1 - H. A. Linne
2 - Zay Jeffries, Pittsfield
3 - C. G. Suits, Schenectady
4 - G. R. Trout
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 - Hanford Operations Office
Attention: R. N. Richardson, Historian
#15 - 700 File
#16 - 700 File
#17 - 700 File

August 18, 1949

HANFORD WORKS

MONTHLY REPORT

JULY 1949

This Document Consists of

272 Pages. No. 6

of 17 Copies. Series A.

TABLE OF CONTENTS

GENERAL SUMMARY

JULY 1949

Manufacturing Divisions

A total of 48 tons of metal was discharged from the three piles at an average concentration of 363 MWD/ton. The operating efficiency was 86.8 percent and the nominal power level of 275 MW was maintained at B and F piles with D pile continuing to operate at 305 MW.

About 42 tons of Class V metal were discharged at an average concentration of 397 MWD/ton without difficulty.

A total of 64 tons of acceptable slugs was canned at a yield of 91.8 percent. The machining yield was 72.8 percent, which is the highest yet attained on rolled rods. The melt plant production of 26 tons was produced at a yield of 71.4 percent.

Thirty-eight batches were started in the Canyon Building, with 34 being processed through Concentration and 31 through Isolation. The average purity of the completed batches at Isolation was 98.7 percent.

Processing was started in the 234-5 Building on July 5, 1949. Due to the security aspects of this operation, monthly production data and related information will be reported in a separate document.

A critical "Y" was established July 12, 1949 for eight minutes at 3:05 p.m., due to relaying of Coulee Lines No. 1 and No. 2 at Midway and No. 2 at Coulee. This matter has been referred to the Atomic Energy Commission for review with the Bonneville Power Administration.

To provide expanded machine shop facilities for development activities, primarily for Technical and Health Instrument Divisions, a second shift will be added in the 3717 Instrument Shop.

Work has continued on Redox, Rala, the 100-H Area, and further scoping of the 100-DR additional facilities. The completion of remaining items at DR awaits completion of 107-DR, to be followed by a shut-down of 105-D for tie-in of common facilities.

Technical Divisions

The far side shields of the D and F Piles continued to move outward during July, though there was reduced rate of movement at the F Pile. Since the top shield is stationary at D pile and is slowly moving downward at the F pile, it may be feasible to restrain outward movement of the side shields by use of brackets which are currently being designed.

The project for construction of facilities for determining the critical mass of plutonium solutions was approved and field work has started. Supporting experiments were begun at Oak Ridge, using U-235 solutions.

General Summary

Corrosion products have been observed in process tubes within the upstream region formerly occupied by dummy slugs. More detailed examination of tubes removed from the piles is being arranged.

Recent data obtained from graphite samples show that after extended irradiation extremely high temperatures are required to anneal the expansion effects, but substantial annealing can be effected slowly over a period of several months or years by nuclear annealing at ambient pile temperature.

A careful study is being made of material balances in the Separations Plants. This includes recalibration of critical tanks, a systematic study of sampling errors, and effect of hold-up at various points in the process.

A traverse has been made of one of the plant sand filters to establish the manner in which activity is being accumulated. Up to the present time the activity evidently is concentrating in a narrow band at the bottom of the primary filter layer, with little indication of active material above this point.

The study of recontamination in the stack by dissolver off-gas continues in an effort to determine the relative contributions of I^{131} and other fission elements. Preliminary results with the silver reactor operated in series with dissolver off-gas water scrubbers have been encouraging.

Operations were started in Building 234-5, preceded by a progression of dummy runs through the later stages of the process line. Nine uranium reductions were carried out to standardize the reduction procedure, and this has given satisfactory results with plutonium metal. There have been difficulties with the vacuum systems in Hoods 14, 25, and 26, but these have been corrected sufficiently to permit production to proceed.

Peroxide precipitation studies have been continued in the laboratory with attention shifting to sulfate free systems. Work on recovery has been started with initial effort directed toward the supernates from the oxalate precipitation step.

Twenty solvent extraction runs were completed in the Scale-Up Unit during the month, and the first shakedown run was carried out in the re-built Demonstration Unit. The Scale-Up studies were directed primarily to a comparison of 1-inch Raschig ring packing as against 1/2-inch Raschig ring packing in 1A-1B-1C Columns, to determine the effects on stage height and throughput rates, and also on the mixing of the feed and scrub streams in the 1A Column. Process laboratory studies have continued on feed clarification and on the preparation and recovery of aluminum nitrate.

Laboratory research studies have yielded encouraging preliminary results on the treatment of current metal waste for preparation of a solvent extraction feed. The method involves a sequence of sodium uranate precipitation, caustic metathesis and phosphate removal through precipitation and recycling of uranyl phosphate. Work has been started to establish whether or not it will be necessary to incorporate a sodium removal step in the metal feed preparation

process. Preliminary results indicate that the sodium nitrate which is produced by the dissolution of sodium diuranate in nitric acid will contribute a portion of the required salting effect, with a corresponding reduction in the amount of aluminum nitrate needed. If this is confirmed by further study, it will not be necessary to provide a sodium removal step in the process.

Other studies include an evaluation of the effect of aging on ruthenium removal through ozonization, the recovery of plutonium and uranium in Redox wastes by means of uranate precipitation, and the initiation of a program on the coupling of Redox to the final isolation and metal production steps.

Experimental Metallurgy Section operations were started with the P-10 alloy production facilities installed in Building 108-B under Project C-334. Aluminum capsules were filled with lithium, and five full-size heats were processed in the induction-heated vacuum furnace. Three of the latter were straight aluminum, and these were followed by two of lithium-aluminum alloy. All equipment functioned satisfactorily, and experience in casting these first two 6" x 20" alloy billets indicated that initial operational difficulties can be resolved during the next few runs. An Argonne metallurgist experienced in this operation will arrive August 1 to assist with this start-up.

Considerable metallurgy laboratory effort continued on the structural evaluation of uranium metal transformed by induction heating and beta quenching, an operationally attractive alternate to the present bronze-dip step in slug canning. Experimental equipment for giving this treatment to unmachined rod sections was assembled and tested and will be used with both alpha-rolled and gamma-extruded uranium to prepare representative slugs for pile testing.

The Analytical Section resumed control services in the T Plant Laboratory on July 25 and is assigning personnel to the T and the B Plant Laboratories to suit the analytical loads involved. Improved hood facilities are being provided in both buildings for use in analytical research studies. Control services in the new Bldg. 234-5 laboratories were initiated and maintained without incident.

Health Instrument Divisions

The force increased by five. There were five Special Hazards Incidents, all without serious consequences.

Health Instrument Operational and Development Division findings, in general, were normal.

Biology Division control monitoring showed no exceptional result. Work on the Animal Farm in 100-F Area is about 45 percent complete. The directive authorizing construction of the Biology Laboratory in 108-F was received from the Atomic Energy Commission.

General Summary

Plant Security and Services Divisions

Hanford Works completed its third consecutive month without a lost-time injury, further reducing the frequency rate for the year to 0.76.

The 234-5 Area was established as an exclusion area during the month.

New telephone directories were issued during the month. The printing of the directories is under contract by an outside printing firm, and future directories issued under the dial system will be the same size and form.

Employee and Community Relations Division

Open requisitions for non-exempt personnel increased from 180 at the beginning of the month to 266 at the end of the month. Total plant roll decreased during the month from 7,393 to 7,385. Turnover rate, including terminations due to lack of work, was 1.85 percent during July. Turnover rate, exclusive of terminations due to lack of work, was 1.45 percent.

Four employees retired during July, two of which were on optional retirement. Two employee and one retired employee deaths occurred. Thirty-eight suggestion awards, totaling $955.00, were granted during the month. Judgment of $12,110 rendered in the Superior Court of Washington for Ivan E. Nagle against the General Electric Company was settled prior to appeal for $8,750.

The training program on the spirit and intent of the Agreement with the H.A.M.T.C. was completed during July, and a total of 644 exempt employees attended. Seven bulletins, giving questions and answers, resulting from such meetings, were distributed during the month. Fifteen meetings were held during the last three weeks of July on grievance procedure with a total of 564 members of management attending. The General Electric movie "By Their Works" was exhibited in all areas on July 25, 26, and 28.

The activities of the Labor Relations and Wage Rate Division during the month of July have been directed toward the handling of post negotiation arrangements, processing grievances, preparing change of wage rate system procedure, and completing the necessary records to convert classifications and wage rates in accordance with the G.E.-H.A.M.T.C. Contract and indirect changes related thereto. A request by the Atomic Energy Commission for clarification of the provisions of the Union Contract was answered by the Company. A report showing the effect of the housing rental adjustment was submitted to the Hanford Atomic Metal Trades Council. Transcripts of the previous formal hearing with the National Labor Relations Board with regard to the petition requesting bargaining rights for the Hanford Guards, Local No. 21, were received and are being reviewed, after which a corrective stipulation will be forwarded by the Company to the N.L.R.B. Weekly meetings were held between the Council Grievance Committee and the Management Negotiating Committee in which contract application practices and grievances were reviewed. Approval was received from the A.E.C. on the reimbursement of five additional classifications. Reimbursement authorization was requested for two additional classifications. Classification reviews were conducted in several divisions.

General Summary

Twenty-two daily newspapers were added to the "General List" of the G. E. Nucleonics Department News Bureau. The new additions to the list are published in portions of Oregon, Idaho, and Montana that are near the Washington border.

During July, thirteen informative releases were sent to ten newspapers and three radio stations that comprise the "Local List." Also during the month, eight news releases of more general character were sent to sixty-seven papers on the News Bureau's "General List".

A plan was put into effect during July for tabulating those news releases sent out by the News Bureau which were reproduced in the sixteen newspapers subscribed to by Community Relations. This will make it possible to check the distribution of specific news releases or a group of news releases to those Northwest newspapers in which we are most interested.

On July 24, 25, and 27, a series of three news stories about Richland were distributed by the Chicago Tribune Service to newspapers throughout the United States. The series, written by Seymour Korman, described Richland as a mismanaged, monopolistic, police state. An informative release quoting the Assistant General Manager of the Nucleonics Department and correcting some of the inaccuracies in one of the stories was mailed to local papers and the "Spokesman-Review". The "Spokesman-Review" was the only newspaper in the Northwest that printed the series of stories. The General News Bureau in Schenectady answered the series on a nation-wide basis and they were kept informed of our actions in the Northwest.

Promotion of the G-E teen-age magazine, "Adventures Ahead", was concluded during July. A year's free subscription to this bi-monthly magazine was made available to all teen-age children of G. E. employees at Hanford Works as part of the over-all community information program. The Special Programs promotion activities were carried out through such plant media as the "Works News", letters to supervisors, descriptive brochures, and posters. A subscription list of 1,097 eligible subscribers has been sent to the "Adventures Ahead" editor through whom distribution will be accomplished.

Arrangements were made through the Purchasing Division to have 6,000 G.E. - H.A.M.T.C. Agreement Booklets printed in a commercial printing shop. The Walla Walla Union Bulletin commerical printing shop was selected as the successful bidder.

To inform supervisors of progress being made at Hanford Works, the General Manager presented a status report to a capacity audience of supervisors in Carmichael Junior High School auditorium during July. He explained that the over-all progress achieved at Hanford Works has been tremendous, although some errors were made due to the speed with which the construction program had to be carried out. It is anticipated that other status reports will be made to supervisors by the General Manager when appropriate. The recently appointed Assistant General Manager, Mr. F. K. McCune, was introduced at the meeting, and the 45-minute color movie, "By Their Works", was shown following Mr. Prout's address.

General Summary

Purchasing and Stores Divisions

Personnel of the Purchasing and Stores Divisions was increased during the month by a total of fifteen due to the fact that the Stores and Receiving functions heretofore performed by the Design and Construction Divisions were transferred to us with the personnel involved as of July 25, 1949.

It was necessary to requisition sixty-eight additional employees for the Stores Division during the month in order to get inventories of surplus materials on a current basis. Preliminary surveys indicated that this would take three to four months to accomplish at the end of which time these temporary employees will be laid off.

The work load in the Purchasing Division increased approximately 25 percent during the month.

Notification was received from the Commission that the Voluntary Allocation of Aluminum has been officially terminated and that the Voluntary Allocation of Steel will expire September 30, 1949.

As a result of rate reductions obtained from the carriers, a total savings in freight charges for the month amounted to $19,074.46.

A procedure whereby all General Electric purchase requisitions will be screened against Atkinson and Jones stocks was put into effect.

An agreement was reached with the Transportation Division whereby their stocks of automotive spare parts, together with nine employees heretofore engaged in handling these parts, will be transferred to the Stores Division during the month of August. A complete physical inventory of the parts to be transferred was in progress at month end.

Community Divisions

Sales of various basic items indicate little or no change over the previous month.

Sowell's Malt Shop opened for business, and two new facilities began construction on buildings.

A combined water usage peak for the 700, 1100, 3000, and 300 Areas amounted to 28.2 MG on July 14, 1949.

Washington State Highway Patrol established offices in the 770 Building during the month of July to renew drivers' licenses.

A total of thirty-nine fire alarms was received, four of which were off of the Project.

General Summary

Medical Division

The Medical Division's roll decreased by 32 from 457 to 425.

There was further recession of medical activity due to seasonal decline in illness and continued decrease in construction population.

While our budget allotment for the present fiscal year is very low, due to unexpected decline in construction activity, means for increasing revenue through rate increases still await A. E. C. approval.

Approval for needed expansion of hospital and clinic has not been obtained.

General Accounting Divisions

Hanford Works and Nucleonics Department Financial Statements for the month of June were completed and distributed on July 20 and July 21, 1949, respectively. General Divisions Operating Reports covering June operations were completed on July 19, 1949.

During the month, work continued in connection with segregating all research and development projects and establishing identifying codes applicable to each in order that costs may be more closely controlled. Authorization forms were prepared and each existing project and subsequent projects will be covered by an authorization specifying the amount authorized, the scope of the work, etc. Health Instrument Research and Development projects have been segregated and July costs have been applied to each. Technical Divisions' Research and Development projects will be handled in a like manner at an early date.

Negotiations were completed and all necessary arrangements were made to open two accounts in the Richland Branch of the National Bank of Commerce as of August 1, 1949. These accounts are to be used by the Community and Manufacturing Divisons.

Plant Accounting personnel, together with consultants retained by AEC, were nearing completion of their work on the plant appraisal. This work has now progressed to the point that within another month schedules of plant accounts will be issued and an adjustment to the Plant and Equipment account reflecting the newly appraised values will be made.

Considerable preliminary work was completed which will enable the Weekly Payroll Section to begin calculation of retroactive payments as soon as the agreement between General Electric and the H.A.M.T.C. has been approved. In this connection, information has been secured from other divisions relative to the various shift schedules worked by their employees. This information is necessary before retroactive payment of shift premiums can be calculated.

Advances from AEC at July 1, 1949 amounted to $8,000,000. After adding the advance received during July in the amount of $6,500,000 and applying cash

General Summary

disbursements in the amount of $7,000,000 the balance at July 31, 1949 was $7,500,000. Items comprising this balance are:

Cash in Bank - Contract Accounts	$ 5,948,002
- Salary Accounts	55,000
- Travel Advance Account	50,000
Unliquidated portion of advances prior to June 1, 1949	749,924 -a)
Advances to Subcontractors	625,000
Cash in Transit	72,074
Total	$ 7,500,000

-a) July liquidations totaled $272,200 but no entries were made as formal approval from AEC was not received.

STAFF

General Manager	G. R. Prout
Assistant General Manager	R. S. Neblett
Assistant General Manager	F. K. McCune
Assistant to the General Manager (Technical and Education Matters)	W. I. Patnode
Assistant to the General Manager	J. R. Rue
Assistant to the General Manager and Manager of the Plant Security and Services Divisions	G. G. Lail
Department Comptroller	F. E. Baker
Counsel	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	M. D. Norwood, M.D.
Manager, Employee and Community Relations Division	H. E. Callahan
Manager, Purchasing and Stores Divisions	W. A. Jeffrey

FORCE REPORT

	Non-Exempt		Exempt		Total	
	6-30-49	7-29-49	6-30-49	7-29-49	6-30-49	7-29-49
GENERAL	20	22	12	14	32	36
LAW DIVISION	2	2	4	3	6	5
DESIGN & CONST. DIVISIONS						
Administrative	22	21	5	6	27	27
Construction	116	96	129	119	245	215
Const. Accounting	60	59	8	9	68	68
Design	124	122	123	124	247	246
No. Richland Realty	107	97	19	18	126	115
MANUFACTURING DIVISIONS						
General	3	3	6	7	9	10
Project Engineering	71	72	55	56	126	128
Manufacturing Accounting	44	43	7	7	51	50
OPERATING DIVISIONS						
"P" Division	252	248	70	68	321	316
"S" Division	273	281	71	73	345	354
Power	420	438	77	77	497	515
MECHANICAL DIVISIONS						
Maintenance	423	430	67	68	490	498
Electrical	222	227	45	45	267	272
Instrument	171	173	43	44	214	217
Transportation	611	624	62	62	673	686
TECHNICAL DIVISIONS						
General	2	1	6	6	8	7
Pile Technology	20	22	53	54	73	76
Separations Technology	57	59	99	97	156	156
Metallurgy & Control	311	308	116	117	427	425
MEDICAL DIVISION	365	335	92	90	457	425
H. I. DIVISIONS						
General	3	3	6	6	9	9
Operational	120	121	54	54	174	175
Development	68	69	25	26	93	95
Biology	21	22	16	17	37	39
ACCOUNTING DIVISIONS						
Accounting-Payroll	62	63	14	7	76	70
Accounting-All Others	81	77	7	12	88	89
EMPLOYEE & COMM. RELATIONS DIV.	49	49	26	26	75	75
PLANT SECURITY & SERV. DIV'S.						
Patrol & Security	523	524	56	57	579	581
Safety & Fire	110	110	36	35	146	145
General & Office Services	241	237	22	22	263	259
PURCHASING & STORES DIVISIONS						
Purchasing	36	35	28	26	64	61
Stores	148	160	19	22	167	182
COMMUNITY DIVISIONS	612	612	145	146	757	758
GRAND TOTAL	5,770	5,765	1,623	1,620	7,393	7,385

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PERSONNEL DISTRIBUTION - JULY 1949

	100-B Area	100-D Area	100-F Area	100-H Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
GENERAL	-	-	-	-	-	-	-	-	-	14	14
Clerical	-	-	-	-	-	-	-	-	-	22	22
Total	-	-	-	-	-	-	-	-	-	36	36
LAW DIVISION	-	-	-	-	-	-	-	-	-	3	3
Clerical	-	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	-	5	5
DESIGN & CONSTRUCTION DIVISIONS											
ADMINISTRATIVE											
Supervisors	-	-	-	-	-	-	-	-	-	6	6
Engineers	-	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	-	16	16
Others	-	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	-	27	27
CONSTRUCTION											
Supervisors	-	-	-	-	-	-	-	4	22	-	26
Engineers	-	-	-	20	-	6	-	16	22	8	72
Clerical	-	-	-	6	-	-	1	4	57	2	70
Others	-	-	-	14	-	2	-	13	14	4	47
Total	-	-	-	40	-	8	1	37	115	14	215
CONSTRUCTION ACCOUNTING											
Supervisors	-	-	-	-	-	-	-	-	8	-	8
Clerical	-	-	-	-	-	-	-	-	59	-	59
Others	-	-	-	-	-	-	-	-	1	-	1
Total	-	-	-	-	-	-	-	-	68	-	68

	100-B Area	100-D Area	100-F Area	100-H 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 & Estimators	-	-	-	-	-	-	-	-	-	109	109
Clerical	-	-	-	-	-	-	-	-	-	59	59
Others	-	-	-	-	-	-	-	-	-	64	64
Total	-	-	-	-	-	-	-	-	-	246	246
NORTH RICHLAND REALTY											
Supervisors	-	-	-	-	-	-	-	-	16	-	16
Engineers	-	-	-	-	-	-	-	-	4	-	4
Clerical	-	-	-	-	-	-	-	-	17	-	17
Others	-	-	-	-	-	-	-	-	78	-	78
Total	-	-	-	-	-	-	-	-	115	-	115
MANUFACTURING DIVISIONS											
GENERAL											
Supervisors	-	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	-	3	3
Total	-	-	-	-	-	-	-	-	-	10	10
PROJECT ENGINEERING											
Supervisors	-	-	-	-	-	1	-	-	-	36	37
Engineers	-	-	-	-	-	2	2	-	-	15	19
Drafting Personnel	-	-	1	-	-	5	1	-	-	32	39
Clerical	-	-	-	-	-	1	-	-	-	16	17
Others	-	-	-	-	-	3	-	-	-	13	16
Total	-	-	1	-	-	12	3	-	-	112	128
MANUFACTURING ACCOUNTING											
Supervisors	-	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	-	43	43
Total	-	-	-	-	-	-	-	-	-	50	50

SECRET

SECRET

	100-B Area	100-D Area	100-F Area	100-H Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MANUFACTURING DIVISIONS											
OPERATING DIVISIONS											
"P" DIVISION											
Supervisors	15	17	15	2	-	-	13	-	-	6	68
Operators	43	49	45	8	-	-	91	-	-	-	236
Clerical	2	2	1	-	-	-	3	-	-	4	12
Total	60	68	61	10	-	-	107	-	-	10	316
"S" DIVISION											
Supervisors	-	-	-	-	25	37	-	-	-	11	73
Operators	-	-	-	-	102	171	-	-	-	-	263
Clerical	-	-	-	-	4	10	-	-	-	4	18
Total	-	-	-	-	131	208	-	-	-	15	354
POWER											
Supervisors	13	12	12	17	6	7	1	4	-	-	72
Engineers	-	-	-	-	-	-	-	5	-	-	5
Operators	90	82	87	45	25	50	10	1	-	-	390
Clerical	1	1	1	1	-	1	-	5	-	-	10
Others	7	9	7	1	5	8	1	-	-	-	38
Total	111	104	107	64	36	66	12	15	-	-	515
MECHANICAL DIVISIONS											
MAINTENANCE											
Supervisors	2	7	9	-	5	14	5	13	-	2	57
Engineers	-	-	4	-	-	-	-	1	-	6	11
Mechanics	21	42	39	-	35	80	48	82	-	-	347
Clerical	-	2	3	-	2	2	1	5	-	1	16
Others	2	4	10	-	4	17	10	20	-	-	67
Total	25	55	65	-	46	113	64	121	-	9	498

	100-B Area	100-D Area	100-F Area	100-H Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MECHANICAL DIVISIONS											
ELECTRICAL											
Supervisors	2	2	3	2	1	5	2	2	-	21	40
Electricians	14	12	13	3	10	18	17	-	-	90	177
Clerical	1	-	1	1	-	1	1	2	-	6	13
Others	1	-	3	2	1	5	3	1	-	26	42
Total	18	14	20	8	12	29	23	5	-	143	272
INSTRUMENT											
Supervisors	4	2	2	2	2	4	6	-	-	4	26
Engineers	2	1	-	-	-	3	9	-	-	4	19
Mechanics	6	5	7	2	6	16	18	-	-	8	68
Clerical	1	1	1	-	1	1	5	-	-	4	14
Others	7	8	9	4	9	11	36	-	-	6	90
Total	20	17	19	8	18	35	74	-	-	26	217
TRANSPORTATION											
Supervisors	2	1	2	1	1	1	1	21	-	32	62
Drivers (Based on areas served)	2	4	10	-	2	5	7	170	-	35	235
Mechanics	8	1	1	-	-	5	-	1	-	66	82
Trainmen	-	-	-	-	-	-	-	29	-	-	29
Laborers	3	3	12	-	4	5	5	32	-	16	79
Clerical	-	-	-	-	1	-	1	5	-	14	21
Others	6	7	9	-	1	12	2	72	-	68	178
Total	21	16	34	1	9	28	16	330	-	231	686

	100-B Area	100-D Area	100-F Area	100-H Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
TECHNICAL DIVISIONS											
TECHNICAL GENERAL											
Supervisors	-	-	-	-	-	-	-	-	-	6	6
Clerical	-	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	-	7	7
PILE TECHNOLOGY											
Supervisors	1	1	-	-	-	-	9	-	-	-	11
Chemists-Engr's.-Physicists	4	5	2	-	-	-	33	-	-	1	45
Laboratory Assistants	3	4	1	-	-	-	8	-	-	-	16
Clerical	-	1	-	-	-	-	1	-	-	-	2
Others	1	-	-	-	-	-	1	-	-	-	2
Total	9	11	3	-	-	-	52	-	-	1	76
SEPARATIONS TECHNOLOGY											
Supervisors	-	-	-	-	1	4	19	-	-	1	25
Chemists-Engr's.-Tech. Grads.	-	-	-	-	5	13	55	-	-	2	75
Clerical	-	-	-	-	-	2	8	-	-	1	11
Others	-	-	-	-	-	-	1	44	-	-	45
Total	-	-	-	-	6	19	83	44	-	4	156
METALLURGY & CONTROL											
Supervisors	1	2	-	-	6	7	31	-	-	5	52
Chemists-Engr's.-Tech. Grads.	4	3	1	-	13	19	94	-	-	1	135
Laboratory Ass't.'s	3	5	1	-	36	21	81	-	-	-	147
Clerical	-	1	-	-	1	2	31	-	-	39	74
Others	-	-	-	-	-	-	16	-	-	1	17
Total	8	11	2	-	56	49	253	-	-	46	425

SECRET

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	100-B Area	100-D Area	100-F Area	100-H Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MEDICAL DIVISION											
Physicians	-	-	-	-	-	-	-	-	6	27	33
Dentists	-	-	-	-	-	-	-	-	2	9	11
Technicians	1	-	-	-	-	1	1	-	2	22	27
Clerical	1	-	1	1	-	1	1	-	12	78	95
Others	3	2	4	4	4	5	2	-	12	223	259
Total	5	2	5	5	4	7	4	-	34	359	425
H. I. DIVISIONS											
GENERAL											
Supervisors	-	-	-	-	-	-	-	-	-	5	5
Engineer	-	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	-	3	3
Total	-	-	-	-	-	-	-	-	-	9	9
OPERATIONAL											
Supervisors	1	1	2	-	2	6	8	-	-	1	21
Engineers	4	5	4	-	4	13	4	-	-	-	34
Clerical	-	-	1	-	-	-	-	-	-	-	1
Others	7	12	9	-	18	32	35	5	-	1	119
Total	12	18	16	-	24	51	47	5	-	2	175
DEVELOPMENT											
Supervisors	-	-	-	-	1	4	5	-	-	1	11
Engineers	-	-	-	-	5	5	4	-	-	-	14
Clerical	-	-	-	-	-	2	3	-	-	2	7
Others	-	-	-	-	12	26	15	-	-	10	63
Total	-	-	-	-	18	37	27	-	-	13	95
BIOLOGY											
Supervisors	-	-	1	-	-	1	1	-	-	-	3
Engineers	-	-	7	-	-	6	1	-	-	-	14
Clerical	-	-	1	-	-	-	-	-	-	-	1
Others	-	-	11	-	-	9	1	-	-	-	21
Total	-	-	20	-	-	16	3	-	-	-	39

SECRET

SECRET

	100-B Area	100-D Area	100-F Area	100-H Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
ACCOUNTING DIVISIONS											
ACCOUNTING-PAYROLL											
Supervisors	-	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	-	63	63
Total	-	-	-	-	-	-	-	-	-	70	70
ACCOUNTING-ALL OTHERS											
Supervisors	-	-	-	-	-	-	-	-	-	12	12
Clerical	-	-	-	-	-	-	-	-	-	77	77
Total	-	-	-	-	-	-	-	-	-	89	89
EMPLOYEE & COMMUNITY REL. DIV.											
Supervisors	-	-	-	-	-	-	-	-	-	25	25
Employee Relations Counselor	-	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	-	41	41
Others	-	-	-	-	-	-	-	-	-	8	8
Total	-	-	-	-	-	-	-	-	-	75	75
PLANT SECURITY & SERV. DIVISIONS											
PATROL & SECURITY											
Supervisors	5	6	6	5	6	8	7	10	-	4	57
Patrolmen	37	46	64	65	62	126	65	6	-	37	508
Clerical	-	-	-	-	-	-	-	12	-	1	13
Seamstress	-	-	-	-	-	-	-	3	-	-	3
Total	42	52	70	70	68	134	72	31	-	42	581
SAFETY & FIRE											
Supervisors	9	-	-	-	-	4	5	9	-	8	35
Firemen	37	-	8	-	-	10	14	-	-	14	83
Inspectors	5	4	4	-	4	1	1	3	-	1	23
Clerical	-	-	-	-	-	-	-	2	-	2	4
Total	51	4	12	-	4	15	20	14	-	25	145

SECRET

	100-B Area	100-D Area	100-F Area	100-H Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
PLANT SECURITY & SERV. DIVISIONS											
GENERAL & OFFICE SERVICES											
Supervisors	-	-	1	-	2	2	-	-	-	17	22
Laundry Operators	-	-	-	-	-	6	-	-	-	2	8
Janitors & Servicemen	4	6	7	1	5	15	13	-	-	36	87
Off. Machine Operators	-	-	-	-	-	-	-	-	-	45	45
Clerical	-	-	-	-	-	-	-	-	-	43	43
Others	-	-	-	-	-	27	-	-	-	27	54
Total	4	6	8	1	7	50	13	-	-	170	259
PURCHASING & STORES DIVISIONS											
PURCHASING											
Supervisors	-	-	-	-	-	-	-	6	-	20	26
Clerical	-	-	-	-	-	-	-	-	-	35	35
Total	-	-	-	-	-	-	-	6	-	55	61
STORES											
Supervisors	-	-	-	-	-	-	-	-	8	14	22
Clerical	1	-	-	-	-	1	-	-	24	134	160
Total	1	-	-	-	-	1	-	-	32	148	182
COMMUNITY DIVISIONS											
Supervisors	-	-	-	-	-	-	-	-	24	122	146
Patrolmen	-	-	-	-	-	-	-	-	26	28	54
Firemen	-	-	-	-	-	-	-	-	42	58	100
Mechanics	-	-	-	-	-	-	-	-	-	139	139
Laborers	-	-	-	-	-	-	-	-	-	61	61
Truck Drivers	-	-	-	-	-	-	-	-	-	40	40
Power Operators	-	-	-	-	-	-	-	-	-	54	54
Clerical	-	-	-	-	-	-	-	-	-	90	90
Others	-	-	-	-	-	-	-	-	-	74	74
Total	-	-	-	-	-	-	-	-	92	666	758
GRAND TOTAL	387	378	443	207	439	878	874	608	456	2715	7385

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MANUFACTURING DIVISIONS

JULY 1949

SUMMARY

Operations Divisions

A total of 48 tons of metal was discharged from the three piles at an average concentration of 363 MWD/ton. The operating efficiency was 86.8 percent and the nominal power level of 275 MW was maintained at B and F piles with D pile continuing to operate at 305 MW.

