through which a dosage rate of 250 mr/hr at 2 inches was reported. A new filter was installed on the vent of the 5-6 crib which was effective in preventing the drippage of condensate onto the ground.

North Areas

In the 212-N Area, the removal of contaminated equipment from Technical Division operations at the rear of the building was completed, and decon-

tamination of the ground is in progress. The maximum exposure rate during this work has been 1.2 rep per hour. Reduction of ground spots is being done, and final reduction of low level contamination will be accomplished by covering with gravel.

At Riverland, the annual inspection of the well cars is in progress, and no spread of contamination has been detected. A leak was observed in the bottom of a well, and the car was returned to the East Area for repair. An analysis of the water leaking from the car showed 4×10^{-3} μc f.p./liter and 1280 d/m/liter of alpha activity.

General

In the T Plant, 3686 Martindale filters were surveyed with a GM probe and no contamination was detected. Radioautographs showed 13 particles on 624 filters.

In the B Plant, 4785 Martindale filters were surveyed with probe, of which four showed slight contamination of about 100 c/m. Radioautographs showed 236 particles on 2952 filters.

All thyroid checks in both areas were below the conservative warning level.

The Isolation Building

General Statistics

Special Work Permits, September - 20
Special Work Permits, 1948 to date - 332

Air Monitoring

There were 287 spot air samples taken, of which six were above 10^{-11} μg Pu/cc. Four of these were taken in the operating cells during normal operation and showed a maximum of 6×10^{-11} μg Pu/cc. Two were taken in the laboratories during the slurping of samples and showed a maximum of 1.6×10^{-11} μg Pu/cc. Twenty continuous Little Sucker samples were all below 4×10^{-12} μg Pu/cc. Thirteen continuous samples of the 903 exhaust air system showed 3.1×10^{-12} μg Pu/cc as a maximum concentration.

A review of the comparative samples taken during AT sampling operations indicates that respiratory protection during this operation should be continued.

Surface Contamination

A total of 377 items, not regulated with respect to handling, was found contaminated on surveys by Technical, Health Instrument, and S Division personnel. Twenty-two items were above 20,000 d/m, and fourteen above 80,000 d/m.

In addition, a total of seven contaminated floor locations was found, all of which were in the laboratories. The maximum location involved about .02 μg Pu in Room #35.

All six cases of product skin contamination were reduced successfully. The maximum amount involved was about 0.4 μg Pu.

Gamma Radiation

P.R. Container	11 mr/hr (maximum)
Process Hood	3 mr/hr (maximum)
S.C.	4 mr/hr (maximum)

The 300 Area

General Statistics

	August	September	1948 To Date
Special Work Permits	281	342	2506
Routine & Special Surveys	80	162	1243
Air Monitoring Samples	61	109	945

Metal Fabrication Plant

Fifty-three of sixty-two air samples taken were above 5×10^{-5} μg U/cc as follows:

	No. Taken	No. above 5×10^{-5} μg U/cc	Maximum Concentration μg U/cc
Melt Plant	17	16	*5.5×10^{-3}
Oxide Burner	17	15	**3.0×10^{-3}
Chip Recovery	8	4	***9.8×10^{-5}
Machining	6	5	#3.9×10^{-4}
Rod Straightener	5	5	##5.1×10^{-4}
R. R. Cars	9	8	###2.5×10^{-3}

*Charging "B" furnace
**During discharge of oxide
***Sorting
#Operator's position
##Normal operation
###Unloading

A film survey and time study of all jobs in the Melt Plant revealed that an average weekly dose of 660 mrep was being received on the hands with a possible maximum of 1560 mrep.

Surveys in other locations showed that UX_1 and UX_2 contamination was present

on the concrete pad and ground outside the burnout room and also beyond the 303 area fence. Surface dosage rates were as high as 350 mrep/hr and 25 mrep/hr, respectively. Crucibles used in canning and dipping operations were found contaminated, with dosage-rates up to 800 mrep/hr reported.

Film exposures in plant issue shoes indicated a dosage rate of 1300 mrep in 16 hours in the case of one operator. The frequency of such checks was immediately increased. Several operators were found to have contaminated socks, but the average count was only about 2000 c/m.

Technical Building

Five air samples taken in rooms 96 and 98 were greater than 2×10^{-11} µg Pu/cc. The maximum showed a concentration of 8.8×10^{-11} µg Pu/cc. However, subsequent analyses by the H. I. Methods Laboratories showed a composition of only 10% Pu, the remainder being uranium.

321 Building

Heavy vapor and sprays of UNH solution were carried through the reflux condenser during the dissolving of uranium. A maximum of 3,000 d/m was found on the ground in the area adjacent to the west end of the 321 building. The contaminated dirt was buried.

Laundry Building

A total of 48 spot air samples and 45 continuous Big Sucker air samples was taken during Plant Laundry operations. The maximum concentration of 6.6×10^{-6} µg U/cc was obtained near a washer during the processing of clothing from the 300 Area Operations Group.

Plant General

A total of 88 frames exposed on the reservation and at Benton City and Pasco showed a deposition rate of 3×10^{10} particles per month. Two frame studies were completed in each of the 200 areas and showed deposition rates of 3×10^{9} particles per month in 200 East and 5×10^{8} particles per month in 200 West.

Particle inhalation, estimated by the use of filters, showed the following: (August results are included for comparison)

Health Instrument Divisions

Location	Inhalation rate particles/day Aug.	Sept.
B Plant - Main Gatehouse (outside)	1.7	1.3
B Plant - Main Gatehouse (inside)	1.4	1.3
B Plant - Excl. Gatehouse (outside)	2.4	6.2
T Plant - Main Gatehouse (outside)	2.7	2.4
T Plant - Main Gatehouse (inside)	1.0	1.4
T Plant - Excl. Gatehouse	0.6	1.5
3' level meteorology tower	0.3	1.0
150' level meteorology tower	0.4	2.7
250' level meteorology tower	0.6	3.4
400' level meteorology tower	0.3	4.1
100 F Area	0.05	0.2
100 D Area	0.02	0.15
100 B Area	0.04	0.06
Benton City	0.03	0.09
Richland	0.05	0.06

Air samples taken inside various 200 area buildings showed the folbowing estimated particle inhalation rates

Location	No. Particles per month
East Area Gatehouse, Upstairs	5
West Area Gatehouse, Upstairs	8
West Area Administration Building	12
East Area Laboratory, Hall	12
T Plant Canyon, Operating Gallery	80
T Plant Concentration Bldg. F 10	38
West Area Maintenance Shop	10

Glass cloth was placed over the evaporative coolers and picked up from 1000 to 2000 particles per two week period.

Air filters in off area locations showed the following results:

Spokane	3 particles inhaled per month
Mullen Pass, Idaho	1.5 particles inhaled per month
Rainier Paradise Inn	1 particles inhaled per month

Health Instrument Divisions

PERSONNEL METERS

	100-B	100-D	100-F	E&N 200	200-W	300	Total	1948 To Date
Poncils								
Total Pencils Read	9,240	10,203	15,983	31,380	43,220	38,872	148,898	1,218,897
No. of Single Readings (100 to 280 mr)	26	54	63	50	75	209	477	3,974
No. of Pairod Readings (100 to 280 mr)	0	1	0	0	0	1	2	33
No. of Single Readings (Over 280 mr)	130	102	77	81	160	486	1,036	8,123
No. of Paired Readings (over 280 mr)	4	1	3	1	1	6	16	125
Paired Roadings Lost	1	0	5	0	1	0	7	50

No significant poncil result was confirmed by the badge result. Investigation of lost readings showed no instance of overexposure.

Health Instrument Divisions

Badge Resume, Construction Areas

	105-DR	241-TX	115-KV 384	241-BY	Total	1948 To Date
Badges Processed	7,811	5,928	357	476	14,572	138,086
No. of readings (100 to 500 mrep)	15	14	0	0	19	740
No. of readings (Over 500 mrep)	0	4	0	0	4	75
Lost readings	17	11	0	0	18	106

Investigation of the four results over 500 mrep indicated all were due to fogged film, the high result was 580 mrep for the two week period.

Lost readings were due to:

Badge lost in area	9
Lost in processing	5*
No packet in badge	1
Damaged packet	1
Open window exposed to X-Ray	2**

* Sensitive film lost-insensitive showed no exposure
** Shielded portion showed no exposure

Badges

	100-B	100-D	100-F	200-E	R.R.T. 200-N	200-W	300	Total	1948 To Date
Badges Processed	1,604	1,986	2,150	3,920	797	5,136	6,659	22,252	204,821
No. of readings (100 to 500 mrep)	1	7	18	5	0	16	236	283	2,211
No. of readings (Over 500 mrep)	0	0	0	0	0	0	1(b)	1	39
Lost Readings	0	*1(a)	**1(a)	0	0	0	3	5	79

(a) stuck film; (b) contaminated badge
* shield read 0; ** recovered lost badge

The one result of over 500 mrep was traced to a contaminated badge. It showed 585 mrep.

Lost readings were accounted for as follows:

Stuck film	4
Badge dropped in water	1

Total 1948 badges to date - Operations	204,821
Total 1948 badges to date - Construction	138,086
Grand Total	342,907

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Investigation of lost readings showed no overexposure.

In addition, 3,240 items of non-routine nature were processed. The 1948 total to date is 17,450.

BIOLOGY DIVISION

Aquatic Biology

1. Effects of Pile Effluent Water on Aquatic Life

Equipment is being renovated as rapidly as possible for a new series of monitoring tests on chinook salmon to be started in October as soon as water temperatures are suitable and eggs are available. Major changes involve: (1) an extension of the pipe line from inlet side of the retention basin to tap into the influent header from the pile. This will make available an uninterrupted supply of pile effluent water which has not undergone decay in the retention basin. This inlet side water will be used in addition to that from the outlet side as in the past. (2) A renovation of the water refrigeration system to improve efficiency and water flow and to make possible the cooling of both effluent and pre-pile process water. Repainting of the troughs is now in progress.

The studies on rainbow trout fingerlings have been continued. These studies include the following groups.

Group	Exposure of Parents to 50% Pile Effluent	Exposure of Young
1	None	None
2	Less than 25 days	None
3	25 to 49 days	None
4	50 to 74 days	None
5	75 to 100 days	None
6	over 125 days	None
7	None	Continuous exposure to 2% Area effluent, beginning with the eggs on April 7, 1948.
8	None	A select stock from a single set of parents to be used in future genetic studies.

These fish were seriously affected by disease during July and August but with cooling water temperatures during the latter part of September the condition has been alleviated.

2. Biological Chains

The small shiners being held in active water or being fed active snails continue to show interesting results. Excellent decay curves are being obtained on the fish fed the active snails which indicate a predominance of an isotope with a half-life similar to that of P^{32}. Decay curves on fish held in the active water indicate a predominance of short lived isotopes with a combined half-life of about 6 to 9 days. Activity of the fish held in the effluent water is usually the greater; however, it is subject to wide fluctuations which are correlated with fluctuations in the activity of the water. There are indications that the fish fed active snails may reach an equilibrium after two or three weeks depending upon the specific tissue analyzed.

A second test in which small carp reared in pile effluent water are being fed to trout held in river water was started on September 27th. A previously planned test in which dipterous larvae were to be fed to young squawfish will have to be postponed since the culture of the larvae has not developed satisfactorily.

3. Radiobiological Survey

The bottom algae and accompanying water samples collected from the Columbia River during September have shown an appreciable increase in radioactivity over samples collected last spring. This can best be accounted for by the restarting of the 100-B Area. Variations in the raioactivity of this bottom algae due to seasonal changes will undoubtedly be obscured by the greater factor of plant operation. Work on the insect fauna of the river is being started by an entomologist sprecializing in these forms.

Collection of fish from the Columbia River at Hanford is continuing on a bi-weekly basis. Feces of several of the specimens collected during the past month have shown on the order of 0.4 μc/kg. One sucker showed similar amounts of activity in the eggs, bone, and liver.

Zoology

1. Chronic Toxicology of I^{131}

The sheep that has been fed on 10 μc/daily portions of I^{131} has demonstrated about the same accumulations in the thyroid as an older animal used in a similar study 60 days earlier. The maximum value of 8,900 c/m for an external count was reached after 16 days and since has dropped for about 30 days to about 1/3 that level. This very near parallels the pattern of the earlier sheep studied.

Less than 1/4 lbs. of prepared pellets have been fed daily and was not

expected to contain enough total iodine to exert a blocking effect. Unfortunately, the experimental ewe has developed an ulcerated "tumor" on the right side of the jaw bone. It has been opened and is draining freely new.

Rabbit feeding of I^{131} has gone on as planned. No new observations have been made.

Eggs of poultry have diminished by a factor of 2 in I^{131} content of yolks. The dropping off is probably due to cooler weather and lowering of water consumption by fowls. The two hens have been fed on the old tolerance level of .2 μc/kg for feed and 0.28 μc/l for water.

The Biochemistry group is endeavoring to set up a routine procedure for determining blood cholesterol in sheep.

2. Biological Monitoring

Our monitoring program was suddenly brought to a close at 200 North when ten of thirteen ducks placed there were killed during two days by coyotes. The ducks remaining were sacrificed. Contacts have been made with A.E.C. Safety to investigate the procedure in ridding the project of these predators.

The following table shows the findings of animals sacrificed.

2. Biological Monitoring

Tabulation of Radioactivity in Animals Assayed (All values in μc/kg)

Organ or Tissue	Particles	Duck 300 Pond	Duck 200 N-P	Duck 200 N-R	Duck 100-F	Owl 200-W	Near Barricade to Prosser Owl	Dove 200E	Jack Rabbit 200E&W	Field Mouse 100 F
Feces	A	.018	7×10^{-4}			$<5\times10^{-4}$				
	B	.032	2.	0.1	0.2	0.04	$<5\times10^{-3}$	<0.06	<0.01	0.1
Thyroid	A	$<7\times10^{-3}$		<0.001						
	B	.079	1.	1.1	0.2	<0.02	$<5\times10^{-3}$	<0.09	0.3	<0.01
Brain	A	$<1\times10^{-4}$	$<1\times10^{-4}$							
	B	$<2\times10^{-3}$	0.08	0.008	<0.01		----			---
Lung	A	$<5\times10^{-4}$	$<1\times10^{-3}$	$<3\times10^{-4}$		Zero				
	B	$<1\times10^{-2}$	0.03	0.01	0.03	0.004	$<5\times10^{-3}$	0.02	<0.01	<0.02
Liver	A	$<3\times10^{-4}$	$<4\times10^{-3}$	$<3\times10^{-4}$		$<5\times10^{-4}$				
	B	4×10^{-3}	0.2	0.03	0.06	0.003	$<5\times10^{-3}$	0.007	<0.003	0.02
Spleen	A	$<1\times10^{-4}$		$<4\times10^{-4}$		Zero				
	B	$<8\times10^{-3}$	0.2	0.02	0.06	<0.006	---	0.05	<0.02	---
Pancreas	A	$<3\times10^{-5}$	$<7\times10^{-4}$	$<4\times10^{-4}$		$<5\times10^{-4}$				
	B	$<4\times10^{-3}$	0.2	0.04	0.07	<0.01	$<5\times10^{-3}$	0.01	<0.01	---
Kidney	A		$<5\times10^{-4}$	$<3\times10^{-4}$						
	B	5×10^{-3}	0.2	0.02	0.03	0.007	$<5\times10^{-3}$	0.054	<0.005	0.02
Gonads	A		0.01			0.09 (eggs in ovary)				
	B	$<3\times10^{-3}$	0.11	0.02	0.03	None	---	<0.02		---
Muscle	A	$<1\times10^{-4}$		$<7\times10^{-4}$						
	B	2.5×10^{-3}		0.02	0.03	0.002	$<5\times10^{-3}$	<0.04	<0.003	0.02
Bone	A	$\sim6\times10^{-4}$		6×10^{-4}	$<1.4\times10$					
	B	1×10^{-2}	1.1	0.07	0.02	<0.002	$<2\times10^{-2}$	<0.04	<0.007	<0.01
Blood	A		0.001							
	B		0.06	0.01	0.02	$<4\times10^{-3}$		<0.09	<0.005	---
Misc.	A	Skin of Bill								Embryo
	B	8×10^{-3}								0.03

Two second generation rats drinking pile effluent water were sacrificed from each of the three groups. Results are tabulated below.

Organs or Tissues	Groups Collection Dates	Controls		1:100 Effluent		Straight Effluent	
		9-10-48	9-27-48	9-10-48	9-27-48	9-10-48	9-27-48
Feces		~0.01	<0.001	0.02	<0.003	0.04	0.002
Thyroid		0.76	<0.03	0.8	<0.02	0.4	<0.01
Brain		<0.01	<0.02	<0.02	<0.007	0.01	<0.03
Liver			$<2\times10^{-3}$		$<7\times10^{-4}$		$<1\times10^{-4}$
		<0.001	<0.005	~0.02	<0.003	0.01	~0.006
Spleen		~0.02	<0.01	<0.006	~0.008	0.01	<0.006
Pancreas		---	<0.01	<0.006	<0.06	0.01	<0.07
Kidneys		<0.01	~0.01	0.02	<0.003	0.02	~0.01
Gonads		~0.07♀	0.04	~0.3♀	0.01	0.1	<0.1
Muscle		<0.01	<0.01	0.008	<0.003	0.01	<0.008
Bone			$<4\times10^{-4}$		$<3\times10^{-4}$		$<4\times10^{-4}$
		<0.02	<0.02	~0.05	~0.02	<0.03	<0.01
Blood		--	<0.03	<0.02	~0.04	0.1	<0.06

3. Miscellaneous

A control rabbit and a rabbit wearing a speck on its ear for seven months were autopsied. No evidence of injury could be seen macroscopically.

CONTROL AND DEVELOPMENT DIVISION

Water Monitoring

Two hundred and eighty-seven 500 ml samples of drinking water were taken during the month. The maximum alpha activity was 203 dis/min/liter from 300 Area well #4. These wells and the sanitary water averaged between 30 and 146 dis/min/liter. The maximum alpha reading in a sample other than the 300 Area was 43 dis/min/liter at Benton City. The highest average for the month was 26 dis/min/liter at this same well. The alpha results in other wells again averaged between <6 and 15 dis/min/liter with confirmatory analyses on the fluorophotometer. All samples gave less than 5×10^{-5} μc/liter of beta activity. Fifty-one three gallon samples were analyzed with activity levels on the same order of magnitude as the 500 ml samples.

Ten test well samples were taken with alpha results ranging from 6 dis/min/liter to 21 dis/min/liter in McGee Well, 200-N #5, Spring 13, and Rattlesnake Spring. No beta activity as high as 5×10^{-5} μc/liter was found.

Seventy-seven samples of Columbia River water were taken with individual samples from 181-D and the export line giving trace values of 6-- 7 dis/min/liter. All sampling locations averaged less than 6.0 dis/min/liter. The maximum beta activity was 1.6×10^{-3} μc/liter from a Hanford sample. Twelve samples of Yakima River water were taken with one sample giving 12 dis/min/liter. The average of all samples was less than 6 dis/min/liter.

Atmospheric Monitoring

The integrons and "C" Chambers indicated average dosage rates as follows:

	Integrons (mrep/24 hours)		C Chambers (mrep/24 hours)	
Location	August	September	August	September
100-B	0.4	0.7	0.2	0.3
100-D	0.8	1.2	0.3	0.3
100-F	0.4	1.0	0.3	0.4
200-W	0.5	0.2	0.3	0.3
200-E	1.1	0.8	0.5	0.6
Riverland	7.3	1.5	- -	- -
Hanford	0.5	1.7	- -	- -
300 Area	0.8	0.6	0.4	0.4
700 Area	0.8	1.2	- -	- -
Kennewick	0.6	0.3	- -	- -
Pasco	0.5	0.5	- -	- -
Benton City	1.0	0.5	- -	- -

During the week of 9/17/48 to 9/23/48 there were indications of radiation from film badges at Pasco, Richland, and the 200 West Area. Increases were noted in air filter readings and integron readings at Pasco and 200-West; the integron at Richland was out of order during this period. Detachable chamber readings in Hanford, TX, DR and White Bluffs averaged 0.48, 0.54, 0.58, and 0.53 mrep/24 hours respectively. The maximum eight hour reading on a CI unit was 7×10^{-7} μc/liter at the 200-East Area. The maximum average air filter for the month was 9 x 10-9 μc/liter at the 200-East Area. Air filters at Hanford, White Bluffs, and DR indicated 2 - 4 x 10-10 μc/liter average. Two rain samples were collected at the Meteorology Building. The maximum reading was 4.5×10^{-3} μc/liter.

Land and Vegetation Contamination

The average vegetation contamination was as follows:

Location	Average for August	μc I^{131} per kg. September Maximum	September Average
North of 200 Areas	0.04	0.14	0.04
Near the 200 Areas	0.12	1.21	0.11
South of 200 Areas	0.04	0.14	0.04
Richland	0.04	0.10	<0.04
Pasco	<0.04	0.06	<0.04
Kennewick	0.04	0.09	0.05
Benton City	<0.04	0.12	0.04
Richland "Y"	<0.04	0.06	0.04
Hanford	0.05	0.20	0.08

Sixty-five samples were collected on a trip to Ellensburg and Ritzville. The maximum sample was 0.08 μc/kg at the Richland Y. The average was <0.04. Sixty Samples were collected on a trip through Toppenish to The Dalles. The maximum sample was 0.09 μc/kg near Arlington, Oregon. A sample ten miles from this one also gave 0.09 μc/kg. The average of the trip was less than 0.04 μc/kg. Ninety-five samples were collected from Wahluke Slope. The maximum was 0.18 μc/kg while the average was 0.04 μc/kg. Twenty-three samples were collected between Plymouth and Kennewick. The maximum was 0.09 μc/kg while the average was 0.05 μc/kg. Two hundred and eighty-two soil samples from vegetation sampling locations gave average values from 0.10 to 0.15 μc/kg uncorrected for self-absorption.

Waste Monitoring

Forty-eight samples of 100 Area waste effluent were taken. The maximum beta activity was 0.39 μc/Liter from the 107-F Basin. The effluents from all areas averaged between 0.16 and 0.24 μc/Liter.

Maximum readings of 110,100,2060, and 124 dis/min/liter of alpha activity were found in water from the "T" Swamp, the "U" Swamp, the Laundry ditch and the 231 ditch. Maximum readings of 1.8×10^5 dis/min/Kg of alpha activity were found in the mud from the "T" Swamp. Laundry lint from the ground gave values as high as 4.1×10^5 dis/min/Kg of alpha activity and 0.46 μc/Kg of beta activity.

The maximum activity in the 300 Area Pond was 2500 dis/min/liter of alpha activity and 1.95×10^{-3} μc/liter of beta activity at the inlet. Mud from the inlet has given readings as high as 2.5×10^5 dis/min/Kg of alpha activity and 0.17 μc/Kg of beta activity. Seventy-eight day shift samples from the waste line from the 313 Area to the pond were analyzed on the fluorophotometer. One value of 26 mg/liter was obtained. The others ranged from 20 to 7900 μg/liter with an overall average of 730 μg/liter. The Power Division estimates 275 gallons per minute through this line. Using this figure and the average uranium content of the water, an estimated 0.8 pounds of uranium are discharged to the 300 Area Pond per eight hour day from this source alone.

Geology

Three 500 milliliter water samples were taken and analyzed from each of the eleven water wells in this area. The samples from wells 361-B-2, 361-B-5 to 361-B-8 inclusive, 361-B-10 and 361-B-11 analyzed less than 2×10^{-5} μc/l of beta-gamma activity. The average analyses for the month for wells 361-B-1, 361-B-3, 361-B-4, and 361-B-9 continue the trends previously established. Maximum levels are found in well 361-B-9, which had beta activity of 7.7×10^{-3} μc/liter and 590 dis/min of alpha activity. These high results on this well were not obtained until after the casing was perforated. Levels almost this high are also found in 361-B-1.

Jetting from the 105-B tank is continuing intermittently into the 2nd cycle crib. The crib and sediments immediately underlying it are still largely sealed with sludge and efforts to dissolve it have to date been unsuccessful. A total of 2000 gallons of 10% nitric acid failed to clear the crib, following which 1500 gallons of 9% citric acid were introduced into the crib, similarly failing to dissolve the sludge. The present jetting rate is about 3,000 gallons per shift. A total of about 116,000 gallons of 2nd cycle waste have been discharged from the 105-B tank. Liquid samples were taken from the laterals in the H.I. Shaft immediately following each acid treatment of the crib. All samples were found to have a pH of 7 or greater, indicating a high caustic content in the sediments beneath the crib.

The instrument reading resulting from the activity on the floor of the shaft is now 10 mrep/hr. on the top platform, and 20 mrep/hr on the bottom platform.

The well drilled between the 107-waste disposal trench and the river was completed at a depth of 67 feet on September 13, 1948. No contamination was detected on any of the samples obtained from the well during drilling operations and none from the two 500 milliliter water samples obtained from the well after perforation.

Twenty of the 25 wells scheduled for drilling on Project C-133, part 2 have been completed, four are being drilled, and one is yet to be begun, as indicated in the following schedule:

Wells completed during month	Depth	Date started	Date finished
60-80	198	7/7/48	8/28/48
25-70	468	7/17/48	8/28/48
43-88.5	203	8/12/48	8/27/48
34-69.5	325	8/13/48	9/3/48
39-79	295	8/13/48	9/7/48

In process of drilling	Depth 9/25/48	Date started	Estimated depth	Yet to drill
62.5-90	169	7/7/48	210	40
34-88.5	218	8/28/48	300	80
25-80	105	9/1/48	250	145
34-51.5	105	9/9/48	400	295
				560

Yet to drill		
55-88.5	300	300
Estimated yet to drill		860

The number of drill rigs operating at the end of the month was three, the remaining three being placed in standby condition. All drilling was shut down during the week of September 20 to 24, inclusive, while the drilling personnel were employed on the 291-T construction project.