About 42 tons of Class V metal were discharged at an average concentration of 397 MWD/ton without difficulty. A total of 64 tons of acceptable slugs was canned at a yield of 91.8 percent. The machining yield was 72.8 percent, which is the highest yet attained on rolled rods. The melt plant production of 28 tons was produced at a yield of 71.4 percent.

Thirty-eight batches were started in the Canyon Buildings, with 34 being processed through Concentration and 31 through Isolation. The average purity of the completed batches at Isolation was 98.7 percent.

Processing was started in the 234-5 Building on July 5, 1949. Due to the security aspects of this operation, monthly production data and related information will be reported in a separate document.

Mechanical Divisions

A critical "Y" was established July 12, 1949 for eight minutes at 3:05 P.M., due to relaying of Coulee Lines No. 1 and No. 2 at Midway and No. 2 at Coulee. This matter has been referred to the Atomic Energy Commission for review with the Bonneville Power Administration.

To provide expanded machine shop facilities for development activities, primarily for Technical and Health Instrument Divisions, a second shift will be added in the 3717 Instrument Shop.

Expansion Problems Section

Work has continued on Redox, Rala, the 100-H Area, and further scoping of the 100-DR additional facilities. The completion of remaining items at DR awaits completion of 107-DR, to be followed by a shut down of 105-D for tie-in of common facilities.

C. N. Gross

C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

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DECLASSIFIED

MANUFACTURING DIVISIONS

PATENT REPORT SUMMARY
FOR
MONTH OF JULY, 1949

Richland, Washington
August 8, 1949

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

INVENTOR	TITLE
R. E. Connally (Instrument Division)	Methane Flow Beta Counters (Invention reported 1/17/49 to W. I. Patnode.)
H. R. Hughes J. H. Hemperly (Project Engineering Division)	Automatic Stamping Device This device stamps slugs with consistent marking at a rate of approximately 20 to 25 per minute.

C. N. Gross

C. N. GROSS

MANAGER, MANUFACTURING DIVISIONS

1217618

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MANUFACTURING EXPANSION PROBLEM SECTION

July, 1949

GENERAL

Work has continued on Redox, Rala, the 100-H Area, and further scoping of the 100-DR additional facilities, as detailed below. The completion of remaining items at DR awaits completion of 107-DR, to be followed by a shut-down of 105-D for tie-in of common facilities.

ORGANIZATION

D. McDonald of the Rala Group has temporarily returned to S Division operating work.

H. A. Laybourn of the P Division Group has been re-assigned to P Division operating work.

Considerable expansion has taken place in the Power Division Group, as required by the acceptance tests schedule in 100-H Area.

ACTIVITIES

1. Redox

The scoping of the Redox dual purpose plants has continued under the guidance of the Redox Plant Design Committee. The following major developments are noted:

a. Kellex Corporation, New York City

Agreement has been reached with the Kellex Corporation as to the size of the force they will use on Redox design work. The figure arrived at represents an extensive reduction below the former number of employees on this work. Applicable portions of Kellex work on Metal Recovery has been brought under the direct control of Hanford Works, and Kellex's contract with the New York Office of A. E. C. on this work is being terminated.

b. Transmittals to the Kellex Corporation

Final Engineering Flow Sketches were signed by the Redox Committee on July 28, and will be transmitted to the Kellex Corporation for study as advance information on the scope transmittals they will receive from the Redox Design Division at a later date.

SECRET

c. Design Progress

The final Engineering Flow Sketches mentioned in Item b above are the basis for the comment issue of the Engineering Flow Diagrams, now in preparation and scheduled for release by August 15. They are also the basis for the comment issue of Instrument Flow Diagrams now in preparation.

A considerable number of layout sketches of the architectural features of the process building have been issued, for comment, to the interested parties, and the comments are now being resolved and incorporated. Comment issues of layout of services outside the process building have been issued, and comment made. Comment issues of process building ventilation flow diagrams are in preparation.

2. Rala

At month end, no decision had been made by A. E. C. on the Project Proposal, submitted the first of the month for the design and construction of a Rala Plant in the Head End of T Plant.

The Rala Group spent the month in concluding the work of the previous month, and study of the development work that would follow approval of the Project Proposal. Some members of the group were transferred to activities other than Rala.

3. 190-H and 105-DR (Production)

DR Area

The repaired 107-DR basin passed the leak test satisfactorily, but subsequent inspection of the basin floor revealed that the "Carey-lastic" filler in the seams between slabs had been eroded by water flow, and had also been forced down into cavities at some points. Further repairs are to be made to these seams in both 107-H and 107-DR in view of this condition, repairs to be made first to 107-H to avoid jeopardizing construction completion dates. Repairs will consist of joint filler replacement with EC-801 filler at some points, and thickened "Carey-lastic" filler at the remaining seams.

Lack of receipt of material under procurement by Design Division still delays completion of a few exception items in the DR Area.

H Area

A meeting was held between Design Division, MEPS representatives, and A. E. C. representatives in which a policy was worked out for expediting agreement on design or construction changes requested by MEPS personnel.

An improvement in procurement dates of aluminum nozzles has been effected. Completion of receipt of both galvanized and aluminum nozzles is now promised by September 17.

Progress of work in the 105 Building continues good, and the Construction Division continues to point toward a completion date of August 31. The Van Stone flange inspection has been completed, and stainless steel nozzles have been installed on front and rear faces. The pneumatic testing of process tubes has been started. The piping in the gas wing is now nearing completion. One "punch" list has been submitted to D & C on outside buildings related to 105, and a "punch" list on the entire 105-H Area is being prepared for submission.

4. 100-H and 105-DR (Power)

105-DR

Two clean up items remain for completion in power facilities at this building.

100-H

The principal delaying factor in this area was removed with the return to work, on July 22, of pipe fitters in 184 Building. They had been on strike approximately six weeks.

The major work and equipment installations have been finished in the Power Division buildings. Clean up items are now taking an increasing portion of the time of construction and the MEPS Group. Electric power is available from the river pump house up through part of the 190 Building. Electric pumps are generally run in. Steam pumps are not. Most of the testing, and flushing, of lines and basins has been done and these facilities put in service. Principal acceptance tests have not yet been started. All major sewers have been completed, backfilled and inspected, and most of them are in service.

In the 184-H Building, all boilers are under fire with two of them under coal fire and supplying steam for blow-out of the main steam lines in the building. Export steam will be available at an early date for run-in of steam pumps in the area.

5. Additional DR Facilities

A directive, (Modification 1 of Directive HW-138), dated July 12, was issued authorizing the design of additional DR facilities as proposed in the Project Proposal for design of additional DR facilities submitted to the A.E.C. on July 1. The principal exception in the directive was that further justification was needed for the proposed gas wing facility.

The P Division Contact Engineer is currently preparing the detailing of process requirements that must be fulfilled by the gas wing, in order that the Design Division may further consider alternate proposals for the gas wing facility.

The Design Division, in conjunction with the Power Division Contact Engineer, is currently preparing a firm scope of work on the proposed 183-DR and 190-DR Buildings for the Architect-Engineer that is selected.

SECRET

August 5, 1949

P DIVISION

JULY, 1949

I. GENERAL

The B and F piles operated at 275 MW and the D pile at 305 MW throughout the month except for outages listed under Area Activities.

A total of 57.5 tons of metal, at an average concentration of 363 MWD/ton, was discharged from the piles during the month. This included 41.9 tons of Class V (alpha-rolled, triple-dipped, completely transformed) metal at an average concentration of 397 MWD/ton which was discharged without difficulty. A portion of this material was inspected and appears to be satisfactory for exposures at this concentration.

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - July, 1949

Beginning of Month	320
End of Month	316
Net Decrease	4

One operator was transferred to the Power Division and one to the S Division. Two operators were removed from the roll after they were killed in an airplane accident July 24. One operator terminated voluntarily and one was placed on leave of absence due to sickness in the family. Two operators were rehired to fill vacancies.

E. P. Lee visited the City Galvanizers Company of Portland, Oregon, on July 27, 1949, to inspect nozzles which were being processed for H Area.

SECRET

P Division

III. AREA ACTIVITIES

PILE SUMMARY	PILE B	PILE D	PILE F
Time Operated (%)	90.4	87.8	90.0
Operating Efficiency (%)	88.4	85.0	87.0
*Power Level (MW)	275	305	275
*Inlet Water Temperature (°C)	20.3	20.3	20.4
*Outlet Water Temperature (Maximum °C., 10 tubes, 0.240" Zone)	60.9	63.9	61.4
Number of Scrams	0	2	2
Number of Purges	2	1	2
Helium Consumption (cu. ft.)	27,598	50,081**	28,879
Metal Discharged (tons)	17.52	26.44	13.54
Inhours Gained (this month)	1	-12	22
*Inhours Poisoned	523	538	539
*Inhours in Rods	75	65	50

* Month end figures.
** Includes 15,500 cu. ft. used in maintaining pressure on the DR pile.

PILE BUILDING

Outage Breakdown

Date of Outage	Scheduled Metal Discharged	Scheduled Maintenance	Unscheduled	Length of Outage (Hours)
(1) 7-5-49			F	0.1
7-5, 6, 7	D			38.4*
7-7-49	B			36.3*
(2) 7-9-49			D	0.1
7-12-49	F			21.9
7-19-49		F		22.2
(2) 7-20-49			F	0.2
7-20, 21, 22	D			50.2*
(3) 7-23-49			D	0.7
7-25-49	B			35.2*
7-27-49	F			27.2*

* Includes outage to discharge temporary poison
(1) Unit scrammed due to failure of #3 Beckman.
(2) Unit scrammed due to failure of #2 Beckman.
(3) Unit scrammed due to error in by-passing Beckman for standardization.

On July 12 a Critical "Y" power condition was declared and the B and D piles began the prescribed shutdown; F pile was already down for a scheduled outage. The Critical "Y" condition was cleared before either B of D pile was completely down and nominal level operation was immediately resumed.

Operating Experience

Production tests having operational significance are reported below:

105-81-P (Probe Test of Top Central Tubes)
The tubes listed below successfully passed probes as indicated:

1.480"	1.485"	
4667-B	4573-B	4374-D
	4680-B	4674-F
	4373-D	

105-114-P (Van Stone Corrosion Studies)
The thermocouple wells on the aluminum nozzles located on the rear of tubes 3666-F and 3672-F were inspected for corrosion on July 19 and found to be in good condition.

105-168-P (Replacement of Pile Helium Atmosphere with CO_2)
The CO_2 concentration in the pile atmospheres was maintained at 40% at B and D piles and at 60% at F pile throughout the month. No unexpected changes in operating conditions were observed at any of the piles.

105-214-P (Supplement B Silica Feed Reduction)
The silicate concentration in the process water at the F pile was maintained at 0 ppm throughout the month of July. An apparent reduction of pressure build-up has been observed in the central part (.240 zone) of the pile. The outside zones continue to build up at approximately the same rate as before the silicate concentration was reduced. The concentration at B and D piles remains at 2.5 ppm with no significant operating changes noted. Further study is in progress.

105-260-P (Increase in Power Level)
D pile operated at 305 MW throughout the month. There were significant periods of operation at lower levels after shutdowns, notably during periods of operation with temporary "P" columns in the pile. High exit water temperatures encountered following startup prohibited operation at 305 in several instances. This

is being corrected by increasing orifice sizes in the offending tubes. No unusual or unexpected conditions have been observed at the higher levels.

One tube, 4280-F, which contained Class IV (alpha-rolled, triple-dipped, partially transformed) material, was discharged with difficulty during the outage of July 27. Forces up to 4000 pounds were required to discharge the metal from this tube.

A total of 41.9 tons of Class V (alpha-rolled, triple-dipped, completely transformed) metal was discharged without incident during the month at an average concentration of 397 MWD/ton. Inspection of a portion of this metal indicated that this type metal is satisfactory for exposures at this concentration. Routine examination of test tonnages of this type metal will be scheduled at three month intervals to check on the effect of longer elapsed time for exposures at this concentration.

Four process tubes were replaced during the month, (channels 1459-D, 1163-F, 3071-F and 1184-F). The old tube was removed from channel 1488-D and the nozzles sealed and shielded pending installation of a new tube. Extreme difficulty was experienced and forces as high as 6750 pounds thrust were required to remove the tube.

Mechanical Experience

All horizontal and vertical safety rods are in satisfactory operating condition with the following exceptions:

#27-B - This rod binds when half-way in the unit. A thimble traverse revealed a maximum displacement of 1½" toward the far side 21 feet below the top of the thimble. The rod is tied out pending replacement of the rod and rod guide.

#35-B - This rod slipped out of the upper limit switch several times during testing before start-up on July 27. It is tied out pending investigation of the brake and clutch.

#23-D - This rod has a leaking thimble. At month end it is tied out and the thimble plugged to prevent gas loss pending replacement of the thimble.

#33-F - Difficulty is still being experienced with binding of this rod. Further efforts will be made to correct this condition.

F Division

Work of an unusual nature performed on safety rods during the month included:

1. Leak testing of all vertical safety rod thimbles at D Area and of 13 at F Area.

2. The binding of #26-F Vertical Safety Rod was relieved on July 19 by installing a new off-set short rod guide and a flexible "knuckle jointed" rod.

3. No. 33-D Vertical Safety Rod thimble, reported leaking earlier (HW-13793-A), was replaced on July 6. Severe corrosion was observed just below the rod guide. The old thimble parted at this weakened point but the lower portion was removed without difficulty.

During the shutdown for the outage of July 7 at B Area, a partial failure of the vertical safety rod control circuit occurred due to the burning out of the winch motor and wiring of #17-B Vertical Safety Rod. The wiring and motor were replaced and were operating normally at month end. The exact cause of the failure has not yet been determined.

Indications of a process tube water leak became evident at the B pile during the month. The amount of condensate collected from the circulating gas gradually increased from about 12 pints per day to 100 pints per day, and the gas analyses revealed abnormal amounts of moisture below row 6 and between rows 79 and 87. Hydrostatic tests were run on several tubes in this section and led to the discovery of the leak in tube 0283-B. This tube was discharged and isolated from the water system, and at month end the condensate collected from the circulating system had decreased to 27 pints per day. It is planned to replace the tube and determine the exact location of the leak.

Borescopic examination of the front 10 feet of 19 tubes at B Area, and 2 tubes at F Area which have operated without front dummies, revealed the presence of corrosion products in this portion of the tube. Further investigation of this problem is under-way.

An inspection of the baffles in the downcomer at 100-F Area on July 12 revealed a vertical crack in the weld of #3 and #7 baffles and a horizontal crack in #4 baffle; all approximately 12 feet down from the top. The condition is somewhat worse than that observed a year ago. Further investigation is planned.

The outward motion of the far side of the pile at D Area continued as in the previous month at a rate of approximately 0.10 inches per month except for minor inward deviations which were noted during the last three days of the month. No upward motion of the top shield has been observed.

P Division

Pile Development

1. Four auxiliary pannelit gauges for each orifice zone were installed at 100-F Area on July 21. These gauges are so connected that any one can be placed in use whenever it is necessary to remove a regular pannelit gauge from the system for recalibration or repair. Continuous monitoring of the inlet water pressure of every tube is assured and any off-standard condition will be immediately detected by the regular alarm system. Similar installations will be made in the other operating areas.

2. The Bailey power indicator at D Area was modified for the increased flow resulting from orifice changes, and the range was increased to cover higher operating levels.

3. A television camera unit was set up in the discharge area at 100-F Area on July 27, and a test made on its performance during the discharge of several tubes. The installation is also being tested during pile operation at month end. At completion of these tests, the equipment will be examined to ascertain the effect of gamma radiation and neutron bombardment on the equipment and to determine the feasibility of using such equipment for observation, inspection and control of remote equipment for future and existing piles. (See Document HDC-1338, H. J. White to File, 7-11-49.)

4. The mobile hydraulic ram and mandril reported previously (HW-13793-A) was used to discharge the stuck charge in tube 4280-F on July 27. The time required to discharge the tube, as anticipated, was less than half that required with previously available equipment.

GAS PROCESSING BUILDING

Operation of these buildings was normal during the month.

Due to the presence of abnormal amounts of moisture in the circulating gas, the 115-B Building driers were placed on a four hour cycle in place of the regular 24 hour cycle.

SPECIAL HAZARDS

The gamma intensity of the beam at the top far edge of the F pile increased from 3.2 r/hr at the end of June to 4 r/hr at month end.

A beam of approximately 10 mr/hr has been reported at the top far side of the B pile.

P Division

300 AREA - METAL FABRICATION

Production Statistics

Production for the month of July was as follows:

Billets Produced	28 Tons
Rods Machined	76 Tons
Bare Pieces Machined	58 Tons
Acceptable Pieces Canned	64 Tons

Melt Plant

The casting yields were as follows:

	June	July	To Date 1949
Billet	68.5	71.4	68.3
Solid Metal	84.0	87.8	85.9

Approximately 50% of the TXB charged this month was processed from pickled chips as compared with 30% in June. This increase, along with a concerted effort to improve quality resulted in the higher yield for July.

When the "A" generator was started on July 7, faulty field coils in the generator threw an over-load on the compensator causing the insulation to be burned off. The necessary repairs were completed and the generator was returned to service on July 29. Billet production during the repair period was reduced approximately 50%.

Eight additional billets were cast in conformance with Production Test No. 314-59-M, (Effects of Furnace Pressure on Quality of Remelted Uranium).

Machining

Machining yields were as follows:

% Yield		
June	July	To Date 1949
70.8	72.8	69.5

An improvement in rod quality and diameters of stock machined during the latter part of the month resulted in a higher machining yield.

On July 21, 1949 twenty rods were gamma extruded from Hanford billets in conformance with Production Test No. 313-109-M, (Heat Treating Uranium by Electrical Induction).

P Division

Chip Recovery

The Chip Recovery yield was as follows:

% Yield		
June	July	To Date 1949
90.1	91.1	90.5

The entire Chip Recovery process was operated five shifts, with the press being operated an additional seven shifts. Seventy-one percent of the chips processed were pickled and 23,825 pounds of TXB were produced.

The material burned in the Oxide Burner was as follows:

Weight Out - Pounds		
June	July	To Date 1949
25,290	31,899	143,313

This operation was continued on a two-shift five-day week schedule.

Canning Operation

The canning yield was as follows:

% Yield		
June	July	To Date 1949
93.0	91.8	91.2

Canning rejects, by cause, were:

	%		
	June	July	To Date 1949
Non Seating	0.6	1.0	0.8
Marred Surface	2.0	2.3	2.5
AlSi on Outside of Can	1.4	1.5	1.1
Frost Test	1.7	1.4	2.2
Bad Welds	0.6	0.8	0.7
Miscellaneous	0.7	1.2	1.5
	7.0	8.2	8.8

The canning yield fell below the record yield established last month because of slight increases in all major rejects except frost test. Further effort is being made to improve quality through the education of operating personnel.

The following special request pieces were canned:

Request No.	Contents	No. of Pieces
SR 40-7	Plutonium Oxide	3
ORNL 111	Metallic Cobalt	11
ORNL 113	Scandium Oxide	2

In addition 18 receptacle slugs and 548 lead slugs were canned.

Slug Recovery

	% Recovered		Average Wt. - Lbs.	
	July	To Date 1949	July	To Date 1949
Z Slugs	87.8	88.1	3.920	3.913
X Slugs	10.9	9.8	3.856	3.858
Rejects	1.3	2.1	---	---
	100.0	100.0		

Inspection and Testing

Autoclave rejects were as follows:

June	July	To Date 1949
0.10/M	0.00/M	0.05/M

No autoclave failures occurred in July.

None of the penetration samples taken during the month were penetrated to within 0.015" of the outer can wall.

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

	% Usable (4")		
	June	July	To Date 1949
Aluminum Cans	94.3	95.9	94.7
Aluminum Caps	99.2	98.1	95.5
Steel Sleeves	*	*	87.5

* No sleeves were inspected during the month.

P Division

Material Handling

A total of 150 tons of alpha-rolled rods was received from Simonds Saw and Steel Company. Twenty-four tons of oxide (MD-6) were shipped to Mallinckrodt Chemical Works.

305 Test Pile

The test pile was operated on a one-shift five-day week schedule. A total of 96 tests was run on canned slugs, 43 on billet eggs, 378 on graphite bars, and the following on special work requests:

Request No.		No. of Tests
91	To determine amount of boron residue on a glass beaker.	5
92	To aid in the calibration of the test stringer, determine the effects of bars completely filled with boron-impregnated graphite powder.	4
93	Irradiate gold foil to standardize radiation detection instruments to be used in analyzing data under 105-225-PT.	1
94	To determine flux ratio inside and outside of a slug.	3

Special Hazards

No unusual conditions developed during the month.

Development

The evaluation of crucibles, having a 1½" lip around the top, has been completed in the bronze furnaces. The furnace element life has been extended by at least one-third or to three weeks as compared with two weeks for the standard crucible. This represents a savings in maintenance costs of about $700.00 per month for the four bronze furnaces. Two furnaces have already been converted to the flange type crucible and the remaining two will be converted next month.

S DIVISION

JULY, 1949

OPERATING SECTION

I. GENERAL

Thirty-eight batches were started in the Canyon Buildings, thirty-four batches were processed through the Concentration Buildings and thirty-one batches were completed through the Isolation Building. The average purity for the completed batches was 98.7 percent.

The over-all material balance for the T and B Plants (including the Isolation Plant) averaged 100.0 and 100.3 percent, respectively, for a combined average of 100.2 percent. Waste losses for the two plants averaged 2.4 percent.

Processing was started in the 234-5 Building on July 5, 1949. Operating and mechanical difficulties, however, did not permit the forecast July production schedules to be met. Due to the security aspects of the 234-5 Operation, monthly production data and related information will be reported in a separate document.

Canyon and Concentration Building Production Performance Data - (7-1-49 to 7-31-49, inclusive)

	B Plant	T Plant	Combined
Number of charges started	17	21	38
Number of charges completed	18	13	31
For completed charges:			
Percentage of starting product in waste:			
This month	2.4(a)	2.4(a)	2.4
Last month	2.4(b)	2.4(b)	2.4
Cumulative to date	4.5(c)	4.2(c)	4.3
Percentage of starting product recovered:			
This month	98.4	99.0	98.7
Last month	100.4	96.2	98.7
Cumulative to date	97.3	95.4	96.4

S Division

	B Plant	T Plant	Combined
Percentage of starting product accounted for:			
This month	100.9	101.4	101.1
Last month	102.8	98.6	101.1
Cumulative to date	101.8	99.6	100.8
Gamma decontamination factor (Log.)			
This month	7.56	7.54	7.55
Last month	7.64	7.48	7.56
Cumulative to date	7.36	7.34	7.35

(a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.004%-T Plant; 0.0107%-B Plant. (b) 0.010%-T Plant; 0.0145%-B Plant. (c) 0.108%-T Plant; 0.0085%-B Plant.

Isolation Building Performance Data (7-1-49 to 7-31-49, inclusive)

	% of Incoming Product				
	Prepared for Shipment	Recycle	Waste	Retained Samples	Material Balance
Average for this month	94.3	4.73	0.007	0.005	99.0
Average for last month	94.3	5.05	0.10	0.03	99.5
Average to date	95.9	4.65	0.06	0.02	100.6

II. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	348
End of month	353
Net increase	5

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

1 transfer from another Division (weekly roll)
1 transfer to another Division (monthly roll)
5 new hires (weekly roll)
1 return from leave of absence (weekly roll)
1 leave of absence granted (monthly roll)

Changes in Supervisory Organization:

P. A. Levernier, Senior Supervisor, B Plant, resigned on July 31, 1949.

W. A. Brown, Supervisor-in-Training, was granted a three months leave of absence effective July 22, 1949.

W. A. Wright, Senior Supervisor, on loan to the Expansion Problems Group, was transferred to Manufacturing Divisions General, effective July 1, 1949.