More efficient bailing of the wells during drilling has resulted by the substitution of a rod and plunger "suction" type or "sand pump" bailer for the standard dart bailers formerly used.

Geologic logging of the samples is being kept up to date. Cross sectioning, correlation between wells, and analysis of results are being kept up to date.

A 500 milliliter water sample has been obtained from each of the completed

water observation wells and analyzed in the 222-U laboratory. No significant alpha or beta-gamma contamination was detected on any of the samples.

A conference with AM Piper of the USGS was held during the month at which time it was decided to try some other geo-physical methods of determining the underground characteristics of the area. The methods being considered are an electrical resistivity survey and an air borne magnetometer survey. Mr. Piper is going to study the two methods and recommend one for use here. At the same time it was considered advisable to request a part 3 to Project C-133 to get detail information which will be necessary to interpret the findings of the geo-physical survey.

Meteorology

Mean temperature for the month of September 1948, was 64.4, or 0.8 above the normal. Although there was little deviation of the mean from the normal, there were temperature extremes, both high and low, during the month. The high of 98 on the 13th was the highest September temperature yet recorded at 622 Building, and was within 3 degrees of the highest September temperature recorded at Hanford in 31 years of observations. Much in contrast to the 13th, there was one day during the month, the 26th, in which the temperature did not go any higher than 57.

Low temperature for the month was 34 on the 29th. Although this was well above the 25-degree temperature recorded at Hanford in September of 1926, it was never-the-less the lowest September temperature yet recorded at 622 Building.

Precipitation for the month totaled 0.16, or 0.17 below normal. During the first 15 days of the month, there was no precipitation at all. The last 7 days of August were also entirely lacking in precipitation, thus making a total of 22 consecutive days without rainfall. This was the season's longest dry spell.

The weather for the month was featured by the high wind and duststorm on the 14th. This storm climaxed a 6-day warm period in which temperatures averaged roughly 10 degrees above the seasonal normal. Gusts reaching 66 mph were recorded at the 400-foot level during the storm and visibility was reduced to less than one mile by blowing dust during much of the day.

An odd phenomenon occurred on the 24th when visibility was restricted by dust in the atmosphere, although there was no blowing dust at the station.

Type of Forecast	Number Made	Percentage Accuracy
Production	90	85.7
24-hour general	60	83.9
Special	19	84.2

Bioassay:

Three hundred and ninety-eight urine samples were analyzed for plutonium. Eleven resamples were taken this month because of low spiked samples accompanying the set. Twenty-nine previous resamples are yet to be obtained or are in process. Two resamples from last month gave results greater than the resample limit due to low yields in the process. In addition to the urine samples, forty-one water samples, one blood sample. one tissue sample, and two feces samples were processed.

Urine and feces samples from two men exposed to contamination in the inner rod room at 100-F were collected. The feces were analyzed for Fe^{59} and S^{35} and the urine samples for S^{35}. Only one sample had as much as 6×10^{-5} µc and this is within the range of activity to be expected from K^{40}.

Two hundred and forty-eight urine samples and fifty-nine water samples were analyzed for uranium on the fluorophotometer. One hundred and sixty-five of the urine samples were less than 10 µg/Liter, forty-nine were between 10 and 20 µg/Liter, twenty were between 20 and 30 µg/Liter, eleven were between 30 and 50 µg/Liter, and three were between 50 and 70 µg/Liter. The averages of 414 results from the 300 Area since August 4, 1948, are given below according to the job of the worker.

	MAXIMUM µg/L	AVERAGE µg/L	DISTRIBUTION OF RESULTS GREATER THAN 10 µg/L PERCENT
Melt Plant	53	18	72
Machining	45	8	25
Material Landing	31	11	33
Inspection	9	3	0
Canning and Dipping	19	3	3
Coverage Crew	8	5	0
305	5	2	0
Plant Assistance	2	2	0

Methods Development:

A study of the TTA procedure as used in the Bioassay Group has been initiated in an attempt to improve yields and decrease contamination. First attempts are aimed at removing the actinium contamination from lanthanum by a TTA extraction. These results will be inconclusive until buildup curves are completed. The effect of various holding agents on the evaporation of I^{131} solution on a counting plate is being investigated. It appears that a silver iodide precipitation directly on the plate gives the highest results. A study of the algae contamination is nearly complete with chemical results agreeing well with decay curve measurements. The cupferron process indicates about 15% of the activity is due to iron and titanium and about 65% due to calcium after the sodium and manganese have decayed.

The analysis of pile gas from the 100-F Area has been completed for the 18 day period. No significant trends appear to be evident. $C^{14}O_2$ levels range from 6×10^{-3} to 6×10^{-2} μc/Liter, while $C^{14}O$ levels range from 1×10^{-3} to 3.5×10^{-2} μc/Liter. An attempt to calibrate fission film for Pu in the sigma pile using 100 μg of Pu failed because of the intense blackening due to the strong alpha flu. New cell designs are being tried in the electroplating of Pu to allow more convenient mounting of the sample plate. A comparison between the fluorophotometer and ether extraction methods indicated that the two give comparable results. An attempt to purify 300 Area Well water by passing through diatomaceous earth indicated no absorption of the uranium. Samples of uranyl nitrate olution passed through a column of Hanford top soil indicated absorption only for the first 50 - 500 ml. This uranium was easily washed out with water.

The calibration of the two liter chamber on the vibrating reed electrometer for $C^{14}O_2$ measurements gives results within a factor of 1.5 for the theoretical current when filled with air contaminated with a little $C^{14}O_2$. Most of the deviations are believed to result from the measurements of the activity on the beta counters. Several different energy beta sources have been counted on both the Simpson proportional and the mica window sets. The ratio between d/m on the Simpson and d/m on the beta sets are essentially consistent for all energies. A characteristic plateau is found for each energy.

Methods Control

A sample of concrete from the B sample room at 100-B indicated uranium contamination. A sample of condensate from the helium drier at 100-B gave 0.05 mc/Liter of S^{35}. A sample from the 300 Area melt plant gave a high beta reading. This beta was shown to be due to an increase in UX_1 and UX_2. A coverall sleeve from the 200-East Area gave a total of 0.5 μc of beta activity.

A check on the backgrounds of the LBA sample changer indicated a range of 0.08 to 0.14 c/m. Standard checks indicate close to 50% geometry. The RaD standards prepared in March for counter calibration have been shown to be increasing in alpha activity. Apparently RaF (polonium) was lost in the preparation and is building into equilibrium. Values consistent to within ± 1 - 2 % for the equilibrium values have been calculated from the alpha count.

Two thousand, two hundred and sixty samples were counted for alpha activity and four thousand, five hundred and eighty-five samples were counted for beta activity for a total of six thousand, eight hundred and forty-five measurements. In addition, nine absorption curves, one hundred and seventy-two decay points, and eight hundred and eighteen control checks were taken. Three hundred and twenty samples were analyzed for uranium on the fluorophotometer.

Health Instrument Division

Physics

Two shield containers for the high flux neutron sources have been filled with boric acid-paraffin mixture and with the exception of hardware and painting are ready to receive the sources.

With the assistance of Biology Division personnel, a large number of microscope fields were examined for alpha tracks on slides which had been exposed for one week to portions of tissue excised from the site of contamination. No concentrations significantly above background were observed.

The following corrected values for the pile shield experiment reported last month resulted from the discovery of a calculation error and re-evaluation of the experiment.

Type of Radiation	Measured Value	Probable Lower Limit	Probable Upper Limit
Gamma	0.3 mr/hr	0.05	0.5
Slow Neutron	1 nv	0.1	5.
Fast Neutron	0.03 mrep/hr	0.01	0.3

A report of this experiment has been prepared for distribution.

Instrument Development

The portable poppy prototype was drafted by the Instrument Division, completed drawings being submitted to H. I. for approval on September 30.

The Neut prototype required cleaning and chamber voltage increase to correct leakage and lack of saturation. Its characteristics were then about the same as the original instrument. The prototype is now in use in the 100 Areas.

Two 2 x 7 probes with simplified insulators were placed in service in 231. One probe was faced with polyethylene film. If these tests prove satisfactory, a final probe design incorporating cylindrical insulators, two high voltage wires silicone insulator coating and polyethylene film will be specified.

Nylon backed hand s still in operation and has given no trouble.

An argon flow proportional beta counter shows no plateau and a steeply rising curve of pulse height versus voltage. The possibility of changing the slope by contaminating the counter gas is being investigated. Failing that, a closely regulated power supply will be necessary.

For investigation of inverted badge readings a badge scanning device was built and found to operate successfully.

Work was started toward building a large alpha probe for laundry monitoring.

Calibrations	Number of Calibrations August	September
Fixed Instruments		
Gamma	618	599
Portable Instruments		
Alpha	53	60
Beta	116	104
Gamma(Radium)	522	532
X-Ray	0	4
Neutren	2	1
Total	691	701
Personnel Meters		
Beta	881	1,224
Gamma (Radium)	9,014	6,103
X-Ray	5,911	2,927
Neutren	---	0
Total	15,806	10,254
GRAND TOTAL	17,115	15,730

ACCOUNTING DIVISIONS

SEPTEMBER 1948

GENERAL

On September 1 the "Proposed Cost Control System" recommended by T. R. Evans for the manufacturing, related service divisions, and general divisions and the "Proposed Accounting System for Richland Village and Kadlec Hospital Activities" recommended by the auditing firm of Touche, Niven, Bailey and Smart, were made effective.

The General Accounting Division devoted considerable time to developing and writing up procedures, routines, and account definitions and having forms printed in connection with decentralization of accounting.

Division accountants and others held meetings for the purpose of determining general policies to be followed after the accounting functions are decentralized, and for the purpose of allocating the office space occupied by accounting personnel in the Administration Building to the decentralized accounting divisions.

Payroll forms were prepared, to transfer employees from General Accounting to the accounting divisions of Community, Design and Construction Divisions and Manufacturing Division, the transfer of monthly-paid employees to be effective October 1 and the transfer of weekly-paid employees to be effective October 4.

The New G. E. Employees Savings and Stock Bonus Plan which is effective as of October 1, 1948 required considerable time in writing up instructions, routines, and notifying Supervisors of the provisions of the Plan and furnishing them with necessary forms and booklets.

Government reimbursements are current. Following is comparison of unreimbursed charges as of September 30, 1948 with August 31, 1948:

	August 31, 1948	September 30, 1948
Billed on Public Vouchers	$ 5 806 717	$ 5 445 264
Submitted on Pre-Billing Audit Vouchers	3 933 273	3 644 326
Unbilled	4 150 881	6 614 051
Total	$ 13 890 871	$ 15 703 641

Accounting Divisions

STATISTICS

Employee and Payrolls	Total	Monthly Payroll	Weekly Payroll
Employees on Payroll at beginning of month	8 590	1 766	6 824
Additions and transfers in	218	17	201
Removals and transfers out	(379)	(66)	(313)
Transfers from Monthly to Weekly Payroll	--	(5)	5
Transfers from Weekly to Monthly Payroll	--	6	(6)
Employees on payroll at month end	8 429	1 718	6 711
Gross amount of payroll - September (4 weeks)	$2 887 092	$843 286	$2 043 806
Gross amount of payroll - August (5 weeks)	$3 608 718	$883 633	$2 725 085
Annual going rate of payroll -September	$36 478 416	$10 006 044	$26 472 372
Annual going rate of payroll -August	$38 618 149	$10 589 195	$28 028 954
Average salary rate per hour -September	$1.885	$2.582	$1.709
Average salary rate per hour -August	$1.886	$2.563	$1.704

Overtime payments	August	September
Weekly Payroll		
Number	14 492	13 413
Amount	$291 398	$266 051
Monthly Payroll	$100 774	$71 244
Number of changes in Salary Rates and Job Classifications and transfers between Divisions	1 275	785

Employee Plans

Pension Plan

	August	September
Number participating at beginning of month	4 927	5 197
New participants and transfers in	314	310
Removals and transfers out	(44)	(80)
Number participating at month end	5 197	5 427
% of eligible employees participating	96.4%	95.7%

Employees Retired	September	Total To Date
Number	None	32
Aggregate Annual Pensions including Supplemental Payments	--	$5 353
Amounts contributed by employees retired	--	$1 751

Group Life Insurance

	August	September
Number participating at beginning of month	5 661	5 762
New participants and transfers in	186	222
Cancellations	(19)	(35)
Removals and transfers out	(66)	(118)
Number participating at month end	5 762	5 831
% of eligible employees participating	72.5%	72.0%

Employee Plans (continued)

Insurance Claims	September	Total To Date
Number of deaths	--	14
Amount of Insurance	--	$75 173
Amount contributed by employees	--	$ 614

Group Disability Insurance - Personal	August	September
Number participating at beginning of month	6 917	6 997
New participants and transfers in	222	278
Cancellations	(24)	(6)
Removals and transfers out	(118)	(173)
	6 997	7 096
% of eligible employees participating	89.6%	89.6%

Group Disability Insurance - Dependent		
Number participating at beginning of month	4 141	4 189
Additions and transfers in	113	129
Cancellations	(22)	(7)
Removals and transfers out	(43)	(52)
Number participating at month end	4 189	4 259

Group Disability Insurance - Claims		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	57	83
Daily Hospital Expense Benefits	76	95
Special Hospital Services	74	95
Surgical Operations Benefits	47	65
Dependent Benefits Paid		
Daily Hospital Expense Benefits	87	81
Special Hospital Services	89	94
Amount of claims paid by insurance company:		
Employee Benefits	$9 032	$10 947
Dependent Benefits	$3 448	$ 2 648
Total	$12 480	$13 595

Group Disability Insurance - Premiums		
Personal - Employee Portion	$11 964	$12 073
- Company Portion	7 327	7 282
- Total	$19 291	$19 355
Dependent- Employee Portion	$ 3 758	$ 3 826
- Company Portion	428	392
- Total	$ 4 186	$ 4 218
Grand Total	$23 477	$23 573

Annuity Certificates (For du Pont Service)	September	Total To Date
Number issued	1	55

Employee Plans (continued)	August	September
U. S. Savings Bonds		
Number participating at beginning of month	3 788	3 728
New authorizations	24	22
Voluntary cancellations	(54)	(37)
Removals and transfers out	(30)	(15)
Number participating at month end	3 728	3 698
% participating	43.0%	43.9%
Bonds issued - maturity value	$252 700	$235 325
- number	6 406	5 990
Refunds issued	72	83
Revisions in authorization	47	20

Suggestion Awards	September	Total To Date
Number of Awards	15	186
Total Amount of Awards	$165	$1 865

Security Slogan Awards		
Number of Awards	--	7
Total Amount of Awards	--	$175

Employee Sales Plan	September		
	Total	Major Appliances	Traffic Appliances
Certificates issued	553	84	469
Certificates voided	32	4	15

Salary Checks Deposited	August	September
Weekly	1 022	1 039
Monthly	829	838
Total	1 851	1 877

Special Absence Allowance Requests		
Number Submitted to Pension Board	10	7

Absenteeism (Weekly Paid Employees)	1947	1948
January to September 30	1.72%	2.18%

Subcontractors' Payrolls	August	September
Number of Subcontractors' Employees on Payroll At End of Month		
Cost-Plus-A-Fixed-Fee Subcontractors		
Guy F. Atkinson Company and J. A. Jones Construction Company	8 246	8 215
Sub-subcontractors		
Newbery-Neon Electric Company	577	589
Urban, Smyth & Warren Company	1 102	1 171
*Newport, Kern & Kibbe	24	17
*Graysport Construction Company	57	19
*Pioneer Sand & Gravel Company	5	5
*Rust Engineering Company	8	13
*Pittsburgh Des Moines Steel Company	17	17
*Warsaw Elevator Company	3	3
*Boedecker Chimney Company	0	8
*V. S. Jenkins Company	0	45
*Chicago Bridge & Iron Company	0	7
The Kellex Corporation	503	468
Giffels & Vallet, Inc.	196	204
National Carbon Company, Inc.	284	281
C. C. Moore & Company, Engineers	161	220
J. A. Terteling & Sons, Inc.	1 021	1 034
Sub-subcontractors		
*Graysport Construction Company	32	0
*G. A. Estep Electric Company	6	5
*J. P. Head Plumbing Company	21	17
Morrison-Knudsen Company (Tank Farm)	479	333
Sub-subcontractors		
Trowbridge & Flynn Electric Company	9	4
Morrison-Knudsen Company (Track Maintenance)	291	250
McNeil Construction Company	758	527
Sub-subcontractors		
*West Coast Painters	26	24
*Holaday & Edworthy, Inc.	2	2
*Asbestos Supply Company	2	2
*Chris Berg, Inc.	8	6
*Richland Plumbing & Heating Company	5	11
*G. A. Estep Electric Company	4	4
*Holert Electrical Company	18	13
*Williams Paint & Glass Company	4	0
*Seldon's, Inc.	12	8
*Arnold & Jeffers	56	39
*V. S. Jenkins Company	8	10
*Charles G. Swanson	8	2
*Fox Metal Products	8	4
Lump Sum Subcontractors		
C. C. Moore & Company, Engineers	5	14
Graysport Construction Company	63	192
Sub-subcontractors		
P. S. Lord	0	59
J. Gordon Turnbull, Inc.	75 **	75 **
Curtis Sand & Gravel Company	8	19
DeWitt C. Griffin & Associates	1	1

Subcontractors' Payrolls (Cont'd)	August	September
A. C. Grant	28	33
Strasser Drilling Company	4	3
Kelly Wells Company, Inc.	2	2
A.B.C. Roofing & Siding Company	8	4
D. L. Cooney	86	76
Scott-Buttner Electric Company	63	64
Nettleton, Baldwin, Sound Construction Co.	913	802
Sub-subcontractors		
Curtis Sand & Gravel Company	36	32
Paul Thorgaard Plumbing Company	59	43
Chris Berg, Inc.	76	129
Holert Electrical Company	28	22
Pacific Roofing Company	32	38
Central Service Company	11	12
Charles G. Swanson	66	125
Parson's Tile Company	3	3
Taylor Bros.	14	14
Martin Furniture Company	26	19
Builders Insulating Company	5	7
Pittsburgh Des Moines Steel Company	0	8
Haughton Elevator Company	0	1
	15 573	15 374

* Lump Sum Sub-subcontractors operating under a Cost-Plus-A-Fixed-Fee Subcontractor

** Estimated

SUMMARY OF PAYROLL REIMBURSEMENTS TO SUBCONTRACTORS

Subcontractor	Payrolls		Taxes & Welfare Plans (Employer's Portion)	
	This Month	Total To Date	This Month	Total To Date
Atkinson-Jones	$3 125 342.26	$32 837 645.42	$ .00	$853 677.80
Newbery-Neon	310 098.71	2 526 701.19	2 732.27	81 588.28
Urban, Smyth and Warren	534 709.23	4 248 026.21	.00	100 750.72
Morrison-Knudsen	175 522.83	2 254 862.28	.00	59 890.92
Trowbridge & Flynn	7 361.06	73 016.67	2.59	2 574.95
J. A. Terteling	330 163.90	1 343 623.64	.00	19 107.43
C. C. Moore	60 967.38	179 935.44	.00	.00
McNeil	223 335.61	1 001 075.67	58.82	8 466.64
Kellex	147 694.10	1 060 111.32	6 158.50	49 550.87
National Carbon	1 670.00	10 289.00	.00	120.00
Giffels & Vallet	134 372.95	631 297.93	.00	.00
Total	$5 051 238.03	$46 166 584.77	$8 952.18	$1 175 727.61

Accounting Divisions

Subcontractors' Payrolls (Cont'd)

SUBCONTRACTOR'S PAYROLLS AUDITED

Subcontractor	Period Covered - This Month	Period Covered - Total to Date	Gross Amount - This Month	Gross Amount - Total to Date
Atkinson-Jones	8/1/48 to 9/11/48	7/25/47 to 9/11/48	$4 599 769.36	$32 286 793.57
Newbery-Neon	8/1/48 to 9/11/48	10/7/47 to 9/11/48	414 477.41	2 475 939.69
Urban, Smyth and Warren	8/1/48 to 9/11/48	10/8/47 to 9/11/48	702 439.95	4 111 186.56
Morrison-Knudsen	8/21/48 to 9/18/48	12/7/47 to 9/18/48	176 829.94	2 260 193.49
Trowbridge & Flynn	8/22/48 to 9/18/48	1/14/48 to 9/18/48	7 389.75	73 107.47
J. A. Terteling	8/23/48 to 9/19/48	3/1/48 to 9/19/48	327 795.84	1 372 563.09
C. C. Moore	8/12/48 to 9/8/48	12/17/47 to 9/8/48	59 968.87	193 043.76
McNeil	8/23/48 to 9/19/48	4/13/48 to 9/19/48	247 512.35	1 030 805.55
Kellex (1)	7/31/48 to 8/31/48	9/15/47 to 8/31/48	147 694.10	1 060 111.32
National Carbon(1)	8/1/48 to 10/1/48	8/1/47 to 10/1/48	1 670.00	10 289.00
Giffels & Vallet(1)	8/1/48 to 9/11/48	10/2/47 to 9/11/48	132 832.04	637 888.00
Total			$6 818 379.61	$45 511 921.50

(1) Audited by Atomic Energy Commission

General Accounting

Payments Made to Subcontractors thru September 30, 1948

Subcontractor	Contract No.	Commitment To Date	Amount Paid To Date	Amount Withheld 9-30-48
Morrison-Knudsen Co., Inc.	G-110	$1 807 394.25	$1 807 394.25	Retainer Pd.
X-Ray Products Corp.	G-115	59 238.40	59 238.40	Retainer Pd.
Atkinson-Jones CPFF	G-133	75 440 460.77		
Payrolls			40 648 389.62	1 301 874.91
Other (1)			25 934 960.64	-0-
Lone Pine Roofing Co.	G-134	52 875.13	52 875.13	Retainer Pd.
National Carbon Co.,Inc. CPFF	G-135	2 187 500.00		
Payrolls			10 409.00	-0-
Other (2)			1 355 630.54	-0-
Graybar Electric Co.	G-136	436 734.00	160 797.90	-0-
G. A. Pehrson and Associates	G-137	18 700.00	15 895.00	-0-
John S. Villesvik	G-138	3 013.50	3 013.50	-0-
H. Brandt Gessel and Associates	G-139	10 766.50	10 766.50	Retainer Pd.
DeWitt C. Griffin and Associates	G-141	205 524.00	191 642.55	11 983.95
John L. Hudson and Associates	G-142	4 973 249.09	4 973 249.09	-0-
Catlow Transport Co.	G-143	313 640.92	313 640.92	Retainer Pd.
Northwest Hauling Co.	G-144	155 403.07	155 403.07	Retainer Pd.
Sperry Products Co.	G-147	1 875.00	1 875.00	-0-
The Kellex Corporation CPFF	G-148	1 958 668.83		
Payrolls			1 109 662.19	-0-
Others (3)			502 895.38	
Catlow Transport Co.	G-149	25 426.00	25 426.00	Retainer Pd.
J. Gordon Turnbull, Inc.	G-150	529 413.00	-0-	-0-
Graham, Anderson, Probst and White as Joint Venturers				
Giffels and Vallet, Inc. CPFF	G-151	768 160.64		
Payrolls			631 297.93	6 590.07
Other (4)			95 864.49	-0-
Fixed Fee		270 000.00	131 754.60	14 639.40
D. A. Whitley Co.	G-152	27 046.76	27 046.76	-0-
Roy L. Bair Co.	G-153	34 447.00	34 447.00	-0-
Sturm Elevator Co.	G-155	4 145.00	4 145.00	-0-
C. C. Moore and Co., Engineers	G-157	237 146.94		
Payrolls CPFF			179 935.44	57 211.50
Lump Sum		304 287.00	92 523.87	10 280.43
Sturm Elevator Co.	G-158	2 218.00	2 218.00	-0-
Curtis Sand and Gravel Co.	G-159	305 000.00	102 543.78	11 393.75
Morrison-Knudsen Co., Inc.CPFF	G-160	3 518 143.25		
Payrolls			2 390 344.82	40 178.89
Other			1 042 068 60	-0-
Fixed Fee		95 000.00	83 362.50	9 262.50
J. A. Terteling and Sons,Inc.(5)	G-161	450 000.00	283 500.00	-0-
Haughton Elevator Co.	G-165	338 304.00	-0-	-0-
Chicago Bridge and Iron Co.	G-166	35 454.00	35 454.00	-0-
Great Lakes Carbon Corp.	G-167	405 970.56	313 400.71	-0-

General Accounting

Payments Made to Subcontractors thru September 30, 1948 (continued)

	Contract No.	Commitment To Date	Amount Paid To Date	Amount Withheld 9-30-48
Nettleton-Baldwin-Anderson and Sound Construction Co.	G-172	$9 727 481.00	$3 638 721.10	$404 302.34
J. A. Terteling and Sons, Inc.	G-173	2 317 244.93		
Payrolls CPFF			1 362 731.07	112 747.56
Other			550 852.99	-0-
E. I. DuPont de Nemours	G-174	33 764 83	33 764.83	-0-
X-Ray Products Corporation	G-175	129 000.00	121 115.53	6 450.00
Morrison-Knudsen Co., Inc. CPFF	G-178	1 260 038.00		
Costs (Track Maintenance)			1 192 388.00	-0-
Fixed Fee (6)			60 885.00	6 765.00
Kelly Wells Co.	G-181	18 125.00	13 027.50	1 447.50
Combustion Engineering	G-182	715 827.00	-0-	-0-
Link Belt Co.	G-183	223 527.00	-0-	-0-
Pacific Telephone & Telegraph Co. CPFF	G-186	15 308.50	15 308.50	-0-
Graysport Construction Co.	G-187	20 500.00	18 450.00	2 050.00
Alvord, Burdick and Howson	G-189	30 000.00	30 000.00	-0-
McNeil Construction Co. CPFF	G-190	3 013 506.39		
Payrolls			1 009 542.31	92 446.99
Other			744 643.91	-0-
R. J. Strasser Co.	G-194	11 590.20	4 210.20	467.80
Pittsburgh Des Moines Steel Co.	G-195	17 650.00	-0-	-0-
American Machine & Foundry Co.	G-197	100 000.00	-0-	-0-
Payrolls CPFF			-0-	-0-
Other			-0-	-0-
A. C. Grant Co.	G-205	51 173.60	22 707.00	2 523.01
ABC Roofing and Siding Co.	G-208	34 885.75	31 222.41	3 469.16
Don L. Cooney, Inc.	G-210	194 708.81	74 365.51	8 262.84
Scott Buttner Electric Co.	G-211	133 187.00	14 249.70	1 583.30
J. M. Yochem and C. Goodyear	G-212	7 500.00	1 517.11	166.43
Puyallup Gardens	G-216	87 062.74	-0-	-0-
		$130 117 286.36	$91 722 774.75	$2 106 097.33

(1) Amount Paid includes Provisional Reimbursement in the amount of $22 068 345.46 of which $21 649 728.34 was liquidated by audited Atkinson-Jones billings.