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants

Extraction Waste Losses

Extraction waste losses increased only slightly during the month.

	T PLANT		B PLANT	
	July	June	July	June
Original analysis	0.71	0.73	0.84	0.75
Throw-away loss	0.45	0.45	0.52	0.53
Average MWD	287	270	262	253

The apparent waste losses (which include significant amounts of americium and curium) are expected to increase as the goal level of 400 MWD/T is attained.

Acid Washes - T Plant

An acid wash, T-9-06-AW-1, was completed through the Canyon and Concentration Buildings during July with an over-all product pick-up of 38.4 percent of a normal run and was sent to the Isolation Building for processing.

Tank Calibration - T Plant

In an endeavor to obtain more accurate material balances, the 6-3 tank calibration was rechecked and found to be approximately two percent high. A study of the specific gravity temperature correction by the Plant Assistance Group showed the present temperature corrections to be in error by approximately one percent. The two effects are compensating and will lower the starting basis for the material balance by approximately one percent. Recalibration of the 6-3 tank at B Plant is planned for the coming month.

WASTE DISPOSAL

241-BY Tank Farm - Project C-271

As reported last month, the construction progress by the sub-contractor has been completed. In the General Electric phase, three test wells have been completed and the drilling of the fourth and fifth wells is in progress. Concrete has been poured for the supporting wall under the balance-off lines in the 241-BX and excavation for the cascade lines connecting the 241-BX and 241-BY areas is expected to

be started during early August.

Metal Waste Diversion - T Plant

With the filling of tank X-109-U in the 241-U Waste Storage Area, the metal waste from T Plant was diverted to tank X-101-TX in the 241-TX Area. Shortly after placing tank X-101-TX into use, excessive radiation of 20 to 150 mr/hour was found to be emitting from the tank risers. Concrete plugs were immediately placed in the 4 inch and 12 inch risers. Radiation from the five 42 inch risers is approximately 35 mr/hour. The Design Division was requested to provide adequate plugs for all tank risers in the 241-TX Area.

Waste Evaporator Design

Small scale distillation of Hanford first decontamination cycle waste by an S Division supervisor at the Oak Ridge Clinton Laboratories indicates that a volume reduction of at least five to one with a minimum decontamination factor of 1×10^3 may be successfully obtained through the evaporation.

Preliminary design, utilizing available excess equipment, and engineering studies for the installation of a waste evaporator in the 241-T tank farm are nearing completion. A project proposal will be prepared during August.

Waste Status

The status of the Waste Storage Areas as of July 31, 1949, is shown in the following table:

B Plant

Bldg. 241 Tanks	Waste	Percentage Full			Reserve Capacity in Batches to Process			
		B	C	BX	B	C	BX	Total
x105,6	Metal	-	-	-	-	-	-	-
x101,2,3	Metal	100	100	100	0	0	0	0
x104,5,6	Metal	-	100	61.5	-	0	126	126
x201,2,3,4	Metal	-	100	-	-	0	-	0
x112	Metal	-	-	0	-	-	109	109
x107,8,9	Metal	-	-	-	-	-	-	-
x107,8,9	1st Cycle	100	100	62.9	0	0	164	164
x110,11,12	1st Cycle	-	100	-	-	0	-	0
x104,5,6	1st Cycle	-	-	-	-	-	-	-
x109,10,11,12	1st Cycle	-	-	-	-	-	-	-
x115,18	1st Cycle	-	-	-	-	-	-	-
x104,5,6	2nd Cycle	49.3	-	-	322	-	-	322
x110,11,12	2nd Cycle	100	-	-	0	-	-	0
x110,11	2nd Cycle	-	-	0	-	-	424	424
x113,14,16,17	2nd Cycle	-	-	-	-	-	-	-

T Plant

Bldg. 241 Tanks	Waste	Percentage Full T	Percentage Full U	Percentage Full TK	Reserve Capacity in Batches to Process T	Reserve Capacity in Batches to Process U	Reserve Capacity in Batches to Process TK	Reserve Capacity in Batches to Process Total
x105,6	Metal	-	-	0	-	-	323	323
x101,2,3	Metal	100	100	-	0	0	-	0
x104,5,6	Metal	-	100	-	-	0	-	0
x201,2,3,4	Metal	0	0	-	-	47	-	47
x112	Metal	-	-	-	-	-	-	-
x107,8,9	Metal	-	100	-	-	0	-	0
x107,8	Metal	-	-	0	-	-	323	323
x101,2,3,4	Metal	-	-	1.7	-	-	635	635
x107,8,9	1st Cycle	100	-	-	0	-	-	0
x110,11,12	1st Cycle	-	100	-	-	0	-	0
x104,5,6	1st Cycle	100	-	-	0	-	-	0
x109,10,11,12	1st Cycle	-	-	21.1	-	-	647	647
x115,118	1st Cycle	-	-	0	-	-	410	410
x104,5,6	2nd Cycle	-	-	-	-	-	-	-
x110,11,12	2nd Cycle	77.6	-	-	131	-	-	131
x110,11	2nd Cycle	-	-	-	-	-	-	-
x113,14,16,17	2nd Cycle	-	-	0	-	-	1123	1123

MECHANICAL PERFORMANCE

Replacement of Section 8 Tank and Agitator - B Plant

The precipitator tank agitator assembly failed on July 10, 1949, after approximately eight months service. Due to the condition of the precipitator, the bottom of which was bulged upward so as to require an agitator three inches shorter than normal and the jacket of which leaked an excessive amount of water into the cell drainage system, both the precipitator and the agitator were replaced. Excessive radiation prohibits the repair of this equipment. The exact cause of the agitator failure cannot be determined.

Connector Failures - B Plant

Four connector assemblies developed leaks and were replaced using standard remote control methods. These were:

(1) Section 17, second cycle product, precipitator to centrifuge A jet assembly.

(2) Section 16, second cycle by-product, centrifuge to solution tank jet assembly.

(3) The 17-3, second cycle product, catch tank to waste jet assembly.

(4) The 13-3, first cycle by-product, catch tank to precipitator recycle jumper.

The used connectors will be repaired as radiation levels permit. In the case of item 2 above, the failure was caused by the creepage through concrete of the steam piping into the cell and repairs were effected through the use of a specially fabricated connector utilizing spare wall connector for the steam supply. This is the first actual failure to be caused by movement through concrete of the steam piping.

Failure of 75 Ton Crane Travel Motor - B Plant

The 40 H.P. crane bridge travel motor failed in service and was replaced with a like unit from the C area excess crane. Failure was tentatively ascribed to a breakdown of insulation within the motor caused by overheating. Coincidental with the above failure, the control grids were found to be in poor condition, possibly hastening the failure of the motor. This condition has been remedied.

Drying Head Replacement - Isolation Building

The threads for the inlet air fitting on the Cell 6, A unit drying head became inoperable due to acid corrosion, necessitating the replacement of the drying head. The old drying head will be repaired and held as a spare.

SPECIAL HAZARDS

Disposal of Contaminated Equipment - T Plant

Three 15 H.P. agitator assemblies and 17 connector assemblies that had failed in canyon service in T Plant were removed to the storage garden during July and buried. In all cases, the high levels of activity prohibited either repair or salvage.

Stack Gas Decontamination

Operation of the sand filters in T and B Plants was satisfactory during the month and remained essentially unchanged with respect to past performance.

The dissolver off-gas scrubbers at B Plant were equipped with the necessary piping and tank facilities to permit scrubbing of the off-gas with ten percent caustic instead of water. It is expected that the caustic scrubbing media will prevent the possibility of iodine being liberated from the scrubber effluent. Test runs should provide additional information on the distribution of iodine liberation as well as information needed in the Redox design program.

Exhaust Air-Concentration Building Vents

In view of information from the Health Instrument Divisions that the exhaust air from the Concentration Buildings is carrying as much as 160 micrograms of product per day, an experimental water seal has been installed on the agitator shaft of the Cell A precipitator in the 224-B Concentration Building. Its performance has not yet been evaluated.

POWER DIVISION
JULY 1949

GENERAL

The start-up of power facilities in the 234-5 Building and preliminary operation of equipment in the 100 H Area received major attention throughout the month.

A survey has been made of various steel pipe lines and vessels throughout the plant to determine their internal condition. Results indicate only a mild degree of corrosion to be in existence.

PERSONNEL AND ORGANIZATION

Number of employees on roll	July
Beginning of month	497
End of month	515
Net Increase	18

The indicated increase in personnel resulted from the employment of 12 people, the transfer into the Power Division from other Divisions of 11 employees, the transfer out of the Division of 2 operators, and the termination of 3 employees.

At the end of the month a total of 64 people were located in the 100 H Area, consisting of 17 supervisors and 47 weekly roll employees.

One Chief operator was upgraded to Shift Supervisor on July 1.

100 AREAS

On July 19, the export water line was sectionalized between the D and F Areas for several hours. During this period the F Area system supplied flushing water for the H Area. In the DR Area, tests were conducted on the export system Groves automatic valve in the valve pit, and the D Area export water supply pumps were in operation. The system separation was necessary to prevent possible pressure surges.

The transfer of power equipment from the 108, Chemical Mix Building in F Area to the 189, Refrigeration and Deaeration Building was virtually completed by month's end. Remaining work consists of piping changes. This building is being made available to the Health Instrument Division for their use.

In the 100 H Area nearly all of the water plant equipment, except in the 190 Process Pump Room, has been initially operated and the majority of water lines have been flushed. The power plant went into operation on July 30 when No. 1 boiler was placed in service, followed by No. 2 boiler on July 31.

Power Division

At month's end, more than one-half of the normal Power operating force had been permanently stationed in the Area.

200 AREAS

Satisfactory progress has been made in the final adjustment and correction of power facilities in the 234-5 Building. The refrigeration system has not provided the capacity required, however, and it now appears that the chiller installation size must be increased.

On July 7, a minor furnace explosion occurred in the No. 3 boiler in the West Area, while soot was being blowed on the banked boiler. Damage was largely confined to the furnace roof. In order to prevent a recurrence, soot blowing of boilers in the banked condition has been discontinued.

300 AREA

During several of the high temperature days in the month of July, the demand for water in the 300 Area exceeded the supply emanating from the 3000 Area. This resulted in lowering the quantity normally stored in the water reservoir. In order to correct the situation, clearance was obtained from the Health Instrument Division on July 28 to operate the No. 2 and 3 wells in the 300 Area as a supplementary source.

The installation of additional power plant facilities under the direction of the Design and Construction Divisions was virtually completed on July 29.

WHITE BLUFFS AND 101 STORE

The operation of both facilities continued on a normal basis. At month's end ice in storage was 1,956,000 pounds.

POWER DIVISION STATISTICS

From July 1, 1949

Through July 31, 1949

			AREAS			
			100-B	100-D	100-F	100-H
RIVER PUMP HOUSE (Bldg. 181)						
River state Feet above sea level		(max)	396.2	386.8	373.5	
		(min)	392.2	383.4	370.0	
		(avg)	394.0	384.9	371.4	
River temperature	avg. °F.		62.4	62.4	63.1	
Water to Reservoir	gpm avg. rate		38594	40443	37503	2324
RESERVOIR (Bldg. 182)						
Water to Filter Plant	gpm avg. rate		33213	35300	32990	2676
Water to Condenser System	gpm avg. rate		3894	3211	3895	
Water to Export System	gpm avg. rate		1487	1932	618	
	gpm nor. rate		4037	4037	4037	
Chlorine added #1 inlet	pounds		21267	12000	8700	
FILTER PLANT (Bldg. 183)						
Filtered water Power House	gpm avg. rate		234	230	239	
Filtered water to Process	gpm avg. rate		30729	30013	30282	
Filtered water Fire & San.	gpm avg. rate		154	156	209	
Chlorine for Water Treatment	pounds		7590	8700	9300	1500
	ppm avg.		2.1	1.46	1.38	1.50
Lime for Water Treatment	pounds		39532	49000	46000	4300
	ppm avg.		3.2	3.7	3.8	4.3
Coagulant Water Treatment	pounds		119693	136600	118800	12000
	ppm avg.		9.7	10.4	9.7	12.1
Raw Water pH	pH avg.		7.90	8.00	8.2	
Finished Water pH	pH avg.		7.54	7.55	7.74	
Alkalinity, M.O. - Raw	ppm avg.		60	57	57	
Finished	ppm avg.		56	52	54	
Residual Chl.-Settled	ppm avg.		.27	.35	.27	
Finished	ppm avg.		.08	.07	.14	
Iron - Raw	ppm avg.		.08	.08	.09	
North Clearwell	ppm avg.		.01	.02	.02	
South Clearwell	ppm avg.		.01	.02	.02	
Hardness - Finished	ppm avg.		74	68	78	
Turbidity - Raw	ppm avg.		3.8	3.4	5.0	
Filtered	ppm avg.		0	0	0	

Power Division

From July 1, 1949

Through July 31, 1949

			100-B	100-D	100-F	100-H
POWER HOUSE (Bldg. 184)						
Steam generated - Total	M pounds		82599	81365	88681	
Avg. rate	lbs./hr.		111020	109362	119195	
225 psi Steam plant (est.)	M pounds		69986	68940	75164	
15 psi Steam plant (est.)	M pounds		58	58	37	
Coal consumed	Tons		6354	6357	7038	
Coal in storage (est.)	Tons		29614	32287	21361	
DEAERATOR PLANT (Bldg. 185)						
Water flow	gpm avg. rate		30479	29763	30032	
Chemicals consumed:						
Dichromate	pounds		24800	19900	23000	
Sodium Silicate	pounds		103613	108000	0	
Chemical Analysis:						
pH	pH avg.		7.63	7.60	7.61	
Dichromate	ppm avg.		1.9	1.9	1.9	
Silica	ppm avg.		2.5	2.5	0	
Dissolved Iron	ppm avg.		.02	.02	.02	
Free Chlorine	ppm avg.		.04	.06	.14	
PROCESS PUMP ROOM (Bldg. 190)						
Total water pumped	gpm avg. rate		30304	29588	29857	
	gpm nor. rate		31802	32250	31381	
Water temperature	avg. °F.		65.1	65.1	64.8	
VALVE PIT (Bldg. 105)						
Chemicals consumed:						
Solids	pounds		2650	2250	1000	
Chemical analysis:						
A, B, C, & D Headers						
Standard limits						
pH 7.5-7.8	pH	(max)	7.70	7.65	7.70	
		(min)	7.60	7.60	7.60	
		(avg)	7.64	7.62	7.65	
SiO_2	ppm	(max)	3.0	3.0	0	
		(min)	2.0	2.0	0	
		(avg)	2.5	2.6	0	
$Na_2Cr_2O_7$ 1.8-2.2	ppm	(max)	2.1	1.9	2.0	
		(min)	1.9	1.5	1.8	
		(avg)	2.0	1.8	1.9	
Iron	ppm	(max)	.02	.03	.02	
		(min)	.01	.01	.01	
		(avg)	.02	.02	.02	
Chlorides	ppm avg.		1.8	1.8	1.4	

Power Division

From July 1, 1949

Through July 31, 1949

		200 AREAS	
		200-E	200-W
RESERVOIR (BUILDING 282)			
Raw Water Pumped	gpm avg. rate	1,844	1,840
FILTER PLANT (BUILDING 283)			
Filtered Water Pumped	gpm avg. rate	324	575
Chlorine Consumed	lb.	244	484
Alum Consumed	lb.	1,916	3,336
Chlorine Residual - Sanitary Water	ppm	.5	.6
POWER HOUSE (BUILDING 284)			
Steam Generated - Total	M lb.	13,840	29,284
Steam Generated - Ave. Rate	lb./hr.	18,602	39,360
Coal Consumed (Est.)	tons	1,242	2,252
Coal in Storage (est.)	tons	12,809	14,348

		300 AREA
POWER HOUSE (BUILDING 384)		
Steam Generated - Total	M lb.	6,052
Steam Generated - Avg. Rate	lb./hr.	8,134
Coal Consumed - Total (Est.)	tons	504
Coal in Storage (Est.)	tons	1,273
SANITARY AND FIRE SYSTEM (300)		
Well Water Received (3000 Area)	Total gal.	34,034,345
Well Water Per Day	gal/day	1,097,882
Well Water	gpm avg. rate	762
Chlorine Residual	ppm	.40

SECRET

INSTRUMENT DIVISION

MONTHLY REPORT

JULY, 1949

GENERAL

Manpower shortage continues to be a serious problem with the operation of the 234-5 Building and acceptance test completion of 100-H Area.

Preparations are being made for the operation of a second shift in the 300 Area Machine Shop.

100 AREAS (Reference Report HW-14051)

In order to complete acceptance testing and prepare equipment for service, an Instrument Division organization was assigned to 100-H Area effective July 1, 1949. Personnel, both exempt and non-exempt, were transferred from the 100 Areas in active operation.

The Instrument Division assisted in the development of proper control procedures and instrumentation for new type furnaces being installed in production lines of the P-10 project in 100-B Area.

Instrumentation for P-10A was completed. This includes a Foxboro indicator-controller on electric furnace and several flow indicators on critical cooling water system.

Installation of CO_2 flow transmitter and recorder was completed in 100-B Area.

Increase in amount of water recovered from the 115-B Building dryer room condensate traps since last of June led the "P" Division to suspect a small water leak in the pile. Dew point reading survey by the Instrumen t Division localized the suspected zone and indicated the leak was at the bottom, near side. Increase in moisture readings, however, has been slight and not until July 26 was it possible to determine by pressure testing that #0283 might be the faulty tube. At that time, it was plugged off. If continued operation shows a decrease in gas moisture it will be removed and examined. In the meantime, dew point analysis will continue.

Exit water Beta Monitor installation was completed for 107-DR.

Due to the increased power level and increased water flow in 105-D the power level calculator was recalibrated. Flow multiplier range was extended to 40,000 GPM in conjunction with an increase in recorder power range to 330 MW.

Instrument Division

100 AREAS (Cont.)

Four pile atmosphere gas samples were taken from the unit under various conditions and sent to the General Engineering and Consulting Laboratory for mass spectrometer analysis. Results will be publicized when received.

The "D" hole chamber to No. 2 Control Beckman in 105-D gave negative readings when connected for start-up on July 23. Chamber under No. 8 riser was used as a satisfactory sustitute.

On July 5, 1949, at 3:30 PM, a "scram" occurred at 105-F when the annunciator tab to No. 3 Beckman dropped. Investigation failed to determine the cause.

On July 7, 1949, at 8:40 AM, a similar incident to that noted above occurred at 105-D. Annunciator tab No. 2 Beckman dropped, but again no amplifier or controller could be determined.

On July 20, 1949, at 12:20 PM, a "scram" occurred at 105-F when the No. 2 Beckman amplifier fuse failed. As a result, wiring changes that will avoid a recurrence have been recommended and will be made after approval in all 100 Areas. Details will be covered in a separate report.

During 105-D startup at 7:27 AM, July 22, 1949, the No. 4 Beckman tripped unit while operating on range of 10×10^{-11} amps. Range wasn't changed in time to prevent exceeding trip setting.

The 105-D unit was "scrammed" again at 3:13 PM on July 23, 1949, when the operator by-passed No. 1 Beckman instead of No. 2 as requested during period of standardization.

200 AREAS (Reference Report HW-14052)

The pneumatic controls for the steam driven emergency exhaust fan in Building 291-T were relocated so they can be serviced outside a danger zone that formerly required a Special Work Permit.

The individual cell drain conductivity meter has been on trial for some time in inactive Cell 18 in 221-B. All indications point to satisfactory design and it has now been put in operation under actual operating conditions in Cell 17.

The conductivity cell in 221-T, monitoring Cells 5 to 20, failed due to a broken stainless steel electrode wire. Since the failure was holding up production it was replaced rather than attempting repair.

In an attempt to obtain better material balance, two calibration checks of the 6-3 tank capacity in Building 221-T were made during the month. In each case the accuracy of the Ring Balance liquid level recorder was found to be within limits of 1% error. The "S" Division feels that by installing a manometer in parallel with the instrument, better accuracy can be achieved. An attempt is being made to obtain a manometer with the accuracy expected.

Instrument Division

200 AREAS (Cont.)

Analytical instruments in Lab Building 222-T have again been prepared for service. The Development Group has moved most of their equipment elsewhere. There will remain a few instruments of this type to be serviced in addition to the analytical instruments.

234-5 Building

Hood 4 - The Shadowgraph balance appears to be a maintenance problem as there is not sufficient room to remove the cover to reach adjustments. It is felt that the cover can be left off permanently in order to make these points accessible. It will be necessary to remove the back of the hood to remove this cover and probably will not be done until maintenance becomes necessary.

Hood 8 - Residue in the HF rotameters has caused abnormal maintenance difficulty. It is believed the condensing of the HF gas is the cause of the residue formation and steps are being taken to have steam chaser lines installed to keep it in a gaseous state.

Hood 14 - Ratosights indicating high and low water pressure, corroded to the point of being inoperative after one weeks service. The aluminum rotors were removed and replaced with stainless steel rotors which have shown no sign of corrosion. A mass spectrometer leak detector was used very profitably in locating leaks in the vacuum system.

Hoods 25 & 26 - The mass spectrograph leak detector has been used to find several very difficult leaks in the vacuum system. The MSA gas analyzer has required an unusually large amount of labor to put in operation. Innumerable leaks were found in the system and are being corrected. The turbo type sampling pumps are believed to be of inadequate design to pull the sample through the system and then discharge it back to the ductwork. An attempt is being made to accomplish calibration in spite of this deficiency.

Final balancing of the ventilation system is now progressing under direction of the Giffels and Vallet ventilation engineer and is being followed by a representative of the Power Division and the Instrument Division to gather operating data.

300 and 700 AREAS (Reference Report HW-44053)

Two shipments were made to off plant sites. A Neutron Meter complete with calibration charts was sent to the Knolls Laboratory, one alpha hand probe was shipped to AEC at Los Alamos.

Project C-219, Additional Health Instruments, is approximately 90% complete to date.

Requested alterations and revisions for Project C-290, Fabrication of Neutron Spectrometer, continue to be made in promoting the mock installation of the mechanical assembly.

Instrument Division

300 and 700 AREAS (Cont.)

Instructions have been received from the HI Divisions to proceed with the manufacture of CI monitors incorporated in Project C-333. Drawings for these instruments were revised to include requested improvements.

The discharge area periscope for 100-H Area was assembled and the main tube shortened.

A satisfactory Plug Periscope for the "coffin" job was completed during this period. This is a short instrument with the light path broken and offset in three places. Another unit with additional features of viewing flexibility is under construction.

A feasibility study has been started to determine the possibilities of converting the spare 221 Building crane and periscope for the projected Redox plant.

Vendor fabricated Hanford Zeuto instruments were received. Examinations revealed that they were poorly assembled with loose screws, shorted wires, etc. Preliminary test results indicated that #2 and #3 ranges may have to be de-sensitized to reduce meter fluctuations.

The pressurized Poppy for the 321 Building operation has been completed and delivered for trial use. Air purge is supplied from a built-in pressure tank. A switch de-energizes the circuit whenever the case pressure falls below a predetermined setting.

Installations of the cascade system instrumentation was completed on June 30. The Technical Group was assisted in effecting process calibration of the instruments and in correcting irregularities.

Tests of capacitive and brush-type communtative switching methods for 100-G Area study are being continued. Preliminary results indicate that a simple capacitive commutator permits the transfer of a signal with attenuation of 15 to 1. It is anticipated that this factor can be improved materially.

The Project Field Release for Part I, authorizing instrumentation design, has been received. A limited amount of shop work has been approved which will permit the construction of prototypes for the preamplifier, amplifier, and special alarm circuits.

A special lifter to permit the safe handling of weights for the process Analytical Balances of the 234-5 Building was made and submitted for field testing. Four additional units have been requested.

Clock systems in older Richland schools are being cleaned and tested during the school vacation period. This work has been completed for Marcus Whitman Grade School and Columbia High School.

Mass spectrometer type Leak Detectors were supplied to the P-10 Project in the 100-B Area, and to the 234-5 Building in the 200 West Area. It was necessary to train and furnish a man to operate the Leak Detector for the extended program in the 234-5 Building.

Instrument Division

DESIGN AND CONSTRUCTION (Reference Report HW-14054)

Authorization to proceed with design of water plant for 100-DR was received. Schematic instrument diagrams are being reviewed with all parties concerned to establish final design arrangement.

Acceptance test procedures for 100-H Area are complete. All have been issued.

Test of gas effect on Pirani and Miller vacuum gage elements for 234-5 Building was completed. No effect could be observed on the Miller gage element although the Pirani was effected. The arrangement of the elements in the system is such that the diffusion pump temperature will protect the Pirani element. No modification therefore, need to be made to the installation.

All Phase I drawings, Building 234-5, was brought into As-Built condition.

Process flow diagrams for Redox Recovery showing instruments to be included was issued. Work is progressing on the balance. Specification data sheets for instruments are being prepared as rapidly as decisions are reached as to the measurement to be made and expected range of the instrument.

MAINTENANCE DIVISION
JULY, 1949

The Maintenance Division backlog at the end of the month was 13,195 mandays of which 7,955 was Minor Construction work. The total backlog decreased 3% over June.

100 AREAS:

Due to damage from stuck materials the process tubes #1495 and #1488 were replaced in the "D" pile and #1184 and #3071 were replaced in the "F" pile.

A leak detected in the "D" pile Vertical Safety Rod thimbles #23 and #33 necessitated replacement on the first and blanking off the second until it can be replaced.

In order to overcome sticking #26 Vertical Safety Rod in the "F" pile was replaced with a knuckle-jointed rod; an eccentric shortened rod guide was also installed at the same time.

The P-10 alloy portion of Project C-334 was completed except for minor changes which start-up experience indicates should be made.

200 AREAS:

The caustic storage tanks in the 200 East Process Acid Storage were cleaned and inspected and approved for continuing service.

The Area Fabrication Shops completed 14 cell connectors and two 15 HP agitator assemblies for replacement in the Canyon Building.

Twenty-two special plastic bag ports were installed on the process hoods in 234-5 Building to provide convenient access for servicing the process equipment. In addition, extensive work has been carried on in connection with the start-up of this unit such as completion of vacuum systems in hoods 14, 19, 25, 26; completion of refrigeration system to supply chilled air and water for the laboratory; balancing the ventilation system; and numerous items in connection with the process line.

300 AREA:

The new type flanged crucible which was installed on #4-A bronze melt furnace has now been in successful operation continuously for 36 days. A 50% improvement in service life is expected with the new designed vessel.

The construction of the facilities, known as Temporary Melting and Fabrication Building #3732, by Minor Construction forces, was completed for the Technical Division.

101 SHOPS:

During the past month a complete review has been had with Technical of the final project for Sigma and exponential piles. The review indicates that with this additional work, there will be a constant manpower requirement in the 101 Shops

OPERATION:

Work has continued on the receiving and storing of raw material received fmm the National Carbon Company. Surfacing and endimilling of sample material is being continued. Samples are still being transported to the 300 Area for testing and raw materials moved into color storage as soon as allocation results become available from the Technical Division.

Special test samples for Technical 300 Area experimental work were received from National Carbon Company and machined during this month.

Special tube block details for placing in one of the horizontal test wells in 105-H have been completed and are being held in the 101 shops pending actual installation.

SECRET

ELECTRICAL DIVISION

JULY, 1949

GENERAL

The unfinished work backlog increased slightly by 193 mandays to a month end total of 12,126 mandays. Nominal decreases in the Telephone Section and 100-F Area were more than offset by addition of 284-5 maintenance, moderate increase of minor construction in the 300 Area, and slight increase of distribution backlog.

An estimate of backlog pertaining to Project work only for fiscal year 1950 (major part not yet released) indicates 65 man years of work. In consequence, 15 additional men have been requested at this time for inside electrical work.

The total divisional personnel at the month end was 272, a net increase of five.

Since July 4, the Hanford Substation was placed on unattended status by shifting Operators, mainly to the 100-H Area. It has been concluded that the remaining 66 KV Hanford load consisting of White Bluffs, 100-H construction, 101 Building and the 300 Area does not warrant operator coverage after review with the operating groups.

The load chart for the peak day of the month, July 25, is attached, showing a peak of 55,100 KW for the entire project, with coincidental demand of 15,900 KW for combined 66 KV and 115 KV systems (Richland, 300 Area, and vicinity). Decrease of Richland and North Richland load is seasonal, but somewhat more than anticipated on this basis.

The proposed ungrounding of the 440 volt existing systems in the work areas has been deferred to beyond fiscal year 1950. However, it has been agreed with Design and Construction that 100-H, 105-DR and 234-5 will be completed ungrounded with ground detectors wye connected.

The Electrical Standards Committee reviewed and approved Hanford Works electrical symbols, and installation standards for fire alarm systems.

AREA ACTIVITIES

No electrical troubles or damage resulted in work areas from system surges (see Distribution report) of July 12 and July 29.

Projects P-10 and P-10A, which are on top priority in the electrical construction schedule, were respectively 99 percent and 95 percent complete at the month end. Extensive tests were necessary to obtain correct loading of high frequency induction furnace. Use of carbon crucible and change of coil turn ratio finally resulted in adequate loading.

Electrical connections between 105-D and 105-DR via 115-D have been completed and tested. With minor exceptions (including fire alarm tie-in) Project C-279 (Building 1704-D) is electrically complete.

SECRET

In the 105-F Building, in an effort to reduce unexplainable Beckman scrams, a second Sola transformer was paralleled to the existing transformer and voltage fluctuations were considerably reduced.

In the 100-H Area, the second main transformer bank has been energized from the one 220 KV tap. Acceptance testing continues at a high level. During hi-potential testing, feeder C5-L13 was ruptured at a splice, and satisfactorily repaired.

In 200 West, the area feeders have now been switched back to normal after increasin copper sizes to 251 substation.

Permanent cathodic protection to 241-U Tank Farm has been completed.

As of 12:01 a.m. on July 2, the Subcontractor forces were withdrawn from 234-5 Building, and operating forces have been responsible for maintenance, and completion of adjustments as well as some remaining minor construction details. Direct shift coverage was arranged for the break-in period to July 22. Much of the initial electrical work related to creation of good air balance between various zones and the outside involving control circuit changes in the ventillation system. The 234-5 Building is now on its normal dual power feed.

In the 300 Area, canning and dipping furnace element failures have been reduced approximately 50 percent as a result of using flanged crucible, covering all exposed metal with refractory material, and by raising the heating elements.

"A" motor generator and autotransformer, 314 Melt Plant, burned out on July 7 and was returned to service July 29 after rewinding under SWP conditions. Cause was not determined but ventillation system will be studied.

On July 18, a defective primary fuse caused single phasing of part of 3706 Laboratory load resulting in partial loss of hood ventilation. A Special Hazard Committee agreed to the installation of red lights to prevent exposure under future similar conditions. Transformer taps were set down 5 percent in 300 Area or 440 volt circuits to compensate for increased voltages due to transfer of other load from 66 KV to 115 KV source.

TRANSMISSION AND DISTRIBUTION

On Project C-177 (115 KV system), lines have been cleared to permit Subcontractor to build 115 KV transmission line, Section IV, between the two Richland substations. In the 300 Area, work on the 115/2.3 KV station is 95 percent complete. The 2.3 KV/440 volt station work has been started but will be delayed for material until late September. Line rebuilding, 2300 and 440 volt, in the 300 Area is 70 percent complete.

Line work continues at a high rate, especially relating to new Village commercial areas and to telephone system in Richland (Project C-144). On Project C-336, 7.2 KV line and transformer setting for new well was completed on priority basis on July 19.

Two unscheduled outages occurred. Critical "Y" was established July 12 for eight minutes at 3:05 p.m. due to relaying of Coulee Lines No. 1 and No. 2 at Midway and No. 2 at Coulee. This matter has been referred to the Atomic Energy Commission, for review with the Bonneville Power Administration.

SECRET

The second occasion, July 28 at 10:45 p.m., involved loss of both Coulee lines at Midway due to errors during relay adjustments by Bonneville Power Administration personnel without notification. Power was restored immediately with no loss of process load.

TELEPHONE SECTION

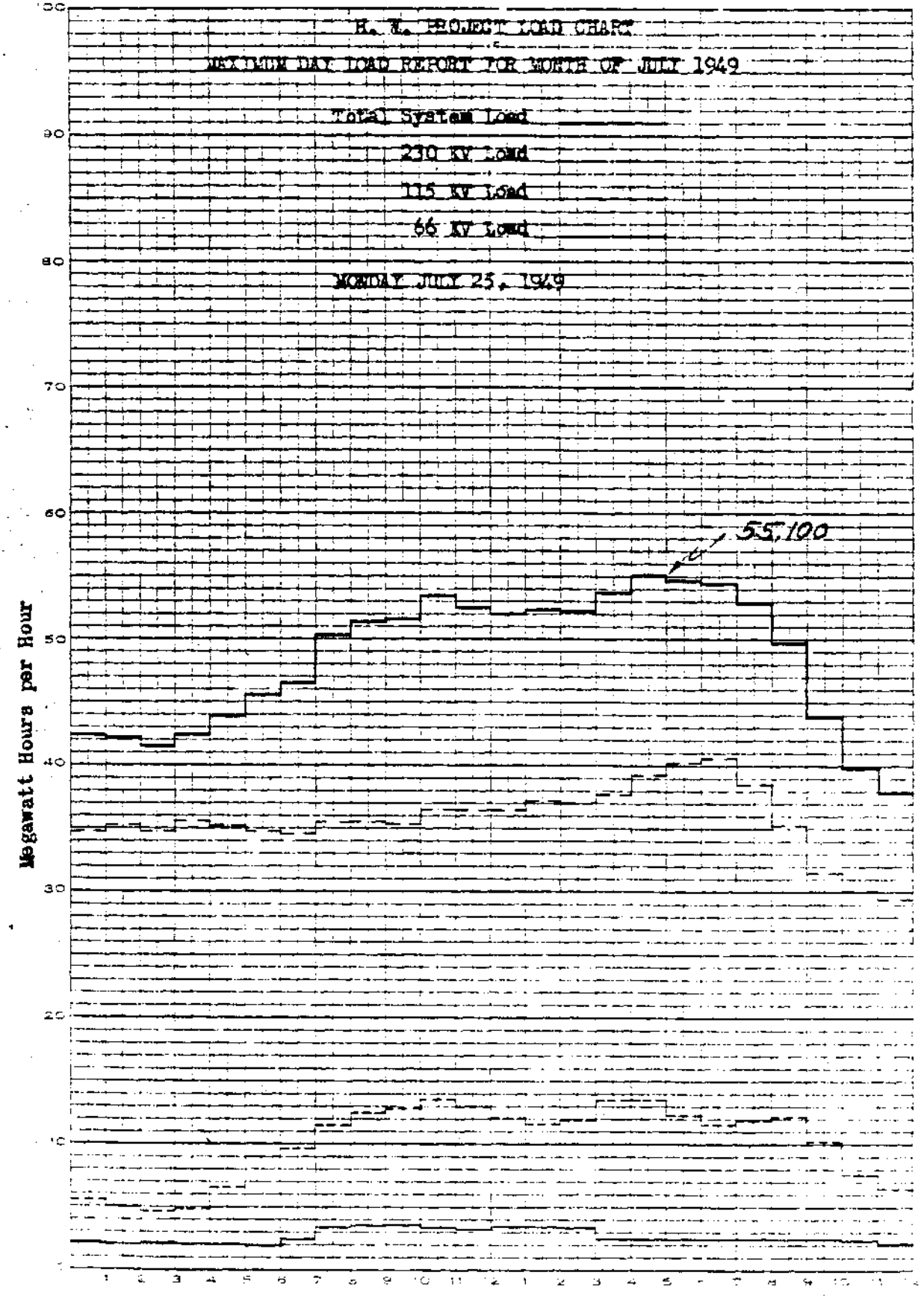
The telephone work, including new telephone cable as well as installation of dial equipment, is proceeding at a high rate as scheduled.

POWER STATISTICS - ELECTRICAL DIVISION
FOR MONTH ENDING JULY 31, 1949

ITEM	ENERGY - KW HRS. June	ENERGY - KW HRS. July	MAX. DEMAND - KW June	MAX. DEMAND - KW July	LOAD FACTOR - % June	LOAD FACTOR - % July
230 KV SYSTEM						
A-2 Out (100-B)	7,100	7,110	11,400	11,200	86.5	85.3
A-4 Out (100-D)	7,530	7,470	12,800	13,000	81.7	77.2
A-5 Out (100-H)		648		900		96.8
A-6 Out (100-F)	7,010	6,970	11,800	11,100	82.5	84.4
A-8 Out (200 Areas)	2,780	2,890	5,000	4,400	77.2	88.5
TOTAL OUT	24,420	25,088	41,000**	40,500**	82.7	83.3
MIDWAY IN	24,810	25,558	38,400*	41,200*	89.7	83.4
Transm. Loss	390	470				
Percent Loss	1.6	1.8				
66 KV SYSTEM						
B3-S4 Out (300 Area)	288	302	624	660	64.1	61.5
B3-S5 Out "	354	342	920	1,160	53.4	39.6
B1-S4 Out (N.Richland)	1,123	-	2,938	-	53.1	-
B7-S10 Out (W.Bluffs)	267	234	787	742	47.1	42.4
B9-S11 Out (100-H)	480	360	1,120	960	59.5	50.4
Hanford Out	306	319	500	500	85.0	85.7
TOTAL OUT	2,818	1,557	6,889**	4,022**	56.8	52.0
Hanford In	1,752	1,610	8,000*	3,400*	30.4	63.6
Pasco In	1,188	-	3,200*	-	51.6	-
TOTAL IN	2,940	1,610	11,200**	3,400*	36.4	63.6
Transm. Loss	122	53				
Percent Loss	4.1	3.3				
115 KV SYSTEM						
BB1-S1 Out (Richland)	2,988	2,952	8,280	5,940	50.1	66.3
BB1-S2 Out "	2,556	2,446	6,840	5,220	51.9	63.0
BB1-S4 Out (N.Richland)	389	1,517	2,938	2,822	18.4	72.2
TOTAL OUT	5,935	6,915	15,120**	13,982**	54.5	66.5
Benton In	3,168	4,200	9,000*	9,720*	48.9	58.1
S. Richland In	2,856	2,976	7,704*	7,920*	51.5	50.5
TOTAL IN	6,024	7,176	16,704**	17,640**	50.1	54.7
Transm. Loss	89	261				
Percent Loss	1.5	3.6				
PROJECT TOTAL						
230 KV Out	24,420	25,088	41,000**	40,500**	82.7	83.3
66 KV Out	2,818	1,557	6,889**	4,022**	56.8	52.0
115 KV Out	5,935	6,915	15,120**	13,982**	54.5	66.5
TOTAL OUT	33,173	33,560	63,009**	58,504**	73.1	77.1
230 KV In	24,810	25,558	38,400*	41,200*	89.7	83.4
66 KV In	2,940	1,610	11,200**	3,400**	36.4	63.6
115 KV In	6,024	7,176	16,704**	17,640**	50.1	54.7
TOTAL IN	33,774	34,344	57,900*	55,100*	81.0	83.8
Transm. Loss	601	784				
Percent Loss	1.8	2.3				

* Coincidental Demand
** Non-Coincidental Demand

Average Power Factor - 230 KV System-97.6
Average Power Factor - 115 KV System-96.1
Average Power Factor - 66 KV System-96.2


H. W. PROJECT LOAD CHART
MAXIMUM DAY LOAD REPORT FOR MONTH OF JULY 1949
Total System Load
230 KV Load
115 KV Load
66 KV Load
MONDAY JULY 25, 1949
55,100
Megawatt Hours per Hour
100
90
80
70
60
50
40
30
20
10

TRANSPORTATION DIVISION
MONTHLY REPORT
JULY 1949

GENERAL

Transportation Division personnel forces were increased during the month from 673 to 688 by 18 new employees and rehires, 2 transfers in, 1 transfer out, 3 terminations, and 1 removal from roll. The total force was increased by 15 employees who were assigned to Railroad Track Maintenance and Minor Construction crews.

RAILROAD ACTIVITIES

Commercial inbound cars decreased approximately 40% over June. Process movements were normal. There were 1,651 cars handled in July compared with 2,748 in June, 2,040 in May, and 1,376 in April.

The decrease in inbound tonnage resulted from the coal miner's holiday and their new three day work week. Outbound tonnage, consisting of lumber from North Richland, construction equipment from North Richland and White Bluffs, and scrap metal from Richland and Leazure Spur, failed to materialize to the degree indicated in June.

Completed installation of a new type horn with a 105 db rating on all locomotives.

Locomotive 39-3721, which was found to be contaminated in May, has been stored in 200 West Area, however, it may be used under certain restrictions when and if additional power is needed.

Transportation Division forces began maintaining all Project railroad tracks both inside and outside the fenced areas.

Loaded out the following used material to Moses Lake, Washington, which was excess to Project needs: 44,600 lineal feet of 85-pound rail; 1,360 pairs of angle bars; and 21,000 tie plates.

AUTOMOTIVE ACTIVITIES

Area and Village Bus Systems registered a combined decrease of 3,523 passengers over June.

Shuttle service to 184 Bldg. in 100-H Area was established July 19. Service to Hanford Substation was discontinued July 8.

The Equipment Control Section completed reports on the use of Firestone spark plugs and the feasibility of a tire rental contract for buses.

CONSTRUCTION AND LABOR ACTIVITIES

Completed seal-coating of approximately 10 miles of Project roads. Expended 112 manhours in building walks at the 3732 Bldg.; and 376 manhours in crushing rock and stock piling aggregate.

[redacted]

Transportation Division

Labor and transportation facilities were supplied for Projects C-163, C-177, C-184, C-189, C-22 0, C-268, C-271, C-287, C-291, C-308, C-330, C-331, C-334, C-752, Well Drilling Operations and the 101 Area.

(Statistical information is attached to the file copies of this report)

Classification Changed to
RESTRICTED
By Authority of
REVIEW BOARD. Chairman
Date: 12-18-57

[redacted]

SECRET

PROJECT ENGINEERING DIVISION

MONTHLY REPORT

JULY 1949

PRESENT STATUS OF WORK

Projects Authorized and Under Construction

100 AREAS

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-172	Dismantling of Equipment in Demineralization & Deaerating Plants	15	8-19-47	$ 486,000
C-184	Experimental Animal Farm	52	4-28-49	288,000
C-192	Biology Lab. Bldg. 108-F (Part II authorized for additional funds)	7	4-20-49	1,121,000
C-290	Fabricate & Install Spectrometer	65	9-29-48	17,400
C-306	Revised Pile Shielding - Front Face Shield Nozzle Caps (Modification of original design)	0	11-30-48	88,000
C-323	Vertical Rod Replacement - 105 B, D & F	75	3-10-49	280,600
C-334	P-10 Alloy Facilities	81	1-28-49	242,000
C-340	P-11 Project (Part I)	0	6-28-49	130,000
	TOTAL Estimated Cost Active 100 Area Projects			$2,653,000

200 AREAS

C-271	Additional Waste Storage Facilities 241-BY (G.E. Portion Only - Subcontract not included)	25	9-29-48	$ 50,000
C-298	Decontamination Stations for Small Equipment - 221 T, B	99	11-15-48	33,000

SECRET

Project Engineering Division

Projects Authorized & Under Construction (Cont'd))

200 AREAS (Cont'd)

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-268	Sanitary Tile Field Addition 200 D&W (Additional $36,000 I.M.E. being requested)	45	7-21-48	$ 60,000
C-337	Dissolver Off-Gas Filtration Facilities (Only "T" plant authorized at present - Total est. cost of entire job incl. "B" plant $337,000)	0	6-22-49	173,000
	TOTAL Estimated Cost Active 200 Area Projects			$ 316,000

300 AREA

C-189	Bldg. 3745-A X-Ray Facility	96	8-20-47	$ 33,000
C-219	Construction of Additional H.I. Instruments	90	1-27-48	97,200
C-227	Conversion of Offices to Labs Bldg. 3706 & Construction of 3707-C Change House	97	3-15-48	557,000
C-287	Experimental Metallurgy Lab. Bldg. 3730 (Field Release issued)	10	12-2-48	140,000
C-308	Process Development Lab. Bldg. 3732	98	1-17-49	50,000
C-330	Improved Ventilation 313 & 314 Bldg.	2	9-24-48	540,000
C-331	Rehabilitation of Bldg. 321 (Including Remodeling & Ventilation)	68	1-31-49	227,000
C-338	Mine Tube Test Unit - B,D&F Blocks	0	7-13-49	25,400
	TOTAL Estimated Cost Active 300 Area Projects			$1,669,600

Project Engineering Division

Projects Authorized & Under Construction (Cont'd)

GENERAL PLANT AREAS

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-138	Richland Telephone Exchange Bldg. 702	85	5-12-47	$ 470,500
C-144	Additional Tel Cables - Richland	70	5-12-47	71,000
C-177	115 KV Power Transmission Line	89	8-14-47	1,364,000
C-276	Plant Telephone Project (Part II in preparation)	88	10-6-48	1,232,000
C-291	Security Fences - All Areas	14	10-18-48	441,800
C-279	Improvement to Area Administration Buildings (Project Re-activated at Request of A.E.C.)	91	(Rev.Dir.) 5-18-49	167,800
C-333	H.I. Operational Survey Insts.	0	4-20-49	85,000
C-322	Osmose Treatment of Plant Elec. Poles & Replacements Where Necessary	56	2-1-49	154,000
	TOTAL Estimated Cost Active Plant General Projects			$3,515,600
	GRAND TOTAL Est. Cost Authorized Work-ALL AREAS			$11,435,300

Informal Project Requests Authorized

ALL AREAS

Request Number		% Phys. Complete	Date Auth.	Est. Cost
M-704	Special Cadmium Plated Splines	100	2-7-49	$ 18,300
M-711	Experimental Algae Filter - 107 Bldg.	0	5-6-49	13,000
Med-1	Surgical Wing Air Conditioning - Kadlec Hospital	2	5-5-49	16,100

SECRET

Project Engineering Division

Informal Project Requests Authorized (Cont'd)

Request Number		% Phys. Complete	Date Auth.	Est. Cost
M-716	Preliminary Engineering & Project Preparation - Parallel Operation of 221 T&B Cells	2	6-24-49	$ 10,000
Serv-9	Badge House Addition 300 Area	0	12-15-48	14,500
Tech-22	Laboratory Hoods Bldg. 222-T	50	5-17-49	15,000
Tech-24	Radiography Equipment 234-5	85	6-24-49	14,300
			TOTAL	$ 101,200

Projects Being Routed for Authorization

E.R. No.	Project No.		
2469	C-326	Underground Geological & Hydrological Investigation Program Including Test Wells & Other Fac.	$ 193,000
A-3062	C-339	300 Area Rolling Mill	1,340,000
E-406	C-341	Additions to Richland Electric Distribution System	173,000
E-415		Dismantle 66 KV Trans. Line and Substations	89,500
A-1097		Facilities for Exponential Experiments	391,000
A-1100		Galvanizing & Replacement of Process Tube Nozzles B,D,F & DR	789,000
		TOTAL Est. Cost of Projects Awaiting Authorization	$2,974,900

SECRET

4.

Project Engineering Division

Project Engineering Division Area Reports

Status of Engineering Study & Design Work in Progress During Month of July.

100 AREAS

E.R. No.		% Engineering Complete
A-1001	As-Built Drawings	0
A-1002	G. E. C. Study	10
A-1034	Alterations to Bldgs. 186 & 185	38
A-1068	Prepare Informal Request for Developing a Flexible Vertical Rod	30
A-1074	Design Moisture Extraction Facilities for Gas System - 105 Building	2
A-1075	Recommend Adequate Warehousing for 100, 200 & 300 Areas	65
A-1076	Prepare Project to Replace V.S.R. and Guides in 105 B, D, F (Designs for Project C-323)	80
A-1077	Prepare Project for P-10 Alloy Facilities (Designs for Project C-334)	90
A-1080	Thermocouple for 105 Process Tube	52
A-1083	Hot Thimble Mock-Up	90
A-1085	Prepare Project for Pile Operation with 100% CO_2 Atmosphere, 100 F Area	15
A-1089	Design Draft Free Glass Blowing Table P-10	5
A-1093	Prepare P-11 Project (Parts I & II) Designs for C-340	42
A-1094	Algae Pilot Filter	65
A-1096	Study Lubrication of Process Tubes During Charging	5
A-1097	Prepare Project for Hot and Cold Exponential Experiments in 101 Building	80

Project Engineering Division

Project Engineering Division Area Reports (Cont'd)

100 AREAS (Cont'd)

E.R. No.		% Engineering Complete
A-1099	Magazine Feeding Induction Furnace Lid	0
A-1100	Nozzle Galvanizing and Replacement	40
A-1101	IBM Equipment	55
A-1102	Design Furnace Tube Out-Gassing Fac.	100
A-1103	Revisions to Air Monitoring System and Air Supply for Face Masks in 108-B Building	90
A-1104	Prepare Informal Request for Repairs to 107 Basin	10
A-1105	Design Pedestal and Hood for 108-B Balance	100
A-1106	Pile Cork Removal - Far Side Bracing	20
A-1107	Air Monitoring - P-10 Can Opening	30
A-1108	Cathetometer Dolly	75
A-1109	Redesign Can Opener Gripper Jaws	20

200 AREAS

2266	As-Built Drawings	20
2279	Prepare Project for Regasketing Facilities 221 T & B	85
2299-R	Check Stack Alignment Bldg. 291-B	0
2461	Survey Sanitary Tile Field Addition 200 E-W	36
2467	Engineering Contact on New Processes	20
2490	Prepare Project for Iodine Removal	90
2491	Design Evaporation Facilities First Cycle Waste	25

Project Engineering Division

Project Engineering Division - Area Reports (Cont'd)

200 AREAS (Cont'd)

E.R. No.		% Engineering Complete
2493	Check Elevation of Inlet Duct Bldg. 291-B	20
2495	Study Buildings 221 & 224 Steel Requirements	75
2497	Additional Waste Facilities 241-BY (G.E. Portion of Project C-271)	30
2500	Design Transfer Mechanism for Hood and Boat Loading Bldg. 234-5	50
2502	Recommend Portable Ventilation Equipment for Dry Box Hoods Bldg. 234-5	0
2503	Prepare Project for Duct Level Floor Bldg. 234-5	0
2504	Prepare Project for Installation of Lab. Furniture Bldgs 271 T&B	0

300 AREA

A-3002	As-Built Drawings	25
A-503	Change in Air Conditioning System 321 Bldg.	100
A-3060	Temporary Melting & Fabrication Bldg. (Designs for Project C-287)	82
A-3061	Increased Ventilation - 313 & 314 Bldgs. (Designs for Project C-330)	58
A-3062	Install Rolling Mill - 300 Area (Designs for Project C-339)	14
A-3066	Revise Maps - 300 Area Water and Sewer Systems	0
A-3067	Billet Lifting Tongs (Alternative method being considered)	60
A-3069	Solvents Storage - 3706 Building	2

Project Engineering Division

Project Engineering Division - Area Reports (Cont'd)

300 AREA (Cont'd)

E.R. No.		% Engineering Complete
A-3070	Study Ventilation 3706 Requirements to Provide 40% Humidity	20
A-3071	Design and Install Hood Filter System for Room 55, 3706 Bldg.	5
A-3075	Design for Nine Tube Mock-Up for 105 BDF Design (Designs for Project C-338)	80
A-3076	Prepare Project for Chip Pickling and Metal Fines Recovery	5
A-3077	Design Installation for Three Automatic Screw Machines 313 Building	27
A-3080	Design and Estimate Loading Platform & Acid Storage Area, Bldg. 3706	2
A-3082	Design and Prepare Cost Estimate for Exhaust Systems for Graphite Machining in Room 41-A, 3706 Bldg.	0
A-3083	Prepare Project for C-6 Hydrofluoric Acid Sludge Recovery	0

GENERAL PLANT AREAS

A-452	Prepare Project for Expansion of Main Plant Telephone System (Design Work Only -Proj. C-276)	95
A-526	Special Field Information for 300 Area As-Builts	75
A-530	Design Work for Rehabilitation of Bldg. 321 Project C-331	97
A-532	Design Work for Project C-192 Construction of Biology Lab. - Bldg. 108-F Pts. I & II	20
A-536	Additional Capacity for Sewage Lift Pumps Richland	15

Project Engineering Division

Project Engineering Division - Area Reports (Cont'd)

GENERAL PLANT AREAS (Cont'd)

E.R. No.		% Engineering Complete
A-537	Survey for Maintenance of R.R. Inside Restricted Areas	20
A-541	Design & Survey for Railroad and Spurs to Redox Plant	50
A-542	Addition to Bldg. 622 - Meteorology Bldg.	5
A-543	Pistol Range Sanitary Facilities, Arsenals, Fire Protection, etc.	0
A-962	Designs for 115 KV Power Line Through Richland	95
E-403	Install Traffic Signals at Richland Railroad Crossings	75
E-405	Electrical As-Built Drawings	0
E-406	Prepare Project - Additions to Village Distribution System	40
E-407	Prepare Project - Inst. Htrs. on Evacuation Busses & Service Facilities	65
E-411	Study Design & Est. Cost of Dual Feed of Sewage Lift Station	55
E-413	Study & Project - Telemetering 115 & 230 KV Lines & Remote Control on 115 KV Substation	10
E-417	Hood Alarm System Bldg. 3706	75
E-419	Prepare Inf Req - Dispatching Board Expansion Bldg. 251	90
941	Designs for Experimental Animal Farm	

(SECRET)

Project Engineering Division

BACKLOG SUMMARY

	Work on Hand 6-30-49 Estimated Man Days	Work on Hand 7-31-49 Estimated Man Days
Studies	298	273
Project & Design	7,225	7,015
TOTAL	7,523	7,288

(SECRET)

TECHNICAL DIVISIONS

July 1949

SUMMARY

Pile Technology Division

The far side shields of the D and F Piles continued to move outward during July, though there was reduced rate of movement at the F Pile. Since the top shield is stationary at D Pile and is slowly moving downward at the F Pile, it may be feasible to restrain outward movement of the side shields by use of brackets which are currently being designed.

The project for construction of facilities for determining the critical mass of plutonium solutions was approved and field work has started. Supporting experiments were begun at Oak Ridge, using U-235 solutions.