(2) Amount Paid excludes $1 000 000.00 in Advances.

(3) Amount Paid excludes $ 500 000.00 in Advances.

(4) Amount Paid excludes $ 50 000.00 in Advances.

(5) Amount of Commitment estimated.

(6) Amount withheld includes $2 640.00 withheld by duPont Company prior to 9/1/46

Accounting Divisions

General Accounting

Construction Commitments and Expenditures	Commitments	Expenditures
July 1, 1947 thru Sept. 4, 1948	$134 574 336.17	$100 556 387.24
July 1, 1947 thru Oct. 2, 1948	$142 556 483.40	$111 889 199.16
Amount of Accounts Payable Vouchers Entered	August	September
General Electric	$ 12 849 755.85	$ 22 943 932.35
du Pont	1 146.53	543 897.41
Total	$ 12 850 902.38	$ 23 487 829.76*
Amount of Checks Issued		
General Electric	$ 13 032 127.30	$ 23 470 248.66
du Pont	834.45	1 173.28
Total	$ 13 032 961.75	$ 23 471 421.94*
Number of Checks Issued		
General Electric	4 095	3 953
du Pont	6	1
Total	4 101	3 954
Public Vouchers (1034) Submitted to AEC		
Vouchers not reimbursed at beginning of month	$ 7 822 025.82	$ 5 806 716.51
Vouchers submitted for reimbursement during month	14 598 999.07	13 284 853.43
	22 421 024.88	19 091 569.94
Vouchers reimbursed during month	16 614 308.37	13 646 306.16
Vouchers not reimbursed at end of month	$ 5 806 716.51	$ 5 445 263.78
Public Vouchers (1034) Submitted to AEC		
Number of vouchers not reimbursed at beginning of month	208	108
Number submitted during month	401	456
	609	564
Number reimbursed during month	501	424
Number of vouchers not reimbursed at end of month	108	140
Public Vouchers not Submitted to AEC		
Pre-Audit Vouchers (1035) Issued	$ 3 933 272.52	$ 3 644 326.25
Pre-Audit Vouchers (1035) not Issued	4 150 880.63	6 614 050.94
Total	$ 8 084 153.15	$10 258 377.19
Number of Pre-Audit Vouchers Issued Awaiting AEC Approval	104	53

*Disbursements include $10 000 000.00 Liquidation of Advances from AEC, offset by receipt of an additional $10 000 000.00 advance. This transaction requested by the AEC.

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Accounting Divisions

General Accounting

Cash Receipts - General Electric	August	September
U. S. Government	$16 614 308.37	$13 646 306.16
Rents	114 630.40	104 639.40
Hospital	73 696.70	66 908.43
Telephone	7 278.98	6 564.36
Miscellaneous Accounts Receivable	39 494.71	23 499.55
Employee Sales	1 759.77	1 114.45
Bus Fares	9 539.40	8 859.20
Educational Program	816.15	3,866.93
Sale of Furniture	16 518.34	44 388.31
Advances	1.000 000.00	10 000 000.00
All Other	24 056.75	81 463.20
Total	$17 902 099.57	$23 987 609.99 *
Cash Receipts - du Pont		
U. S. Government	$145.29	$560.00
Hospital	45.00	27.30
Vendor's Refunds	-0-	12.29
Miscellaneous Revenue		42 690.75
	$190.29	$43 290.34
Cash Advance and Expense Accounts		
Cash Advance Balance at end of month	$37 312.59	$47 136.40
Cash Advance Balances Outstanding over one month	11 512.19	8 677.80
Traveling and Living Expenses		
Paid Employees	$38 188.55	$27 196.65
Billed to Government	39 652.92	26 549.16
Balance in Variation Account at end of month	15 390.04 Cr.	14 742.55 Cr.

*Receipts include $10 000 000.00 advance received from AEC offset by disbursement of $10 000 000.00 to liquidate prior advances. This transaction requested by the AEC.

General Accounting

Hospital Accounting	August	September
Accounts Receivable Balance at Beginning of Month	$ 54 087.65	$ 57 191.80
Total Invoices During Month	104 491.63	98 585.95
Total	$ 158 579.28	$ 155 777.75
Less Cash Received and Payroll Deductions	101 387.48	91 463.72
Accounts Receivable Balance at end of month	$ 57 191.80	$ 64 314.03

Property		
Number of Transfer Notices Received	795	704
Number of Items Affected	2 206	2 365
Number of Receiving Reports Classified	11 734	9 537
Number of Receiving Reports Vouchered	1 475	756
Number of Items Tagged at beginning of month	92 423	91 572
Number of Items Tagged this Month--Metal	1 483	4 619
Number of Tagged Items dropped from record	(2 334)	(1 189)
Total Tagged Items Recorded	91 572	95 002
Number of Items Recorded in quantity only At beginning of month	13 076	13 342
Items added to record during month	464	324
Dropped from record during month	(198)	(92)
Total Items Recorded in Quantity	13 342	13 574
Total Items on Record	104 914	108 576

Accounting Divisions

PERSONNEL AND ORGANIZATION	August	September
Number of employees		
On Payroll at beginning of month	275	275
Removals and transfers out	(12)	(20)
Additions and transfers in	12	23
Number at end of month	275	278
Net increase (or decrease) during month	0	3
% of terminations and transfers out	5.0%	6.9%
% of absenteeism	2.2%	1.82%

Changes by divisions in number of Accounting Division employees during September were as follows:

General Accounting: Increase of five employees

Sixteen new hires
Twelve resignations
One transfer from Design

Weekly Payroll: Increase of two employees

Three new hires
One transfer from S Division
One transfer from Construction
One transfer to General
Three terminations
One Return from Illness Leave

Monthly Payroll: Decrease of two employees

Two resignations

Cost: Decrease of two employees

Two terminations

General: No change

One resignation
One transfer from Weekly Payroll

Injuries:	August	September
Major	0	0
Sub-major	0	0
Minor	3	2

PERSONNEL AND ORGANIZATION (continued)

Number of Accounting Division employees and open employment requests as of October 1, 1948 were as follows:

	Number of Employees		
	Non-Exempt	Exempt	Total
General Accounting	141	14	155
Weekly Payroll	63	6	69
Monthly Payroll	9	1	10
Cost	28	5	33
Methods	0	2	2
General	4	5	9
Total	245	33	278

Open employment requests were as follows:

General Clerk A	3
General Clerk B	8
General Clerk C	2
General Clerk D	5
General Clerk E	1
Cost Clerk	1
Accounting Clerk D	5
Office Machine Operator B	3
Steno-Typist D	2
Total	30

SECTIONAL ACTIVITIES

Cost

Although physical decentralization of the Cost Section had not yet occurred, supervisors for Community, General, and Manufacturing Cost Sections were appointed, and personnel assigned to each supervisor, so separate ledgers and records could be built up, etc. These groups were very busy during the month in devising procedures, ledgers, report forms, etc. to meet requirements of the revised cost accounting procedures made effective September 1.

Although cost distribution data indicated there was still considerable work required in instructing the proper use of codes, payroll and material distributions for the month were accomplished with much less difficulty than was expected, except that a heavy burden was placed on Payroll in distributing payroll costs as result of incorrect codes used on time cards.

General Accounting

Accounts Payable

During the month of September, $895,445.00 was advanced to Atkinson-Jones on the Provisional Reimbursement Account. The unliquidated balance as of September 30, amounted to $418,617.00. During the month, the definitive contract was approved. In accordance with the terms of this contract, additional advances on the Provisional Reimbursement Account were discontinued after the Subcontractor's disbursement date September 22. Further advances will not be made until such time as Atkinson-Jones non-reimbursed expenditures exceed $1,000,000.

Since the decentralization of accounting functions has been accomplished, all active subcontracts have been assigned to their respective Divisions. All subcontracts scheduled in this report are assigned to the Design and Construction Divisions with the exception of:

Contract No.	Contractor	Divisions
PHX-13693	Morrison-Knudsen Co., Inc.	Manufacturing
G-136	Graybar Electric Company	Manufacturing
G-187	Graysport Construction Co.	Community
G-212	Yochem & Goodyear	Manufacturing
G-216	Puyallup Gardens	Community

Accounts Receivable

Rent

Balance in the account as of September 1, amounted to $71,248, and as of September 30 was $72,602. Charges to rents during September were $360,280, cash received for rents was $104,639, payroll deductions amounted to $191,832 and deductions from reimbursements to Subcontractors amounted to $64,599.

General Accounting

Rent (continued)

There were 97 new ranch type houses made available for leasing during the month. Cancellation of leases numbered 134, new leases processed 180, while 69 leases were modified on account of furniture purchases.

Little change was reflected in dormitory, barracks and trailer spaces.

U. S. Government

Total billings to the Government during September amounted to $13,284,853, which is about 1 1/3 million dollars less than the August billings. The balance in the account, $5,445,274, represents the billings for the last two days of the month.

Unbilled items, including $3,644,326 submitted on a pre-audit basis, amounted to $10,258,377. The increase in the unbilled balance is represented by Accounts Payable vouchers and CPFF Subcontractors' payrolls. Due to decentralization, the Accounts Payable Section prepared very few vouchers for billing during the last week of September and the AEC Audit Section was preparing to decentralize and thereby approved relatively few of the vouchers held in their inventory. The increase for CPFF Subcontractors' payrolls is due to the approval of definitive contracts, which require submission to the AEC of the actual audited payrolls.

Telephone

Telephone charges in September amounted to $17,440. This included rental of 2460 phones and charges from approximately 13,000 toll tickets.

Property

Continuation of inventory adjustment work is progressing in the 200 Areas, but is taking longer than anticipated because of the large number of transfers having been made without notice to this section. The 300 Area work is well under way.

New items received were heavier than last month and were received at widely scattered points. One man is handling receiving at Pasco, while two men are covering North Richland, White Bluffs and miscellaneous receiving points.

Preliminary study of routines is being made for the purpose of adding cost and depreciation to the property records. During the month, the Section was visited by representatives of two firms who were making a survey of the plant before submitting plans for appraisal of plant facilities.

Accounting Divisions

General Accounting

Cash Advances and Cash Change Funds

Cash advances and cash change fund advances during September for traveling and living expenses amounted to $39,758, of which employees accounted for $29,935.

The outstanding balance in the Cash Advance Account amounted to $47,136, which is an increase of $10,000 over the previous month. Travel during this period was exceptionally heavy in the Technical and Design and Construction Divisions. The outstanding balance includes 30 accounts over 30 days old values at $8,678. This balance of 30 days old is approximately double the similar balance as of the end of August, but aside from one or two accounts represents employees on semi-permanent assignment, or on trips of long duration.

There was no activity in the Cash Change Funds account.

Accounting Divisions

Payrolls

The following "Request for Reimbursement Orders" have not yet been approved by the Atomic Energy Commission:

Date of Request	Date Transmitted to Commission	Items Covered by Request
8/26/47	8/27/47	Seven exempt job classifications for Design and Construction
8/26/47	8/28/47	Five exempt job classifications for Construction Purchasing
8/26/47	8/28/47	Exempt job classifications for Expediting Supervisor and Expeditor
9/10/47	9/10/47	Exempt job classification for Construction Purchasing

Complete audit by the AEC Audit Section of Weekly Payrolls for August revealed the following errors:

1. There were thirteen cases of hours posted incorrectly on the Payroll Journal resulting in one underpayment of $2.60 and one overpayment of $23.61.

2. Five postings were illegible on the Government copy of the payroll.

3. There were two cases of deductions posted incorrectly, but payments were correct.

4. There were three salary rates shown incorrectly on the payroll although no error in payment occurred.

5. Notations on the Payroll Journal were not clear, incorrect or omitted in twenty-six instances.

6. There were four errors in gross calculations resulting in total overpayments amounting to $20.12.

7. There were two errors in typing of amounts on the Summary of Payroll.

Payrolls (continued)

The AEC Audit Section called our attention to the following errors on the Monthly Payroll for July:

1. There were four base rates shown incorrectly on the Payroll Journal, however there were no incorrect payments.

2. The number of overtime days paid to individuals in the month of July were shown incorrectly in twenty instances.

3. Notes on the Payroll Journal to explain vacation adjustments paid were omitted in six cases.

There was an unusual increase in the volume of work in the Weekly Payroll Division during the month of September. This increase was caused primarily by the Revised Cost System. Approximately 1700 man hours were expended on Labor Cost Distribution during the month and it was necessary to borrow employees from other accounting sections for this work. While it is realized that the number of man hours worked to complete the cost distribution in September is higher than will normally be necessary, it is anticipated that this work will in the future require six clerks on a full time basis.

It was necessary to postpone much of the routine payroll work, other than the preparation of payrolls, in order to complete the Labor Cost Distribution. Therefore, the work in Weekly Payroll is not on a current basis.

Work on the New Employees Savings and Stock Bonus Plan, which was announced at Hanford Works on September 21, 1948 and became effective October 1, 1948, overloaded the Addressograph and Bond Sections to such an extent that it was necessary to work overtime beyond forty eight hours per week in order to begin payroll deductions on the payroll week ended October 3, 1948.

The following is a summary of the work accomplished between September 21st and October 4th in connection with the New Plan:

1. Payroll deduction authorization forms were addressographed for all employees on the payroll showing payroll number, name, "Pay Period" and "Hanford Works" in the spaces provided on the forms.

2. Authorization forms were compared with payroll records of individuals and rubber stamped in the registration space with the legend "Same as Present Authorization" in all cases where employees were buying bonds by payroll deductions under the Old Plan.

3. Individual employee records were reviewed to determine which employees were having deductions under the Old Plan in excess of the maximum allowable under the New Plan. In these cases an authorization form for continuing deductions under the Old Plan was furnished to the employees.

Payrolls(continued)

4. Authorization Forms were segregated by Divisions and distributed to Supervision with New Plan Booklets (ERB-5) for delivery to employees.

5. A master list was addressographed showing the names of individuals for whom authorizations were prepared. As forms were received from employees, they were recorded on the master list, indicating the rate of deduction under the Old Plan or the New Plan or both. This list was used to post rate of deduction to the payroll "deduction card"

6. All authorization forms were reviewed to see that they were filled in correctly by employees in accordance with the government regulations for registering bonds. They were also reviewed to see that authorized deductions under the New Plan did not exceed the maximum allowable under the Plan.

7. The forms were then forwarded to the Employees Savings Division in Schenectady for recording on their records, however, they were checked off the master list beforehand so that we would have a record of the forms that had been forwarded to Schenectady.

8. Individual Employee Bond Account cards were prepared from the master list. Separate account cards were prepared for the Old Plan and the New Plan. These cards will be used to maintain individual records of payroll deductions and bond purchases, and for balancing purposes.

Hanford Works will no longer be an issuing agent for United States Savings Bonds. All bonds purchased by payroll deductions under the Old and New Plans will be issued by the Employees Savings Division in Schenectady, once each month. Receipts for bonds purchased under the New Plan and bonds purchased under the Old Plan will be forwarded to Hanford Works monthly for delivery to employees.

Authorizations for payroll deductions had been received as of October 1, 1948 as follows:

AUTHORIZATIONS	NUMBER
Participation in the Stock Bonus Plan Only	2 758
Participation in the General Electric Savings Plan Only (Old Plan)	157
Participation in Both Plans	475
Total Participants in Both Plans	3 390

Payrolls (continued)

Inasmuch as balances of payroll deductions to the credit of employees under the Old Plan prior to October 1, 1948 may not be carried over to the credit of employees under the New Stock Bonus Plan, it is necessary to refund these balances. Checks are being prepared covering all such refunds, and it is estimated the total number of refunds will be in excess of 2,000.

Federal Social Security Forms SS1B were prepared in September for the third quarter of 1948. However, they had not been balanced with the payroll at the end of September.

The Monthly Payroll Division operated during September with approximately 75% of normal personnel as a result of two resignations, employees on vacation, and employees absent due to illness. In addition to the shortage of personnel, there was a considerable increase in the volume of work caused by special reports so that the status of the work is not current. However, replacements have been secured for the employees who resigned and additional clerks have been placed in the Monthly Payroll Division so that normal routine work can be kept on a current basis and special reports can be prepared promptly when requested.

Subcontractors' Payrolls

During the month the Definitive Contract with Guy F. Atkinson Company and J. A. Jones Construction Company was received. Reimbursement to Atkinson-Jones in the amount of $156,550.94 has been effected, which liquidates the amount previously withheld pending the approval of a Definitive Contract.

Considerable effort was extended during the month towards the problems connected with an additional C.P.F.F. Subcontract No. G-222, which had been assigned to Morrison-Knudsen, Inc. With the cooperation of the Atomic Energy Commission, certain agreements were reached and procedures formulated whereby reimbursement for payroll expenditures in connection with Subcontract No. G-222 could be effected without delay.

Reimbursement during September of retroactive payrolls due to wage increases for manual workers, which have been approved by the Atomic Energy Commission, amounted to $174,201.28.

Reimbursement of other retroactive payrolls is expected as requests for reimbursement orders covering general wage adjustments for Laborers, Cement Finishers, Iron Workers, Blacksmiths, Plasterers and Bricklayers have been transmitted to the Atomic Energy Commission with General Electric's recommendation for approval.

SERVICE DIVISIONS

SUMMARY - SEPTEMBER 1948

Effective September 1, 1948, the Employee and Community Relations Division, and the Labor Relations and Wage Rate Division were removed from the Service Divisions and combined into a separate Division known as the Employee and Community Relations Division.

Purchasing and Stores Division

Firm orders have been placed for all steel requirements for the fourth quarter of 1948 with the exception of galvanized sheets. Additional allocation of sheets has been requested.

Request was received from the Atomic Energy Commission to submit estimates of requirements of all forms of Aluminum for 1949.

Commitments have been made and orders placed covering requirements of Aluminum and Aluminum products through June, 1948.

Plant Security and Services Division

There were two major injuries for the month making a total of 12 for the year and a cumulative frequency rate of 0.957 for 1948.

There were ten fire alarms in the Plant Areas with a total loss of $23.

Operation of the 723 Laundry was reduced to a two-shift operation because of reduced volume. Operation of the 200-West Laundry continues on a six-day basis.

Approval was received from the Atomic Energy Commission to reduce and/or combine certain Patrol post requirements, and place Patrol Division operation on an 8 3/5 hour shift schedule. These changes will effect a considerable saving in Plant Protection costs.

To date, 8,025 "Q" Clearances have been received on old and new employees. There are 257 cases awaiting "Q" Clearance.

PURCHASING AND STORES DIVISION
SEPTEMBER, 1948

GENERAL

Purchasing

There was little change in the work load during the month. 1,279 purchase orders were placed as compared with 1,524 the previous month; however, 2,381 requisitions were received as compared with 2,103. Requisitions on hand at month end totaled 681 as compared with 523 at the end of August.

In our previous report, we stated that negotiations were underway with vendors on five purchase orders canceled at the request of the Project Engineering Division. One of these claims has been settled by the payment of $913.06 in cancellation charges. A partial payment of $2,000 was made to another vendor pending negotiation of final settlement. The other three claims were still pending at month end.

With the exception of galvanized steel sheets, firm orders were placed under the Voluntary Steel Allocation Plan for our entire fourth quarter steel requirements. An additional allocation of steel sheets has been requested through the Atomic Energy Commission.

Pursuant to our previous report of the critical situation with respect to Aluminum, we were requested by the Atomic Energy Commission to prepare complete estimates of our requirements for all forms of Aluminum during 1949. We were informed that our report will be consolidated with reports of other Atomic Energy Commission installations to provide over-all information as to total Atomic Energy Commission requirements with the thought that it may be necessary to work out a voluntary allocation system with the primary Aluminum producers.

Acting on the advice of the Schenectady Purchasing Department, we reviewed our stocks of Aluminum and Aluminum products on hand and on order and have placed additional orders to cover our anticipated needs through June.30, 1949.

Approximately 100 tons of unprepared steel scrap was sold for a price of $24.76 per ton. Efforts to accumulate scrap of all kinds for disposal were accelerated.

Faesy and Besthoff, Inc. were again the successful bidders on our Ferric Sulphate requirements. This is the fourth year they have supplied us with this material.

The Stauffer Chemical Company has built a small plant at Stege, California to produce Ferric Sulphate. They are interested in supplying part of our requirements and, if their material is satisfactory for our use, they will be in a position to bid on our contract requirements next year. We are ordering three carloads for experimental purposes and it is estimated that Stauffer will have the material ready for shipment during October, 1948.

The United States Gypsum Company, our supplier of Hydrated Lime, advised us the price of Lime would be increased $2.50 per ton effective October 1, 1948. Our contract with them does not contain an escalator clause, but does contain a cancellation clause which permits either party to cancel the contract on fifteen days' notice. United States Gypsum chose to cancel the contract and submitted a

GENERAL (Cont.)

Purchasing

new contract proposal at the increased price. Due to the abnormal quantities of this material used during the flood emergency, we had withdrawn almost the entire contract quantity. Consequently, Invitation to Bids on a new contract have been mailed.

From September 1, 1948 through September 30, 1948, we received 860 carloads of coal, representing 42,913 tons. This is the largest number of cars of coal received so far this year.

Stores

Definite progress was made in disposing of materials developed as excess out of regular Stores inventories. Each caption was being reviewed and tabulation made of affected items, and these lists were taken directly to subcontractors for their perusal. Store orders were secured on the spot, and at month end, several hundred of these orders were being filled. For the purpose of compiling stock excess lists, an average twelve-month supply was being retained as a working stock.

A slackening of Construction demands for material was noted and in line with the reduction in activity, overtime was generally dispensed with. Instead of retaining a minimum of five employees for Saturday work primarily to meet Construction requirements, this figure was reduced to one man in the central warehouse for emergency purposes.

Statistically, the volume of material disbursed was considerably less in September than heretofore. This is partially explained by the fact that a new break-off date, viz., the 25th day of each month, has reduced the period of activity for the month of September. A true perspective, hinged upon this cut-off date, will be reflected in future months' reports.

PERSONNEL

Administrative Supervision	1
Purchasing	
Employees Exempt	7
Employees Non-Exempt	27
Stores	
Employees Exempt	14
Employees Non-Exempt	130
TOTAL	179

G. Q. Mathews was transferred from the Maintenance Division to this Division on Special Assignment. Among other duties, he will act as liaison man between Purchasing and Stores and those individuals in charge of Construction materials and supplies. It is felt that in many instances, transfers of materials could be made thus obviating the necessity of their purchase.

SAFETY AND SECURITY

Purchasing

Safety and Security Meetings Scheduled	1
Number of Employees attending	30

Stores

Safety and Security Meetings Scheduled	11
Number of Employees attending	136
Minor Injuries	5

STATISTICS

Purchasing

Requisitions on hand 9-1-48 (includes 30 assigned to Govt.)	523
Requisitions received during September	2,381
Requisitions placed during September	2,223
Requisitions on hand 9-30-48 (includes 71 assigned to Govt.)	681
HW Orders placed	1,279
TPS Orders placed	127
M.O.'s placed	0
O.R.'s placed	12
Alterations issued	280
Orders Expedited	173
Scrap Sales completed	6
Value of Scrap Sold	$10,021.46

Stores

Number of items added to Stores stock	153
Number of items deleted from Stores stock	8
Items in Stores stock at month end	51,913
Receiving Reports issued	3,983
Store Orders filled	15,178
Store Orders filled (Salvage)	505
Emergency Store Orders filled (Stores stock)	4
Returnable containers on hand at month end	5,376
Returnable containers on hand over six months	1,350
Value of Disbursements (Stores) not including cash sale items*	$203,026.78
Value of Disbursements (Salvage)*	9,438.22
Value of transfers from Salvage to Stores	588.93

*Includes $25,752.91 Disbursements to Construction.

PLANT SECURITY AND SERVICES DIVISION

MONTHLY REPORT - SEPTEMBER 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	3	2		1 (a)
Patrol and Security	674	659		15 (b)
Safety & Fire Protection	140	148	8 (c)	
Office Services (General & Clerical)	311	309	—	2 (d)
Total	1128	1118	8	18

- NET DECREASE - 10

(a) - 1 Secretary removed due to Leave of Absence

(b) -10 Hires (9 Patrolmen - 1 Clerical)
1 Transferred from Construction (Patrol)
26 Terminations (25 Patrolmen - 1 Clerical)

(c) - 8 Hires (Firemen)

(d) - 8 Hires (5 Clerical - 3 General)
5 Trasferred from other Division (2 Clerical - 3 General)
2 Returned from Leave of Absence (General)
12 Terminations (5 Clerical - 7 General)
3 Transferred to other Divisions (1 Clerical - 2 General)
2 Removals due to Leave of Absence (Clerical)

SAFETY & FIRE PROTECTION

Safety

Plant Safety Record - 17 days.