Corrosion products have been observed in process tubes within the upstream region formerly occupied by dummy slugs. More detailed examination of tubes removed from the piles is being arranged.

Recent data obtained from graphite samples show that after extended irradiation extremely high temperatures are required to anneal the expansion effects, but substantial annealing can be effected slowly over a period of several months or years by nuclear annealing at ambient pile temperature.

Separations Technology Division

A careful study is being made of material balances in the Separations Plants. This includes recalibration of critical tanks, a systematic study of sampling errors, and effect of hold-up at various points in the process.

A traverse has been made of one of the plant sand filters to establish the manner in which activity is being accumulated. Up to the present time the activity evidently is concentrating in a narrow band at the bottom of the primary filter layer, with little indication of active material above this point.

The study of recontamination in the stack by dissolver off-gas continues in an effort to determine the relative contributions of I^{131} and other fission elements. Preliminary results with the silver reactor operated in series with dissolver off-gas water scrubbers have been encouraging.

Operations were started in Building 234-5, preceded by a progression of dummy runs through the later stages of the process line. Nine uranium reductions were carried out to standardize the reduction procedure, and this has given satisfactory results with plutonium metal. There have been difficulties with the vacuum systems in Hoods 14, 25, and 26, but these have been corrected sufficiently to permit production to proceed.

Peroxide precipitation studies have been continued in the laboratory with attention shifting to sulfate-free systems. Work on recovery has been started with initial effort directed toward the supernates from the oxalate precipitation step.

Twenty solvent extraction runs were completed in the Scale-Up Unit during the month, and the first shakedown run was carried out in the re-built Demonstration Unit. The Scale-Up studies were directed primarily to a comparison of 1-inch Raschig ring packing as against 1/2-inch Raschig ring packing in IA-IB-IC Columns, to determine the effects on stage height and throughput rates, and also on the mixing of the feed and scrub streams in the IA Column. Process laboratory studies have continued on feed clarification and on the preparation and recovery of aluminum nitrate.

Laboratory research studies have yielded encouraging preliminary results on the treatment of current metal waste for preparation of a solvent extraction feed. The method involves a sequence of sodium uranate precipitation, caustic metathesis and phosphate removal through precipitation and recycling of uranyl phosphate. Work has been started to establish whether or not it will be necessary to incorporate a sodium removal step in the metal feed preparation process. Preliminary results indicate that the sodium nitrate which is produced by the dissolution of sodium diuranate in nitric acid will contribute a portion of the required salting effect, with a corresponding reduction in the amount of aluminum nitrate needed. If this is confirmed by further study, it will not be necessary to provide a sodium removal step in the process.

Other studies include an evaluation of the effect of aging on ruthenium removal through ozonization, the recovery of plutonium and uranium in Redox wastes by means of uranate precipitation, and the initiation of a program on the coupling of Redox to the final isolation and metal production steps.

Metallurgy and Control Division

Experimental Metallurgy Section operations were started with the P-10 alloy production facilities installed in Bldg. 108-B under project C-334. Aluminum capsules were filled with lithium, and five full-size heats were processed in the induction-heated vacuum furnace. Three of the latter were straight aluminum, and these were followed by two of lithium-aluminum alloy. All equipment functioned satisfactorily, and experience in casting these first two 6" x 20" alloy billets indicated that initial operational difficulties can be resolved during the next few runs. An Argonne metallurgist experienced in this operation will arrive August 1 to assist with this start-up.

Considerable metallurgy laboratory effort continued on the structural evaluation of uranium metal transformed by induction heating and beta quenching, an operationally attractive alternate to the present bronze-dip step in slug canning. Experimental equipment for giving this treatment to unmachined rod sections was assembled and tested, and will be used with both alpha-rolled and gamma-extruded uranium to prepare representative slugs for pile testing.

The Analytical Section resumed control services in the T Plant Laboratory on July 25, and is assigning personnel to the T and the B Plant Laboratories to suit the analytical loads involved. Improved hood facilities are being provided in both buildings for use in analytical research studies. Control services in the new Bldg. 234-5 laboratories were initiated and maintained without incident.

O. H. Greager

CHG:dg

SECRET

SECRET

August 8, 1949

PILE TECHNOLOGY DIVISION

JULY, 1949

VISITORS AND BUSINESS TRIPS

Walter J. Koshuba and R. W. Coyle, Fairchild Engine and Airplane Corporation, Oak Ridge, Tennessee, were here July 21 and 22, 1949 to discuss properties of materials in fuel channels.

S. Siegel and J. T. Stiessel, Westinghouse Electric Corporation, Pittsburgh, Pa., were here July 19 and 20, 1949 to discuss irradiation experiments proposed for the H Pile.

Business trips of Pile Technology Division personnel during July were as follows:

U. M. Staebler visited Schenectady July 13-16, 1949 and visited the Atomic Energy Commission in Washington, D. C. July 18 and 19, 1949 for consultation on the Reactor Development Program.

J. M. West visited Oak Ridge National Laboratory, Oak Ridge, Tennessee, July 20-25, 1949 to witness K-25 experiments and visited Argonne National Laboratory, Chicago, Illinois July 25-29, 1949 for technical consultation.

J. B. Lambert visited Argonne National Laboratory, Chicago, Illinois July 25-28, 1949 to attend the Slater Committee Meeting on radiation damage.

M. W. Carbon visited Oak Ridge National Laboratory, Oak Ridge, Tennessee July 27-29, 1949 to attend Heat Transfer Conference.

SECRET

Pile Technology Division

ORGANIZATION AND PERSONNEL

	June	July
Pile Physics Section	35	39
Pile Engineering	28	28
P-10 Project	6	7
Administration	3	3
	72	77

One physicist was hired this month. Another physicist was placed on the payroll June 27, but was not included in last month's report. He is still waiting for a Q clearance. A third physicist transferred from Schenectady July 22, but has not arrived. He is included in this report.

An instrument mechanic (glassblower) was hired, one physicist transferred to the Engineering Section, and one engineer transferred to the Physics Section. A Lab. Assistant D was hired.

PILE PHYSICS

Graphite Development

To date a total of twelve experimental heats of graphite have been prepared in which the addition of Freon was begun after an energy input of 8000 KWH rather than after 10,100 KWH, the standard procedure. Samples from nine of these heats have been tested; results indicate that there was only a slight improvement in purity due to this procedure. Mechanical tests are in progress.

Five complete heats of graphite have been prepared from Whiting coke, graphitized in the normal manner and then purified. Tests show this material to be of acceptable purity, dih 0.96, and of high density, about 1.73 gm/cc. From a reactivity standpoint such graphite would be very desirable for future piles.

The average purity of regular production heats of graphite tested in July was significantly higher than in previous months as a result of changes in the standard procedure for GBF production which were developed in preceding months.

Critical Mass of Plutonium Solutions

The project for construction of facilities to carry on critical mass work has been formally approved. The Stran Steel building in which the experiments will be carried out has been purchased. Clearing of the site has begun and a well has been drilled. Part II of this project, covering fabrication and installation of experimental equipment, is being prepared.

Pile Technology Division

Experiments on our behalf at K-25 at Oak Ridge with U-235 solutions have begun. No results are available at this time.

Exponential Experiments

Part I of a project authorizing experiments to improve the basic lattice design in any future piles of the Hanford type is about ready to be submitted for approval. Two objectives in this study will be higher specific power and higher conversion ratio.

Reactivity

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

	B Pile	D Pile	F Pile
In rods	75 ih	65 ih	66 ih
In Special Requests	408	373	431
In Plant Assistance Irradiations	0	25	0
In lead-cadmium columns	0	0	0
In bismuth columns	114	114	84
In dummy columns (including empty fringe tubes)	1	24	32
In xenon	473	498	466
In over all coefficient	-180	-201	-235
Total cold, clean reactivity	891	898	844

During the month, the B Pile gained 1 inhour, the F Pile 22 inhours, and the D Pile lost 12 inhours.

PILE ENGINEERING

Graphite Expansion

Carbon dioxide in the B Pile atmosphere has been held at a nominal 40% since the latter part of April. Since the first part of May there has been a definite decrease in rate of movement of the Far Side and Top Biological Shield. During July, measurements showed no movement of the center of the upper edge of the Far Side or the center of the Top.

The D Pile was operated at 305 MW power level with 40% carbon dioxide in the Pile gas during July. There was no upward movement of the Top Shield but the Far Side continued to move outward at a rate of about 0.1 inches per month.

The gas in the F Pile was maintained at a nominal 60% carbon dioxide during the month. The Top Biological Shield has moved downward a total of 0.15 inches since April 1. There has been a definite decrease in rate of the outward movement of the Far Side during June and July. Brackets to restrain the

Pile Technology Division

Far Side of the F and D Piles are being designed; these appear feasible in the absence of upward movement of the Top Shield.

The average maximum graphite temperatures measured by the 13 G thermocouples during July were 203° C. at B Pile, 273° C. at D Pile, and 290° C. at F Pile.

Further improvements and calibrations of pile motion instruments were made during the month.

Measurements of the horizontal displacement of the No. 27 vertical thimble at the B Pile showed a maximum bowing towards the Far Side of 1.52 inches at a point 17 feet down from the top. The horizontal displacement of the graphite in the B Pile is much more symmetrical about the horizontal midplane than is true of the D and F Piles.

Postum Production under Emergency Conditions

Investigation of the transients following a scram of a pile being operated at 70 MW on steam power alone shows that the high tanks will supply enough water to sweep steam out of process tubes should boiling occur and that the export water system from other areas may be used as a duplicate emergency supply.

Examination of Vertical Thimbles

Vertical thimble No. 33D was found to be seriously corroded at the lower end of the rod guide when it was removed because of a leak. The wall thickness had been reduced by as much as 80%.

Examination of F Pile Downcomer

Pressure measurements in the ducts of the F Pile downcomer indicated damage to the baffles during June. An inspection on July 27 disclosed increased tearing of the No. 4 baffle which probably accounts for the decreased pressure in the No. 5 duct. It was not ascertained whether the large change in suction in the No. 4 duct was caused by the observed tear or to other damage which could not be seen.

Beta Experiment

Beta slug E 4 was discharged from Tube 1481 F on July 19 after 24.6 day irradiation. The fuel element was removed and prepared for shipment to Schenectady. Slug B 9 was discharged from Tube 0865 F on July 19 after 276.8 days irradiation. Slug E 5 was received from Schenectady and prepared for charging.

Pile Technology Division

Tube Corrosion Inspection

The front eight foot sections of a total of 32 tubes were borescoped to observe the occurrence and nature of corrosion products on the tube walls. A significant amount of corrosion products was found in all of the tubes within 6 inches of the Van Stone flange and in 14 other tubes further than 18 inches from the flange. Virtually no corrosion products were found between 6 inches and 18 inches from the Van Stone flange. The significance of these corrosion products is not known at present. Several representative tubes will be removed to permit more detailed examination.

Front End Cap Design

Tests on several types of end cap assemblies carrying a sacrificial magnesium slug have indicated that the sacrificial slugs must be rigidly attached to the end cap slug to prevent chattering.

Blistering of Slugs

Examination of additional Group V metal discharged at 396 MD/ton confirmed previous results which showed no significant warping and only slight blistering at this exposure.

Reduced Silica Feed

A reduction in silica content at F Pile from 2.5 ppm to 0 for a period of 2 1/2 months had no effect on the rate of slug corrosion or film buildup. Silica addition is to be discontinued experimentally at all piles.

Magnesium Testing Program

A corrosion rate determination is being made for exposures in process water at 5 different temperatures of pure magnesium, and two magnesium aluminum alloys. To date 225 samples are under test at temperatures ranging from 17° C. to 95° C.

Graphite Monitoring

The total stored energy of graphite mined from the bore of 1884-F after 2580 MD/CT amounted to 567 cal/gm; after 110 MD/CT additional exposure at ambient pile temperature this was reduced to 466 cal/gm. The higher value, which is probably near the upper limit of present pile graphite, is considerably lower than the 1000 cal/gm estimated from an extrapolation of data for capsule samples which had 526 cal/gm at 1380 MD/CT. Although the relatively low value is encouraging, it also indicates that damage to pile graphite can be expected to continue as no saturation of the damage has been observed for test samples with comparable stored energy. The relatively low value is probably the result of higher exposure temperatures in comparison to test sample temperatures which were exposed below 50° C.

Pile Technology Division

Thermal conductivity and expansion measurements on samples exposed repeatedly in the cooled test hole for several hundred MD/CT and annealed in the laboratory at 500° C. for 5 hours after each exposure indicate that pile operation at low graphite temperatures, followed by thermal annealing at high temperatures, is much less desirable than continual operation at intermediate temperatures. Prevention of the formation of initial low activation energy damage by operation at higher temperatures is a necessary prerequisite to minimizing the rate of graphite damage.

Studies on samples irradiated in gas filled process tubes lead to similar conclusions, and in addition show that nuclear annealing of high-activation-energy damage is more effective than thermal annealing. Recovery of physical and crystal expansion, thermal conductivity, and stored energy of samples previously irradiated at low temperatures in the test holes, is in every case considerably greater than could be obtained by thermal annealing alone at the same temperature. The amount of recovery was inversely proportional to the initial low temperature exposure, which again indicates the necessity for higher operating temperatures to prevent the formation of the initial damage. Exposure atmosphere (CO_2, O_2, He, He CO_2) had a negligible effect on the measured physical properties. No differences were observed in oxidation rates for virgin and for previously irradiated graphite.

P-10 Project

During the month most of the items necessary for conversion to the lithium-aluminum alloy process were completed. Several additional problems were encountered in preliminary testing of equipment but at the end of the month these were well on the way to a solution and no unusual delay in the initiation of extraction operations in August is now foreseen.

Argonne has examined alloy slugs with a total of 6 months' irradiation. No irregularities were observed and the yield was in line with previous results. The purity was 89-90% which is several percent lower than expected. Another tube of slugs from a different billet will be examined to check the purity results.

INVENTIONS

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

WK Woods:bb

Signed W. K. Woods
W. K. Woods
Division Head

August 10, 1949

SEPARATIONS TECHNOLOGY DIVISION

JULY, 1949

VISITORS & BUSINESS TRIPS

G. W. Watt, divisional consultant from the University of Texas, visited the Hanford Works from July 18 through 26 for inspection and consultations on the 234-5 Project.

A. N. Morgan and J. D. Carter of the Los Alamos Scientific Laboratory visited this site for 234-5 start-up consultations; Morgan from July 13 to 20, and Carter from July 27 to August 6.

A. E. Smith visited the Los Alamos Scientific Laboratory from July 12 to 19 for instruction and training in DP-West operations.

R. H. Beaton visited the Kellex Corp. in New York City on July 14 and 15 for inspection of facilities and program discussions concerning Job 11.

R. B. Richards visited the Knolls Atomic Power Laboratory and the General Engineering & Consulting Laboratory on July 14 and 15 for Redox technical consultations.

J. F. Gifford visited the Washington Iron & Machine Works in Seattle on July 20 for a consultation on "junior cave" design.

A. R. Matheson is visiting the Radiation Laboratory at the University of California, Berkeley, from July 27 to August 5 for consultations and work on special X-ray diffraction studies.

ORGANIZATION AND PERSONNEL

Personnel totals in the Separations Technology Division are summarized as follows:

Separations Technology Division

	June	July
Administration	2	2
Special Assignment		2
Process Section	28	26
Development Section	94	95
Research Section	31	30
	155	155

One new hire, an Operator D, was added to the Development Section. One Steno-Typist B was transferred from the Service Division to the Development Section, and one Laboratory Assistant A was transferred from the Metallurgy & Control Division to the Research Section. Terminations were as follows: one Chemist from the Research Section, one Tech. Grad. B from the Process Section, and one Stockroom Helper from the Development Section.

200 AREAS PLANT ASSISTANCE

Canyon Buildings

The 6-3 Tank (run basis tank) was recalibrated at T Plant. The new calibration, together with a correction for the specific gravity of the solution below the instrument dip tube, will lower the basis by approximately one percent at the level of current operation. The new calibration will be put into use August 1,1949 The 6-3 Tank at B Plant will be calibrated in the near future.

A test has been initiated at B Plant to determine the error in sampling the 6-3 Tank. An insufficient number of samples had been taken at month end to allow definite conclusions to be drawn. A similar test will be initiated at T Plant at a later date.

The runs started at T Plant during July are being observed for material balance discrepencies. An acid-wash run and an N-1 filter leach have preceeded these runs and similar flushes have started following these runs. The material balances for runs completed during July were 100% at both B and T Plants.

Product hold-up in the extraction sections at B Plant has been found to be approximately 6 to 7% of a run. An attempt is being made to determine the cause of this high hold-up.

Concentration Buildings

The lanthanum fluoride by-product waste loss was slightly higher than average for a period at B Plant. It is believed that this was caused by hydrofluoric acid leakage into the precipitator tank.

Nine consecutive runs processed at T Plant without the addition of recycle have resulted in the same discrepancy between the C-4P and D-1-O assays as previously noted on runs with recycle added. The D-1-O assay is approximately 4% below that of the C-4P assay.

Isolation Building

Inadvertent high temperatures during the peroxide precipitation of a run resulted in sufficient destruction of the peroxide to prevent precipitation. The product returned to the Concentration Building from this run was slightly more than average after precipitation was effected with additional peroxide.

Separations Technology Division

234-5 Building

Leaks in the Hood 14 vacuum system were detected with the mass spectrograph and sealed. The required vacuum was then attained, and the rate of pressure rise with system isolated from the pump was adjudged satisfactory. Considerable work was performed on Hoods 25 and 26 vacuum systems. Base flanges of the bell jar and the base plate castings were porous and attempts to seal by tinning were successful only in the case of the base flanges. The base plates were partially fabricated of stainless steel. The unit in Hood 26 was assembled and pumped down to 5×10^{-5} mm. of mercury.

Several stand-in heats with aluminum were made in Hood 14. A calibration heat was also made in Hood 14 to correlate furnace controller temperature against temperature in the lower Y-3. It was found that the specified time temperature cycle could be easily followed by manual control.

Several dummy runs were made in Hoods 17 and 19 using lead stand-in.

Runs X-9-07-9 and X-9-07-27 were wetted by jet water backing into the furnace at the completion of the third cycle in Hood 8. These runs were dried and the third cycle was repeated. A sample from X-9 was reduced in the Development Laboratory and analyzed. The batches were released for production when no large degree of contamination was found.

Caustic solution from the scrubber was inadvertently drawn into the reactor of Hood 5 at completion of the third wash of X-9-07-6. Scrubber solution was also sucked into the reactor of Hood 7 but after slurry transfer had been effected. Nitric acid (60%) was added to both reactors and the contents agitated for several days. The resulting mixture was then transferred to sample cans for processing in 231 Building. The reactors were rinsed with 30% nitric acid until clean and the washings collected in sample cans for treatment in the 231 Building.

P-4 samples from Hood 4 have checked poorly with analyses from the 231 Building. A study of the method of dissolution and sampling in Hood 4 indicated that a representative sample was not being obtained. The product in the sample can was found quite often to be caked and the present agitator was ineffective in breaking and dissolving the cake within a reasonable time. The hood was supplied with a chisel with which the cake could be broken prior to agitation. Plans were also initiated to alter the agitator paddle.

REDOX DEVELOPMENT

Solvent Extraction Performance-General

During July, 20 solvent-extraction studies were completed in 5-in. and 8.42-in. diameter columns using both 1/2-in. and 1-in. stainless-steel Raschig rings, and the first uranium shakedown run (1A-1B-1C cascade) was completed in the rebuilt Demonstration Unit. New information resulting from these studies is summarized below:

(a) Using 1/2-in. Raschig-ring packing, no enlargement appears necessary for adequate feed-scrub mixing at the 1AF feed point of dual-purpose plant-size 1A Columns.

(b) Based on preliminary data for the performance of 1-in. stainless-steel Raschig rings over a five-fold range of processing rates in 5-in. IB Simple Scrub Column runs and 5-in. IC Column runs, the H.T.U. values for uranium transfer in 1-in. rings average approximately 0.2 ft. higher than for 1/2-in. stainless-steel Raschig rings at corresponding conditions.

(c) The complete flooding capacities of the above 1-in. rings are approximately 50% greater than for 1/2-in. stainless-steel Raschig rings in both the IB Scrub and IC systems.

(d) The H.E.T.S. and H.T.U. values for uranium transfer in the IB Scrub Section appear to be influenced in a minor degree by height of the packing, lower H.E.T.S. and H.T.U. values being found for shorter packed columns. Although data are incomplete, this dependence of the H.E.T.S. and H.T.U. on packed height shows up in IC Column runs as well.

(e) Using 1/2-in. Raschig rings in the IB Scrub Section, there is no significant scale-up factor (i.e., the H.T.U. does not increase) on going from 5-in. to 8.42-in. column diameter.

(f) Performance of a 5-in. diameter IC Column (packed with 1/2-in. stainless-steel Raschig rings, and operating at HW-13320 Flowsheet conditions) appears equally good with either a one-hole or a three-hole ICF organic feed distributor, and with or without 0.04 M HNO_3 in the ICX stream.

Scale-Up Studies

Data from five plant-scale IA dual-purpose column runs are summarized below:

DUAL-PURPOSE IA COLUMN RUNS: 8.42-INCH COLUMN

Packing: 1/2-in. by 1/2-in. stainless-steel Raschig rings; scrub section 4.3 ft., extraction section 14.7 ft.

IAF Feed-Mixing Chamber: 8.42-in. i.d. by 9-in. high unpacked zone. IAF discharged upward through a single 1-in. pipe inlet at the column center-line.

Nominal Compositions: HW #1 Flowsheet (HW-13320)
IAS: 1.8 M ANN, 0.2 M HNO_3-deficient
IAF: 0.2 M HNO_3-deficient
IAX: 0.2 M HNO_3
Volume flow ratios: IAS:IAF:IAS = 1:1:4

Run No.	Gal./(Hr.)(Sq.Ft.), Sum of Both Phases (Extraction Section)	Short Tons U /24 Hr.	Equiv. ANN in IAW, g./L.	% of IAF U in IAW	H.E.T.S.* Ft.	H.T.U.* Ft.
8"-23-U	440	1.5	347	6.3	5.0	3.2
8"-24-U	1020	3.2	352	0.6	2.3	1.7
8"-25-U	1620	5.1	344	2.9	3.5	2.4
8"-25-U	1900 ± 100	(Complete flooding capacity)				
8"-26-U	414	1.1	407	0.003	2.4	1.1
8"-27-U	1580	4.8	361	1.1	2.9	1.9

*Note: These are very preliminary values based on estimated equilibrium data. H.T.U's. were calculated on an "overall water-film basis".

Separations Technology Division

Since the performance during Runs 8"-23-U and 8"-25-U was considered inconclusive, these runs were repeated as 8"-26-U and 8"-27-U, taking special precautions to ensure good operation with the desired ANN salting strength. Data from Runs 8"-24-U, 8"-26-U, and 8"-27-U are substantially in agreement with results from IA simple extraction column runs 8"-16, 17, and 18-U, indicating no significant loss in uranium extraction attributable to poor scrub-feed mixing employing the feed-mixing chamber indicated in the above table.

Two series of IB simple scrub column runs are summarized below giving H.E.T.S. and H.T.U. data for a shorter packed height of 1/2-in. rings (14.0 ft. vs. the previous 19.6 ft.), and for 1-in. Raschig rings.

IB SIMPLE SCRUB COLUMN STUDIES: 5-INCH COLUMN

Packing: Stainless-steel Raschig rings; size and packed height indicated below.

Flowsheet: HW-13320 (No ferrous sulfamate was used.)

Run No.	Gal./(Hr.)(Sq.Ft.), Sum of Both Phases	Equiv. Short Tons U /24 Hr.	% of IBF U in IBP	H.E.T.S., Ft.	H.T.U.,* Ft.
Packing: 14.0 ft. of 1/2-in. by 1/2-in. Raschig rings:					
5"-8-BU	405	1.2	23×10^{-5}	4.7	1.4
5"-9-BU	1030	3.1	6.5×10^{-5}	3.9	1.2
5"-10-BU	1600	4.1	17×10^{-5}	4.5	1.3
5"-10-BU	2700 ± 100	7.5	(Complete flooding capacity)		
Packing: 19.8 ft. of 1-in. by 1-in. Raschig rings:					
5"-11-BU	550	1.6	14×10^{-5}	6.1	1.9
5"-12-BU	1490	3.4	2.3×10^{-5}	5.7	1.6
5"-13-BU	2580	6.4	5.7×10^{-5}	6.0	1.7
5"-12-BU	4200 ± 200	(Complete flooding capacity)			

* Note: H.T.U's. calculated on an "overall water-film" basis.

Runs 5"-8-BU through 5"-10-BU, above, are in substantial agreement with runs 8"-3, 4, and 5-BU (13.9 ft. of 1/2-in. Raschig rings) indicating no significant scale-up factor for the IB scrub section on increasing from 5-in. to 8.42-in. column diameter; but the above H.T.U. values are on-the-order-of 0.3 ft. lower than for corresponding 5-in. column IB runs using 19.6 ft. of packing, indicating a small but significant effect of packed height on the H.T.U. Although the H.T.U. values for the above 5-in. column runs using 1-in. Raschig rings average approximately 0.4 ft. higher than the above runs using 1/2-in. Raschig rings, about half of this difference can be attributed to the difference in packed height. For a 5-in. diameter IB scrub section packed to a height of approximately 20 ft., it appears tentatively that the H.T.U. for 1-in. rings is approximately 0.2 ft. higher than the H.T.U. for 1/2-in. rings.

Separations Technology Division

Data from three series of 5-in. IC Column studies using both 1/2-in. and 1-in. Raschig rings are tabulated below:

IC COLUMN ORNL #1 FLOW SHEET STUDIES: 5-INCH COLUMN

Packing: 19.6 ft. of 1/2-in. by 1/2-in., or 19.8 ft. of 1-in. by 1-in. stainless-steel Raschig rings.

Compositions: ICF: 0.3 M UNH, 1 to 2 g./l. HNO_3.
ICX: 0.00 M HNO_3.

Run No.	Gal./(Hr.)(Sq.Ft.), Sum of Both Phases	Short Tons U/24 Hr.	% of ICF U in ICW	H.E.T.S., Ft.	H.T.U.,* Ft.
1/2-in. rings; 3-hole ICF distributor (7/16-in. holes):					
5"-55-CU	375	0.3	0.002	7.0	1.8
5"-56-CU	930	0.8	0.003	6.8	1.8
5"-57-CU	1630	1.4	0.013	6.9	2.1
5"-57-CU	1850 ± 100	1.6	(Complete flooding capacity)		
1/2-in. rings; 1-hole ICF distributor (1/2-in. pipe):					
5"-58-CU	414	0.3	0.0014	7.9	1.8
5"-59-CU	920	0.8	0.003	7.0	1.8
5"-60-CU	1570	1.2	0.019	7.8	2.2
5"-60-CU	1900 ± 100	1.5	(Complete flooding capacity)		
1-in. rings; 3-hole ICF Distributor (7/16-in. holes):					
5"-61-CU	500	0.4	0.008	7.0	2.1
5"-62-CU	1550	1.2	0.015	6.7	2.2
5"-63-CU	2460	1.9	0.038	8.4	2.5
5"-63-CU	3000 ± 100	2.3	(Complete flooding capacity)		

* Note: Calculated on an "overall hexone-film" basis.