Injury Statistics

	July 21 thru August 31, 1948	Sept. 1 thru Sept. 30, 1948	Year to Date	Cumulative F/R - 1948
Major Injuries	2	2	12	0.957
Non-Tabulatable Major Injuries	0	0	0	
Sub-Major Injuries	5	1	30	
Minor Injuries	727	439	4361	3.48

Major Injury No. 53

August 30, 1948 - at 6:55 p.m., , an employee of the 3000 Area "P" Division incurred second and third degree burns on the left side of the face, neck, shoulder, elbow, and back. The injured had poured a normal charge of saw filings (200 lbs.) into the rear end of the furnace. He then went around to the front of the furnace, picked up the leveling rake, and began leveling the charge down from the back of the furnace to the front. The front end of the furnace, 16" x 24", is not enclosed at any time for the free passage of air into the furnace. The injured was wearing a nitrometer face shield and flame proof coveralls. As he was leveling the contents, they burst into flame explosively from spontaneous ignition and burned the injured's left side of face, neck, shoulder, elbow, and back. The side and back burns occurred when injured turned when contents burst into flame. The burners had not been turned on, nor were burning while injured was loading and raking down furnace.

Major Injury No. 54

September 13, 1948 - , a nurse working in the North Richland Hospital, incurred a mild concussion when she struck her head on a wash basin. The ball point of her pen fell out and rolled under the wash basin. When she bent down to pick it up she raised too quickly striking her head on the basin.

Sub-Major Injury No. 126

September 7, 1948, at 11:00 a.m. - , an employee of the 300 Area Technical Division, incurred a fracture of the right middle finger, distal phalanx. The injured was making a vertical cut on lucite in a B and S #2 Universal Milling Machine. The cutter chuck was approaching the vice holding the work. The injured was watching the chuck and vice distance and using a squirt type oil can to lubricate the cutter at the same time. The squirt can tip was caught between the cutter and the work. The injured's right hand was drawn into the cutter along with the squirt can causing the injury.

Service Divisions
Plant Security and Services

Safety Meetings

There were 674 Safety Meetings held during the period of September 1 through September 30, 1948, with a total attendance of 8,042.

Safety Spectacles

Orders were placed for 91 pairs of prescription safety spectacles during the period of September 1 through September 30, 1948; 39 pairs of prescription safety spectacles were checked, received, and fitted; and 125 adjustments and repairs were made to all types of safety spectacles.

Exposure Hours

There were 1,440,960 exposure hours from September 1, 1948 to and including September 30, 1948.

100 Areas Activities

Supervision of the various crafts throughout the 100 Areas has conducted Safety Meetings on "Two Seconds for Safety" and are also following up the results obtained from employee experience.

Suitable respiratory and goggles have been obtained and are now in use by the employees unloading various chemicals in the water treatment house in the 100 Areas.

Special Safety precaution is being emphasized by the Power Division to eliminate injuries while unloading coal from coal cars that are badly in need of R. R. maintenance repair.

200 Areas Activities

Two inspections of all Maintenance jobs were held in the 200-East Area and one in the 200-West Area and an inspection of the 200-West Patrol.

Four films in all were shown to employees in both areas.

A check-up was made in the 200 East Area when an Area Housekeeping Inspection was made.

A near serious accident on a chore boy was investigated to try to prevent similar accidents.

A committee of Maintenance and Transportation men and the Safety Engineer inspected a new baler. Recommendations were made.

Nine new employees in the 200 Areas were given the Safety Orientation.

The Safety Topic-of-the-Month was discussed with several groups to get them to take "Two Seconds for Safety" before undertaking any job. Follow-up meetings were held with 200-East Maintenance and 200-West Minor Construction and Maintenance.

Service Divisions
Plant Security and Services

300 Area Activities

Practically all groups in the 300 Area requested the Safety Division to conduct their Safety Meetings on "Two Seconds for Safety". This was done and Supervision in the various crafts feel that much good has been accomplished in the prevention of injuries.

Records are being kept of the injury experience of the various groups before and after the first of September. It is felt that this contrast will help supervision to improve their injury prevention record.

700-1100 Area Activities

Steps have been taken during the entire month to promote as much activity as possible in the topic-of-the-month, "A Split Second Thought", in an attempt to cover all groups either directly or through supervision.

A study is being made for safe revision of X-ray storage and files in Kadlec Hospital, pertaining to floor loads, with the anticipation of temporary use of the present room until a new office is constructed with proper floor and cabinets.

Recommendations were made for safe cleaning of drums on boilers in 700 Area Power House.

A review of present safety spectacle areas in combined shops has been made and recommendations presented for needed changes.

The present facilities for storage in 713 stores has become inadequate. Supervision asked for an inspection of floors and present storage bins to determine if safe to increase the capacity. Recommendations were made.

Plans are being made for an increase in safety publicity to begin October 12th, on which day the goal of one safe year in the 700 Area will be 100 days away. This was presented to the area council and turned back to Safety.

At the last meeting of the 700 Area Council on September 23rd, the Safety Engineer was appointed chairman of the Program and Publicity Committee.

General

A description of the school safety activities was prepared and incorporated as a school safety bulletin for all Richland schools to follow.

Monthly check list forms have been adopted for principals and teachers to use in reporting the safety activities engaged in during the month.

An inspection of the public schools was held September 29, 1948. Hazardous conditions created by construction activities within the school area continues to be the chief safety problem.

Service Divisions
Plant Security and Services

A set of Safety rules and Regulations were prepared covering Safe Working Practices in the Woodworking and Auto Mechanic Manual Training Shops in the High School. These rules and regulations were reviewed by the instructors who accepted them and agreed to enforce them with all students participating in these activities.

Inspection was made of the new addition to the high school.

Basic design for the paint spray booth at the high school was given to the Design Division.

It was reported to J. Gorden Turnbul that fire dampers in the fire walls of the Spaulding School were not up to standards set forth by the N.B.F.U.

A new fire lane around the High School was recommended.

The new sprinkler system at Riverland was tested.

The rolling fire doors in the Jefferson School and Columbia High School were tested. The doors are not acceptable.

The improvement of fire protection for the pistol range was discussed with Project Engineers.

FIRE PROTECTION

	Number of Fires		Estimated Damage	
Fires	August	September	August	September
Plant Area	21	10	$825.00	$23.00
Miscellaneous	3	1	No Damage	No Damage

Routine Duties

Fire Extinguishers

Inspected	2,762
Installed and Relocated	79
Refilled	224
Repaired	0

Gas Masks

Inspected	94
Serviced	29

Fire Drills & Lectures

Outside	79
Inside	117
Auxiliary Brigade	36
Safety Meetings	33

All fire alarm boxes in the Industrial Area were tested.

All fire hose houses, hydrants, and lines in Plant Areas were inspected and hydrants flushed.

SAFETY DIVISION - INJURY AND ACTIVITY STATISTICS

	300 Area	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	700-1100 Areas	Misc. Area	3000 Area	Pasco Area
Minor Injuries	105	29	26	55	44	72	86	8	12	2
Sub-Major Injuries	1	0	0	0	0	0	0	0	0	0
Major Injuries	1	0	0	0	0	0	0	0	1	0
Days since last Tabulatable Major Injury	31	127	609	1255	322	55	123	61	17	427
Days since last Sub-Major Injury	23	90	113	345	295	175	17	40	115	353
Days without a Minor Injury	4	13	13	10	10	5	5	24	23	29
Safety Meetings Conducted	80	40	62	53	63	83	263	6	12	12
Number in Attendance	1125	227	470	476	626	1022	3858	53	116	69
Safety S ectacles Delivered	10	1	5	3	5	5	10	0	0	0
Safety Spectacles Serviced	11	7	15	12	25	35	20	0	0	0

MONTHLY INJURY ANALYSIS

Period - August 21 through September 20, 1948

Minor Injuries

	Misc. Burns	Abrasions	Contusion	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Blisters	Unclassified	TOTAL SEPTEMBER	TOTAL LAST MONTH
GENERAL	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING	41	45	36	56	8	12	16	16	8	9	247	334
MUNICIPAL	1	7	3	12	1	4	1	0	1	1	31	47
ACCOUNTING	0	0	1	0	2	0	0	0	0	0	3	2
LEGAL	0	0	0	0	0	0	0	0	0	0	0	0
TECHNICAL	10	6	1	16	8	2	1	1	0	2	47	60
MEDICAL	2	1	1	3	1	2	2	1	0	1	14	15
HEALTH INSTRUMENT	0	5	0	7	0	1	0	0	0	0	13	26
SERVICE	4	5	4	18	3	4	1	2	1	3	45	43
EMPLOYEE AND COMMUNITY RELATIONS	0	0	0	0	0	0	0	0	0	0	0	0
DESIGN & CONSTRUCTION	0	5	5	5	2	1	2	1	2	1	24	42
TOTAL	58	74	51	117	25	26	23	21	12	17	424	
LAST MONTH	88	116	61	138	23	41	19	28	20	35		569

OFFICE SERVICES DIVISION

General Services Division

Laundering volumes were as follows:

Plant Laundry (Building 2723)	August	September
Coveralls - Pieces	29,089	28,146
Towels - Pieces	10,563	9,400
Miscellaneous-Pieces	51,389	63,692
Total Pieces	91,041	101,238
Total Dry Weight - Lbs.	127,930	136,568
Richland Laundry (Building 723)		
Flatwork - Pieces	162,784	149,965
Rough Dry - Pieces	28,825	29,309
Finished - Pieces	5,584	5,239
Total Pieces	197,193	184,513
Total Dry Weight - Lbs.	128,175	119,933
Monitoring Section (Building 2723-W)		
Poppy Check - Pieces	61,240	49,835
Sealer Check- Pieces	106,657	95,241
Total Pieces	173,897	145,076

Decreased volume in the 723 Laundry allowed us to discontinue one shift and reduce the force by six employees.

Clerical Services Division

Telephone

Eight new lines have been installed making a total of 20 circuits to the White Bluff's board, thus relieving the congested situation somewhat.

Seven new circuits have been installed between Richland and Pasco. These, added to present lines, will give ample service for all toll traffic under the new procedure of routing all calls directly to Pasco instead of through the Kennewick exchange.

Peg counts reveal that the exchange is handling an average of 30,000 calls during an 18-hour period. The volume is consistantly heavier than ever before.

Line capacity of the Telephone Exchange is as follows:

		August		September	
Lines working as	1 - 0 Lines	631		630	
	2 - 0	57		54	
	0 - PBX	23		23	
	1 - N	21		23	
	2 - N	3		2	
	N - PBX	0		1	
	2-0-R Combination	1		1	
Total Official Lines			736		734
Lines working as	1 - F Lines	83		85	
	2 - F	15		15	
	F - PBX	6		6	
	1 - R	8		8	
	2 - R	1255		1262	
	3 - R	5		-	
	2 - RF	21		23	
	3 - RF	2		2	
Total Non-Official Lines			1395		1401
Vacant Lines			69		65
Total Lines in Multiple Bank			2200		2200

Mail and Stationery

	August	September
Pieces of First Class Mail received	47,864	42,906
Pieces of Parcel Post Mail received	952	981
Pieces of Registered Mail received	424	382
Pieces of Insured Mail received	266	210
Pices of Special Delivery Mail received	305	329
Total	49,811	44,808
Pieces of Mail sent out	17,602	18,579
Amount of money used in Postage Meter	$1,176.75	$1,044.96
Teletypes sent out	2,485	2,856
Teletypes received	2,479	2,468
Total teletypes handled	4,964	5,324

Office Equipment

The balance of our first order of typewriters to be supplied by the Federal Bureau of Supply was received and found to be in very excellent condition.

	August	September
Office Machines repaired in Shop	250	215
Office Machine Service Calls	264	180

Service Divisions
Plant Security and Services

Printing

Printing orders have been extremely heavy during this past month and as a result we have been forced to work some overtime.

	August	September
Multilith Orders Received	217	332
Multilith Orders Completed	211	301
Multilith Orders on hand at month end	23	54
Mimeograph Orders Received	3315	2008
Mimeograph Orders Completed	3315	2008
Mimeograph Orders on hand at month end	0	0
Ditto Orders Received	3259	2906
Ditto Orders Completed	3259	2906
Ditto Orders on hand at month end	0	0

Stenographic Services

Volume of work has remained at a high level during the month.
Lack of space is still preventing the full operation of this section. Employment of additional stenographers is being held up until this problem is solved.

Central Records Storage

A separation of duPont and General Electric records has been completed with all duPont records in 712-B and all General Electric and AEC records in 712-A.

	August	September
Cartons of material received for storage	75	138
Cartons of material processed & stored	77	138
Cartons of material shipped	0	0

Summary of persons viewing records for the month of September, 1948:

	August	September
General Electric Files	98	70
duPont Files	44	34
A. E. C. Files	2	8
Total	144	112

PATROL AND SECURITY

General

On September 9, 1948, HW Instructions Letter No. 99, entitled "Accountability for Classified Material Withdrawn from Classified or Blueprint File Sections", was issued to all General Electric personnel dealing with responsibility for the care and accountability of classified material.

Service Divisions
Plant Security and Services

Effective September 14, 1948, at 7:30 A.M., the 101 Exclusion Area was converted to the double badge system, with a red background placed on all badges to insure quick indentification in the plant area.

On September 15, 1948, Supplement No. 2, HW Instructions Letter No. 81, entitled "Procedures for Processing Classified Matter", was issued to all General Electric personnel.

Arrangements have been made with the Operations Facilities Office to instruct all contractors who are constructing building facilities in Richland, to process their employees through the Construction Security Office, 3000 Area.

HW Instructions Letter No. 101, entitled "Responsibility for Security", was issued all General Electric personnel on September 29, 1948.

A new procedure covering the handling of alcoholic beverages classed as contraband was established September 2, 1948, at all perimeter barricades.

The Patrol post located at the Richland Airport, and manned by 700 Area Patrol, was discontinued September 3, 1948.

To afford better eye protection against occasional dusty conditions, the Wilson Mono-Goggles were placed at necessary Patrol posts, effective September 8, 1948.

Effective September 10, 1948, the Employment Building No. 705, will be unlocked each working day at 7:30 A.M. by the patrolman posted in the Administration Building No. 703.

On September 13, 1948, a new salmon-colored Construction Employee's Temporary Pass was issued in lieu of the Green Tag Pass, HW Form 4.245, to eliminate the use of lost temporary badges by unauthorized persons, and to cancel temporary passes which were issued for a period longer than three days. This new type pass will be valid for a period not to exceed three working days, and is to be issued to new sub-contractor employees for identification pending receipt of their Photo Pass.

As requested, certain Federal Bureau of Investigation vehicles were granted clearance for all areas, barricades and buildings on September 15, 1948.

The groundwork was started on September 16, 1948, for a tank farm located in the 200-E Area, to be designated as the 241-BY Construction Area. All work being done is presently under Patrol escort. The inner construction fence is being installed, and the job is expected to be within a segregated construction area by Friday, October 1, 1948.

Arrangements have been completed with the Patrol Supervision, 200-E Area, to establish a temporary evacuation procedure using Patrol sirens as warning signals until adequate permanent sirens can be installed. The Patrol Captain will make arrangements with the Area Engineer in regard to the temporary evacuation set-up, with a permanent plan being established as soon as the fence, badge house and exits are completed.

On September 20, 1948, the Hanford High School Building will be checked on the night shifts, and on the day shift on week-ends by the Outer Area Traffic car. Doors are to be locked and a check made for fire hazards.

It is anticipated that the entire Patrol Division, (except the administrative group located in Richland) will be placed on a five-day week, working an 8-3/5 hour day. Such a schedule will provide an overlap of shifts, making additional manpower available for increased needs at badge houses, perimeter barricades and traffic control during shift changes. In turn, it will eliminate the necessity of pulling men from important posts to perform required shift change duties.

In line with the above schedule, the patrol is in process of eliminating or reducing the manpower requirements on the following posts:

Eliminate the roving post in the 105-B, D and F Areas.

Reduce the building check crews in the 100-B, D, F, 200-W and 200-E to one man instead of two.

Combine the duties of the outer and inner fence patrol cars in the 100-B D, F, 200-W and 200-E.

Eliminate the River and Mountain patrols.

Eliminate the two Tower Posts in both the 221-T and 221-B Areas.

In the 200-North Area, the badge house posts in the N, P, and R, Areas, will be manned and the back tower in the P Area will be eliminated. On the night shifts, all posts will be eliminated and one two-men car will make continuous surveys of the three areas.

Combine the duties of the two midway patrol cars. This patrol will be handled by one of the Yakima Barricade patrolmen as a part time duty only.

Eliminate the 24-hour Sergeant assignment at the Pasco Depot. This function will be handled by the 700 Area Sergeant.

Eliminate the night post at the AEC Airport.

PATROL

The 200 Areas handled 110 Process escorts between the Areas.

Requests handled totaled 1167, mainly consisting of opening doors, gates and escorts for employees of other departments.

A total of 146 construction employees were escorted into areas for First Aid treatment.

There were 173 unusual incidents reports received, consisting mainly of contraband picked up at barricades, lost badges, pencils and traffic violations.

Nineteen classified escorts were handled during the month.

One employee was given emergency First Aid treatment in the areas by patrol supervision during periods when medical personnel were absent from areas.

The Outer Area traffic car issued 6 citation tickets, 4 verbal warnings and handled 111 details in addition to their regular duties.

Practice evacuations were held as follows:

September 3, 1948	100-D Area	10:36 AM
September 9, 1948	100-F Area	10:20 AM
September 29, 1948	100-B Area	3:05 PM
September 30, 1948	100-H Area	9:06 AM

Training

Basic and advanced training is being continued. Results of the seven week classes will be included in our October report.

SECURITY

Operations Section

There were 329 Security Meetings held and attended by 5,274 General Electric Employees.

Security Education talks by M. J. Headley, Security speaker: 227 employees attended.

Employee Clearances

Class "Q" clearances received on old employees this month	160
Class "Q" clearances received on old employees to date	3,318
Class "Q" clearances received on new employees this month	177
Class "Q" clearances received on new employees to date	4,707
Class "Q" clearances received on both old and new employees since February 17, 1947	8,025
Formal "P" clearances awaiting change to "Q"	257

Statistical Summary of Outstanding Area Badges

	August				September				
	A	B	C	Total		A	B	C	Total
100-B	597	1269	690	2556	100-B	609	1297	680	2586
100-D	710	1300	652	2662	100-D	729	1331	654	2712
100-F	732	1260	672	2664	100-F	756	1287	649	2692
200-E	1092	1332	575	2999*	200-E	1184	1340	483	3007*
200-W	1277	1429	522	3228	200-W	1311	1442	511	3264
200-N	52	765	178	995	200-N	57	780	166	1003
300	1454	1463	401	3318	300	1483	1423	390	3296
100-DR	4484	376		4860	100-DR	4606	420		5026
241-TX	2621	252		2873	241-TX	2395	307		2702
					241-BY	530			530

* Includes 38 "A" Badges at Riverland Yards

*Includes 47 "A" Badges at Riverland Yards.

Service Divisions
Plant Security and Services

Visitors or Temporary Badges

Area	August	September
100-B	85	113
100-D	154	196
100-F	194	219
200-E	143	175
200-W	202	258
200-N	75	106
300	265	333
100-DR	201	287
241-TX	123	144
Total	1442	1831

Special Clearance Section

Following is a statistical summary of emergency clearance status of vendor and consultant companies:

Total companies forwarded to AEC this month: 9 Personnel 35
Total companies forwarded to AEC to date: 166 Personnel 1,766

Total companies cleared for restricted data this month: 26 Personnel 88
Total companies cleared for restricted data last month: 28 Personnel 93

New companies forwarded to the Atomic Energy Commission this month:

Automatic Electric Company
1033 West Bruce Street
Milwaukee, Wisconsin

Russell & Stoll Company, Inc.
125 Barclay Street
New York 7, New York

Number and type of clearance granted by the AEC this month to vendors:

Formal "Q"	66
Formal "P"	9
Emergency "Q"	3

No emergency clearances requested this month for General Electric personnel
Emergency clearances requested for GE personnel to date 155

Emergency clearances requested for consultants and vendors this month 2
Emergency clearances received for consultants and vendors this month 3

Emergency clearances recieved this month for GE personnel 10
Emergency clearances received for GE employees to date 115

Clearances "Q" Cards issued to consultants and vendors this month 3

Authorization clearances issued to GE personnel this month 122

HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING SEPTEMBER 30, 1948

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
ACCOUNTING DIVISION						
I. Visits to other Installations						
L. F. Huck to: Kellex Corporation New York, New York	Cost analysis consul-	W. H. Denne, Jr.	9-30-48	10-1-48	X	
MEDICAL DIVISION						
I. Visitors to this Works						
E. Vaughn Department of Health State of Washington Olympia, Washington	Conference regarding birth certificates	R. R. Sachs	9-15-48	9-16-48		X
J. Schumacher U. S. Public Health Department Tacoma, Washington	Conference on Public Health	R. R. Sachs	9-8-48	9-9-48		X
V. J. Henske State Department of Public Olympia, Washington-Welfare	Evaluation of work and in- spection prior to obtain- ing license as child placing agency	R. R. Sachs	9-28-48	9-30-48		X
CONSTRUCTION DIVISION						
I. Visitors to this Works						
O. G. Patch Grand Coulee, Washington	Adjust concrete testing machine	L. S. Grogan L. S. Grogan	9-11-48 9-25-48	9-12-48 9-26-48		X X

RESTRICTED

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
W. Gibbard Washington State Boiler Inspecting Dept. Olympia, Washington	Inspect and issue licenses	L. S. Grogan	9-9-48	9-10-48		X
W. R. Clark Linde Air Products Company Seattle, Washington	Discuss possibility of liquid oxygen delivery system	L. S. Grogan	9-23-48	9-24-48		X
T. Wildish Linde Air Products Company Seattle, Washington	Discuss possibility of liquid oxygen delivery system	L. S. Grogan	9-23-48	9-24-48		X
H. O. Reese Linde Air Products Company Seattle, Washington	Discuss possibility of liquid oxygen delivery system	L. S. Grogan	9-23-48	9-24-48		X
M. F. Lillis Linde Air Products Company Seattle, Washington	Discuss possibility of liquid oxygen delivery system	L. S. Grogan	9-23-48	9-24-48		X
L. C. Ford General Electric Company Pasco, Washington	Inspect electrical equipment 100-H Area	E. E. Scott	9-2-48	9-3-48	X	
L. W. Baur General Electric Company Pasco, Washington	Inspect electrical equipment 100-H Area	E. E. Scott	9-2-48	9-3-48	X	
II. Visits to other Installations						
J. C. Hamilton to: A. T. Case Company Los Angeles, California	Completion of HWC orders in process and transfer those orders in production stage as company is terminating their business	J. G. Campazzie	9-7-48	9-9-48		X
J. C. Hamilton to: Western Foundry Company Portland, Oregon	Discuss problems regarding cast iron blocks	E. G. Huffschmidt	9-10-48	9-10-48		X

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
J. C. Hamilton to: Washington Iron Works Seattle, Washington	Expedite HWC orders	O..C. Nugent	9-15-48	9-15-48	X	
J. C. Hamilton to: Alaskan Copper Works Seattle, Washington	Expedite HWC orders	E. T. Cahill	9-15-48	9-15-48	X	
H. A. Hauser to: A. T. Case Company Los Angeles, California	Completion of HWC orders in process and transfer those orders in production stage as company is terminating their business	J. G. Campazzie	9-7-48	9-9-48		X
J. B. Whitworth to: Read Machinery York, Pennsylvania	Consultation with "B" block vendor	A. K. Brennan	9-25-48	Still gone	X	
J. B. Whitworth to: American Machine & Foundry Buffalo, New York	Consultant with vendor on stainless steel hoods	H. W. Phillips	9-25-48	Still gone	X	
A. L. Brueck to: Hitchner & Hitchner Co. Sandpoint, Idaho	Inspection of poles	H. Worthington	9-7-48	9-17-48		X
A. L. Brueck to: Columbia Electric Co. Spokane, Washington	Inspection of lights	E. M. Caferro	9-18-48	9-18-48		X
L. G. Jones to: Western Foundry Company Portland, Oregon	Settle problems on cast iron blocks	E. G. Huffschmidt	9-17-48	9-17-48		X
H. D. Tibbals to: Puget Sound Naval Shipyard Bremerton, Washington	Inspection of V.S. Rods	Mr. Allison	9-7-48	9-14-48		X

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
H. D. Tibbals to: Washington Iron Works Seattle, Washington	Expedite HWC orders	O. C. Nugent	9-22-48	9-24-48	X	
H. D. Tibbals to: Tillamook Naval Air Station Tillamook, Oregon	Inspect helium storage tanks	-	9-27-48	9-29-48		X
H. A. Hauser to: Giffels & Vallet Detroit, Michigan	Regarding purchase of air conditioning system for 234-5 Building	R. F. Giffels	9-1-48	9-3-48	X	
II. Visitors to this Works						
E. G. White Roberts Filter Company Darby, Pennsylvania	Superintend installation of two filter plants for 100-DR and 100-H Areas	G. E. Hotaling	9-20-48	For Six Months		X
DESIGN DIVISION						
I. Visits to other Installations						
J. C. Wood to: Ric-Wil Company Cleveland, Ohio	Obtain information for special project	G. O'Connor	8-28-48	9-3-48		X
R. C. Hollingshead to: Blickman Brothers Weehawken, New York	Approval of vendor drawings	B. Blickman	9-6-48	9-11-48		X
R. C. Hollingshead to; Pennsylvania Furnace & Iron Warren, Pennsylvania	Approval of vendor drawings	R. Blodgett	9-6-48	9-11-48	X	
J. A. Carlen to: Giffels & Vallet Detroit, Michigan	Consultation	W. P. Ingalls (G.E. representative)	9-7-48	9-22-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
D. E. Irons to: Blaw-Knox Company Pittsburgh, Pennsylvania	Technical conferences	H. A. Ohlgren	9-10-48	9-22-48	X	
D. E. Irons to: Kellex Corporation New York, New York	Technical conferences	G. W. Hooker	9-10-48	9-22-48	X	
R. H. Beaton to: Blaw-Knox Company Pittsburgh, Pennsylvania	Technical conferences	H. A. Ohlgren	9-10-48	9-16-48	X	
R. H. Beaton to: Kellex Corporation New York, New York	Technical conferences	G. W. Hooker	9-10-48	9-16-48	X	
J. M. Frame to: Blaw-Knox Company Pittsburgh, Pennsylvania	Technical conferences	H. A. Ohlgren	9-10-48	9-14-48	X	
P. E. Collins to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Consultation and inspection	E. R. Jette	9-12-48	9-16-48	X	
E. F. Smith to: Giffels & Vallet Detroit, Michigan	Conference	W. P. Ingalls (G.E. representative)	9-10-48	Still gone	X	
F. H. Ames to: Giffels & Vallet Detroit, Michigan	Consultation	C. J. Steigleder	9-21-48	Still gone	X	
F. H. Ames to: General Electric Company Schenectady, New York	Consultation	M. M. Boring	9-21-48	Still gone	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
F. H. Ames to: General Electric Company Lynn, Massachusetts	Consultation	R. E. Burroughs	9-21-48	Still gone	X	
W. W. McIntosh to: Giffels & Vallet Detroit, Michigan	Work on special project	R. D. Rausch	9-22-48	Still gone	X	
A. W. Jonson to: Giffels & Vallet Detroit, Michigan	Consultation	W. D. Rausch	9-20-48	9-27-48	X	
J. E. Kavockis to: General Electric Company Schenectady, New York	Consultation	G. F. Gardner	9-18-48	9-27-48	X	
W. J. Dowis to: General Electric Company Schenectady, New York	Consultation	[redacted]	9-19-48	Still gone	X	
W. J. Dowis to: Kellex Corporation New York, New York	Consultation	C. H. Holt (G.E. representative)	9-19-48	Still gone	X	
W. J. Dowis to: Giffels & Vallet Detroit, Michigan	Consultation	N. R. Bjornson	9-19-48	Still gone	X	
O. S. Petrescu to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend shielding symposium	E. P. Blizard	9-25-48	Still gone	X	
O. S. Petrescu to: American Machine & Foundry Buffalo, New York	Coordinate and discuss design problems with vendor	J. L. Lenton	9-25-48	Still gone	X	

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DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
O. S. Petrescu to: Burk Company New York, New York	Coordinate and discuss design problems with vendor	Mr. O'Brien	9-25-48	Still gone		X
O. S. Petrescu to: Franco Company Philadelphia, Pennsylvania	Coordinate and discuss design problems with vendor	Mr. Padrick	9-25-48	Still gone		X
O. S. Petrescu to: Brookhaven Nat'l Lab. Schenectady, New York	Inspect heavy aggregate concrete shielding	M. Fox L. Borst	9-25-48	Still gone	X	
O. S. Petrescu to: H. K. Ferguson Company Schenectady, New York	Discussions concerning pile construction graphite shop	C. Cohen	9-25-48	Still gone	X	
H. E. Struck to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend shielding symposium	E. P. Blizard	9-25-48	Still gone	X	
H. E. Struck to: Brookhaven Nat'l Lab. Schenectady, New York	Inspect heavy aggregate concrete shielding	M. Fox L. Borst	9-25-48	Still gone	X	
H. E. Struck to: H. K. Ferguson Company Schenectady, New York	Discussions concerning pile construction graphite shop	C. Cohen	9-25-48	Still gone	X	
R. T. Jaske to: Navy Depot Tillamook, Oregon	Check high pressure storage vessels	J. J. Johnson	9-27-48	9-28-48		X
A. T. Strand to: Burk Company New York, New York	Coordinate design with fabrication	Mr. O'Brien	9-27-48	Still gone		X

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
A. E. Rhodes to: Navy Depot Tillamook, Oregon	Check high pressure storage vessels	J. J. Johnson	9-27-48	9-28-48		X
A. T. Strand to: American Machine & Foundry Buffalo, New York	Coordinate design with fabrication	J. L. Lenton	9-27-48	Still gone	X	
B. E. Woodward to: Giffels & Vallet Detroit, Michigan	Consultation on ventilation control system	W. D. Rausch	9-30-48	Still gone	X	
A. J. Kernie to: American Machine & Foundry Buffalo, New York	Liaison and manufacture of equipment	E. Forth	9-28-48	Still gone		X
II. Visitors to this Works						
L. W. Williams Brown Instrument Company Philadelphia, Pennsylvania	Design consultation	A. W. Jonson	9-3-48	9-4-48		X
J. R. Murphy General Electric Company Seattle, Washington	Design consultation	R. P. Genereaux W. E. Johnson	9-8-48	9-10-48		X
G. O. White Roberts Filter Company Darby, Pennsylvania	Discuss 100-D Area Filter Plant	P. M. Murphy	9-17-48	9-18-48		X
W. E. Joor, II Kellex Corporation New York, New York	Transmittal of Kellex Report to General Electric	R. H. Beaton	9-23-48	9-25-48	X	

PROJECT ENGINEERING DIVISION

I. Visits to other Installations

[redacted]

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
H. A. Lee to: Puget Sound Naval Ship-Bremerton, Washington Yard	Discussion in regard to ER-2377, Sand Filter	S. L. Allison	9-9-48 9-16-48 9-28-48	9-10-48 9-23-48 9-29-48		X
J. S. McMahon to: Puget Sound Naval Ship-Bremerton, Washington Yard	Discussion in regard to ER-2377, Sand Filter	S. L. Allison	9-9-48	9-10-48		X
E. J. Bollarts to: Puget Sound Naval Ship-Bremerton, Washington Yard	Discussion in regard to ER-1044	S. L. Allison	9-28-48	10-1-48		X
II. Visitos to this Works						
D. E. Garr General Electric Company Schenectady, New York	Consultation on 313 Building mechanization	J. S. McMahon	8-31-48	9-4-48	X	
POWER DIVISION						
I. Visits to other Installations						
W. R. Conley to: Southside District Filtration Plant Chicago, Illinois	Discussion on filtration plant	E. H. Gerstein	9-12-48	9-16-48		X
H. A. Kramer to: U. S. Engineers Portland, Oregon	Make a study of Columbia River with U. S. Engineers	Colonel Walsh	9-8-48	9-10-48		X
J. P. Langan to: Giffels & Vallet Detroit, Michigan	Consultation on 100 Areas design	W. D. Rausch	9-20-48	9-29-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
I. Visits to other Installations						
D. W. Pearce to: Kellex Corporation New York, New York	Technical consultation concerning Job 11	G. White, Jr.	9-13-48	9-15-48	X	
O. H. Greager to: Kellex Corporation New York, New York	Technical consultation concerning Job 11	G. White, Jr.	9-14-48	9-15-48	X	
D. W. Pearce to: Argonne National Lab. Chicago, Illinois	Consultation regarding crystal structure	W. H. Zachariasen	9-16-48	9-17-48	X	
H. M. Jones to: Kellex Corporation New York, New York	Technical consultation concerning Redox	V. L. Parsegoan	9-16-48	9-17-48	X	
R. Ward to: General Electric Company Schenectady, New York	Attend metallurgical conference	C. G. Suits	9-8-48	9-10-48	X	
D. F. Shepard to: Argonne National Laboratory Chicago, Illinois	Meeting of Redox analytical committee	A. Janke	9-13-48	9-15-48	X	
C. G. Craig to: Atomic Energy Commission Oak Ridge, Tennessee	Study technical abstracting methods	I. A. Warheit	9-20-48	9-25-48	X	
R. D. McGreal to: Vitro Chemical Company Cannonsburg, Pennsylvania	Observe scrap recovery operations	A. J. Strod	9-23-48	9-24-48	X	
R. E. Curtis to: General Electric Co. Brookhaven, New York	Technical discussions with Chemical Department	Dr. Foley	9-24-43	9-24-48	X	

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DECLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
R. E. Curtis to: General Electric Company Pittsfield, Massachusetts	Technical discussions with Chemical Department	D. S. McKenzie	9-20-48	9-22-48	X	
R. E. Curtis to: General Electric Company Schenectady, New York	Technical discussions with Chemical Department	C. S. Ferguson	9-23-48	9-23-48	X	
T. S. Jones to: Vulcan Crucible Steel Aliquippa, Pennsylvania	Supervise metal fabrication	J. Flower	9-27-48	10-2-48	X	
R. D. McGreal to: Vulcan Crucible Steel Aliquippa, Pennsylvania	Supervise metal fabrication	J. Flower	9-27-48	10-2-48	X	
W. T. Kattner to: Simonds Saw & Steel Lockport, New York	Supervise metal fabrication	A. D. Potts	9-27-48	10-2-48	X	
R. Teats to: Simonds Saw & Steel Lockport, New York	Supervise metal fabrication	A. D. Potts	9-27-48	10-2-48	X	
C. W. Botsford to: National Carbon Company Cleveland, Ohio	Consultation on graphite	V. C. Hamister	9-26-48	9-29-48	X	
J. M. West to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend shielding symposium	E. P. Blizard	9-26-48	9-30-48	X	
P. R. Gillette to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend shielding symposium	E. P. Blizard	9-26-48	9-30-48	X	
R. F. Flott to: Argonne National Laboratory Chicago, Illinois	Consultation on graphite	O.C. Simpson	9-13-48	9-18-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
A. A. Johnson to: Argonne National Lab. Chicago, Illinois	Consultation on Project P-10	T. S. Chapman	9-29-48	10-1-48	X	
C. W. J. Wende to: General Electric Company Schenectady, New York	Discussion of Hanford Program	K. H. Kingdon	9-27-48	Still gone	X	
II. Visitors to this Works						
H. F. Plank Mass. Institute of Technology Cambridge, Massachusetts	Interview	O. H. Greager F. W. Albaugh	9-3-48	9-3-48	X	
W. K. Eister Oak Ridge National Laboratory Oak Ridge, Tennessee	Technical consultation concerning Redox Program	O. H. Greager R. B. Richards	9-9-48	9-11-48	X	
F. R. Bruce Oak Ridge National Laboratory Oak Ridge, Tennessee	Technical consultation concerning Redox Program	O. H. Greager R. B. Richards	9-9-48	9-11-48	X	
H. K. Jackson Oak Ridge National Laboratory Oak Ridge, Tennessee	Technical consultation concerning Redox Program	O. H. Greager R. B. Richards	9-9-48	9-11-48	X	
L. I. Gilbertson Air Reduction Sales Corp. Stamford, Connecticut	Technical consultation on stack gas disposal	O. H. Greager J. B. Work	9-14-48	9-15-48	X	
E. Zobroski Knolls Atomic Power Lab. Schenectady, New York	Research discussions concerning Redox Program	O. H. Greager F. W. Albaugh	9-16-48	9-17-48	X	
C. Starr North American Aviation, Inc. Los Angeles, California	Consultation on graphite	A. A. Johnson	9-28-48	9-29-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
F. W. Brown North American Aviation, Inc. Los Angeles, California	Consultation on graphite	A. A. Johnson	9-28-48	9-29-48	X	
H. Pearlman North American Aviation, Inc. Los Angeles, California	Consultation on graphite	A. A. Johnson	9-28-48	9-29-48	X	
A. S. Thompson North American Aviation, Inc. Los Angeles, California	Consultation on graphite	A. A. Johnson	9-28-48	9-29-48	X	
W. E. Perkins North American Aviation, Inc. Los Angeles, California	Consultation on graphite	A. A. Johnson	9-28-48	9-29-48	X	
W. B. Kanne Knolls Atomic Power Lab. Schenectady, New York	Consultation on Request 40	C. W. J. Wende	9-21-48	9-23-48	X	
H. Hurwitz, Jr. Knolls Atomic Power Lab. Schenectady, New York	Discuss developments in Theoretical Physics	C. W. J. Wende	9-21-48	9-23-48	X	
"P" DIVISION						
I. Visitors to this Works						
P. H. Witschge General Machinery Company Spokane, Washington	Discussion on automatic machine lathes	E. P. Lee W. A. Blanton R. O. Mehann	9-10-48	9-10-48	X	
D. E. Garr General Electric Company Schenectady, New York	Consultation on 313 Building mechanization	J. E. Maider R. O. Mehann	8-31-48	9-4-48	X	

[redacted]

EMPLOYEE AND COMMUNITY RELATIONS DIVISION

SUMMARY -- SEPTEMBER, 1948

Island Association presentation made to all supervisors. Mine-Point Job Improvement Program instituted for all supervisors.

Open requisitions for additional personnel increased from 553 at the beginning of the month to 613 at the end of the month. Due to the additional lay-offs, plus terminations of temporary, total plant roll decreased 158.

There were 1,569 employee contacts made by the Employee Relations Group. All supervisory group given information on Employee Savings and Stock Bonus Plan through meetings conducted by Employee Relations Counselors. 15 suggestion awards, totaling $ 120, granted during September.

Newspaper releases and photographs furnished to north west newspapers in connection with the Atomic Frontier Days celebration. 10 general news releases made to local and other newspapers in the north west. Distribution literature for Mine-Point Job Improvement Program, together with presentation of Island Association Program, handled by the Public Relations Group.

Community wage survey in Spokane, Seattle, and Tacoma, Washington, and Portland, Oregon, are presently in progress. Non-exempt job classification manuals completed, and limited distribution made to supervision. General review of non-exempt job classifications in 2 Divisions in progress. Number of investigations conducted during the past month in various Divisions for the purpose of assigning classification to new jobs and reviewing existing jobs.

EMPLOYEE AND COMMUNITY RELATIONS DIVISION

SEPTEMBER, 1948

ORGANIZATION AND PERSONNEL

Employment

One employment interviewer and investigator "B" resigned voluntarily effective September 24.

One stenographer and typist "B" assigned to the Procurement Group resigned effective September 10.

One general clerk "B" assigned to the Investigation and Files Group resigned effective September 3.

One stenographer and typist "D" assigned to the Procurement Group and one assigned to the Investigation and Files Group resigned effective September 24 and August 22 respectively. The latter resignation had not previously been reported.

One general clerk "E" was added to the Investigation and Files Group on September 16, and one general clerk "D" was transferred from the Sign-up Group to the Employee Relations Group effective September 14.

One reproduction and photographic assistant "C" resigned effective September 3, and on September 27, a reproduction and photographic assistant "E" was up-graded to reproduction and photographic assistant "C".

Employee Relations

One stenographer and typist "D" assigned to the Insurance Group resigned effective September 3.

Effective September 14, one general clerk "D" was transferred from the Sign-up Group to replace this termination.

Public Relations

One reproduction and photographic assistant "D", to be used as a commercial artist, was added to the Public Relations Group effective September 27.

Employee and Community Relations Division

Labor Relations and Wage Rate

No organization changes were made in this group in September.

Number of employees on payroll	September
Beginning of month	90
End of month	95
Net increase	5

This increase in personnel was the result of the Organization Announcement dated September 1, 1948, which removed the Employee and Community Relations Division and the Labor Relations and Wage Rate Division from the Service Divisions, combining them into a separate Division to be known as the Employee and Community Relations Division. H. E. Callahan was appointed Manager of this Division.

ACTIVITIES

General

As the result of information furnished by Mr. L. R. Boulware's office in New York during a visit by the Division Manager considerable time has been spent during the past month in organizing and presenting the Island Association Program to all supervisors at this Works. In addition ground work was laid for Part I and Part II of the General Electric Nine-Point Job Improvement Program. Part I of this Program has already been placed in effect, and instructors selected, and several meetings held for the purpose of instituting Part II.

Employment

The volume of applicants interviewed during the month of September increased to some extent. A total of 1,386 candidates were interviewed during September as compared to 1,361 during August. The volume of new cases received for investigation increased from 425 in August to 452 in September.

Employee and Community Relations Division

At the beginning of the month there were 506 open requisitions for non-exempt personnel, 303 of which were covered by interim commitments. At the end of the month there were 570 open requisitions, of which 321 were covered by interim commitments. In addition, at the beginning of September, there were 47 requisitions for exempt personnel, 29 of the person requisitioned having accepted offers, 13 having been made offers but no acceptances received, and the remainder in the process of investigation. At the end of September, there were 43 open requisitions for exempt personnel, 25 of the persons having accepted offers, 13 having been made offers, but no acceptances received, and the remainder in the process of investigation.

A total of 218 persons were added to our payroll during September. 376 were removed, resulting in a net loss in total employment of 158 employees. This net loss, upon being analyzed, was due primarily to further terminations of employees hired temporarily for the summer months only, plus a large number who terminated to return to school.

Early in September the Design Division advised that most of the employees previously scheduled for lay-off by the end of 1948, were being retained indefinitely. By the end of September, only 21 employees remained on the availability list, 12 of which were engineers, the remaining being clerical employees. None of these employees are available until the latter part of this year. During the month, 11 Design employees terminated voluntarily, 6 were removed due to lack of work, and 6 were transferred to other Divisions.

During September 10 additional employees of the Construction Division were given lay-off notices. During the month 21 employees of the Construction Division, who were scheduled to be removed for lack of work, obtained positions with subcontractors on this Project. 10 were either transferred or re-assigned, 9 were removed for lack of work, and 6 resigned having refused offers of transfer.

During September, 16 new requests for inter-Divisional transfers were received by the Procurement Group. 11 of these employees requesting transfers were interviewed and as a result of these interviews 1 actual transfer was effected.

Recent advertisements and news releases having failed to attract a sufficient number of qualified stenographers, typists, and firemen to fill existing requirements, arrangements were made to have a recruiter visit Spokane, Washington, to recruit this type of personnel on September 30, October 1 and 2.

Employee and Community Relations Division

Employee Relations

During the month of September, the total of 1,569 contacts with company employees were made by Employee Relations Counsellors. These contacts resulted in 2,019 inquiries summarized as follows:

Policy	328
Military Service	242
Group Life Insurance	138
Group Disability Insurance	194
Pension Plan	53
Suggestion System	12
Employee Saving Plan	494
G. I. Bill of Rights	6
Social Security	31
Employee Sales Plan	240
Housing	67
Community	7
Personal	104
Income Tax	33
Miscellaneous	70
Total	2,019

Employee Relations Counsellors attended 3 Area Council Meetings during the month, with a total of 43 members in attendance, at which time area problems and items of general interest were discussed. In addition a total of 49 meetings were conducted by various members of the Employee Relations Group during the month of September to explain the Employee Savings and Stock Bonus Plan, scheduled to go into effect on October 1. Approximately 1,959 employees, the majority of which were supervisors, were contacted at these meetings.

Exit interviews were given to 237 terminating employees and 190 new employees were given orientation. Of this latter number, 68% elected to participate in the Group Life Insurance Plan, and 74% elected to participate in the Group Disability Insurance Plan.

A total of 176 traffic appliances certificates covering 187 appliances were issued by the Employee Relations counselors in the 100, 200, and 300 Areas, during the month of September.

Employee and Community Relations Division

The following employee retired during the month of September:

Claude H. Shepard -- Design Division

This employee was interviewed by an Employee Relations Counselor prior to his retiring, and fully informed as to all matters pertaining to the benefits he would received under the Pension Plan.

Due to the terminations and turn-over in personnel, the status of employees subject to the present Selective Service Act changed considerably during the month. The records in this respect are as follows:

Non-Veterans (non-technically trained) single	86
Non-Veterans (technically trained) single	13

During the month of September, information was furnished to the Works News concerning the Selective Service Act, and employees were advised of the dates and locations for registering under this Act.

The Employee Relations Group again was assigned the responsibility of organizing the necessary personnel at this Works to conduct the Community Chest Drive.

Suggestion System

At the end of September the volume of work in the Office of the Secretary of the Suggestion System was as follows:

	August	September	Total since 7-15-1947
Suggestions received and acknowledged	151	110	2,583
Investigation reports completed	153	118	2,319
Awards granted by the Suggestion Commitee	17	15	204
Cash Awards	$ 170	$ 120	$ 1,990

The September 24 issue of the Works News featured a story of the 17 award winners for the month of September.

Employee and Community Relations Division

Insurance

1. Insurance Coverage

- The plaintiff's reply has been filed to the defendant's answer in this case, otherwise no new developments have occurred. The employee returned to work in the "P" Division during the month.

-- An amended complaint was filed in the Superior Court for Benton County in this case during the past month. It was ascertained that the same attorney was acting as attorney for two defendants in this case, namely, the Travelers' Insurance Company, who is handling the interest, as well as the . The Travelers' Insurance Company was requested by our counsel to have their attorney withdraw from the defense of one of the two defendants since the defense will not be the same for both parties and the Civilian Air Patrol defense may prejudice the position in this case.

2. Life Insurance

Code information for use by insurance companies in issueing insurance to employees at this Works was furnished to 21 insurance companies and investigation agencies during September.

3. Fidelity Bond

The annual premium notice for the deputy sheriff's position schedule bond for Benton County was received and authorization for payment forwarded to the Accounting Division during September. Information was also furnished to the Hartford Accident and Indemnity Company as to the number of patrolmen, having deputy sheriffs' commissions, employed by the Company in Franklin County. This information was necessary in order that the premium might be calculated by the bonding Company for that County.

4. Liberty Mutual Blanket Fidelity Bond

The Atomic Energy Commission has requested that a study be made by the Company to determine the need for the employee blanket fidelity bond. It is felt at the present time that this bond should be continued.

5. Compensation

, on April 2, 1948, this individual, an employee of a subcontractor was admitted to the Kadlec Hospital for observation after exposure to carbon tetra-chloride fumes. On April 6, 1948, died. At that time doubt existed as to the cause of death. As a result, liver specimens were forwarded to nationally known pathologists for study and opinions. Reports were received from two pathologists during the last month by our Medical Division, indicating that in their opinion carbon tetra-chloride was a contributing factor in the death of this individual. These opinions were forwarded to the Washington State Department of Labor and Industries, and as a result, this case, which had previously been reported, was ruled a compensable case.

Public Relations

During the past month, considerable amount of time was spent in planning and assisting in the preparation for the presentation of the Association Island Employee Relations Program at this Works. A representative of this Group participated in a portion of this Program. All literature and letters to be distributed in connection with this Program are being prepared by the Public Relations Group.

During the first week-end of September, the Hanford Works participated in the Atomic Frontier Days celebration. Due to the large number of newspaper people visiting the community, 1 publicity writer was assigned to this phase of the celebration in order that a satisfactory escort, as well as information, might be supplied. This event was covered by various north west newspapers and wire services, and in addition, photographs were forwarded to Wide World Photos and A.P. Wire Photos. Considerable assistance was also rendered by the West Coast manager of the company's advertising and publicity department, who was present for this celebration.

Recruiting advertisements for a safety engineer, stenographers, typists, and firemen were prepared for insertion in the newspapers of the north west. In addition a news release was prepared for publication in the Chemical Engineering Magazine, which outlined the job openings for chemists and chemical engineers. The response to this news item was very encouraging. The recruiting advertisements mentioned above, were inserted in the Safety Engineering Magazine and the National Safety News for October issues; and those prepared for stenographers, typists, and firemen were inserted in the Spokesman Review and the Spokane Chronicle. 10

general news releases were made to the local newspapers as well as other newspapers in the north west during the month of September. Assistance was also rendered to 2 free lance writers, who were commissioned to do articles for several trade magazines.

Publicity was prepared for the Richland Traffic Safety Division and the National Fire Prevention Week during the past month.

A survey was conducted during the past month to determine the number of posters that will be necessary for exhibiting the Sheldon-Claire posters, which soon will be distributed.

Considerable information on the General Electric Employees' Savings and Stock Bonus Plan was prepared for the Works News during the past month, with sufficient copies of this information prepared for issuance to all Works supervisors.

Four issues of the Hanford Works News were published during September, with the General Electric Savings and Stock Bonus Plan Cartoon inserted in the September 24 issue.

Women's Activities

As a result of the shorthand courses which were promoted by the Women's Activities Group, 6 of the employees, formerly typists at this Works were upgraded to stenographic positions. Beginning class in shorthand was completed September 9 after 13 weeks of training. An additional advance course is being planned due to the number of requests received. This course will be offered for two nights a week from 6 P.M. to 8 P.M., tuition fee being $ 15.

In an effort to fill the needs for stenographers required at this Works, a letter has been prepared addressed to all typists with the thought that possibly some of these typists might be able to qualify as stenographers on taking the necessary tests.

A total of 98 women were given exit interviews during the past month. 65 new women were given orientation during September.

Labor Relations and Wage Rates

A community wage rate survey is being continued in Spokane, Seattle, and Tacoma, Washington, and Portland, Oregon. Standard survey classification data has been developed and is being used in conjunction with the survey. It is anticipated that this survey will be completed the latter part of October.

Employee and Community Relations Division

Non-exempt employee job classification manuals have been completed and released for limited distribution to supervision for their use relative to the new classification system effective July 19, 1948.

Considerable activity on the part of the Atomic Metal Trades Council in its effort to organize employees at this Works has been experienced during the past month.

A general review of non-exempt classifications in two Divisions is in progress. Also investigation of individual cases in a number of Divisions has been conducted for the purpose of assigning classifications to new jobs and reviewing existing jobs.

STATISTICS

Employment

Number of employees on rolls	8-31-1948	9-30-1948
Exempt	1,730	1,687
Non-Exempt	6,811	6,696
Total	8,541	8,383

ADDITIONS

	Exempt	Non-Exempt	Total
New Hires	13	183	196
Reactivations	1	20	21
Transfers from other Works	1	0	1
Net Additions	15	203	218
Payroll Exchanges	9*	5**	14
Gross Additions	24	208	232

* Transferred from Weekly Salary Roll
** Transferred from Monthly Salary Roll

Employee and Community Relations Division

TERMINATIONS

	Exempt	Non-Exempt	Total
Actual Terminations	58	289	347
Removals due to extended leaves	4	25	29
Payroll Exchanges	5*	9**	14
Totals	67	323	390

Approximately 87% of all actual terminations were on a voluntary basis and most of these were for the following reasons: (a) To attend school, (b) Another job, (c) To remain or return home.