The first two series of studies (1/2-in. rings) indicate no significant difference in H.T.U. values using either the 1-hole or the 3-hole ICF distributor, and also demonstrate (by comparison with previous runs) that the IC Column performance is unsatisfactory using no HNO_3 in the ICX and 1/2-in. Raschig-ring packing. Comparing H.T.U. values for the third series (1-in. rings) with data for the first two series, the H.T.U. for 1-in. rings is approximately 0.3 ft. higher than for 1/2-in. rings at the low volume velocity of 500 gal./(hr.)(sq.ft.), but there is no difference at approximately 1600 gal./(hr.)(sq.ft.).

Demonstration Unit Studies

The first uranium shakedown run (IA-IB-IC Cascade Run 3"-42-U(C)) was completed during the month in the rebuilt Demonstration Unit equipment. Some pump failures

were experienced and overall extraction performance was not as good as expected, possibly due in part to a low salting strength in the IA Column and unsteady operating conditions. Typical waste loss values are summarized below:

Stream	UNH Concentration g./l.	UNH Concentration % of Feed U
IAW	32	6 (Approx.)
IBP	0.0014	6×10^{-5}
ICW	0.009	0.01

Additional cascade runs are planned.

Operations, Construction, and Maintenance

Installation of hinges and door closers on all explosion-resistant canyon doors is now complete. Work on Project C-331 Part C, Ventilation Alterations, is progressing favorably. All major equipment including blower, air washer, preheater, and new exhaust fans, has arrived. Prefabrication of all ductwork is about 70% complete, and installation is scheduled for August 8. Holes for duck work and exhaust fans in canyon and operating gallery walls, were completed. Erection of the air washer is in progress. Work on Part D of Project C-331, Tank Farm Inert Gas Blanketing, is temporarily held up by a delay in procurement of the inert gas generator, which has been rescheduled for September 23 delivery. In the meantime, a low pressure inert blanket is maintained with CO_2 gas cylinders.

Flushing, calibration and equipment run-in of the revised Demonstration Unit equipment was completed during the month. Preliminary run-in with solvent and scrub solutions revealed several leaks which were repaired, and several instances of pump failure due to faulty bearings, tension on the pipes, and other causes. The initial uranium run, scheduled as a 100-hour break-in run, was terminated after 32 hours because of failure of the IBS pumping coupling. Hydraulic operation of the three columns in cascade was good. Maintenance of rate control by the automatic recording controlling rotameters was excellent after preliminary calibration with process solutions and subsequent adjustment. Interface control was also excellent.

Some difficulty has been experienced with vortexing in operation of the solvent treatment tank agitators, but several remedies are being considered. Solvent facilities in general have been used satisfactorily in preparation of solvent requirements for initial runs. IA Column extraction performance on the first run was poor, probably due to a packing conditioning effect previously noted in other Scale-Up and Demonstration runs. Operation will be resumed following processing and disposal of high IAW solution from the first run. Improvements are being incorporated in the feed pumping system during the shut down period.

Scale-Up operation was generally uneventful during the month. With the exception of one run terminated by an area power failure, runs were completed in a routine manner. Some difficulty was experienced in controlling flows at low rates with the orifice metering-controlling system. Tests were conducted on the hexone stripper and aqueous concentrator which established low uranium entrainment losses in this equipment-on the order of 5.2 lb. of metal for a combined stripping

concentrating operation involving several thousand pounds of metal. Notable equipment changes and maintenance on Scale-Up equipment included: repacking of the 5-inch column with 1-inch diameter stainless Raschig rings, installation, testing in the 5-inch column of a one-hole organic feed distributor, reinstallation of the three-hole spider distributor, installation for testing of saran-lined black iron pipe in the hexone stripper feed piping, and replacement of off-standard red oil in several tank farm Specific Gravity manometers to permit more accurate run data accumulation and metal accountability. Plans have been completed and work orders issued for a new straight walled end section for the 8-inch diameter column to replace the Elgin-type end section.

Equipment Development

The G.E. & C.L. submerged turbine pump with force feed (100 ml./min.) process fluid lubricated guide bearings (two) and a grease-lubricated ball bearing type thrust bearing isolated from the process system with a rotary graphitar seal ring operated uneventfully through the month on 2.0 M aluminum nitrate solution under conditions of speed 1750 RPM, discharge pressure 10 psig, flow rate 0.9 GPM for a total of 675 hours of operation characterized as quiet and vibrationless.

A submerged motor (type KT, 220 volt, 3 phase) designed by G.E. & C.L. for driving a 1750 RPM turbine pump operated for 50 hours on water as the test fluid. The bearings (guide and thrust) of graphitar performed satisfactorily. Shutdown was necessitated by leakage of water through a gasketed joint into the "canned motor" which resulted in a short in the stator system.

A Model 1011 Roth turbine pump completed 1166 hours of operation on 2.0 M aluminum nitrate solution at 3450 RPM, discharge pressure of 30 psig before shutdown due to packing (braided teflon) failure. Operations were resumed at 1750 RPM, 30 psig discharge pressure and 178 hours recorded under these conditions with smooth operation.

A Fischer Scientific Company vane-type pump (for application to Demonstration Unit) completed 445 hours of test with 2.0 M aluminum nitrate solution under the following operating conditions: speed 5050 RPM, discharge pressure 24 psig, suction pressure 18 inches of water. The capacity diminished 6.4% from 0.94 to 0.88 GPM. Seal leakage prevailed during entire test period to a noticeable but passable degree.

The automatic flow control system consisting of a Fischer and Porter all-stainless-steel transmitting rotameter, F. and P. recorder-controller, Hammel-Dahl motor-operated valve on a test stand circulating 2.0 M aluminum nitrate solution completed 946 hours of operation at an average flow rate of 0.535 GPM with an average deviation of 0.85% and maximum deviation of 1.10%. The carbon-filled fluorothene seat and Stellite plug in the H-D valve has functioned 1500 hours satisfactorily and appears to be adequate in eliminating sticky valve action prevailing with all-Stellite type construction. The Schutte-Koerting rotameter-transmitter and Foxboro Dynalog recorder-controller coupled to a H-D valve has completed service on 29 Scale-Up unit runs controlling the organic stream with an average deviation of 1.27% and a maximum deviation of 2.2%. Operating difficulties have been confined to failure of an electronic tube in the controller system.

Preliminary runs on the 12-inch diameter solid bowl Bird centrifuge feeding dissolver metal solution containing 1.67% by weight of Super Filtrol FO at rates equivalent to bowl holdup of 6 to 33 minutes at a bowl speed of 3450 RPM (2050 x Gravity) resulted in improvement in clarity of feed (70%) to 77-83% for the effluent stream.

A special protective coating supplied by the American Pipe and Concrete Company (Amercoat) was determined to resist IAX (0.5 M HNO_3 in hexone) for 96 hours on the plane surfaces of a concrete test block. Some blistering and failure was noticeable at the corners; nevertheless, this is the most impervious coating to hexone examined exclusive of flame-sprayed polyethylene. Further test samples are being obtained.

Process Laboratory

Information on solution clarification has been compiled in HW-13671, "Clarification of Redox Feed by Scavenging Agents or Filter Aids". The viscosities of slurries of Super Filtrol FO have been determined over the range 1:1 to 5:1::H_2O:Filtrol. Ratios of 1.3 to 1 or greater are in range susceptible to transfer by pumping through pipe lines.

Equilibrium distribution data for uranium and nitric acid in the IA system described in the latest flow sheets (HW-13320, HW-13631) have been obtained from Laboratory Study IA-E-27 and are being prepared in the usual graphical representation.

The behavior of sulfate ion in ANN recovery process results in rejection of sulfate beyond detectable analytical methods while phosphate is only 50% removed.

Manufacture of ANN from hydrated aluminum oxides (Alcoa grades C-33 and C-34) and nitric acid can be employed to produce solutions containing $>$1000 gm ANN/l. of either acidic or acid-deficient type. At the boiling point six hours reaction time with continuous condensate removal in order to maintain acid strength results in about 2.7 M ANN, 0.15 M HNO_3; extending reaction period to 12 hours results in 2.7 M ANN, -0.25 HNO_3 (acid-deficient).

Neutralized aqueous wastes can be stabilized to prevent solids separation ($<$0.5% by volume) for periods up to 72 hours by the addition of 10% by weight of sucrose or glycerine.

The use of sodium aluminate for neutralization of ICU or IIEU was explored and found to be doubtful because of hydrolysis to alumina which is slow in redissolving.

SEPARATIONS PROCESS RESEARCH

Preparation of Solvent Extraction Feed from Metal Wastes

Two 20-milliliter portions of current metal waste (simulated 8-3-WS) were processed through a sodium uranate precipitation - caustic metathesis - uranyl phosphate clean-up procedure to give a diluted ISF. Data were as follows:

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PREPARATION OF DILUTE ISF FROM CURRENT METAL WASTE

	Run I	Run II
ISF, $\underline{M}_{UNH}$	0.9	1.6
ISF, $\underline{M}_U/\underline{M}_{PO_4}$	400	260
ISF, $\underline{M}_U/\underline{M}_{SO_4}$	150	100
Recycled uranyl phosphate, % Total U	11	12
Waste, % U Loss	0.2	0.6*
Material Balances, U, %	102	94
Material Balances, PO_4, %	97	94

* Includes some mechanical loss in a wash.

The tabulated UNH concentrations were obtained after only the slight evaporation incidental to digestion of the dissolved sodium uranate for uranyl phosphate removal and presumably could be readily increased by evaporation to give a nearly equimolar UNH-$NaNO_3$ solution of prescribed composition for 1S operation. On the other hand, if the molarity of 1.6 obtained in Run II can be obtained consistently, an evaporation step may not be necessary.

Assuming return of metathesis and wash caustic to the precipitation step and neglecting the reagent(s) required for recycling the uranyl phosphate, reagent consumption per liter of CMW by this process consists of one liter of five molar sodium hydroxide for precipitation and 0.1 liter of 70% nitric acid for sodium uranate dissolution; i.e., two pounds of sodium hydroxide and one pound of nitric acid per pound of uranium processed.

Phosphate clean-up by uranyl phosphate precipitation at 60°C. was investigated as a function of acidity and uranium concentration. Deviations of 0.05 molar in either direction from zero acidity produced no significant difference in rate or degree of phosphate removal from 2 M UNH solution, the final U/PO_4 mole ratio being ca. 200. More complete phosphate removal, giving U/PO_4 mole ratios up to 700, may be obtained by precipitating from more dilute UNH solutions, but inasmuch as the U/PO_4 mole ratios achieved in the runs described above are adequate for the ANL or ORNL #1 Flow Sheets, dilution to increase phosphate clean-up appears unwarranted.

Following sodium uranate precipitation, acid dissolution and uranium peroxide precipitation has been considered as an alternative to metathesis and uranyl phosphate precipitation for ISF preparation. A sulfuric acid solution of sodium uranate has been observed to be superior to a nitric acid solution for the peroxide precipitation. Sulfate carrying under such conditions has been found promisingly low; e.g., a U/SO_4 mole ratio of 45 was observed in the previously reported peroxide precipitation at pH 0.6 which gave a U/PO_4 mole ratio of 1600 with a uranium loss of 0.7% from a solution having an original U/PO_4 ratio of 10 and U/SO_4 ratio of 0.2.

Separations Technology Division

Properties of Column IS Systems Derived from Metal Waste and Containing Sodium and Uranium in Equi-molar Concentrations

Systems fitting the subject description have been measured in respect to freezing point, viscosity, pH, density, disengaging time, and distribution of nitric acid, phosphate, uranium (VI), and plutonium (VI). The experiments were based on a IS feed containing 0.3 M HNO_3 and having a UNH/$NaNO_3$/$PO_4^{\equiv}$ mole ratio of 2.0/2.0./0.04.

Freezing points were satisfactory; a feed containing 1.8 M UNH, 0.3 M HNO_3, 1.8 M $NaNO_3$ and 0.04 M $PO_4^{\equiv}$ gave a freezing point of 7°C.; a ISFS solution containing 0.9 M ANN, 0.9 M UNH, 0.9 M $NaNO_3$, 0.3 M HNO_3, and 0.02 M $PO_4^{\equiv}$ froze at 0°. Disengaging times were about the same as those of solutions of similar composition except for absence of $NaNO_3$. Aqueous phase viscosities were not increased excessively by the presence of $NaNO_3$.

Study of distribution coefficients in the extraction section indicated an appreciable salting effect by the $NaNO_3$ above and beyond any detrimental effect by the phosphate present. It was calculated that in the presence of $NaNO_3$ the degree of uranium extraction obtained employing 1.6 M ANN in the IS scrub would equal that obtained by use of 1.9-2.0 M ANN in the absence of the $NaNO_3$.

The results generally indicate that incorporation of a sodium removal step into the metal feed preparation process is not necessary for preparation of an acceptable solvent extraction feed. This is in spite of the fact that the present tests were quite severe, in that the concentrations of ANN employed were somewhat higher than are likely to be required in an all-acid (ANL-type) column.

Plutonium and Uranium Recovery from Redox Aqueous Wastes.

A study is being made of sodium uranate precipitation for recovering off-standard high losses of plutonium and/or uranium from the pooled aqueous waste streams IAW, IIAW, IIIAW, IDW, and IFW. Sodium uranate precipitation from a simulated pooled waste (modified ORNL #1 Flow Sheet, HW-13320) containing a 6% plutonium loss as Pu (IV) and a 6% uranium loss gives a 65-70% recovery of plutonium. Heating the acid-pooled waste with ammonium persulfate and silver ion catalyst to oxidize the Pu(IV) to Pu(VI) and the Cr(III) to Cr(VI) prior to diuranate precipitation increases the plutonium recovery to 95% with a uranium recovery of 100%. Similarly, addition of 2% ozone to heated pooled waste in the presence of 0.05 M Ag^{+} results in a plutonium recovery of 97% with a uranium recovery of 100%. Addition of hydroxylamine and La(III) to reduce the Pu(IV) and carry the resultant Pu(III) (KAPL-193) gives a plutonium recovery of 92% and a uranium recovery of but 18%, presumably due to the complexing action of hydroxylamine for uranium. A 99% recovery of plutonium was obtained with persulfate-silver pretreatment and diuranate precipitation of a pooled waste spiked with a Pu(IV) concentration equivalent to a 100% loss in Redox processing. Although the diuranate precipitations were usually carried out with 1:1 volume addition of pooled waste and 50% sodium hydroxide, a 1:0.5 volume ratio, corresponding to a 65% caustic excess, gives comparable recoveries.

Hexone-Nitrous Acid Reaction

The propagation of the reaction between nitric acid and hexone in hexone solutions is being studied at room temperature as a function of the initial nitrous acid concentration and the concentration of nitric acid. At an initial nitrous acid concentration of 10^{-4} and 0.05 to 2.0 M nitric acid, the nitrite was found to

disappear entirely and the reaction to stop at the end of two to three hours. This suggests indefinite stability of hexone in Redox systems if the total nitrite introduced via nitric acid and aluminum nitrite reagents does not result in $>10^{-4}$ M nitrite in the hexone. Employing initial nitrous acid concentrations of 10^{-3} and 10^{-2} M and nitric acid concentrations of 0.3 to 2.0 M, the concentration of nitrous acid varied with time, finally settling down to steady-state values of about 4.5×10^{-3} M, indicating continuing but non-violent reaction. It is felt that attempts to evaluate in terms of plant safety systems showing this intermediate behavior would be premature at present.

Pulse Column Studies

A small 1" x 11" pulse column was used to study plate design. Coarse stainless steel screen plates performed poorly. Fine screens of 0.0325 inch openings gave extraction comparable to our regular drilled plated of 0.039 inch holes. Perforated plates of 0.033-inch diameter holes were found to be very efficient at 1-inch plate spacing and 834 gal./sq.ft./hr. Larger holes offered greater capacity with slightly larger H.E.T.S. values.

The presence of considerable amounts of non-condensible air in the pulse column was found to have no noticeable effect on the operability or efficiency of the column.

Filtrol Scavenging

An earlier conclusion that high temperatures are desirable during Filtrol adsorption has been verified. Using dissolver solution at a pH of 0.5, 60g. Filtrol/l. and one-hour contacts, zirconium adsorption was 90.1%, 96.4%, and 97.4%, and gross gamma adsorption was 69.2%, 79.4%, and 75.0% at 72.5°, 85°, and 100°C., respectively.

Earlier data indicated that the adsorption of gross gamma and zirconium activities on Filtrol and other scavenger decreased as the solution aged. Samples of dissolver solution which had been used in those studies were obtained in the standard one-ml. plastic pipets. In recent studies using dissolver solution which was obtained in stainless steel pipets, no decrease in adsorption was noted over a period of about four weeks. Apparently, the aging effect noted earlier is in some way related to the sampling in plastic pipets.

Ruthenium Tetroxide Distillation with Ozone

Data obtained during the past month have been difficult to interpret because of an apparent aging effect. Upon ozonization for any given time, the amount of ruthenium left in the residue increased markedly with the age of the solution. Since this behavior had not previously been noted and the dissolver solution used in these studies was allowed to stand for some time in the standard one-ml. plastic pipets in which the samples were obtained, it is concluded that the aging effect is probably connected with the plastic pipets, as has been noted in the Filtrol work. Confirmatory tests are in progress.

Americium-Curium Separation

Work is continuing on a method for the separation of americium and curium from plutonium, particularly with reference to the calculation of the plutonium loss

based on α-activity. It is hoped that by accumulation of sufficient data amounts of americium and curium in pile metal may be calculated from the irradiation and decay history of the metal.

A TTA method for the separation of plutonium from americium and curium has been found to be satisfactory. The plutonium in an aqueous solution 0.5 M in HCl is extracted into benzene 0.2 M in TTA. The aqueous phase is then brought to pH 5 with sodium acetate and the americium and curium extracted. No separation of the lanthanides from americium and curium is accomplished.

Attempts to separate americium and curium from the lanthanides by employing an adsorption column with finely divided Dowex-50 resin were unsuccessful. With this sample of resin, the elution band is too broad to be of practical use.

Coupling of Redox and Metal Production

The precipitation of plutonium phenylarsonate is under study as a means for concentrating and purifying plutonium in final Redox streams.

Plutonium phenylarsonate has been precipitated from a IIBP solution which was obtained from an ANL column run. Due to difficulties in analyses, purification from uranium, chromium and aluminum is not yet known, but is expected to be good since phenylarsonic acid is known to be specific for $\neq 4$ ions and, in general, does not precipitate $\neq 2$ and $\neq 3$ ions.

234-5 PROCESS DEVELOPMENT

Exploratory trials on a 200-mg. scale were made to determine whether plus four plutonium peroxide can be prepared with low product loss and good settling properties from solutions free of sulfate. The first trial simulated the precipitation process carried out in the 231 Building; i.e., with sulfate present, to provide a basis of comparison. A yield of 99.1%, based on the plutonium content of the mother liquor and three acid washes, was obtained. The next trial duplicated the first, except that sulfate and sulfite were not used. The precipitate of plutonium peroxide formed quite slowly, but had a greater apparent bulk density than the peroxide obtained in the first trial. The yield in this case, however, was only 62.6%. It should be mentioned that practically quantitative precipitation took place overnight in the combined solution of three washes and mother liquor.

In the next run hydroxylamine hydrochloride was introduced to be certain that all plus six plutonium was reduced to plus four prior to precipitation. A yield of 31.9% was obtained, but again post precipitation was complete, leaving a water white liquor above the precipitate. Peroxide was used as the reducing agent in the fourth run. Although a yield of only 18.6% was obtained by following the same processing procedure used in the previous trials, complete precipitation of the plutonium again occurred in the combined wash and mother liquor solution.

Laboratory work was conducted to duplicate the situation that arose in the 234-5 Production Plant when 10% sodium hydroxide was inadvertently introduced into the reactor containing plutonium oxalate which was ready to transfer to dry chemistry. The laboratory investigation showed that plus three plutonium oxalate reacts to

some extent with sodium hydroxide to give a bluish-white gelatinous precipitate, which is readily soluble in 6% nitric acid to give a clear blue solution. The color of the plant material after two-weeks contact with the caustic soda was a light olive drab; it was believed that the plus three oxalate, that did not react with the caustic soda, had been oxidized to plus four oxalate. Plus four plutonium oxalate prepared in the laboratory had a similar appearance to the plant material in the reactor. A method of handling the plant batch after removal from the 234-5 Building has been formulated on the basis of laboratory exploratory work that showed plus four plutonium oxalate can be converted to the nitrate by prolonged heating with 70% nitric acid. The oxalic acid present is completely destroyed during this processing.

A series of nine full-scale reduction runs, using uranium tetrafluoride as a stand-in, was carried out in the 234-5 Building. The following conclusions were derived on the basis of the yields of metal obtained:

1. Stainless steel must not be used with the existing coils.

2. Allen-head bolts are not adequate for proper bomb closure.

3. A variation of 50°C. (lag) from the specified heating cycle did not affect the yield of metal.

4. Filling the annular space only half full with magnesia caused fracture of the crucible from thermal shock.

5. Failure to replace the air in the bomb with argon caused a slight loss in yield.

6. Calcium ground in the 234-5 Building gave a yield equivalent to that with calcium ground at Los Alamos.

Spectrographic analyses of the metal produced in these runs indicate that metal produced with Hanford ground calcium compares favorably in purity with that produced with Los Alamos ground calcium to the extent that contaminants can be detected at the limits of sensitivity of the Hanford analyses. It was found that the iron content of the metal produced with the Hanford ground calcium was lower by a factor of four than that produced with Los Alamos ground calcium.

A ten-gram scale reduction was made in the development laboratory with fluoride from Plant Run X-9-07-9 to evaluate the purity of the metal that could be expected from this potentially contaminated material. The fluoride in this run was found to be covered with water, presumably from a suck-back in the gas aspirating system. A yield of 96.1%, based on fluoride, was obtained in the laboratory reduction. Spectrographic examination of the plutonium produced indicates that the purity of metal produced from this batch of fluoride is comparable to that of the metal produced in previous laboratory studies of the oxalate process except for unaccountably high lanthanum content.

The metal produced in the laboratory had an iron content of 500 - 1000 ppm; two buttons produced in the plant from previous batches of fluoride had comparable amounts of iron. On the basis of these laboratory findings, this run of fluoride was permitted to be processed through the regular production plant processing cycle.

Separations Technology Division

An effort was made in the laboratory to simulate the plant production of concentrated supernatant solutions from the combined mother liquor and washes from the oxalate precipitation step. Because of the much smaller starting volume, it is only practical in the laboratory to obtain a final volume fifteen percent of the initial volume; in the plant the final volume is two percent, or less, of the starting volume. It was found that the addition of two volumes of 70% nitric acid to the simulated concentrated supernatant and the subsequent evaporation of the solution to five percent of the initial volume of dilute combined supernatant solution result in the removal of 98% of the oxalic acid originally present. It is estimated that the time cycle of handling supernatant solutions in the plant would be extended 30-50% if this additional nitric acid treatment were carried out in the present evaporators. It is planned to run a production test in the 234-5 Building to determine the suitability of this method of handling the supernatants.

STACK GAS DISPOSAL

All routine monitoring measurements, obtained at both plant sand filters during the month, were within the range of normal operation. A special activity traverse was made of the B Plant sand filter. A "Totem Pole" ionization chamber, encased in a lead shield which had an adjustable annular slit, was lowered into the vertical monitoring ports. The annular "window" was set at a 1/4-inch aperature. The data revealed that the stratum of highest activity is approximately one-inch thick. According to the measurements, this stratum occurred about 3 to 4 inches below the Type G layer, but it is probable that reference points did not coincide this closely. There was no detectable reading 18 inches above the base of the Type G layer. The results also indicated a secondary maximum located near the bottom of the Type V sand layer. Additional traverses will be made with this instrument.

The investigation of the effect of thin "clean-up" layers of "AA" Fiber upon the filtration efficiency of a 24-inch bed of No. 55 Fiberglas, packed to a density 3 lbs./ft.^{3}, was completed. The data reveal that the use of this thin "clean-up" layer results in an appreciable increase in filtration efficiency without greatly increasing the pressure drop across the filter. A study of the filtration efficiency of "AA" Fiber alone is in progress. Its performance (a "Cutie Pie" efficiency >99.9%, with a pressure drop of 4.0 inches of water, for a 4-inch thickness at a linear velocity of 20 ft./min.) is extremely promising. The study is being continued.

To obtain an indication of the amounts of I^{131} and other fission products filterable from the dissolver off-gas stream during dissolving operations, a series of six monitoring filters was taken during a metal dissolution. Decay curves have been followed on two of the filters. Two others were analyzed for the microcuries of beta activity due to I^{131} and for the beta activity due to other fission products. The remaining two filters were given complete fission product analyses. All the results indicated that the bulk of the activity was due to I^{131}. The small total of other activity, when compared with the 30-fold greater amount in the snifter sample from the top of the stack, again raises a question with regard to validity of the off-gas samples.

In a further attempt to define the nature of the recontamination activity, a special monitoring run was made. Caustic scrubbers and CWS Type 6 filters were operated simultaneously, and in parallel, on the gases from the upstream and downstream positions of the sand filter, the dissolver off-gas line, and the stack. The results revealed that the major portion of the beta activity present in the dissolver off-gas line, during the period, was due to I^{131}. The achieving of a balance was prevented in the case of the caustic scrubbers by the developing of a leak in the piping from the 50-foot level of the stack. Poor agreement was also obtained for the corresponding scrubber and filter values for the beta activity due to fission products other than I^{131}. Similar determinations will be made.

Two test silver reactor runs were made. The reactor was 2 inches in diameter and had a packed depth of 8 inches of the Airco silver catalyst. Two cfm of the dissolver off-gas stream were passed through the unit during the course of a dissolving. The temperature was held between 130 and 200°C. The gas stream was monitored before and after passage by means of caustic scrubbers. With the dissolver cell water scrubber in operation, the iodine concentration of the gas entering the reactor was considerably less than 0.01 mg./ft.^{3} for the major portion of the cut. The I^{131} removal efficiencies were 99.4% and 98.8%. These values are considerably higher than would have been anticipated from recent Airco data.

An investigation into the relative filtration efficiencies of Type 6 and Type 7 CWS filter paper was initiated. Test samples of both types of paper were backed up by Type 7 paper. Canyon ventilation air was simultaneously drawn through the two test assemblies at a flow rate of 5 ft./min. Initial results have indicated no demonstrable difference in the contamination removal efficiency of the two types of filter paper under these conditions. Additional determinations will be made.

Samples were taken of the dissolver off-gas stream during a metal dissolution, and analyzed for hydrogen content. The results ranged from .09% to 1.10% hydrogen by volume. The maximum value was obtained approximately 20 minutes after the reaction began.

INVENTION AND DISCOVERY STATEMENT

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

Inventor	Title of Invention or Discovery
A. R. Matheson	Use of Oxidation Pretreatment with Sodium Uranate Precipitation for Plutonium and Uranium Recovery from Aqueous Redox Waste.
W. H. Reas	Precipitation of Plutonium Phenylarsonate as a Method for the Concentration and Purification of Plutonium in the Final Redox Stream.
W. H. Reas	The Use of Hydriodic Acid for Plutonium Peroxide Dissolution.

R. H. Beaton, Head
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Date: August 1, 1949

METALLURGY & CONTROL DIVISION

JULY 1949

VISITORS & BUSINESS TRIPS 7-10-49

E. J. Boyle of the Oak Ridge National Laboratory spent July 20-21 with the Metallurgy Section discussing uranium metallurgical problems.

Business trips of personnel in this Division during July were as follows:

R. E. Savidge attended a conference on metallographic techniques with uranium which was held at Battelle Memorial Institute, Columbus, Ohio, on July 12.

C. E. Lacy visited Schenectady on July 19-21 to discuss metallurgical development problems with personnel at KAPL, the Research Laboratory, and the Works Laboratory. He spent July 22 at Battelle Memorial Institute discussing the uranium alloy program and low temperature rolling. He also attended a meeting of the Slater Committee at Argonne National Laboratory on July 25-27, in connection with the overall A.E.C. program for special irradiations.

W. W. Marshall spent July 19-26 at the Los Alamos Scientific Laboratory, in a special study of procedures and equipment involved in one phase of 234-5 process analytical control.

ORGANIZATION & PERSONNEL

Personnel totals in the several subdivisions are summarized below:

	June 30	July 31
Metallurgy Section	34	33
Analytical Section	323	323
Statistics Group	12	12
Information Group	55	54
Administrative	3	3
Totals	427	425

The Analytical Section employed one non-exempt chemist and one laborer. This section had one laboratory assistant return from a leave of absence, and another was transferred to the Separations Technology Division. The Information Group employed two non-exempt Files personnel, but lost three by resignations. The Division had a total of six voluntary quits, all non-exempt personnel.

METALLURGY

Uranium Billet Casting

Eight billets cast at less than 100 microns pressure were set aside during the month for PT 314-59-4, which is concerned with the effect of Melt Plant furnace pressure on billet quality as judged by fabrication behavior and test pile reactivity. Additional billets, cast at low pressures, will be set aside for this test as they are produced.

The meehanite molds being used to determine the feasibility of casting uranium into ferrous metal molds are to be modified in an attempt to improve mold life before further experimental castings are made.

Uranium Metal Quality

The chip cleaning and briquetting operations have been investigated as possible sources of the variable and sometimes high silicon content of Hanford billets. Analyses of random samples of chips taken after pickling have indicated the presence of zero to more than 400 ppm silicon on the chip surfaces. The possibility that this silicon may arise from incomplete rinsing of the sodium sesquisilicate wash solution from the chips is being checked.

The Analytical Section has been requested to consider the feasibility of determining quantitatively the rare earths content of the virgin uranium metal being used for slug fabrication. This interest stems from the fact that even trace amounts of these elements can have a great adverse effect on reactivity.

Uranium Rolling

Measurements on 72 rods from the June shipment and 144 rods from the July shipment from Simonds showed average rod diameters of 1.439 and 1.434 inches, respectively. This compares with an average rod diameter of 1.436 inches for a sample of 150 rods from the May shipment.

Rolling Mill for Building 314

In document HW-13953 (dated July 19), a recommendation was made that, in obtaining the rolling mill proposed for Bldg. 314 in Project C-339, an attempt should be made to design and procure a mill capable of rolling uranium at lower temperatures than the 600° C temperature which is currently used. A derived value of the deformation strength of uranium at 300° C was included in this letter to Project Engineering in order that they might determine how the design of the mill originally proposed for the 300 Area would have to be changed to permit 300° C rolling. Operation at this lower temperature would have the advantages of (1) greatly reduced oxide formation, and (2) much improved control of finished rod dimensions.

Slug Canning

On July 8 forty-six slugs contained in Scoville cans were rejected after auto-

claving due to the presence of small pits in the surface of the cans. Further study showed that, although these pits and inclusions cannot be detected visually before autoclaving, they are easily detectable afterwards. It has been recommended that all slugs in Scoville cans be recovered to insure that no defective cans are charged into the piles.

Based on recent analyses, the approximate average concentrations of important contaminants in the accumulated 300 Area canning bath metal scraps are:

Al-Si:	0.7% U, 0.5% Sn, 0.24% Fe
Tin Recovery Crystals:	10.7% Cu, 90 ppm Fe, 0.41% U
Bronze:	46.7% Cu, 670 ppm Fe, 0.07% U

A study of means for the recovery of these scrap metals has been initiated, with first attention to be devoted to the problem of making scrap Al-Si suitable for reuse in the canning process. The A.E.C. was advised (document HW-13867, dated July 8) that trial of selective extraction of the tin in this scrap alloy with molten lead (per an Alcoa suggestion) will be included in this investigation. In another approach to this problem, a corrosion test is planned to redetermine the limiting tin content in Al-Si from the standpoint of corrosion in pile process water. The testing equipment has been fabricated and Al-Si specimens of various tin contents are being prepared.

Induction Heating Experiments (PT 313-109-M)

Two hundred and ten machined slugs of alpha rolled uranium were induction heated into the beta phase and water quenched for PT 313-109-M. The conditions used in treating these slugs duplicated those used for a thermocouple slug which attained a temperature of 700° C and 750° C at the center and surface, respectively. Samples of these slugs are being examined for structural changes. The P Division made the extruded rod required for this test in a short special run in mid-July.

Heat treatment of the 2-1/2 foot lengths of gamma extruded and alpha rolled rod for this test have been delayed by equipment difficulties. One of the alpha rolled rods was heat treated using conditions similar to those used for the individual slugs. A fracture test indicated that the material had a recrystallized grain structure; however, further heat treatment of the alpha rolled rods will not be done until the structure of the sample rod has been checked metallographically.

In connection with the work on induction heating and quenching of uranium, a series of gamma extruded slugs which had been through the heating and quenching cycle 1, 3, 5, and 10 times were examined metallographically for grain structure. Macro-examination revealed a columnar grain formation around the periphery of the 3 and 10 cycle slugs which extended inward about 1/4" to 3/8". This structure was less pronounced in the 1-cycle slug, and was nearly absent in the 5-cycle slug, the latter having a fairly uniform grain structure. The microstructure of all of these slugs was similar to that of normal gamma extruded

material with a grain size of 0.2 mm or greater. Cycling did not appear to refine the grain size appreciably, although it did produce a more pronounced subgrain structure.

The orientation and grain structure of gamma extruded uranium which had been induction heated and quenched 1, 3, 5, and 10 times was studied by means of x-ray spectrometer traces and back reflection patterns. The results showed that one cycle was best with regard to randomness of orientation, although all cycled samples had a fairly random orientation. The back reflection films indicated that the 10 cycle sample had the smallest grain size. Previously a similar grain refinement was observed after 3 cycles, which indicates that control of the heating and cooling cycle may be critical.

Two 22-inch long uranium rods have been cast at the Melt Plant for preliminary tests to determine whether satisfactory fuel material might be produced by the induction heating of cast uranium.

Special Requests

The following Special Request pieces were prepared for pile irradiation:

R-40-7	3 pieces
CRNL-111	1 piece
CRNL-113	1 piece

P-10 Alloy

Except for (1) parts of #2 induction furnace, (2) some lathe parts required for machining bar stock, and (3) some unfinished work on the lighting and ventilation systems, all equipment provided by project C-334 has been installed in Bldg. 108-B.

Experimental operations were started in these new facilities on July 18. The resistance furnace functioned satisfactorily for the melting of lithium, and the casting of this metal into the cylindrical aluminum capsules used for charging the induction furnace was accomplished without difficulty.

Straight 2S aluminum was used for the first induction furnace trials, and three full-size (6" x 20") billets were cast with this stand-in metal. These trial runs showed the electrical and mechanical characteristics of the induction furnace to be operable, and the first two billets of Li-Al alloy were cast the week ending July 29. The first of these, cast in a steel mold, had a satisfactory composition except for 300 ppm of zirconium which probably had its origin in the zirconite mold wash. The second alloy billet, cast in graphite, was sound and had an excellent surface, but its lithium content was low. There was evidence of considerable lithium loss by vaporization, due presumably to excessive temperature and/or vacuum during melting.

Arrangements have been made with Argonne National Laboratory for G. O'Keeffe, their metallurgist most familiar with the casting of this alloy, to spend the first week or ten days of August at Hanford assisting with this start-up. Billet extrusion is to be done in Detroit, Mich., at the same mill which did this work for ANL.

Uranium Alloys

A series of photomicrographs were prepared showing the course of the transformation in the 4 and 6 percent uranium-molybdenum alloys which had been quenched from 800° C and reheated to 500° C for various periods of time.

Spectrometer traces for phase identification were taken of 4 and 6 percent uranium-molybdenum alloy samples which had been heat treated at 800° C followed by heating at 500° C. The 6 percent alloy consisted solely of the gamma phase when quenched or furnace cooled from 800° C. When this alloy was heated at 500° C after being quenched from 800° C, the gamma phase disappeared and the alpha phase became prominent. After 2 hours at 500° C, lines of a new phase appeared the amount of which increased with annealing time as judged by the intensity of the x-ray lines. The 4 percent molybdenum alloy consisted of a mixture of gamma and alpha when quenched from 800° C. On subsequent heating at 500° C the new phase observed in the 6 percent alloy was also found in this alloy.

Dilatometry

Considerable time was spent in reworking the dilatometer to eliminate defects noted in runs during the previous month. In the course of this work a sample of gamma extruded uranium was heated into the beta phase and cooled to room temperature three times. The alpha coefficient of expansion remained constant during the three cycles and no permanent change in length occurred. It would appear that cycling does not affect the approximately random orientation of gamma extruded material. This work is part of the experiment on beta quenched uranium.

Radio-Metallurgy

The metallographic polishing unit has again been modified to provide a satisfactory polishing action through 4/0 paper. The polishing back-up plate remains fixed to the sample holder while the various grits of paper are oscillated between the sample and the back-up plate. The entire polishing head, the sample and back-up plate, is rotated 60° without affecting the location of the oscillating polishing paper. Preliminary tests of this device have been successful.

The special design Pb brick has been completed and cell assemblies should begin shortly.

A shielding experiment was conducted to evaluate the relative effectiveness of leaded glass, steel, and lead in shielding the radioactivity from a 3-year old irradiated uranium wafer. The number of inches of the material that was necessary to reduce the radiation by a factor of 10 was as follows:

Lead	1"
Steel	2-1/16"
Leaded glass	2-11/16"

An available small milling machine has been obtained by transfer to afford a safe and easy method for taking samples from irradiated pile process tubing. Installation in Bldg. 111-B should be made shortly.

Redox Corrosion Testing

A table showing the status of the corrosion tests of SAE-1010 steel in waste solutions has been prepared and copies sent to the Chemical Development Section. No data on SAE-102C was included because tests with it were started after the SAE-1010 tests; however, the data obtained to date indicate a marked similarity of corrosion characteristics.

Miscellaneous

Final preparations were made to handle the irradiated beryllium and aluminum-magnesium alloy specimens on removal from the pile. The unirradiated comparison specimens were prepared for canning. These will be canned in the same manner and held for the same lengths of time at the same temperature as the irradiated specimens.

An extensive series of bend and compression tests on pile graphite was started for the Pile Technology Division.

The new XRD-3D diffraction unit arrived in part, and assembly was started the last week in July.

ANALYTICAL LABORATORIES

Work Volume Statistics

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

	June		July	
	Samples	Determinations	Samples	Determinations
Routine Control - 200	1462	2717	1700	3060
Routine Control - 300	511	1240	413	1572
Water Control - 100, 700	486	2480	822	3091
Redox Program Analyses	1627	4287	1864	3482
Process Reagents	647	1166	707	1265
Essential Materials	155	931	65	264
Special Samples	4253	10146	2115	5146
Stack Gas Filters	49	57	95	37
Totals	9190	23024	7781	17967

100 Areas Water Control

Arrangements have been made with the P Division in the 100 Areas whereby samples formerly collected from the Pile Bldgs. by the Analytical Section over week ends will be collected by the P Division after July 30. This will allow the Analytical Section to operate on a straight Monday through Friday basis in these areas. Prior to this change seven day coverage was supplied.

200 Areas Process Control

Operation of the 234-5 Laboratory as a plant control facility was started on June 27. In order to accommodate revised operation schedules, four chemists in addition to the anticipated normal complement have been temporarily assigned to the group. This brings the total personnel currently assigned to twelve chemists, six laboratory assistants and three supervisors. Special equipment necessary to this new laboratory operation has been received and placed in use (see also section on Analytical Research, below).

The installation of three additional hoods in room 7, Bldg. 222-B, was essentially completed in July. This alteration will allow additional laboratory space for Analytical Development activity in the 200 East Area. A similar installation in Bldg. 222-T was completed during the month.

In order to accommodate revised production distributions between T and B plants, the 222-T Laboratory was reopened on July 25 as originally scheduled. Both the T and the B laboratories now are being operated, with crew sizes balanced to suit the analytical load in each.

The recovery of AT retain samples by dissolution was temporarily suspended when the venting orifice on one of the sample containers became plugged, causing sufficient pressure to blow off the cap as it was being removed. No personal contamination resulted but extensive Bldg. 231 laboratory cleanup was necessary. A gloved box has been fabricated and delivered to this laboratory for use with this operation.

Routine geometry measurements of the methane proportional alpha counting instruments (accepted value 50.5%) in the 200 Area Control Laboratories were as follows:

Laboratory	Ave. Geometry (%)	No. of Tests
222-B & T	50.51	107
231	50.53	41
234-5	50.48	7 (for ASP Instruments)
234-5	50.74	23 (for IDL Instruments)

Since the IDL counters operate at a slightly higher geometry than the ASP counters, all results from these machines will be calculated to a gram per liter basis rather than counts per minute at 50.5% geometry. A special testing program comparing the operating characteristics of the IDL and ASP counters is being conducted in the 222-B Laboratory.

The average precision of the analytical results of the canyon starting solution (6-3-4R), the Isolation Building starting solution (P-1), and the final product solution (AT) may be summarized as follows:

Sample	Precision Expected	June	July
6-3-MR	1.54%	1.47	1.53
P-1	2.39	1.76	1.55
AT	1.98	1.48	1.63

The results from the assay of the synthetic 6-3-MR solutions are tabulated below. The standard precipitation procedure, CA-2a, was used; the percent recovery was based on 2.077 X 10^6 c/m/ml for 100 λ samples (June), and 1.556 X 10^6 c/m/ml for 75 λ samples (July).

Month	Laboratory	Ave. Results (x 10^6)	No. Assays	% Recovery
June	222-B	2.065	21	99.4
July	222-B	1.555	18	99.9

The standard iron solution used in the Isolation Building Laboratory to check the chemical titration of plutonium was analyzed a total of 48 times during the month. There were 43, 5 and zero results inside ± 1%, ± 2% and outside ± 3% of the assay value, respectively. The average precision of duplicate titrations was ± 0.90% as compared to ± 1.39% for June.

Assay Value	Group Ave.	% Diff.	No. Determinations	Precision (±%) Single	Duplicate
12.65	12.69	+ 0.3	18	1.85	1.31
13.42	13.39	- 0.2	10	0.99	0.70
10.22	10.21	- 0.1	10	1.47	1.04
12.08	12.02	- 0.5	10	2.07	1.46

Additional data comparing weight and volume measurements for the AT sample assay have been obtained. These are being forwarded to the Statistics Group for evaluation.

300 Area and Essential Material Control

An alternate spectrographic procedure has been developed for the determination of tin in aluminum-silicon alloys. Development of a method for lead in the same matrix is complete except for the assignment of absolute values to the standards.

A polarographic procedure for the determination of oxygen in argon has been placed in service.

Arrangements were completed for Hanford participation in the AEC uranium sample exchange program (Ref: Letter to AEC dated July 14, document HW-13876). The first Hanford sample was submitted to the Local Accountability Group for transmittal to Mallinckrodt.

Redox Program Control

At month-end there were 53 people assigned to the Redox Control Laboratory in Bldg. 3706. This represents a reduction of 8 personnel during July.

Methods Adaptation

Further investigation of the polarographic method for the determination of UNH demonstrated that the diffusion current is affected by the presence of sulfate ion. The procedure was modified to minimize this difficulty and new calibration curves are being prepared.

Several organic compounds were tested as possible solvents for the micro determination of nitric acid. Fair results were obtained with benzene providing that the solvent to aqueous ratio was less than five. Precision studies indicate that nitric acid can be determined with suitable precision in nearly all Redox streams. Investigation of the fluorimetric procedure for the determination of uranium revealed that significant amounts of this metal are absorbed by glass under certain conditions. This contingency must be guarded against in sampling low level streams.

The molybdenum blue colorimetric method for the determination of phosphate has been modified by eliminating the preliminary separation of phosphate. This method is extremely rapid, but is not applicable in the presence of silicon.

Instrumental Development

Initial coincidence studies were completed on five alpha instruments. No conclusive results were obtained, but the data indicate the presence of hitherto unsuspected variables both in techniques and instruments.

Service Groups

Experimental Shop

A Constant Temperature Bath and Agitator was completed and installed in one of the Chemical Research Section laboratories. Tests indicated that it will be satisfactory, since it is adaptable to a wide range of agitation with adequate temperature control.

Part of the gloved box sheet metal parts being fabricated by the 300 Area Maintenance Division were received and work was started on assembly of the units. Gloved boxes for Bldg. 234-5 analytical operations, and for Bldg. 231 AT retain sample recovery, were completed and delivered; another such box, for the iodine determination at 222-B, is 75% complete. Problems concerning the most efficient placement of equipment in these units proved difficult to solve, and required constant revision of the designs during assembly.

Design of specialized stirring units to be used in gloved boxes, junior caves, etc. also continued during the month. Three types have been developed which may be satisfactory for use: (1) A 27 volt AC-DC motor with a high speed, direct drive and low torque unit; (2) a 27 volt AC-DC motor with an indirect drive through a stainless steel or polythene gasket mounted in a standard taper stopper for use in sealed systems; and (3) an air turbine powered unit with a wide speed range and high torque.

The Iron Panel Boards fabricated by the Leupold & Stevens Instrument Company were received. This work was very well done, and one unit was immediately assembled for use in the 234-5 Laboratory.

Glass Shop

An increase in the amount of quartz work requested has again illustrated the need for a better fuel supply for this shop, and this problem is under study. The increase in requests for other complex types of equipment is also apparent as the research and development programs progress. Considerable work continues to be required for the P-10 program.

Special Hazard Control

Near Serious Accident #49-17 occurred in Room 56 of Bldg. 3706 on July 13. It involved the pressure rupture of a small glass jar containing acidic uranium waste solutions, and occurred shortly after an ether solution of uranium had been added. Fortunately no one was injured or contaminated, and clean-up of the laboratory was accomplished without incident. This experience was publicized promptly to all laboratory groups engaged in similar work, and steps were initiated to prevent recurrence.

On July 29 one (or more) of a number of small bottles of radioactive waste solutions, being transported by truck from laboratories in the 300 Area (Bldg. 3706) to the 200-E Area for disposal, ruptured with sufficient force to blow the 15-lb. lid of the metal box containing the waste bottles from the back of the open pick-up truck to the roadway at the 200-E gate. No injury or contamination of personnel was involved, but considerable decontamination work on the roadway and pick-up truck will be required. Investigations as a Special Hazards Incident, and as a Near Serious Accident, will be conducted to ascertain the cause, and to define corrective measures to prevent recurrence. Since this incident appears very similar to the one in Bldg. 3706 on July 13, the remedial measures will be suitably coordinated.

Analytical Research

A further application of coulometric principles to analytical chemistry has resulted in the development of a sampler having the features of accurate measurement of very small sample volumes and remote operation. A preliminary model of the instrument operates by generating electrolytically a volume of gas from a solution; an equal volume of sample solution is thereby forced into a sample container or titration vessel. The volume of gas is measured by the quantity of electricity employed in its generation.

A series of tests on methods for the determination of higher concentrations of plutonium in Redox streams has led to the conclusion that a combination of the lanthanum fluoride, ZPA and "hydroxide" methods will be adequate. Experimental work was started in an attempt to develop analytical methods for the determination of neptunium in Redox samples; the alpha energy analyzer will be employed in this investigation. Infrared absorption studies are being employed in an extension of the investigation of the water-hexone complex in an attempt to learn if a water-uranium complex exists in a hexone medium. Promising results have been obtained with an amperometric titration procedure for aluminum in IAW solutions; the method employs small samples and is adaptable to remote control. The interfering effect of Cr(VI) can be removed by prior treatment with a Bi(III) solution.

It has been shown that polarographic methods are sufficiently sensitive to determine lead in Rala Process solutions; the procedure offers the advantages of remote control and small samples. A supply of radioactive barium has been obtained and is being employed in the investigation of procedures for the determination of barium in Rala Process samples.

Following Marshall's detailed study of the Los Alamos procedure for the determination of carbon in plutonium metal, during his visit there July 19-26, the necessary apparatus was ordered and steps were initiated to complete construction work in Room 147 of the analytical portion of Bldg. 234-5. This room, which was left incomplete under Phase III of construction in this building, was intended for this purpose and now must be expedited to completion to meet the new priority assigned to this analysis.

During the month, Document HW-14026, "Analytical Research Group Report - Redox, May and June, 1949" was issued under date of July 29.

STATISTICAL STUDIES

300 Area Operations

No significant difference was found between uranium billet pour yields from the different Melt Plant furnaces. Control charts for this Bldg. 314 operation have been put into use. Controls also have been established for machining yields and scrap losses, and will be put into operation in the near future. The number of measurements taken on each slug in the routine dimensional control of canned slugs has been reduced on the basis of evidence gathered since January.

An analysis of test pile reactivity measurements submitted by the Plant Assistance Group revealed the superiority of slugs fabricated from uranium metal prepared using the new green salt.

The most probable concentration of iron, tin, and uranium in stock-piled Al-Si scrap, and of iron, copper, and uranium in bronze scrap and bronze crystals, were determined for the Metallurgy Section.

100 Area Operations

A combination of two equations has been fitted to the distance versus time graph obtained during tests of the braking mechanism for the vertical sheet rod planned for the G pile. From these curves, graphs of the velocity and acceleration were obtained.

A control chart has been prepared for measurements of CO_2 cylinder pressure.

Pile Technology

Additional computations of diffusion length in the DR pile were made from slightly revised measurements supplied by the Pile Physics Section. Additional data on temperature distribution have been submitted and are currently being analyzed. The numerical solution of a set of seven simultaneous equations was obtained.

200 Area Operations

Sand filter efficiency data are being analyzed in an effort to relate the decrease in calculated efficiency previously reported (document HW-13655) to the different monitoring locations.

As part of continuing material balance studies, a new test has been initiated to determine the plant sampling error associated with the 6-3-MR analysis.

Redox Development

The computation of partial correlation coefficients between various constituents and properties of Redox feed solutions and the disengaging time was completed.

Analytical Laboratories

Data from coincidence loss tests on alpha counting instruments showed those losses to be higher than previously were estimated. A new method of coincidence testing is being employed to determine accurately the losses at low counting levels, in order that the losses at higher levels may better be estimated from the data on hand.

Test procedures for studying sampling error were recommended to the Redox Control Laboratory and the General Chemical Laboratory. General routine Redox accuracy and precision studies were completed and reported. Estimates of within-chemist precision on analyses of 300 Area process oxides have been made and control limits established.

LIBRARY AND FILES

General

Agreement was reached on a standardized format for the cover and title page for all Research and Development reports issued by the three Technical Divisions for distribution in accordance with the A.E.C. Standard Distribution List. This use

of a pre-printed cover and uniform title page will greatly improve the appearance of these offsite distributed reports. The Information Group is to assist with the application of these report standardization steps.

Plant Library

Work in the Plant Library proceeded on a routine basis. Reference services were supplied during the month on such varied topics as: boiling point of technetium; equilibrium studies in an NH_3-aluminum carbamate system; formulas for aerosols; separation of metallic particles from a salt cake; reaction between copper and acetylene; comparison of argon with helium as a heat treating atmosphere; anti-oxidants for use in casting of magnesium.

The Specifications File in the W-10 Library was completely reviewed and its index and material brought up-to-date.

Library statistics were as follows:

	June	July
Number of books on order received	47	63
Number of books fully cataloged	133	110
Number of bound periodicals processed but not fully cataloged	0	0
Pamphlets added to pamphlet file	461	23
Miscellaneous material received, processed, and routed (Included maps, photostats, patents, etc.)	38	28
Books and periodicals circulated	1266	1145
Unclassified reports processed	163	138
Unclassified reports circulated	184	118
Reference services rendered	1031	985

	Main Library	W-10 Branch	Total
Number of books	4504	1744	6248
Number of bound periodicals	3354	100	3454

Classified Files

The responsibility for the receipt and setting up of incoming formal reports, formerly localized in the 700 Area Classified Files, has been transferred to the 300 Area branch. This transfer will further implement the policy of concentrating in the 300 Area the technical reports and the reference services from them.

Installation in the 700 Area Files of a report index for HW and GEH reports was completed. This index, duplicating a segment of the complete classified index available in the 300 Area Files, will include all documents in both series abstracted and indexed to date.

Installation of burglar-proof windows in the 700 Area vault has been completed at the suggestion of the Security Division. This installation, and the addition of a steel vault door, should enable the 700 Area Classified Files to use plain storage cabinets for classified material and thus free, for other use, the combination lock files presently used in this vault.

The AEC Technical Information Branch at Oak Ridge has supplied a cross-reference list between the unclassified and declassified reports, and the classified originals from which they were derived. This list will greatly expedite the handling of requests since, in many instances, a classified copy of a requested declassified report or a declassified version of a requested classified report can be located onsite if this cross-reference is known.

Work statistics for the Classified Files were as follows:

	June	July
Documents routed	12,548	12,081
Documents issued	4,841	5,114
Reference services rendered	2,796	2,614
Reports abstracted	845	650
Registered packages prepared for offsite	391	839
Inter-area mail sent via transmittal	11,329	18,650

Files Assistance Unit statistics were as follows:

Ditto masters run	836	708
Mimeograph stencils run	557	848
Ditto master copies prepared	27,203	18,889
Mimeographed copies prepared	27,039	40,521
Volume of mail handled	16,914	15,448

INVENTIONS

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

Inventor	Item
W. N. Carson, Jr.	Coulometer Buret
W. N. Carson, Jr.	Microburet Control

Signed T. W. Hauff
Division Head

TWH:mcs

MEDICAL DIVISION

JULY 1949

Summary

The Medical Division's roll decreased by 32 from 457 to 425.

There was a further decrease in construction population with indications suggesting little major construction activity until the spring of 1950. This has been responsible for the decrease in medical personnel. North Richland medical center activities are now concentrated in one wing, and consideration is being given to closing the medical center within the next two months. All medical activities would then be carried on in Richland until major construction is resumed.

Industrial

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

Employee physical examinations were down by 21% to 2457, while first aid treatments declined by 23% to 6501.

Absenteeism due to sickness decreased by 0.13% to 1.16%.

Three major and eleven sub-major injuries were treated. Three of the sub-major injuries were sustained by G. E. employees.

Proper diet was the health topic for the month. A survey of high school students' diet in Richland showed an adequate consumption of the seven basic foods in only 24%.

Communities - Hospital and Clinic

The average daily hospital census dropped from 68 to 66. Seventy-two percent of admissions were Richland residents. The census was 81 in July, 1948, the difference being due to the decrease in population.