GENERAL

	8-1948	9-1948
Applicants interviewed	1,361	1,386
Photographs processed	11,041	3,046
Fingerprint impressions taken (in duplicate)	462	562
Procurement letters written	1,133	1, 269

ABSENTEEISM STATISTICS (Weekly Salary Roll)***

	8-1948	9-1948
Male	1.48%	1.56%
Female	2.71%	2.80%
Total Plant Average	1.81%	1.89%

* Transferred to Weekly Salary Roll
** Transferred to Monthly Salary Roll
*** Statistics furnished by Weekly Salary Division

Employee and Community Relations Division

INVESTIGATIONS STATISTICS

	8-1948	9-1948
Cases pending at beginning of month	1,782	1,558
Cases received during the month	425	452
Cases closed	649	552
Cases pending at end of month	1,558	1,458
Number found satisfactory for employment	264	306
Number found unsatisfactory for employment	4	19
Cases closed before investigation completed	15	10
Special investigations conducted	242	21

Compensation and Insurance

Claims

	Reported in September, 1948	Reported in August, 1948	Total since Sept. 1, 194
Workmen's Compensation	129	110	1,064
Liability	13	14	240
Handled for du Pont	0	0	

Compensation Payments Approved (Department of Labor and Industries)

	August, 1948		July, 1948		Total sinc Sept. 1, 19
	No. of Claims	Amount	No. of Claims	Amount	Amount
Medical Aid	13	$ 485.20	5	$ 162.77	$12,223.53
Accident Fund	103	5,375.62	59	3,316.33	85,072.02
Pension	28	1,280.32	28	1,280.32	33,593.42

Liability Payments Approved (Travelers Insurance Company)

Statement returned for correction.

COMMUNITY DIVISIONS

SUMMARY - SEPTEMBER, 1948

ORGANIZATION AND PERSONNEL

Number of employees on roll:	Beg. of Month	End of Month
Community Administration	3	6
Community Accounting	1	3
Community Public Works	600	588
Community Commercial Facilities	19	19
Community Housing	43	42
Community Fire	128	127
Community Patrol	143	156
Community Activities	12	10
	949	951

GENERAL

Appropriations were requested of the Appropriations and Budget Committee to cover work on the following Village construction project:

a. North Commercial Area (Supplemental).
b. Patching of Prefabricated house roofs.

Type A Work Authorities were requested of the Design and Construction Division as follows:

a. Study on multiple versus single unit housing.
b. Extension of steam line to apartment units.

COMMUNITY ACTIVITIES

The Richland Public Schools were officially opened on September 7, 1948, with an enrollment of 5,500 students and 224 teachers.

The swimming pool in the John Dam Park was closed on Monday, September 6, 1948.

Several seasonal organizations resumed activities for the fall and winter season, among which were the Meistersingers and Richland Players.

COMMUNITY FIRE

Thirty-three fire alarms were answered during the month, 19 in Richland and 14 in North Richland. These fires resulted in losses of $234.93 to the project and $4,828.80 in personal property.

COMMUNITY HOUSING

One hundred and two ranch type houses were completed and accepted for allocation during the month. Also, during this period 223 house leases were authorized. Requests for alteration permits were granted to 101 tenants for miscellaneous, minor alterations in Village houses.

COMMUNITY COMMERCIAL FACILITIES

Construction was started on a furniture store building on George Washington Way, immediately north of the Villager Office. This building is being built on a ground rental basis by the business operators.

Similar contracts have been made for a printing plant and food store.

A small decrease in sales of basic items was evident during September, 1948.

COMMUNITY PATROL

Eighty-two individuals were arrested and processed through the Richland Jail.

$4,169.75 in fines were assessed during the month.

COMMUNITY PUBLIC WORKS

The oil fired boilers furnishing heat to the apartments were placed in operation.

Ninety-four renovations of vacated houses were completed during the month of September.

Six Univeyor trucks have been received and are in operation. The use of these trucks has increased the efficiency of coal handling three hundred per cent.

COMMUNITY DIVISIONS
PUBLIC WORKS DIVISION
SEPTEMBER, 1948

ORGANIZATION & PERSONNEL

Number of employees on payroll:	Exempt	Non-exempt	Total
August 31, 1948	59	541	600
September 30, 1948	63	525	588

During the month of September the following personnel changes were made:

New employees:		9
Transfers: From Design	4	1
" Construction		1
" Power		1
" Transportation		1
To Transportation		1
Leaves		2
Returned from sick leave		2
Terminations		28

The large number of terminations was due to lawn tenders and temporary laborers returning to school.

GENERAL

The oil fired boilers at the apartment houses were put into operation by the construction division the first part of the month. A work authority request has been submitted to the design division to prepare a project for the installation of a new steam line to the apartment houses so that the temporary boilers may be disconnected. This is desirable because of the excessive cost involved.

Two new groups have been added to the Community Engineering Section, to be designated as Design Section, and Public Grounds, Streets, & Buildings Section.

Office space was made available in the upper west wing of the 761 building for part of the Engineering Section.

Contacts were made with several engineering firms to conduct a survey on garbage and trash disposal for the village. The firm of Greeley & Hansen, of Chicago, Illinois, was selected and approval has been granted by the Atomic Energy Commission to make this study.

ENGINEERING SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
August 31, 1948	7	7	14
September 30, 1948	11	8	19

Community Public Works Division

ENGINEERING SECTION (Continued)

Personnel changes made during the month of September:

Transfers: From Design Division 4 exempt, 1 non-exempt.

These men are necessary due to the expansion of facility sponsored construction, project and specification writing, and road and ground supervision.

General

The normal duties of inspection, scheduling, and follow-up consultation and general planning were performed during the month. Contacts with members of the Construction Group were continued relative to Richland houses, facilities, and dormitories, and necessary liaison work was performed.

Items of Interest

Fee schedules which have been prepared, have been given official approval and collections will be made as outlined by the Community Accounting Division when building permits are issued.

A total of 14 back charge estimates were prepared during the month.

Proposals are now being considered requesting the assignment of ground space and preliminary approval for the following:

A. Redeemer Lutheran Church of Richland.
B. West Side United Protestant Church of Richland
C. Furniture Store - Davis
D. Automobile Dealer - Cahoon.

Drawings and specifications were approved for the following alterations and new building construction.

A. Pennywise Drug Store - modernization of store front.
B. Richland Electric and Furniture, Inc.

Building permits were issued and fees collected for construction of the following:

A. Richland Electric and Furniture, Inc.

Facility Sponsored Construction approximates the following schedule:

Facility	Construction Started	Status % Complete	Estimated Comp. Date.
Jewelry Store - Bldg. 92-X	7-22-48	95	10-15-48
Klopfenstein's Addition	8-23-48	70	10-15-48
Diamond 5 & 10¢ Store	9-20-48	40	10-15-48
Richland Elect. & Furn. Inc.	9-27-48	2	12- 1-48
Rainbow Service Station	9-22-48	3	10-29-48

Community Public Works Division

ENGINEERING SECTION (Continued)

Technical information and instructions were furnished prospective facility operators prior to preparation of Invitation to Bid for the following types of occupancy:

Facility	Location
Bakery	Light Industrial Area
Furniture & Awning Repair Shop	" " "
Electrical Appliance Store	" " "

Technical information and instructions were furnished the following churches and clubs prior to preparation of detailed working drawings and specifications:

A. South Side United Protestant Church

Work is now progressing on the installation of additional utilities and the rearrangement and addition of equipment necessary to expand production at the Richland Laundry. Estimated completion date is October 18, 1948.

Tentative approval was given to the C. C. Anderson proposal to make minor alterations on present display windows.

Regular field inspections were made in compliance with building permit requirements.

Necessary contact engineer functions were performed with interested Project Divisions as well as liaison with operators, contractors, and architects concerned with facility sponsored construction in Richland.

Assistance was furnished to divisions of the public works organization in the obtaining of materials and equipment and also maintaining the necessary control records.

[redacted]

Community Public Works Division

ENGINEERING SECTION (Continued)

Many jobs were coordinated in connection with Y and Y-1 Type houses with the Construction Division as adjusting windows, furnaces, repairing tile flooring, etc.

70 inspection were made for the Housing Division during the month of September.

A. C. Grant has completed sidewalks for 259 precut, U and V type houses during the month of September. Total completed - 415.

14 electrical inspections were made as requested by the Housing Division.

Project proposal for 500 additional new housing units, to be known as the fourth addition to housing, was completed for presentation to AEC for comments prior to obtaining approval signatures.

Plans were revised and a cost estimate was completed for partition alterations in the southeast portion of the Municipal Building.

A project proposal for the installation of hour wall meters on all housing units in Richland Village was started and is 25% complete.

Plans and cost estimate for partition alterations on the second floor of the west wing of 761 building was completed. Work order was issued and job is 70% complete.

Plans for the alteration to rooms 101, 103, and 105 of dormitory W-9, together with cost estimate is 75% complete.

The project proposal for the installation of pits outside of men's and women's dormitories to facilitate maintenance of steam service was started and is 10% complete.

A cost study for alterations and relocation of approximately 4000 lineal feet of irrigation canal from Wright Avenue north to provide a more satisfactory housing arrangement was completed Sept. 21, 1948.

A cost estimate for installation of water service from city mains to Tract Houses K-784, 787, 744, 748 and 718 was completed Sept. 29, for presentation to the A&B Committee. The project for subject water service is 35% complete.

Requisitions handled during the month were increased by reason of addition of sections of the Power and Electrical Divisions to Public Works Division.

Publishing of "Material Status Reports" for the various sections of the Division was begun during the month. This report was initiated to give the section heads the current status of orders for materials being purchased off the plant.

Information on price and availibility of materials is being provided for the Design Section, to aid them in planning new work in the Richland Area.

Community Public Works Division

ENGINEERING SECTION (Continued)

The contractor for the parking compounds has moved in and started work in the southeast part of town. The contract is about 25% complete.

An average of 40 man hours per day has been spent on street and sidewalk maintenance. This is not nearly enough to keep up the present maintenance, consequently only the most hazardous spots are being repaired.

A final inspection was held with construction and the AEC on the by-pass highway. There were only a few small exceptions, which are being corrected.

The following field surveys were made during the month.

1. Two large areas south of Jefferson School to determine what additional work is necessary for drainage.
2. Area west of Pennywise Drug to eliminate drainage ditch down middle of that area.
3. Additional parking at Hunt Point Loop, parking lot north of Dorm W-14, parking lot north of 761 and 762 buildings, and north of Swift.
4. Scale pit at coal yard.
5. Set building stakes for Wilson Furniture Store.

Accomplishment of work done by grass seeding contractor under Project C-134 is as follows:

1. Inner block areas lying between Duportail on the south, Thayer, and Perkins on the East, Symons on the north and Wright on the west.
2. Apartment house area, area around buildings 761 and 762, and area in Swift Blvd.
3. Inner block areas north of Abbott between Geo. Washington Way and Duane are in process of preparation for seeding.
4. Inner blocks between Perkins and Thayer from Swift to Van Giesen and in process of preparation for seeding.

The apartment house area, blocks #33, 34, 35, 36, 37, 38, 39, 40, 76 and 81, as shown on village map accompanying contract, have had final inspection and acceptance.

Tree plant progress to date is as follows:

1. Three large trees from "C" area were saved and moved to the Jefferson School
2. Two small trees were returned to nursery from the path of the steam line to the schools.
3. Seven trees were removed to make way for the hardware store addition.
4. 800 sq. yards of sod were salvaged from the new furniture site; some to be used at Castleberry's and some to be taken to the football field.

Community Public Works Division

UTILITIES SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
August 31, 1948	9	61	70
September 30, 1948	9	63	72

New employees: 2 Operators "C"

General

Steam Facilities:

Due to increase in steam demand, a second boiler was placed in operation at 784 building on Sept. 16. Boilers #2 and 3 are in operation. An outside inspector from Travelers Insurance Company inspected boilers #1 and 4 on Sept. 29, with formal report to be submitted. However initial verbal report indicates that boiler drums are satisfactory at pressures being used. The #1 boiler is available for use, the #4 boiler being overhauled. Continual trouble has been had with ash ejector plugging up.

Of the two acid pumps, one has been locked out as unsuitable for use. The other is also in bad condition and replacement units have been ordered for both pumps.

The two boilers at 1131 bus garage were overhauled and one boiler placed in operation on Sept. 29 for start of the heating season at this location.

Domestic Water.

It was noted during the hotter days of the first part of the month that hourly peak flow rates were greater than the existing wells can produce. This indicates that more water than is now available will be needed by the summer of 1949 to serve for the present consumers plus the new housing being built.

Service to the swimming pool was discontinued on Sept. 6.

Several connections to distribution system to serve portions of "F" Area have been made. The new main on Stevens Road from Newcomer to Torbett was placed in service on August 27. This given a second connection between North Richland wells and Richland distribution system. This main also has a 20" connection to "F" Area.

An orifice has been installed at the North Richland booster pump house discharge line, but meter from same is not yet in service.

Some 350 ft. of 14" main on Lee and Stevens west to the railroad is being replaced. The 12" main on west side of Columbia high school was relayed in a deeper location, using new pipe.

Community Public Works Division

UTILITIES SECTION (Continued)

Irrigation Water.

Normal operations. A considerable amount of work in repairing breaks by Seeding Contractor's operation and in rehabilitating long unused outlets. Orifice flanges have been placed on each of the six pump house discharges but meters have not been installed.

Effective September 28 irrigation systems are being operated only during the daylight hours.

Sewage System.

A new constant temperature box has been received, allowing resumption of making B.O.D. tests.

A new Dorr Mixer was installed in the digester and placed in service on Sept. 2. Mixer has been operated in an experimental manner to break up blanket and allow normal digester operation. Results to date have been progressively better and it is believed that a regular operating procedure will soon be arrived at. Considerable repairs were made on the digester heating coils.

On Sept. 9 the effluent from the North Richland Imhoff tank was introduced into the Richland System. This has cut down the settling times in the clarifiers and has increased the B coli count, B.O.D. count and settleable solids in the plant effluent, but it is believed that notwithstanding these objectionable features, this system of disposing of North Richland effluent is better than previously practiced.

Pasco Warehouse Area.

Work has been completed at the pump house in moving gasoline tanks to the outside of the building and on rerunning pump engine exhaust headers.

Overhaul work has been done on transportation garage boiler and on the furnaces in the warehouses. This last mentioned facility has been put in partial service as required.

General.

Inspection trips have been made to cover certain new items of sewer and water lines. Exceptions have been found in all cases and no formal acceptance has been signed on any new facility to date.

MAINTENANCE SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
August 31, 1948	26	306	332
September 30, 1948	26	310	336

Community Public Works Division

MAINTENANCE SECTION (Continued)

During the month the following personnel changes were made:

New Employees:	2
Transfers - From Construction	1
: Labor Section	1
Terminations	2
Returned from sick leave	2

General

A total of 94 renovations were completed during the month of September. 34 were on hand as of the last day of the month. The interiors of 56 bath rooms were painted.

The exterior painting of 6 tract houses was completed.

Repairs of flood damage to doors, windows, walls, etc. in the houses on Haines and Gowen streets are approximately 85% complete.

12 bath tub replacements were completed in conventional houses.

Installation of asbestos shingles on the hospital roof is 90% complete. Completion date is expected to be Oct. 8.

Crews working on the above job, when completed, will be transferred to finish the roofing of #5 and 6 warehouses which are already 85% complete.

Improvement was made in the hot water supply in the cafeteria by the installation of larger heating coils in the water tank.

The installation of the steam heating system and radiators in 1131 area hutments is 25% complete.

An additional steam water heating tank was installed at the Thrifty Drug store to handle their increased requirements for 180 degree water.

Portions of the irrigation system on project C-146 were completed on Williams and on Long and Swift.

Tract House L-859, project No. C-245, is 95% complete. The house will be ready for occupancy on Oct. 15th. Exterior painting will be finished and project completed about October 29.

The insulation of steam and condensate lines under the 760 building is 30% complete.

Boilers No. 2 and 4 were opened and the baffles and scale removed preparatory to a visit here by a boiler inspector from the Hartford Insurance Company. Work required will be determined from the report and will be performed as quickly as possible in order to return these two boilers to service.

Community Public Works Division

MAINTENANCE SECTION (Continued)

Linoleum was replaced on kitchen work tables in 109 houses.

The installation of oil filters in those homes built by A&J is now 100% complete.

With the exception of that part of school heating system being revised by construction forces, we are 100% complete with the mechanical cleaning, filter replacement, and steam system repairs of all the schools.

Project 229, 722-H building, is completed with the exception of a few items in sheet metal work and ventilation. Overall job completion is estimated to be 90%.

Cold weather, with resulting start up of newly installed oil furnaces in the M, Q, R, & S type and precut houses, brought about 100 calls for repair service on the week end of Sept. 25 and 26. The volume of calls is considerably less now, and attention is being given to reduce failures and to improve our service in every way possible.

LABOR SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-Exempt	Total
August 31, 1948	14	165	179
September 30, 1948	14	142	156

During the month the following personnel changes were made:

New Employees		6
Transfers:	From Transportation	2
	To Transportation	1
	" Power	1
	" Maintenance Section	1
Terminations:	Temporary Laborers	22
	Laborers	3
	Servicemen	1
Leaves		2

General

Necessary routine work in connection with the care of the nursery, project No. C-134, was carried on throughout the month, including the moving and replacing of trees and shrubs from new housing areas in the way of the sub-contractor.

Grading and leveling of Duane St. shelter belt has started.

Garbage and trash pick up continued during the month on a normal five day basis with the exception of food service stores, requiring seven days per week. New ranch type homes are being included in the routes.

Community Public Works Division

LABOR SECTION (Continued)

Sawing and stockpiling of kindling for village tenants was started.

Project orchards were maintained as usual.

Village grounds and tree maintenance continued as usual, consisting of reseeding and repair work to public areas, and pruning and cutting out of dead wood from trees in the village. Work was started on the reseeding of John Dam park.

A total of 21 personal moves were accomplished.

90 refrigerators and 90 electric ranges were installed in new homes.

2,850 pounds of grass seed were mixed.

Fall repair on mower equipment has commenced although the temporary set-up on the repair shop is a handicap.

Two to four men have been busy on excavation work for the Maint. Section.

All hose and sprinklers are to be repaired, painted and stamped this fall for the purpose of identification.

Routine patrol and maintenance of the main canal and laterals have been normal.

6 Conveyor trucks have been received for coal handling. Several alterations are being made to insure safer and more efficient operation. The use of this equipment has made it possible to deliver approximately 25 tons per day per man as against 8 tons per day per man by using the previous method of coal distribution.

Fuel Inventory

Coal:	
On hand 9-1-48	2,316,900
Received during the month	11,765,200
Delivered to other areas	5,561,600
Delivered to village houses	4,648,000
On hand end of the month	3,872,500
Fuel Oil:	
Gallons on hand 9-1-48	7,598
Gallons received during September	27,801
Gallons delivered to village houses	3,474
Gallons delivered to construction companies	557
Gallons on hand 9-30-48	31,368

COMMUNITY DIVISION

COMMUNITY COMMERCIAL FACILITIES DIVISION

September 1948

ORGANIZATION AND PERSONNEL	SEPTEMBER
Number of employees on payroll	
Beginning of month	18
End of month	19
Net increase	1

COMMERCIAL FACILITIES

The following figures indicate trends in commercial activities as related to various basic items:

	AUGUST	SEPTEMBER
Cafeteria meal customers	131,280	114,491
Percent of room-day occupancy - Desert Inn	95%	92%
Gallons of ice cream sold	22,501	10,652
Carnation milk and cream deliveries	92,765	96,609
Darigold milk deliveries (wholesale only)	6,821	6,655
Theater customer count	54,830	49,458
Gallons of gasoline sold	218,750	212,638

Total number of commercial facility operators' employees, full and part time, as of September 30, 1948, is 1121.

Richland Thrifty Drug has completed installation of new counters, display stands and check stands, at operator's expense.

Desert Inn has installed, at operator's expense, a new neon sign on George Washington Way. Authorization was also granted to provide a storeroom at operator's expense, under hotel north wing.

Campbell's Food Store was authorized to provide a bottle storage room at rear of grocery building, at operator's expense.

C. C. Anderson Company has completed an interior painting and re-decorating program. A portion of the materials were supplied by the Project, and the labor and other materials at the operator's expense.

Richland Branch, Seattle-First National Bank was authorized to provide two additional Teller Windows and to relocate doorway to Conference Room, at operator's expense.

Construction of a new building front and modern display windows has been started at Diamond's 5¢ to $1.00 Store, at operator's expense.

Expansion and modernization construction has started at True's Rainbow Service Station, at operator's Expense.

Progressive Cafeteria is repainting some of the equipment with Project supplied material, while labor is at operator's expense.

All Commercial Facilities have been contacted by letter, requesting full cooperation during Fire Prevention Week, October 3 to 9, 1948. Self-Inspection forms were also supplied as a service to the operators.

Construction has started on the new Richland Electric and Furniture, Inc. building on George Washington Way. This building is being constructed at operator's expense on a ground license.

CONTRACTS AND NEGOTIATIONS

A License Agreement dated June 14, 1948, was entered into by and between General Electric Company and Clifford A. Brenner and James P. Milnor, covering construction and operation of a Fountain Lunch in North Richland.

A Supplemental Agreement, dated September 11, 1948, was entered into by and between General Electric Company and Vance Properties, Inc., covering establishment of a two-chair barber shop in the north side of the lobby of the Desert Inn.

A Supplemental Agreement dated September 11, 1948, was entered into by and between General Electric Company and Vance Properties, Inc., covering establishment of a fur sales shop in the presently unused linen storage room at the south side of the lobby of the Desert Inn.

A temporary agreement dated September 20, 1948, was entered into by and between General Electric Company and Chalmer D. Joseph and Hugh S. Cannon, authorizing the installation and operation, on a temporary basis, of one coin-operated washing machine in Dormitory W-7 and one in Dormitory M-8, Richland, Washington.

An Operating Agreement dated April 13, 1948, was entered into by and between General Electric Company and Vance Properties, Inc., covering the operation of the hotel.

A Supplemental Agreement dated February 1, 1948, was entered into by and between General Electric Company and Garmo's Food Store "A", covering the operation of the bakery department and provides for a change in the term provisions of the basic contract.

A printing plant location was awarded to Mr. Robert M. Frayn, Seattle, Washington, who will construct his own building in Richland.

A food store location was awarded to Carlston and Hansen, a partnership, Seattle, Washington, which will construct its own building in Richland.

The Laundry and Dry Cleaning Pick-Up Station at North Richland was awarded to Mr. John Lienhard of Hermiston, Oregon.

The Optometrist's Office and Watch Repair Shop was awarded to Dr. Byron Friedman of Walla Walla, Wn. and Andrew Cox, Selah, Washington.

Approval was given Max Walton, operator of Columbia Service Company, to conduct business activities in space in the multiple business building in North Richland.

Invitations to Bid were mailed on the following prospective facilities:

Milk and Ice Cream Depot - Richland
Fountain Lunch - Richland
Bakery - Richland
Shoe Repair - North Richland

Invitations to Bid on additional business sites are in course of preparation and will be mailed as rapidly as site preparation progresses.

Bids were received on the following facilities and the operators will be selected in the near future:

Shoe Repair - North Richland
Fountain Lunch - Richland
General Repair Garage - Richland
Drug Store - Richland
Service Station - Richland

INVENTORY AND PROPERTY

The annual 1948 inventories of Government-owned equipment at the following locations were completed:

Villagers, Inc. - Bldg. 89-X
Library - Bldg. 85-X

REQUESTS FOR ESTABLISHMENT OF BUSINESSES IN VILLAGE

A number of individuals expressed a desire during the month to establish and operate businesses in Richland. The types of establishments desired are shown in the following list:

Auto Accessories
Auto Agency
Automotive Radiator Repair and Automotive Glass Service
Auto Top & Upholstery Shop
Bakery
Barber Shop
Beauty Salon
Beverage Store
Bicycle Repairs
Book Store
Cold Storage Plant
Cabinet Shop
Drive-In Sandwich Shop
Drive-In Restaurant
Drugstore
Dry Goods Store
Delicatessen
Disinfecting & Exterminating Ser.
Dry Cleaning Plant
Electrical Appliance Shop
Electrical Contracting & Repair Shop

Flower Shop
Food Store
Fresh Fruit & Vegetable Stand
Fuel Oil Delivery
Funeral Home
Furniture Store
Retailing frozen foods, meats & bakery products
Garage & service station
Gift Shop
General Merchandise
Hardware Store
Ice Skating Rink
Interior Decorating Shop
Job Printing
Jewelry Store
Jewelry Store and Watch Repairing
Lumber & Building Supply Co.
Music Store
Malt & Ice Cream Shop
Miniature Golf Course
Men's Clothing Store
Meat Market
Meat Distributing Plant
Men & Boy's Wear
Neon Signs Sales & Service
Outdoor Advertising
Pest Control Service
Portrait Studio
Recreation Hall
Restaurant
Radio Station
Roller Skating Rink
Refrigeration & Air Conditioning Ser
Service Station
Sport & Camera Shop
Sporting Goods Store
Self-service Laundry
Sell and Service Sewing Machines
Shoe Repair
Stationery Store
Specialty Shop
Shipping in frozen homogenized milk
Tavern
Tailoring
Theater
Upholstery Shop
Watchmaking Shop
Women's Wear
Women's Accessory Shop
Warehouse & Cold Storage
Variety Shop

Written permission was granted to fourteen (14) Village tenants to conduct the following part-time businesses in their homes:

Sell Kirby Vacuum Cleaners
Sell Christmas Cards (3)
Sell "Real Silk" hosiery
Take orders for "Reader's Digest"
Sell "Childcraft Books"
Conduct an accounting and tax service
Sell antiques
Take orders for clothing made by J. B. Simpson, Inc.
Sell stamps and stamp supplies
Do sewing and alterations
Sell "Wilknit" hosiery
Sell shoes for the J. C. Moench Shoe Co., Paragon Shoe Co., Tannen Shoe Co. and Charles Chester Shoe Co.

Written permission was granted fourteen (14) individuals living outside of Richland to contact Village tenants on an appointment basis on the following business matters:

Sell "American Educator Encyclopedia"
Sell "Guardian Service" cooking utensils
Represent Northwestern Mutual Life Insurance Co.
Represent Northwestern Insurance Co. and General Insurance Co.

Take photographs
Take orders for clothing made by "Custom Made of California".
Sell "Rexair" home appliances
Represent Dunning Insurance Co.
Represent Massachusetts Mutual Life Insurance Co.
Represent Reserve Life Insurance Company
Sell Encyclopedias (3)
Sell Stanley Products

COMMUNITY DIVISIONS

COMMUNITY HOUSING DIVISION

September, 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	September
Beginning of month	43
End of month	42
Net decrease	1

RICHLAND HOUSING

Housing Utilization as of Month End

Houses Occupied by Family Groups	Conventional	Block	T	Pre-Cut	Ranch	Prefab	Apts.	Tract	Total
Operations	2198	264		371	71	1095	65	36	4100
Facilities	142	3		17	2	120	1	10	295
Government	101	23		15	2	43	2	8	194
Kellex Corporation		6		6			1		13
Morrison-Knudsen	4			1			1		6
Atkinson-Jones	22	25		21		17	2		87
J. Gordon Turnbull		2		3		10			15
Giffels & Vallet	1	1		1		9			12
J. A. Terteling & Sons			10	2		2			14
McNeil Construction Co.	2			2		4			8
Newberry Neon Electric		2		2					4
Urban, Smythe & Warren	2	2		1			1		6
Graysport Construction				1				8	9
Newport-Kern Kibbe								1	1
Vernita Orchards								5	5
TOTAL HOUSES OCCUPIED	2472	328	10	443	75	1300	73	*68	4769
Houses utilized for special purp.								1	1
Houses assigned (leases written)	5	3		4	19	6		1	38
Houses assigned -awaiting tenants	23	2		3	3	26	1	1	59
Government houses - unassigned								**35	35
TOTAL HOUSES	2500	333	10	450	97	1332	74	106	4902

* Occupancy figure includes 4 houses occupied by Bonnerville Power in Priest Rapids and White Bluffs.

** This includes 29 Tract Houses boarded up for salvage.

1.

COMMUNITY HOUSING DIVISION

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2475	51	54	2472	Minus 3
Block Type	327	6	5	328	Plus 1
T Type	1	10	0	10	Plus 10
Precut Type	443	17	17	443	None
Ranch Type	3	72		75	Plus 72
Prefab Type	1307	63	70	1300	Minus 7
Apartments	71	4	2	73	Plus 2
Tract	70		2	68	Minus 2
Total	4696	223	150	4769	Plus 73

Dormitory Statistics

Dormitories		Occupants	Vacancies	Total Beds
Men - Occupied	14	535	* 21	556
Men - Unoccupied				
Women - Occupied	14	578	* 14	592
Women - Unoccupied				

Women's Dormitories Occupied By:

G. E. Office	1
Education	1
Apartment	1
	31

* This includes 6 beds in W-9 and 10 beds in M-12 not in use. Space in W-9 is being used for Supply Rooms and Dormitory Offices. Space in M-12 is being used for F. B. I. Offices.

GENERAL

The Q house located at 1210 Gowen Place which was moved during the flood has been located on its former site and is now ready for allocation.

One hundred and two Nettleton Sound Ranch type houses were accepted this month: ninety seven "Y" and five "Z" houses a total of 111 accepted to date.

Tract house M-988 was leased this month.

The last three "T" houses, built by J. A. Terteling and Sons were accepted and occupied this month. Rental was established at forty dollars and all ten houses were leased.

TENANT RELATIONS

The processing of patrol orders and work orders during the month is as follows:

	Incomplete 8-30-48	Issued Dur. September	Incomplete 9-30-48	Issued Prev. Month
Patrol Orders - Days	1489	3347	1574	3165
Maintenance & Electrical				
Patrol (off shift elect.)	0	649	0	434
Patrol (off shift Maint.)	2	268	8	187
Regular work orders	191	196	297	35
Backcharge Tenant Relations orders	24	77	34	72

61 Scrap Lumber Permits were issued during the month of September as compared to 62 during the previous month.
52 Conventional type dwellings were painted by Project forces as compared to 31 during the previous month. (Interior)
14 Tract Houses were painted during the month of September. (Exterior)
146 Grass Seed Permits were issued, which amounted to 2,376 pounds of seed as compared to 150 Grass Seed Permits amounting to 4,442 pounds for the previous month.
296 Home Fire Inspections were reported and processed. 574 homes were visited. 471 Home Fire Inspections were made during the previous month and 822 homes were visited.

Items of Interest	Sept. 1948	Outstanding Sept. 1948	Outstanding Prev. Month
1. Window Glass Replacement Requests (all types)	96	139	111
2. Sink Linoleum Replacement Requests	60	93	80
3. Bathroom Painting Requests		30	51
4. Kitchen & bathroom faucets in need of repair and exchange	89	323	328
5. Screen Door Requests	28	43	32
6. Miscellaneous Requests	425	976	938

Alteration Permits issued to tenants during the month of September 1948, amounted to 98 as compared to 136 issued during the month of August. Permits issued during September consisted of the following:

Air Conditioners (conventional houses)	31
Air Conditioners (precut)	1
Refinish floors	5
Basement excavation	10

Install automatic washer, dryers	16
Install partitions in basements	6
Install 20 amp circuit in basements	2
Paint exterior of prefab	2
Reverse position of range and refrigerator	1
Erect lattice-work	1
Install disposal unit in kitchen sink	1
Construct door on bathroom closet	1
Construct shelves in bedroom	1
Construct shelves in hall closet	1
Erect outdoor fireplace	1
Erect patio in rear of house	1
Install partition in kitchen	1
Raise threshold - cut off door	1
Relocation of cold air duct in living room	1
Install glass in sun porch	1
Erect storage shed	1
Install back door in prefab	1
Install rod in closet	1
Erect concrete floors in basement	1
Install darkroom in basement	1
Remove and reinstall laundry tubs	1
Remove blocks from retaining wall in basement	1
Install basement window	1
Turn hot water heater 1/8 of a turn	1
Sand floors of Jefferson school hutment	1
Install bath tub	1
Install new linoleum	1
Install tile in bathroom	1
ALTERATIONS FOR MONTH OF SEPTEMBER TOTAL	101

Inspection Information

580 inspections were made during the month. A break-down of the inspections shows the following distribution:

a. 172 Grass Seed Inspections
b. 61 Lot Line Inspections
c. 79 Top Soil Inspections
d. 10 Bath Tub Caulking Inspections
e. 10 Floor Board Inspections
f. 21 Sidewalk Inspections
g. 8 Leaking Basement Inspections
h. 35 Linoleum Inspections
i. 3 Wall Inspections
j. 181 Miscellaneous Inspections

COMMUNITY DIVISIONS REPORT

COMMUNITY FIRE DIVISION

September, 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	September
Beginning of month	128
End of month	127
Terminations	3
New Employees	2

	Richland	North Richland
Response to alarms	19	14
Fire Loss (Estimated)		
Hanford Works	$50.65	$184.28
Personal	2003.80*	2825.00
Investigations of Minor Fires and Incidents	12	8
Inspections made (buildings)	365	
Extinguishers		
Inspected	616	
Installed	28	
Recharged	17	
Removed	4	
Safety Meetings	21	7
Outside Drills	56	63
Inside Drills	73	38
Fire Alarm Boxes Tested	132	
Fire Hose Test, 2 1/2 inch	1000 ft.	
1 1/2 inch	300 ft.	

* $350.00 loss, automobile outside city limits, on reservation.
$800.00 loss, automobile, off reservation.
$853.80 loss, furniture van, fire originated off reservation, extinguished on reservation.

COMMUNITY DIVISIONS

COMMUNITY PATROL

SEPTEMBER 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:		September
Beginning of month		143
End of month		156
Net Increase for Month		13
Reason: New Hires	15	
Less V. T. Personal	2	
Net Increase	13	

GENERAL

On September 2, 1948, one patrolman was stationed at each of the following intersections: Stevens Drive and Lee Boulevard, Thayer Drive and Lee Boulevard between the hours of 6 P. M. and 8 P. M. during the trail run of the Soap Box Derby. Barricades were placed at these intersections to assist patrolmen in routing traffic.

Effective September 3, 1948, and until further notice, Patrol began making hourly checks of the Labor Yard during the hours from 4:45 P. M. to 8 A. M. Large quantities of automotive supplies are stored there, and the fence, damaged by the recent flood, had not been replaced.

Periodic checks of the Pipe Yard were continued during the month. Semihourly checks of the Pipe Yard were discontinued on September 4, 1948.

It was necessary for Patrol to work a number of men overtime on September 4, 5, and 6 during the Atomic Frontier Days Celebration to handle the increased traffic load on Village streets and maintain efficient police protection.

On September 6, 1948, the parade route was barricaded to control auto traffic while the parade was in progress. This was to accommodate the Atomic Frontier Days parade, which was held at 9 A. M. on this date. Additional patrolmen were posted along the route during this time. Various temporary posts were established during the hours of the parade.

A patrolman was stationed daily at the intersection of Stevens and Williams from September 10 to September 30, 1948, to direct traffic while school children were being dismissed for lunch and also at the close of school at 3:15 P. M. Traffic at this intersection was controlled in this manner from 11:45 A. M. to 12:15 P. M., 12:50 P. M. to 1:00 P. M., and again from 3:15 P. M. to 3:35 P. M. daily. This was necessary due to the excavations being made along Stevens Drive near the school and because of the above normal load of traffic on Stevens during this time.

Community Patrol Division - Continued

On September 11, 1948, Patrol was advised of the desire of the local Post of the American Legion to again sponsor the School Boy Patrol. A reply commending them for their offer of assistance was directed to J. O. Hawkins, Adjutant, on September 16. Arrangements were made to have a member of Patrol contact the Legion representative and plan a program for the current year.

On September 14, 1948, Patrol directed a letter to Mr. J. B. Wilcox, Special Agent in Charge, Federal Bureau of Investigation, Seattle, Washington, requesting a records survey be made of our records requirements for the Community Patrol Division. On September 29 we were advised by Mr. Wilcox that such a sruvey will be made as soon as a qualified agent is available.

On September 17, 1948, the Patrol was requested by the Construction Safety Division to report all movements of motorized cranes traveling over Village streets and highways without an escort. This information was to be forwarded to M. H. Cooper, Safety Superintendent, Construction Division.

Four men were provided the local school district during football games on September 17 and 24, 1948, at the request of the Community Activities Division. It was understood that the Company would be reimbursed by the School District for the services of these men.

The Patrol motor boat and one man were loaned to outside agencies during their search for a body in the Columbia River near Sacajawea Park on September 21 and 22, 1948.

On September 22, 1948, a requisition was placed with the Purchasing Department for new uniforms for the Village Patrol. These uniforms are to be different from those now in use and will distinguish the Village Patrol from those assigned to the Plant Patrol.

On September 23, 1948, Cliff Bergere, famous Indianapolis race driver, was in Richland. He lectured and showed movies of the Indianapolis Speed Race to students at Columbia High School. He also spoke before the Kiwanis Club, gave a radio broadcast over KPKW, and repeated the lecture and show for adults at Sacajawea School. The show was given under the sponsorship of the Community Patrol.

Effective September 25, 1948, radio stations WGMB 12 and 14, which are assigned to the Community Patrol Division, began logging and issuing their own "Item Broadcasts" for the attention of their own units. This function was formerly performed by the master station WGMB, which is controlled by the Security Plant Patrol. The procedure was changed in order to maintain a better control and follow-up of Items originating with this division of Patrol.

Effective September 27, 1948, more frequent checks were made of the warehouse area, since there was no watchman on duty.

Effective September 27, 1948, the Community Patrol Division returned to winter uniforms on all shifts.

Effective September 28, 1948, Patrol was advised that "No Hunting" would be permitted within the confines of the Hanford Works Project. This restriction, it was explained, was being placed in effect due to the construction program now in progress throughout the area.

Effective September 30, 1948, a patrolman was stationed at the intersection of Williams and Wright from 8:30 A. M. to 9 A. M., 11:45 A. M. to 12:05 P. M., and from 3:15 P. M. to 3:35 P. M. to assist school children in crossing the streets. This order was to remain in effect until such time as the streets in the vicinity of the Spaulding School are properly zoned and cross walks painted.

On September 30, 1948, a quantity of police training manuals were received by Patrol. These manuals outline proper procedure in the apprehension of speeders. Copies were distributed to all members of Patrol, and patrolmen were instructed in their use.

Periodic checks of the A & J Excavation Pit at Lacy and McCullen Road were continued through September with the patrolmen being on the alert for petit larceny during the nocturnal hours, Monday through Friday, and at all hours on Saturday and Sunday.

A dormitory to dormitory check with the House Mother was made daily on the graveyard shift and twice on Saturdays.

Seventy-eight gun registrations were taken by Patrol during the month of September.

The Patrol motor boat was checked on the day shift once each week throughout the month.

At the request of the Kennewick Chief of Police, six men were furnished to his organization to handle traffic problems during the Grape Festival there. The men used on this assignment were chosen from off shift personnel, and the men were paid by the City of Kennewick. No experse was incurred by the Company as a result of this assignment.

Traffic control posts manned, in addition to those at intersections near Sacajawea and Spaulding schools, were at the intersections of Lee and George Washington Way from 4:40 P. M. to 5:10 P. M., Lee and Thayer Drive from 4:30 P. M. to 4:45 P. M., Stevens and Swift from 7:45 A. M. to 8:10 A. M. and 4:40 P. M. to 5:10 P. M., Swift and Goethals from 7:45 A. M. to 8:10 A. M. and 4:40 P. M. to 5:10. P. M., Knight and Goethals from 7:45 A. M. to 8:10 A. M. and 4:40 P. M. to 5:10 P. M., Lee and Goethals from 7:45 A. M. to 8:10 A. M. and 4:40 P. M. to 5:10 P. M., and George Washington Way Alternate and Thayer Drive from 4:30 P. M. to 6 P. M.

Periodic checks were made by Motor Patrol during September for persons observed hauling lumber or scrap lumber in individual cars, and permits were requested for same.

Frequent checks were continued during the month of September for children found wading, swimming, etc., in irrigation ditches and other waters.

The Well Area Pump House east of the football field and the Pump House west of the Trailer Lot were again checked frequently during the month of September for children found climbing over the fence and tampering with the machinery.

Occasional checks of the Nettleton Sound construction area were continued throughout the month of September.

Periodic checks of the Nettleton Sound barracks were made during the month of September for gamblers and vagrants.

During the month of September, eighty-two prisoners were processed through the Richland jail.

TRAINING

For the period running from September 1 to 3, no range or classroom assignments were made.

Effective September 7, the regular training program consisted of Range instruction from 8 A. M. to 12 noon and classroom instruction from 1 P. M. to 4 P. M. Classroom instruction was conducted during this period by Asst. Chief A. A. Layman and Capt. W. A. Ziegler. The following subjects were discussed: Handling of Prisoners, Road Blockades, Radio Communications, and the Police and the Public.

Sending of patrolmen to the Range for instruction was suspended for one week from September 27 to October 4, 1948, in order to be able to devote more training time to new men reporting in September.

Sgt. N. F. Neighbors of the North Richland Patrol handled a week's instruction to the new men reporting in September. This training period ran from September 27 to October 4 1948, and consisted of field demonstrations in the following procedures: Search and Seizure, Apprehension of Traffic Violators, and Raid Procedures.

Qualifications in Army "L" Course firing were as follows:

	July	August	September
Unqualified			0%
[redacted]			27%

[redacted]

Advance Training for Community Patrol personnel at the Small Arms Range for the month of September was divided into Field Instruction as follows:

Pistol	1½ Hour
Riot Gun	1 Hour
Machine Gun	1 Hour

RICHLAND AREA (VILLAGE)

	July	August	September
Check on absentees	9	3	6
* Persons assisted	284	274	290
Doors & windows found open in commerical facilities	15	8	5
Lost children found	7	12	17
Ambulance runs	50	62	60
Lost dogs reported	1	3	7
Dog & cat complaints	31	26	40
Persons injured by dogs	8	4	3
Bank escorts & details	36	39	42
Fires investigated	28	19	20
Miscellaneous escorts	52	56	51
Complaints investigated	100	86	70
Missing persons reported	3	3	9
Totals	624	595	620

* Includes: Persons admitted to residence; delivery of messages to residents who have no telephone; relay of messages; handling requests of out of town police; miscellaneous aids to private parties; and opening trailer parking lot for individuals.

RICHLAND AREA (NORTH)

	July	August	September
Check on absentees	13	9	6
* Persons assisted	596	509	464
Doors & windows found open in commerical facilities	31	48	67
Lost children found	3	5	6
Ambulance runs	4	10	22
Lost dogs reported	4	0	0
Dog & cat complaints	7	9	6
Persons injured by dogs	4	1	2
Bank escorts & details	27	49	46
Fires investigated	26	17	13
Miscellaneous escorts	60	86	88
Complaints investigated	133	139	118
Missing persons reported	0	0	1
Totals	788	882	839

* Includes: Admitting persons to their rooms; contacting parties on long distance calls; issuing rooms and bedding; locating persons wanted for various reasons; relaying messages; assisting outside police agencies; assisting other departments; aiding private persons, etc.

TRAFFIC SECTION

Five thousand folders entitled "Are Your Feet Killing You?" were received by the Traffic Division for distribution during the month. Posters received relating to traffic problems were as follows: 100 entitled "Do Your Children Play in the Streets?", 75 entitled "Insist that Your Children Play on the Play Ground", and 25 entitled "Give Pedestrians a Break'.

The month of September showed a slight increase in traffic volume over the streets of Richland as compared to the previous month. Use of the North Richland By-Pass Road increased approximately 19% over the month of August.

Traffic accidents increased from 12 in August to 17 in September.

An analysis report of Richland traffic statistics entered in the National Traffic Control contest was forwarded to the Patrol by the National Safety Council. Richland competed against 335 other cities in the 15,000 to 25,000 population group. The report listed Richland in 35th place. Methods of traffic control and traffic law enforcement practiced by the Richland Patrol rated first in the nation for this population grouping.

The School Boy Patrol in the Villages of Richland and North Richland were organized during the month with a total force of 133 School Boy Patrolmen. The boys are furnished full equipment, and a traffic patrolman is assigned to supervise their activities.

Traffic Safety Methods were given to 12 plant and civic groups during the past month.

TRAFFIC AND OFFENSE STATISTICS

These are presented in separate tables at the end of this departmental report. A comparison of Richland Offense Statistics with outside averages is also presented.

PATROL

A total of 150 Unusual Incident Reports was received, which consisted mainly of Accidents, Traffic Violations, and Intoxications. Regular Traffic Violation Reports, not accompanied by an Unusual Incident Report, are presented in separate tables in the Traffic Statistics attached to this report.

October 1, 1948

COMMUNITY DIVISIONS

COMMUNITY PATROL

Community Marager - E. L. Richmond

- Community Patrol Chief - H. W. Strock
  - Division Supervisor - A. A. Layman
    - Captain - Administration - C. F. Klepper
    - Captain - Crime Prevention - J. S. Johnson
      - Lieutenant - Richland - L. M. Linkous
        - Sergeants - R. L. Jones, A. L. Reil
      - Lieutenant - North Richland - F. J. Schultz
        - Sergeants - O. G. Scheffner, G. A. Mumper, J. F. Banta
    - Captain - Richland - W. A. Ziegler
      - Lieutenants - J. K. Holmes, R. H. Kays, A. F. Novotny, T. J. McGuire
        - Sergeants - M.E. Lowman, C.B. Conrad, D.F. Metz, N.H. Woehle, J.A. Schmitz
    - Captain - North Richland - C. H. Overdahl
      - Lieutenants - W. W. Kerr, H. V. Meigs, G. R. Reese, G. M. Everett
        - Sergeants - R. R. Robertson, W. Cotton, N. F. Neighbors,
    - Captain - Traffic & Accident Investigation - A. E. Barron
      - Lieutenant - J. A. Ramsey, Jr.
      - Lieutenant - J. E. Coleman
        - Sergeants - H. E. Thomas, R. Smertz, W. H. Gordon, F. W. Knauer

PATROL DIVISION REPORT

COMMUNITY

SEPTEMBER 1948

FORCE REPORT		Entire Patrol 8/31/48	Entire Patrol 9/30/48
Patrol			
Patrol Supervisor		1	1
Division Supervisers		1	1
Captains		5	5
Lieutenants		12	12
Sergeants		17	17
Patrolmen		102	115
	Total	138	151
Clerical			
Steno-Typists		5	5
	Total Clerical	5	5
	Grand Total	143	156

Additions

15 New Hires - Patrolmen

Terminations

2 Patrolmen

TERMINATIONS CONSIST OF

2 V. T. Personal

PATROL DIVISION - TRAFFIC CONTROL STATISTICS
September - 1948

MOTOR VEHICLE ACCIDENTS

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.
Plant	3	5	1	1	0	1	1	0
Richland	22	17	0	0	2	1	7	7
North Richland	25	25	0	0	0	1	8	5
Totals	50	47	1	1	2	3	16	12

ACCIDENT CAUSES

	Negligent Driving		Failure to Yield Right-of-Way		Reckless & Drunken Driving		Other Causes	
	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.
Plant	1	9	0	0	0	0	2	2
Richland	12	10	9	3	2	0	3	6
North Richland	0	14	17	12	0	0	8	1
Totals	13	33	26	15	2	0	13	9

PLANT WARNING TRAFFIC TICKETS ISSUED

	Speeding		"Stop" Sign		Parking		Imp. License		Def. Equip.		Other Violations		Totals	
	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.
Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Richland	4	0	0	2	208	161	4	2	49	21	2	0	267	186
N. Rich.	1	3	0	1	627	671	3	3	12	17	1	1	644	696
Totals	5	3	0	3	835	832	7	5	61	38	3	1	911	882

COURT CITATION TRAFFIC TICKETS ISSUED

	Speeding		"Stop" Sign		Drunken Driving		Reckless Dr.		Neg. Dr.		Parking V.		Other V.		Totals	
	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.	Aug.	Sept.
Plant	10	3	2	4	0	0	0	0	6	2	0	0	1	2	19	11
Richland	45	40	35	17	4	1	3	0	15	11	21	8	32	24	155	101
N. Rich.	25	30	34	24	7	3	1	0	19	10	21	7	35	24	142	98
Totals	80	73	71	45	11	4	4	0	40	23	42	15	68	50	316	210

TRAFFIC VOLUME: Count taken on September 8, 1948, on George Washington Way at Yakima River Bridge, total volume, 16 hour period, 12, 928 Cars.

Note: Due to late reporting, five accidents that occurred in Richland and three that occurred in the Plant Area during the month of August are included in September totals.

PATROL TRAFFIC SECTION
RICHLAND JUSTICE COURT CASES
****

SEPTEMBER, 1948

Violation	Number of Cases	Number of Convictions	Total Fines	Total Susp.	Sentenced to Jail	Sentence Suspended	License Revoked	Average Fine Paid	Cases Dismissed	Warrants Issued
Driving While License Revoked.....	1	1	$77.50	None	1	None	1	$77.50	None	None
Drunken Driving.....	6	6	415.00	None	0	None	6	69.16	None	None
Reckless Driving.....	1	1	30.00	None	0	None	1	30.00	None	None
Negligent Driving....	25	25	607.50	$95.50	0	None	0	20.48	None	None
Speeding.....	87	87	1008.50	71.75	0	None	0	10.65	None	7
Stop Signs.....	53	52	267.50	39.50	0	None	0	4.38	1	7
Failure to YROW.....	7	7	62.50	None	0	None	0	8.92	None	1
Improper Passing.....	17	17	104.50	5.00	0	None	0	5.85	None	1
Improper Parking.....	26	26	87.50	10.50	0	None	0	2.96	None	1
No Arm Signal.....	1	1	7.50	None	0	None	0	7.50	None	0
No Driver's License..	24	22	90.75	None	0	None	0	4.12	2	7
Defective Equipment..	6	6	21.00	6.25	0	None	0	2.45	0	2
Improper Registration	1	1	3.75	3.75	0	None	0	None	0	0
Illegal Use of Spotlight	1	1	16.25	None	0	None	0	16.25	0	0
Failure to Dim Lights.	4	4	22.50	None	0	None	0	5.62	0	0
No Rear License Plates	1	1	None	None	0	None	0	None	0	1
Public Intoxications..	34	34	422.50	12.50	3	None	0	12.05	0	0
Public Nuisances.....	4	4	85.00	None	0	None	0	21.22	0	0
Vagrancy.....	2	2	None	None	2	1	0	None	0	0
3rd Degree Assault....	2	1	None	None	1	1	0	None	1	0
Gambling.....	18	18	285.00	None	0	None	0	15.27	0	0
Possession of Gambling Equipment.....	2	2	155.00	None	0	None	0	77.50	0	0
Sale of Liquor by Bottle	1	1	200.00	None	0	None	0	200.00	0	0
Indecent Literature and Taking Liberties with a Minor.....	1	1	200.00	None	0	None	0	200.00	0	0
TOTAL.....	325	321	$4169.75	$244.75	7	2	8		4	27

Total Fines.....$4169.75
Less Fines Susp.. 244.75
Total Fines Rec.. $3925.00

The above violations include those that occurred on the Hanford Works Project.

PATROL DIVISION - NORTH RICHLAND OFFENCES - SEPTEMBER 1948

Classification	Offences known: or reported to: Patrol	Offences Unfounded	Actual Offences: Aug	Actual Offences: Sept	Offences Cleared By Arrest	Offences Cleared By other Action	Perpetrators Involved	
Assault	6	0	3	6	1	4	7	a
Attempted Suicide	0	0	0	0	0	0	0	
Burglary-breaking and/or entering	9	0	2	9	1	0	1	
Larceny-Theft (except Auto & Bike)								
(a) $50.00 and over value	9	0	10	9	0	4	5	b
(b) Under $50.00 value	19	2	27	17	1	6	10	c
Auto Theft	1	0	1	1	0	0	0	u
Bicycle and Motor Bike Theft	1	1	0	0	0	0	0	
Carrying Concealed Weapon	0	0	0	0	0	0	0	
Destruction of Government Property	2	0	2	2	0	1	2	d
Destruction of School Property	0	0	0	0	0	0	0	
Destruction of Personal Property	2	0	1	2	0	0	0	u
Disorderly Conduct	0	0	0	0	0	0	0	
Drunkennes	27	0	30	27	27	0	27	
Embezzlement and Fraud	0	0	0	0	0	0	0	
Forgery	0	0	0	0	0	0	0	
Gambling	18	0	0	18	18	0	18	
Missing Person	1	1	0	0	0	0	0	
Offence against Family and Children	0	0	0	0	0	0	0	
Prowlers	0	0	1	0	0	0	0	
Public Nuisance	2	0	10	2	2	0	2	
Rape	0	0	0	0	0	0	0	
Robbery	0	0	0	0	0	0	0	
Sex Offence	0	0	0	1	1	0	1	
Swindling	1	0	1	0	0	0	0	
Vagrancy	0	0	15	1	1	0	1	
Violation of State Game Laws	1	0	0	0	0	0	0	
Violation of State Liquor Laws	5	0	0	1	1	0	1	
Miscellaneous		1	3	4	0	3	3	
Juveniles (other than reported above) Disorderly Conduct	0	0	0	0	0	0	0	
Totals	105	5	106	100	53	18	78	e

(Continued)

PATROL DIVISION - NORTH RICHLAND OFFENCES - SEPTEMBER 1948 - Continued

a One of the offences was perpetrated by three juveniles, 2 age 10 and 1 age 11.
b Two of the offences were perpetrated by one juvenile, age 14.
c Two of the offences were perpetrated by one juvenile, age 14 (same juvenile shown under b above); also two offences were perpetrated by the same two juveniles, age 9 and age 10.
d One of the offences was perpetrated by the same two juveniles, age 9 and age 10 (same juveniles shown under c above).
u Unknown
e 27 perpetrators are colored.
Value of property recovered - $950.50.

PATROL DIVISION - NORTH RICHLAND - COMPARISON OF OFFENCES

SEPTEMBER 1948

Number of offences known to Police per 10,000 inhabitants in Cities between 10,000 and 25,000 inhabitants:

	Wash., Oregon & Calif.		North Richland		
Classification	Six Months (Jan-June 1947)	One Month Average	Six Months (Jan-June 1947)	Aug 1948	Sept 1948
Murder	.688	.114	0	0	0
Robbery	19.57	3.26	0	0	0
Aggravated Assault	11.23	1.87	0	2.0	4.0
Burglary	114.53	19.09	0	1.3	6.0
Larceny	296.10	49.35	0	24.6	24.6
Auto Theft	57.73	9.62	0	.6	.6

Number of offences known to Police per 10,000 inhabitants regardless of whether offences occured in Cities or rural districts:

	State of Washington		North Richland		
Classification	Six Months (Jan-June 1947)	One Month Average	Six Months (Jan-June 1947)	Aug 1948	Sept 1948
Murder	.184	.30	0	0	0
Robbery	5.11	.85	0	0	0
Aggravated Assault	1.62	.27	0	2.0	4.0
Burglary	36.20	6.03	0	1.3	6.0
Larceny	91.39	15.23	0	24.6	24.6
Auto Theft	19.79	3.30	0	.6	.6

The portion of offences committed by persons under the age of 25 years is shown by the following figures:

	National Average	North Richland		
Classification	Six Months (Jan-June 1947)	Six Months (Jan-June 1947)	Aug 1948	Sept 1948
Robbery	56.1%	0	0	0
Burglary	61.0	0	0	0
Larceny	46.0	0	0	22.6%
Auto Theft	74.1	0	0	0

Note: Statistics of juvenile offences throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation which states: "It should be remembered that the number of arrests recorded is doubtless incomplete in the lower age group because of the practice of some jurisdiction not to fingerprint youthful offenders."

In North Richland every delinquent juvenile is entered in the records.

PATROL DIVISION - RICHLAND OFFENSES
SEPTEMBER 1948

Classification of Offenses	Offenses known or reported to Patrol	Offenses Unfounded	Actual Offenses Aug.	Actual Offenses Sept.	Offenses Cleared By Arrest	Offenses Cleared By Other Action	Perpetrators Involved
Assault	4	0	2	4 (a)	3	1	4
Attempted Suicide	0	0	0	0	0	0	0
Burglary-Breaking and/or Entering	1	0	3	1	0	0	(u)
Attempted-Breaking and/or Entering	0	0	1	0	0	0	0
Robbery	0	0	0	0	0	0	0
Larceny-Theft (except auto & bike):							
(a) - $50.00 and over value	7	0	8	7	1	0	1
(b) - Under $50.00 value	24	0	19	24 (b)	3	4	10*
Auto Theft	0	0	2	0	0	0	0
Attempted Auto Theft	0	0	0	0	0	0	0
Bicycle Theft	15	0	8	15	0	0	(u)
Weapons: Carrying-Possessing-Using	0	0	0	0	0	0	0
Destruction of Government Property	3	0	3	3	0	0	(u)
Destruction of Personal Property	1	0	2	1	0	0	(u)
Destruction of School Property	0	0	0	0	0	0	0
Disorderly Conduct	1	0	6	1	0	1	2
Drunkenness	14	0	19	14	14	0	14
Embezzlement and Fraud	8	0	2	8	7	2	6
Forgery	0	0	0	0	0	0	0
Gambling and/or Possession of Equip.	1	0	0	1	1	0	2*
Missing Persons	1	0	1	1 (c)	0	1	1
Offense Against Family & Children	0	0	0	0	0	0	0
Pickup for Outside Agency	0	0	0	0	0	0	0
Prowlers	3	0	3	3 (d)	1	2	4
Public Nuisance	0	0	3	0	0	0	0
Rape	0	0	0	0	0	0	0
Sex Offense	1	0	0	1	0	1	1
Cohabitation	0	0	0	0	0	0	0
Vagrancy	0	0	0	0	0	0	0
Violation State Game Laws	0	0	0	0	0	0	0
Violation State Liquor Laws	1	0	0	1 (e)	0	1	1
Miscellaneous	3	0	3	3	0	1	1
Juveniles (other than reported above)							
Disorderly Conduct	3	0	4	3 (f)	0	2	7
	91	0	89	91	30	16	54

(Cont)

PATROL DIVISION - RICHLAND OFFENSES - SEPTEMBER 1948 - Continued

(a) Two of the offenses were perpetrated by two persons, of ages 22 years.
(b) Five of the offenses were perpetrated by five juveniles, of ages 9, 10, 11, 13 and two persons of ages 19 and 22.
(c) The one offense was perpetrated by a juvenile, of age 14 years.
(d) Two of the offenses were perpetrated by three juveniles, of ages 15 and 16 years.
(e) The one offense was perpetrated by a person, of age 20 years.
(f) Two of the offenses were perpetrated by one juvenile, of age 13 and six persons of ages 18 and 19 years.
(*) Total of three colored males involved in the two offenses.
(u) Represents 'Unknown'.

Value recovered for the month of September was $527.00 (includes 7 bicycles).

Exec. 11226-D

PATROL DIVISION - RICHLAND OFFENSES - COMPARISON
SEPTEMBER 1948

Number of offenses known to police per 10,000 inhabitants, in cities between 10,000 and 25,000 inhabitants:

	Wash., Oregon & Calif.		Richland		
Classification	Jan-Dec 1947	One Month Average	Jan-Dec 1947	August 1948	Sept. 1948
Murder	5.46	.455	0	0	0
Robbery	71.9	5.99	.66	0	0
Aggravated Assault	41.02	2.43	4.64	1.33	2.66
Burglary	697.4	58.1	19.96	2.00	.66
Larceny	2581.1	215.1	151.96	23.33	30.66
Auto Theft	383.7	31.9	6.63	1.33	0

Number of offenses known to police per 10,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

	State of Washington		Richland		
Classification	Jan-Dec 1947	One Month Average	Jan-Dec. 1947	August 1948	Sept. 1948
Murder	.432	.036	0	0	0
Robbery	10.01	.83	.66	0	0
Aggravated Assault	2.85	.24	4.64	1.33	2.66
Burglary	70.82	5.90	19.96	2.00	.66
Larceny	186.84	15.57	151.96	23.33	30.66
Auto Theft	38.46	3.20	6.63	1.33	0

The portion of offenses committed by persons under the age of 25 years is shown by the following figures:

		Richland		
Classification	National Average (Jan-Dec 1947)	Jan-Dec 1947	August 1948	Sept. 1948
Robbery	55.7%	0	0	0
Burglary	59.9	3.53%	0	0
Larceny	45.1	2.05	0	11%
Auto Theft	71.8	2.50	0	0

Note: Statistics of juvenile offenses throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation, which states: "It should be remembered that the number of arrest records is doubtless incomplete in the lower age groups because of the practice of some jurisdictions not to fingerprint youthful offenders."

In Richland every delinquent juvenile is entered in the records.

1195043

Hw-11261

MONTHLY REPORT
U.I.'S
SEPTEMBER, 1948

COMMUNITY PATROL DIVISION
****

ACCIDENTS	48
ASSAULT	2
AMBULANCE RUNS	2
ACCIDENTAL SHOOTING	1
ABANDONED AUTO	1
BREAKING AND ENTERING	2
DISTURBANCES	9
DESTRUCTION OF GOVERNMENT PROPERTY	1
FAMILY TROUBLE	1
FIRE ALARMS	2
GAMBLING	3
JUVENILES INVOLVED	4
MISSING PERSON	1
MENTAL CASE	1
OPEN DOOR	1
PUBLIC INTOXICATIONS	37
PUBLIC NUISANCES	3
RAPE AND ROBBERY	1
SOLICITING	1
TRAFFIC VIOLATIONS	21
THEFTS	7
UNAUTHORIZED BOAT ON RIVER	1
UNATTENDED DEATH	1
TOTAL UNUSUAL INCIDENTS	150

1195044

17

261

Hw-112.

Hw-11226-Del

MONTHLY REPORT
OPEN DOORS AND WINDOWS
SEPTEMBER, 1948
****
COMMUNITY PATROL DIVISION
****

	DOORS	WINDOWS
SUB-CONTRACTORS	33	23
FACILITIES (NORTH RICHLAND)	6	2
FACILITIES (RICHLAND)	5	
SCHOOLS (NORTH RICHLAND)	14	
TOTAL	58	25

Hw-1122
Hw-11226-D

COMMUNITY DIVISIONS

COMMUNITY ACTIVITIES DIVISION

September, 1948

ORGANIZATION AND PERSONNEL

Number of Employees on roll

Beginning of month	12
End of Month	10
Total decrease	2

CHURCHES

The following is a tabulation of full time paid personnel, as of September 30, 1948:

	Ministers	Staff	Total
Assembly of God	1	0	1
Catholic	2	2	4
Central United Protestant	3	1	4
Church of Christ	1	0	1
Church of God	1	0	1
Episcopal Church	1	0	1
Free Methodist	1	0	1
Latter Day Saints	4	0	4
Mission Baptist	1	0	1
Mo. Synod Lutheran (Redeemer)	1	1	2
National Lutheran	1	2	3
Regular Baptist	1	0	1
United Protestant - North Richland	1	1	2
United Protestant - West Side	1	0	1
United Protestant - South Side	1	0	1
	21	7	28

The Richland Church of Christ announced on September 2 that it had set $50,000 as a minimum expenditure for its proposed church building with $10,000 of this fund already collected.

The local church choirs combined to form a Community Chorus which provided the religious music for the September 5 Community Service in the Bomber Bowl.

The President of Linfield College, McMinnville, Oregon, presided at a special interdenominational service held in the Bomber Bowl of Columbia High School, September 5, at 9:00 a.m. as part of the "Atomic Frontier Days" celebration.

On September 16, the South Side United Protestant Church announced a building program involving the expenditure of $50,000. This organization purchased an Army Chapel which will be moved from Geiger Field to a site on the corner of Gillespie Street and Goethals Drive.

1195046

Hw-11226.

Hw-11226-Du

Community Activities Division

The West Side United Protestant Church began regular church services September 19 at the Marcus Whitman Grade School.

The United Protestant Churches of the Village held a reception at the Central U. P. Church on September 26 in honor of the public school officials, members of the Board of Education, and teachers.

The Richland Lutheran Church organized a new Youth Club for the teen age group which will be known as the "Youth League" and which will include the young adult, dormitory, and young married couples group.

The Central United Protestant softball team won the championship of the Church League for the 1948 softball season. The South Side U. P. and the Lutherans tied for second place, the Demolay team placed fourth, and the Latter Day Saints and Assembly of God placed last.

The Richland Lutheran Church announced plans for an addition to its present building which will be started as soon as 75% of the necessary funds have been raised.

The proposed building programs and site locations applied for by the following organizations were approved in principle by the Community - Public Works Division and the Atomic Energy Commission: The Church of Jesus Christ of Latter Day Saints, the South Side United Protestant Church, the Christian Science Church, the Church of Christ, and the Church of Jesus Christ of Latter Day Saints (Reorganized).

The Rev. Erwin H. Jahr of San Pedro, California, has been assigned the division of American Missions of the National Lutheran council to serve as pastor in North Richland.

SCHOOLS

The following is a tabulation of full-time school district paid personnel, as of September 30, 1948:

Administration	3
Clerical	13
Principals and Supervisors	16
Teachers	220
Building Custodians	30
Cooks	21
Nursery School Ex. D. C.	17
Bus Drivers	2
	322

On September 30, 1948, there were 78 children enrolled in the Richland Nursery School with an average attendance of 54. There was no change in enrollment during the month. On this day there were 12 children enrolled in the Extended Day Care program of the Nursery with an average attendance for the month of 9. There was a decrease in enrollment during the month of 8.

Hw-11226

Hw-11226-Del

Community Activities Division

Columbia High School

	Boys	Girls	Total
Freshmen (9th grade)	164	175	339
Sophmore (10th grade)	151	164	315
Junior (11th grade)	117	99	216
Senior (12th grade)	109	104	213
	541	542	1083

Grade Schools

	Sacajawea	Lewis & Clark	Marcus	Jefferson	Ball	Total
Kindergarten	109 (3)*	105 (4)*	87 (4)*	66 (2)*	101 (4)*	468
1st grade	173 (6)	154 (4)	126 (4)	102 (3)	145 (4)	700
2nd grade	145 (4)	115 (4)	107 (4)	84 (3)	109 (4)	560
3rd grade	132 (4)	124 (4)	98 (4)	74 (2)	107 (3)	535
4th grade	138 (4)	106 (3)	106 (4)	88 (3)	98 (3)	536
5th grade	126 (4)	97 (3)	90 (3)	85 (3)	83 (3)	481
6th grade	114 (4)	82 (3)	76 (3)	67 (2)	91 (3)	430
7th grade	83 (3)	89 (3)	91 (3)	72 (2)	79 (3)	414
8th grade	67 (2)	67 (2)	98 (3)	51 (2)	71 (2)	354
	1087	939	879	689	884	4478

* Half Days
() Classrooms in use.

On September 4, 5, and 6, the Columbia High School gymnasium was open for special exhibits in connection with the Village "Atomic Frontier Days" celebration.

The Richland Public Schools were officially opened on September 7 with an enrollment of 5500 students and 224 teachers. The first days' classes were held from 9:00 a.m. to 2:30 p.m.

The highest enrollment in the history of Columbia High School was recorded the opening day, September 7, when 940 students attended opening classes. Additional registrations over the following weekend pushed the total over the 1,000 mark.

The City Parent Teachers Association met September 7 at Columbia High School and this meeting was followed by individual meetings of all of the PTA groups in their own areas.

Dr. Henry C. Schumacher, noted mental health consultant for the United States public health service, spoke on the subject, "A Psychiatrist Looks at School Programs" in two meetings held at Columbia High School on September 8. The first meeting for Nurses and teachers was held at 3:00 p.m. with a meeting for the general public at 8:00 p.m.

On September 10, the Yakima Valley High Schools football season was officially opened with a Jamboree held in the Bomber Bowl. Six High School teams participated including Grandview, Sunnyside, Prosser, Kennewick, Pasco, and Richland. 5,000 persons attended.

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Community Activities Division

School authorities announced on September 13 that the elementary enrollment totalle 4,391, filling the elementary schools to capacity. Kindergarten classes were held open to accommodate an additional group of children whose birthdays fall between September 1 and December 1, 1943.

As requested by the state superintendent of public instruction, Richland schools announced a special observance of "Constitution Day" on September 17.

Night School classes for adults opened September 20 with all classes scheduled for rooms in the Columbia High School.

The Columbia High School PTA sponsored a public showing on September 23 of the Don George Marionette Story Book Review.

The music and art teachers of the Richland Public Schools held a special meeting on September 23 to discuss their objectives and plan their program for the coming season.

The Spalding Elementary School opened for classes September 20 with the transfer of students from both the Sacajawea and Marcus Whitman Schools.

Upon the recommendation of school authorities, the Board of Education voted at a meeting September 24 to grant an extension of time to parents who had been unable to secure birth certificates for children of the kindergarten and first grade. The extension will last until October 20.

More than 50 members of the faculty of the Columbia High School were guests of honor at a tea given by the Girls League of the High School.

The Marcus Whitman Grade School was the first of Richland's schools to announce the formation of its 1948-49 Schoolboy Patrol.

For the third consecutive year, Sacajawea school received certificate of "exceptional Merit" and was placed on the national school safety honor roll of the National Safety Council.

Representatives of the Community Activities Division and the Atomic Energy Commission accepted the additions to the Marcus Whitman Grade School and the first classes were held on September 7.

COMMUNITY

First classes in the 1948 Fall term of the GE education program convened September 1 and 2.

Governor Mon C. Wallgren visited Richland and spoke at a public rally at Columbia High School September 2, 1948.

The final concert of the Village Band was presented in the Village Park September 2 under the auspices of Villagers, Inc.

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Community Activities Division

Over 2,000 young men between the ages of 18 - 25 were registered for selective service between September 3 - 17 at the American Legion Building.

The major events of the "Atomic Frontier Days" celebrations were scheduled on September 4, 5, and 6. Highlight of the celebration was the official parade on Monday, September 6. Throughout the series of events, the Village streets were appropriately decorated and the local citizenry wore western and frontier type garb.

During the weekend of the "Atomic Frontier Days" celebration, special facilities were set up at the Desert Inn to entertain visiting newsmen. In addition to representatives of the daily newspapers in the northwest, a party of 20 newsmen flew here from San Francisco to cover the events and interview top AEC and GE officials.

The Meistersingers opened their 6th season with their first rehearsal on September 7.

The Youth Council's recreation program which was suspended during July and August was reopened September 10.

The Primary Election for Senatorial, Congressional, Judicial, and State Legislative offices was held on September 14, 1948, with 2,796 residents of Richland casting ballots at 21 polling places. Arrangements for the provision of polling places was made by the Company.

The new officers of Richland Post 71, American Legion, were installed September 14.

The Richland Womens Club held its annual Autumn luncheon September 14 at the Desert Inn.

The annual meeting of the Villagers, Inc. was held at the Desert Inn September 16.

Civil Service Examinations were conducted at the Columbia High School September 18.

The Richland Players, Inc. opened their season with a general meeting at Jefferson Grade School on September 20 and announced their first production date as November 18.

The members of the American Society of Civil Engineers, representing Benton, Yakima, Franklin, and Walla Walla counties met in the Recreation Hall September 20 at which time the group was formally inaugurated as a branch of the Spokane section of the society.

The Richland League of Women Voters entertained the secretary of their national organization and the president of the Washington state league on September 24.

The General Division of the Service Department gave a picnic for approximately 500 employees on September 26 in the Village Park.

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Community Activities Division

The Village of Richland returned officially to Pacific Standard Time at 2:00 a.m. September 26.

Richland's first town meeting was held on September 30 in the auditorium of Columbia High School under the sponsorship of the Community Council.

Under the supervision of the League of Women Voters, registration booths were opened before and after the town meeting on September 30 to permit voters to register for coming Presidential elections.

The Richland Community Chest organization completed plans for the opening of its annual campaign on October 1, to run through October 23. The quota was announced as $27,508 which exceeds last year's budget by $4,200.

On September 22, notices were sent to all community organizations and groups using school buildings calling attention to current regulations regarding smoking on the premises and use of equipment.

The Community Activities Division assisted the Richland Girl Scouts, the Swimming Pool Association, and the Community Concert Association in the preparation of their constitutions and by-laws.

Nine teen-agers from Richland attended a two weeks encampment at the McChord Air Force Base as cadets of the local Civil Air Patrol.

The Richland Girl Scouts organized two new troops September 24, Troop 32 and 33, and reorganized Troop 20.

The Richland Community Concert Association announced the dates selected for its 1948-49 series as October 31, December 2, February 10, and February 18.

The Richland Bowling Association announced that fifteen men's bowling leagues with an average of twelve teams per league have been scheduled for play this Fall and Winter.

The American Legion and J. R. Terteling softball teams landed seven men on the all-state softball team.

Under the sponsorship of the public health and welfare section of the Medical Division, General Electric Company, it was announced that classes for mothers would be offered beginning October 6 and extending through November 10.

In preparation for Fire Prevention Week, the Community Activities Division prepared and mailed to all churches and community organizations housed in the Village information letters and building inspection forms relating to fire prevention measures.

Community Activities Division

On September 28, 1948, the Recreation Advisory Committee held its regular monthly meeting. Revisions to the regulations regarding the use of public buildings were adopted. The Committee recommended that the following organizations be approved subject to the required security clearance, Disabled American Veterans (Chapter 31), National Association for the Advancement of Colored People, and Degree of Honor. It was recommended that permission be granted for the following groups to hold preliminary meetings to determine advisability of organizing: Doris Miller Masonic Lodge No. 5 (Colored), Production Operators Association of the Manufacturing Division, Instrument Craftsmen's Guild, and Exchange Club.

The number and types of organizations presently served by the Community Activities Division include 12 Business and Professional Clubs, 26 Churches and Church organizations, 5 Civic organizations, 15 Fraternal organizations, 6 Music and Art associations, 14 private instructors, 31 Recreation and Hobby groups, 7 schools and 7 Parent Teachers Associations, 10 Social Clubs and organizations, 9 Veteran and Military organizations, 5 Welfare organizations, 16 Boy Scout Troops, 13 Camp Fire Girls Troops, 33 Girl Scout Troops, 8 other youth groups, and 16 miscellaneous organizations.

MAJOR ACTIVITIES DURING MONTH

September 2	Village Bark Concert	Village Park
4,5,6	"Atomic Frontier Days"	Columbia Football Field
14	Primary Election	21 Polling Places
30	Richland Town Meeting	Columbia High School

There was a total of 92 persons employed with Community Organizations as of the month end.

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PROJECT AND RELATED PERSONNEL
SEPTEMBER 1948

	8-31-48		9-30-48	
GOVERNMENT EMPLOYEES				
Civilian Personnel - Atomic Energy Commission	338		342	
Civilian Personnel - G. A. O.	3		4	
Total		341		346
RICHLAND VILLAGE PERSONNEL				
Commercial Facilities (Including No. Richland & Chicago Canteen Co.)	1598		1698	
Organizations, Clubs, Etc.,	92		92	
Schools	68		322	
Churches	28		28	
Total		1786		2140
MORRISON-KNUDSEN PERSONNEL (Columbia Camp)		252		229
CONSTRUCTION SUB-CONTRACTORS				
Atkinson-Jones	8246		8142	
Newport, Kern & Kibbe	24		17	
Newberry Neon	577		584	
Urban, Smyth, Warren Co.,	1102		1165	
J. B. Head Co.,	21		17	
Kellex Corporation	432		468	
J. Gordon Turnbull	76		80	
Giffels & Vallet, Inc.,	197		204	
Morrison-Knudsen Co.,	479		344	
C. C. Moore	165		236	
V. S. Jenkins Insulating Co.,	8		43	
Curtis Sand & Gravel	44		51	
National Carbon/Carbide Co.,	186		186	
Trowbridge & Flynn Electric Co.,	9		5	
J. A. Terteling & Son	1021		1026	
Graysport Construction Co.,	152		198	
Estep Electric	10		9	
Nettleton-Sound	913		797	
Thorgaard Plumbing	59		38	
Chris-Berg Co.,	84		132	
Holert Electric Co.,	46		35	
Strasser Drilling Co.,	4		3	
Kelly Wells Co.,	2		2	
McNeill Construction Co.,	758		540	
Rust Engineering Co.,	8		13	
Arnold & Jeffers Co.,	56		39	
Pacific Roofing Co.,	32		39	

(CONTINUED ON PAGE #2)

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CONSTRUCTION SUB-CONTRACTORS	8-31-48	9-30-48
Central Service Co.,	11	11
Charles Swanson	74	134
Taylor Brothers	14	14
Builders Insulating Co.,	5	9
Fox Metal Products	8	4
Pioneer Sand & Gravel	5	5
A. C. Grant	28	19
A. B. C. Roofing	8	3
D. L. Cooney	86	62
Scott-Buttner	63	64
Pittsburgh-Des Moines Steel	17	28
Warsaw Elevators	3	3
Martins Furniture	26	18
Parson's Tile	3	3
Williams Paint & Glass	4	5
Seldon's Inc.,	12	2
Richland Plumbing & Heating	5	11
West Coast Painters	26	16
Holaday & Edworthy	2	2
Asbestos Supply	2	-
Boedecker Chimney Co.,	-	8
Chicago Bridge	-	8
P. S. Lord	-	61
Haughton Elevator Co.,	-	2
Total	15,113	14,905
GENERAL ELECTRIC PERSONNEL	8,541	8,383
GRAND TOTAL	26,033	26,003

229
14905
15134

1195054