Clinic visits dropped 8% to 6492. This was 20% less than the 12 months previous figure. Dental visits decreased by 9% to 2190.

Public Health

Home nursing visits increased by 40% due to emphasis on maternal, infant, and hygiene calls.

Costs (June)

The net cost of operation of the Medical Division (before assessments to other divisions) was $123,415., about $5,000. less than for May. While there was a decrease of about $10,000. in net revenue, this was more than offset by a decrease of about $15,000. in expenses.

General (continued)

The net expense of the Richland community medical program was $31,551., almost identical with the previous month's cost. Kadlec Hospital expense was $21,335., about $1300. less than for May, due to reduction in staff.

Clinic expense was $10,216., an increase of about $1700., due largely to the decrease in revenue which more than offset the decrease in expense.

MEDICAL DIVISION

JULY 1949

Plant Medical Section

General

The total number of examinations decreased from 3124 in June to 2457 in July. First aid treatments also dropped from 8407 in June to 6501 in July. Major injuries numbered three, and sub-majors numbered eleven, three of which were sustained by G. E. employees.

The industrial physicians' scientific meeting dealt with tumor-producing materials and pre-cancerous conditions.

Mr. Jack Moshman, a statistician of the A. E. C. Biology & Medicine Division at Oak Ridge, was a visitor during the month for the purpose of surveying industrial medical records. The feasibility of standardization of records at the various A. E. C. installations is the object of the survey.

The Health Activities Committee met on July 28th and the coming month's health topic on "Nutrition" was presented. Problems involved in plant-wide distribution of health topic material were discussed. Absenteeism for sickness was down to 1.16% as compared to 1.29% during the previous month. How Hanford Works compares with other U. S. industrial plants was also discussed. It was stated that the usual number of days lost per year per employee due to personal illness is about 7 days. At Hanford Works during the years 1946, 1947 and 1948, the average number of days lost per employee was 3.5 days.

Physical Examinations	June 1949	July 1949	Year to date
Pre-employment (G.E.)	205	212	825
Annual	403	410	3154
Food Handlers	34	32	446
Sub-contractors	1597	1120	14760
Rechecks	186	132	1837
Interval Rechecks (Area)	548	418	3739
Terminations & Transfers (G.E.)	145	123	1776
Government	6	10	57
Total	3124	2457	26594

Laboratory Examinations
Clinical Laboratory

Government	35	43	266
Pre-employment, term., transfers	2472	2450	50706
Annual	2467	2504	19316
Rechecks (Area)	2771	2225	19289
First Aid	31	21	355
Plant Visitors	0	4	4
Clinic	3189	2859	25587
Hospital	2150	2147	22394
Public Health (Inc. food handlers)	202	132	2497
Total	13317	12385	120414

MEDICAL DIVISION

JULY 1949

X-Ray	June 1949	July 1949	Year to date
Government	2	5	41
Pre-employment, term., transfers	347	355	4117
Annual	420	430	3261
First Aid	198	115	1774
Clinic	269	253	2466
Hospital	139	135	1659
Public Health (Inc. food handlers)	118	57	549
Total	1493	1350	13867
Electrocardiographs			
Industrial	151	109	1059
Clinic	6	10	101
Hospital	22	31	200
Total	179	150	1360
Allergy			
Skin Tests	33	76	360
Pathological Slides			
Hospital	38	3	747
First Aid Treatments			
Occupational Treatments	1040	739	10665
Occupational Retreatments	4023	2727	39900
Non-occupational Treatments	3344	3035	34914
Total	8407	6501	85479
Major Injuries			
General Electric	0	0	7
Sub-contractors	4	3	79
Total	4	3	86
Sub-major Injuries			
General Electric	4	3	27
Sub-contractors	19	8	204
Total	23	11	231
Absenteeism			
Weekly employees, all causes	1.98%	1.96%	2.48%
Weekly employees, sickness only	1.29%	1.16%	1.68%
Total days lost by males due to sickness	822	981	9985
Total days lost by females due to sickness	672	689	6839
Total days lost due to sickness	1494	1670	16823

MEDICAL DIVISION

JULY 1949

Absenteeism Investigation	June 1949	July 1949	Year to date
Total calls requested.....	23	17	147
Total calls made.....	23	17	147
No. absent due to illness in family.....	0	1	2
No. not at home when call was made.....	6	3	18

Village Medical Section

General

Two clinic physicians terminated and will not be replaced. One pathologist terminated due to ill health and will be replaced.

Medical Division roll decreased by 32 from 457 to 425.

The average daily census was 66, as compared to 68 for June, and 81 for July, 1948.

Clinic visits decreased from 7038 to 6492, which is 8% lower than the previous month, and almost 20% lower than the figure for a year ago. North Richland medical center accounted for slightly more than 6% of the current total.

The net expense of the Richland community medical program (June) was $31,551. as compared to $31,226. for May. A breakdown is as follows:

Kadlec Hospital expense	$21,335.
This is a decrease of about $1300. over May, due primarily to reduction in staff.	
Clinic expense	$10,216.
This is an increase of about $1700. over May, due primarily to decrease in income. At the same time salaries decreased by about $2000.	

The net expense of the North Richland clinic was $5764., as compared to $6306. for May. The reduction is due primarily to reduction in personnel affected by consolidating services in Wing #1.

Clinic Visits	June 1949	July 1949	Year to date
Medical.....	1221	1045	10992
Pediatrics.....	646	641	5277
Well Babies.....	153	114	1342
Surgical.....	733	573	5821
Gynecological.....	539	451	4284
Obstetrics (new).....	70	76	648
Obstetrics (recheck).....	860	768	6133
Venereal Disease.....	42	42	1368
Ear, Nose & Throat.....	406	388	3420
Eye.....	267	262	1909
Visits handled by nurses.....	1333	1296	11318
Night clinic visits.....	768	836	5803
Total.....	7038	6492	58315

MEDICAL DIVISION

JULY 1949

	June 1949	July 1949	Year to date
Average Clinic Visits per day.....	271	249	320
Home Visits (Pay cases)			
Doctors.....	174	114	1853
Nurses.....	208	79	2826
Total.....	382	193	4679
Kadlec Hospital Census			
Admissions.....	435	406	3679
Discharges:			
Surgical.....	88	94	768
Medical.....	50	63	738
OB & Gyn.....	127	113	891
Eye, Ear, Nose, Throat.....	80	46	457
Pediatrics:			
Children.....	30	23	326
Newborn.....	77	90	560
Total discharges.....	452	429	3740
Patient days.....	2043	2045	19355
Average stay.....	4.6	5.0	5.0
Average daily census.....	68.1	65.9	91.6
Discharged against advice.....	3	1	17
One-day cases.....	103	77	645
Occupancy percentage - Adults.....	62.0%	58.3%	88.0%
Infants.....	161.6%	175.0%	172.0%
Admission source - Richland.....	72.0%	72.0%	64.0%
North Richland.....	8.0%	14.0%	17.0%
Other.....	20.0%	14.0%	19.0%
Operations			
Transfusions.....	38	38	311
E. E. N. T.....	72	42	384
Dental.....	3	2	11
Casts.....	17	19	147
Minors.....	67	65	491
Majors.....	47	43	423
Vital Statistics			
Deaths.....	7	4	39
Deliveries.....	73	78	541
Stillborn.....	0	0	5
Physiotherapy Treatments			
Clinic.....	112	101	741
Hospital.....	34	22	339
Industrial - Plant.....	132	117	1817
Personal.....	55	50	417
Total.....	333	290	3314

MEDICAL DIVISION

JULY 1949

Pharmacy	June 1949	July 1949	Year to date
No. of prescriptions filled.....	2374	2474	23853
Patient Meals			
Regulars.....	2307	2641	26150
Lights.....	136	171	1087
Softs.....	789	803	9319
Surgical Liquids.....	80	75	665
Tonsils & Adenoids.....	194	80	913
Specials.....	1017	830	7728
Liquids.....	159	173	1589
Total.....	4682	4773	47451
Cafeteria Meals			
Noon.....	2310	2204	17035
Night.....	302	288	2215
Total.....	2612	2492	19250
Nursing Personnel			
First Aid nurses.....	38	38	
Clinic nurses.....	16	15	
Public Health nurses.....	13	12	
Hospital general nurses.....	72	71	
Aides & Orderlies.....	52	38	
Total.....	191	174	

Public Health Section

General

The incidence of communicable diseases remained low. The number of home nursing visits increased by 40% due to the emphasis on maternal, infant and hygiene calls.

The status of food-handling establishments remained the same, necessitating the enforcement of Benton County food ordinance, effective probably January 1st.

There has been an increase in the adult mosquito index due to the flooding of water development areas.

The operation of the swimming pool remained satisfactory.

Local ordinances on garbage and dogs have been referred to the Community Health Council.

MEDICAL DIVISION

JULY 1949

Administration	June 1949	July 1949	Year to date
Newspaper articles	10	10	133
Committee meetings	0	10	58
Attendance	0	50	700
Staff meetings	2	2	14
Lectures & Talks	1	3	26
Attendance	20	70	2769
Conferences	10	4	232
Attendance	50	50	970
Radio broadcasts	0	0	3
Immunizations			
Cholera	0	0	3
Diphtheria	70	49	1620
Influenza	0	0	5
Rocky Mt. Spotted Fever	19	31	83
Small pox	6	4	741
Tetanus	1	13	28
Typhoid	10	3	27
Whooping Cough	0	0	2
Vollmer Patch Test	0	0	7
Total	106	100	2516
Social Service			
Cases carried over	100	89	604
Cases admitted	15	17	156
Total	115	106	760
Cases closed	26	19	148
Remaining case load	89	87	612
Sources of referral:			
Public Health	1	2	26
Doctors	4	8	65
Hospital	2	0	2
Interested person	1	1	12
School	0	0	5
Personnel office	0	0	1
Personal application	0	3	17
Housing	0	0	2
Other agency	5	2	14
Miscellaneous	2	1	13
Total	15	17	156
Sanitation			
Inspections made	218	207	2151
Bacteriological Laboratory			
Treated water samples	221	176	1362
Milk samples	151	40	837
Other bacteriological tests	184	203	1939
Total	556	419	4138

120

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MEDICAL DIVISION

JULY 1949

Communicable Diseases	June 1949	July 1949	Year to date
Amoebic Dysentery	1	0	2
Chicken Pox	40	50	551
German Measles	13	9	177
Gonorrhea	1	1	28
Impetigo	1	3	6
Influenza	1	0	9
Measles	68	39	369
Meningococcic Meningitis	0	0	3
Mumps	0	1	26
Pediculosis	0	0	12
Pinkeye	0	0	33
Poliomyelitis	1	0	1
Ringworm	0	3	16
Scabies	0	0	8
Scarlet Fever	0	0	12
Syphilis	3	4	78
Tuberculosis	0	2	7
Vincent's Infection	0	0	2
Whooping Cough	1	1	5
Total	130	113	1355
Total No. nursing field visits	748	1196	9421

Dental Section

General

Dental visits dropped 9% over the previous month and 36% over a year ago.

Patients treated	2423	2190	20445

MEDICAL DIVISION

PERSONNEL SUMMARY

July 31, 1949

	1100 Area					3000 Area					
	Div. Admin.	Industrial	Clinic	Hospital	Public Health	Admin.	Industrial	Clinic	Hospital	Public Health	Sub-total
Physicians	2	3	17.4	2	1		3	3			31.4
Dentists			9					2			11.
Nurses	2	12	13	69	10		2	2		2	112.
Nurse Aides		1	3	26	1						31.
Orderlies				6				1			7.
Ambulance Drivers		4									4.
Techn - Den. Hyg.			1								1.
Techn - Clin. Lab.				13.8			1				14.8
Techn - X-Ray Lab.				5			1				6.
Techn - Bact. Lab.				1							1.
Techn - Phys.Therapy				1							1.
Accountants	3										3.
Secretary	2										2.
Cler.Work.Leaders	1			1							2.
Steno. & Typist	3			2	2						7.
Off.Mch. & Tel.Opr.	7	1									8.
Gen'l Clerks	21	14	9	11	1	1	10	1			68.
Pharmacists				4							4.
Dietitian				1							1.
Cooks				7							7.
Kitchen Workers				12							12.
Soc.Serv.Counselors					3						3.
Sanitarians					3						3.
Health Educator					1						1.
Dental Assistants			7					2			9.
Janitors		4.8	2.7	7.4	.7		1.8	1.4		.2	19.
Bacteriologists				2							2.
Records, Supv.	2										2.
Jr. Engineer	1										1.
Accounting Supv.	3										3.
Admin. & Assts.	3										3.
Others			3	6	2						11.
Total	50	38.8	65.1	177.2	24.7	1	18.8	12.4		2.2	391.2

Medical Division personnel located in outlying areas shown on next page.

MEDICAL DIVISION

PERSONNEL SUMMARY

July 31, 1949

		Outlying Areas														
	Sub-total	100-DR	100-H	234-5	White Bluffs	Pasco	101	100-B	100-D	100-F	200-E	200-W	300	241-BY	Plaut General	Total
Physicians	31.4		25		25			.1	.1	.1	.2	.4	.2			33
Dentists	11.															11
Nurses	112.		4		1			1	2	4	4	5	2	1		136
Nurse Aides	31.															31
Orderlies	7.															7
Ambulance Driver	4.															4
Tech.Dent.Hyg.	1.															1
Tech.Clin.Lab.	14.8							.4	.4	.4	.4	.8	.8			18
Tech.X-Ray Lab.	6.															6
Techn.Bact.Lab.	1.															1
Tech.Phys.Ther.	1.															1
Accountants	3.															3
Secretary	2.															2
Cler.Wk.Leader	2.															2
Steno.& Typist	7.															7
Off.Mch.&Tel.Opr	8.															8
Gen'l Clerks	68.		1					.5	.5	1	.5	.5	1			73
Pharmacists	4.															4
Dietitian	1.															1
Cooks	7.															7
Kitchen Workers	12.															12
Soc.Serv.Couns.	3.															3
Sanitarians	3.															3
Health Educator	1.															1
Dental Asst.	9.															9
Janitors	19.															19
Bacteriologist	2.															2
Records Supv.	2.															2
Jr. Engineer	1.															1
Acctg. Supv.	3.															3
Admin. & Asst.	3.															3
Others	11.															11
Total	391.2	0	525	0	125	0	0	2	3	5.5	5.1	6.7	4	1	0	425

Number of employees on payroll:

Beginning of month	457
End of month	425
Net decrease	32

[redacted]

HW-14043

DECLASSIFIED

HEALTH INSTRUMENT DIVISIONS

JULY 1949

Summary

The force increased by five. There were five Special Hazards Incidents, all without serious consequences.

Health Instrument Operational and Development Division findings, in general, were normal.

Biology Division control monitoring showed no exceptional result. Work on the Animal Farm in 100-F Area is about 45% complete. The Directive authorizing construction of the Biology Laboratory in 108-F was received from the Atomic Energy Commission.

[redacted]

Health Instrument Divisions

HEALTH INSTRUMENT DIVISIONS

JULY 1949

Organization

The composition and distribution of the force as of 7/31/49 was as follows:

	100-B	100-D	100-F	200-W	200-E	300	700	P.G.	Total
Supervisors	1	1	3	11	3	14	7	0	40
Engineers	4	5	11	24	9	9	1	0	63
Clerical	0	0	2	2	0	3	5	0	12
Others	7	12	20	67	30	51	11	5	203
Total	12	18	36	104	42	77	24	5	318

Number of Employees on Payroll	July 1949
Beginning of Month	313
End of Month	318
Net Increase	5

Added to the roll were two engineers, three technical graduates, four laboratory assistants, one steno-typist, one general clerk and one inspector. One general clerk returned from leave of absence. Removed from the roll were one technologist, two general clerks, one laboratory assistant, two field clerks, one steno-typist, and one operator.

General

The Directive was received from the Atomic Energy Commission authorizing construction of the Biology Laboratory in 108-F. Work is proceeding as rapidly as possible, pointing toward an early completion date. The Animal Farm is approximately 45% completed. Personnel will be occupying the office and change house building within two weeks. Completion of the project is scheduled for October 15.

During the period of fish migration Chinook salmon studies have been discontinued. Specimens collected in the ecological survey of the Columbia River showed higher activity than usual - similar to results observed in biological monitoring of land animals and plants.

[redacted]

Health Instrument Divisions

Five Class I Special Hazards Incidents were investigated. They concerned: (1) personnel contamination from work in an unusual hood, (2) contamination spread while changing a punctured rubber glove, (3) work in hoods with exhaust fans off following power shutdown, (4) Danger Zone entry and work on a terminated Special Work Permit, and (5) explosion of a waste solution container. None of these incidents involved significant exposure to personnel.

The following trips were reported:

C. C. Concertsfelder - Instrument Committee Meeting - Schenectady - Also contacted L. L. Gorman, Knolls APL

J. M. Smith, Jr. - Study of Health Physics procedures and Redox process, Oak Ridge, Tennessee

F. E. Adley - Consultation with Dr. P. Anderson, Washington State College, Pullman, Washington

R. F. Foster - Monitoring Purposes - Seattle and Bremerville, Washington

L. K. Busted - Arrangements for Animal Care - Prosser, Washington

Visitors included Dr. P. E. Church, Consultant, and B. G. Cunningham, G. E. X-Ray Corporation - Milwaukee, Wisconsin.

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

Inventor	Title
none	none

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Health Instrument Divisions

OPERATIONAL DIVISION

100 Areas

General Statistics

	June				July				1949 To
	B	D	F	Total	B	D	F	Total	Date
Special Work Permits	532	696	488	1716	480	912	620	2012	13873
Routine & Special Surveys	465	486	549	1500	457	531	523	1511	11299
107 Effluent Surveys	89	94	90	273	90	93	87	270	2003
Air Monitoring Samples	116	179	102	397	87	112	132	331	2241

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	305	275
Average beta dosage-rate (mrep/hr)	0.9	0.8	0.8
Average gamma dosage-rate (mr/hr)	1.8	2.2	2.3
Average total dosage-rate (mrep/hr)	2.7	3.0	3.1
Average integrated dose in 24 hours (mrep)	65	72.0	74.4
Maximum integrated dose in 24 hours (mrep)	86	96.0	91.2
Maximum integrated dose in 24 hours (mrep)(1949)	108	132	106

100-B Area

Unusually large amounts (up to 100 pints per day) of condensate were obtained from the driers in the Gas Purification Building. Samples of the condensate were analyzed at the H.I. Methods laboratory, and showed appreciable amounts of S^{35}. The normal dilution by the pile effluent water was sufficient to maintain the concentration of S^{35} in the water entering the river at less than the recommended tolerance of 10^{-2} μc/liter. Tests by "P" Division indicated a possible leak in process tube #0283. It was isolated and the amount of condensate collected dropped immediately.

Two cases of coverall contamination were encountered in the discharge area due to contact with Calol from process tubes. High levels of contamination were also encountered during an attempt to remove a graphite sample from the "B" experimental hole.

A beam is now in evidence at the top far edge of the pile extending from the #3 to the #5 vertical "T" seams. The width varies from ½ inch to 1¼ inch, and is widest at the #4 seam. Dental film exposed in the beam showed a dose-rate

[redacted]

Health Instrument Divisions

P-10 Operations - 108 Building

Several irradiated aluminum alloy pieces were decapped in the can-opening room. Positive gas activity was detected during the cutting operation, and a sample of gas collected showed 125 μc/liter of tritium gas when analyzed at the H.I. Methods laboratory.

The latest urine samples from P-10 employees indicated no significant amounts of T_2O.

100-D Area

During the removal of one process tube, active gas came from the front gun barrel, the dosage-rate being about 250 mrep/hr. The gas leakage resulted from open division valves in the 105-115 line, and stopped when the valves were closed. Another process tube, #1488, stuck after it was partially removed and had to be shielded on the discharge face to allow work to continue. The maximum personnel exposure rate during the shield installation was 800 mr/hr.

During discharge operations a single chain link was discovered on a tip-off and showed a dosage-rate of 500 mr/hr at 3½ inches.

Cleanup work in the "B" experimental hole was accomplished with little spread of contamination. Thimble replacement resulted in usual exposure rates and some spread of contamination to the floor near the thimble channel.

The floor and doorways of a railroad car in which empty casks were returned were generally contaminated up to 18,000 c/m (beta) and 2,000 d/m (alpha). The contamination was successfully removed.

100-F Area

Instances of contamination to personnel and their clothing were numerous during this period. Five cases of hand contamination, and one case of neck contamination were easily reduced. Followup of shoe contamination received in the discharge elevator machinery room revealed low-level floor contamination, the origin of which was tentatively traced to a "scram" just previous to the incident.

Removal of the "beta" slug resulted in contamination of one hand and the hair of a Pile Engineering employee. Decontamination was successful. The hair contamination was attributed to the improper removal of his assault mask while wearing contaminated gloves.

Preparation of tube #2451 for traverse caused unusually high exposure rates. The maximum was 5 r/hr when the 10th dummy was caught with tongs on the rear face. At the time of this exposure rate, the men evacuated the rear face, and

[redacted]

the dummies were pushed out of the tube with no tip-off on the nozzle. This resulted in several pieces being caught among the pigtails and nozzles, and exposure rates of 300 mr/hr were encountered in removing these pieces.

The vent and water separator for the downcomer and effluent line, which is located on the 60 ft. near roof, showed dosage-rates of 2.3 rep/hr including 1.2 r/hr when under a positive pressure. The "breathing" of the vent makes this dosage-rate present only about 1 second out of each six seconds. On the vacuum cycle, the dosage-rate drops to about 560 mrep/hr including 60 mr/hr. This vent is apparently the cause of some low-level contamination spread, and a high background on hand and shoe counters when atmospheric conditions are just right.

The width of the beam at the top far edge of the pile showed an increase of 1/16 inch to 1/8 inch generally. The dosage-rate in the beam as determined by dental film was 4 roentgens per hour.

200 Areas T and B Plants

General Statistics

	June			July			1949 To Date
	T	B	Total	T	B	Total	
Special Work Permits	340	368	708	245	310	555	5,494
Routine & Special Surveys	506	569	1075	404	473	877	7,340
Air Monitoring Samples	398	800	1198	312	805	1117	8,040
Thyroid Checks	84	98	182	72	40	112	1,389

Canyon Buildings

In the T Plant, removal of defective equipment for burial and general decontamination of the canyon was continued. A dip tube on the deck at Section 17 showed a surface dosage-rate of 3.5 rep per hour, and was roped off. The handling of two high level samples and the decontamination of equipment involved was monitored by H.I. with a maximum exposure rate of 2 rep per hour noted. A special survey of a bucket of slugs suspended five feet over the deck was made, and dosage-rates of 2 r/hr at 55 feet from the bucket, and a maximum of 56 mr/hr at a height of six feet in the craneway was recorded. A total of 104 canyon air samples showed significant concentrations, with a maximum of 1.8×10^{-8} μg Pu/cc when a Section 17 dip tube was drilled.

In the B Plant, during tank rearrangement, the travel motor of the 75-ton crane burned out, necessitating the use of the 10-ton crane to move the 75-ton crane to a low radiation field for repairs. The maximum exposure rate at the 10-ton crane controls was 3 rep/hr while passing Section 8. After the tank rearrangement was complete, gross contamination of the canyon deck at Sections 18 and

[redacted]

Health Instrument Divisions

19 was observed, and dosage-rates as high as 35 rep/hr at 1 inch and 750 mrep/hr including 60 mr/hr at 4 feet were recorded. Decontamination is in progress. A total of 40 canyon air samples showed significant concentrations, with a maximum of 4.7×10^{-6} μc f.p./liter while jetting in Section 8 with the blocks removed.

Control Laboratories

In the T Plant, reactivation of the laboratory for process control was effected. A total of ten items, not regulated with respect to handling, was found contaminated on surveys by H.I. personnel. Two cases of fission product contamination were reported, and successfully cleaned.

In the B Plant, 324 items, not regulated with respect to handling, were found contaminated on surveys by H.I. and Technical Division personnel. In addition, 54 contaminated floor locations were reported. Five cases of product and two cases of fission product hand contamination were reported and were successfully cleaned. A 13-4 sample showing a dosage-rate of 600 mr/hr at 2 inches through the doorstop was slurped out with a maximum exposure rate of 3 rep per hour at 18 inches. Later contamination of 300 mrep/hr surface on the coveralls and 60 mrep/hr surface on the wrist of the employee performing this operation was found. The wrist was easily cleaned. The provided finger ring monitor was not being worn at the time of the incident. The maximum possible exposure to the wrist was about 125 mrep, based on the total time on the job before discovery of the contamination.

Concentration Buildings

In the T Plant, readjustment and cleaning of the F-10 scale tank was completed with significant contamination limited to outer protective clothing. Two outer rubber gloves were punctured during this work, but inner gloves were not broken. A sampler showed finger contamination of 50,000 d/m which was cleaned. Further surveys showed a bayonet handle contaminated to greater than 80,000 d/m. A shelf in the F-10 chained area showed a spot of 70,000 d/m, and cleaning is in progress.

In the B Plant, the continuous samples of the roof exhausts of Cells A, B, and D, showed about 50 μg Pu per day entering the atmosphere during the period of 6/10 through 7/1, and about 113 μg Pu per day during the period of 7/2 through 7/22. Air samples in the cells continue to show the same level of contamination as found at the roof exhausts. Additional samples are now taken about 500 feet southeast of the building, both at the ground and fifteen feet above the ground, and to date all samples have shown less than 10^{-11} μg Pu/cc.

Waste Disposal Areas

In the T Plant, metal waste solutions are now passing through the TK waste line

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[redacted]

Health Instrument Divisions

system to tank 101-TX. A Pennsylvania Railroad Express car #6080 used for the return of transfer casks from another site was found to have general fixed contamination up to a level of 80,000 c/m on its floor. Floor chippings are being analyzed. No detectable contamination was found on the outsides of the casks.

A waste solution container from the 300 Area exploded at the 200-E Area gatehouse while it was enroute to the 200-E laboratory for disposal. No personnel contaminatinn resulted. The truckbed was quite generally contaminated, and a small area of contaminated roadway was removed and buried. The explosion was due to organic solvents and acid in the waste. The incident was formally investigated.

Plant Laundry

A total of 33 continuous and 51 spot air samples was taken during laundry operation, and the maximum concentration found was 1.2×10^{-5} µg U/cc during the washing of 300 Area clothing. All fission product concentrations were less than 10^{-7} µc f.p./liter. A lint sample from a laundry drier showed 1,000 c/m. Surveys of two bags of clothing from Knolls showed external radiation readings of 1,000 and 4,000 c/m. Survey of the contents showed a maximum of 125 mrep/hr surface reading including 4 mr/hr at 2 inches on a shoe-cover.

General

All thyroid checks were below the warning level.

The Isolation Building

General Statistics

	June	July	1949 To Date
Special Work Permits	39	24	248
Routine & Special Surveys	324	257	2138
Air Monitoring samples	529	546	3232

Operating Cells

An air sample in Cell 2 during normal operation showed a concentration of 8.5×10^{-11} µg Pu/cc.

About 7 µg Pu was found on the plywood box containing the waste sump sampler, and the contaminated portions are being replaced. In addition, eight items, not regulated with respect to handling, were found contaminated on surveys by H.I. personnel, and all items were below 20,000 d/m. No floor contamination was reported, and there were no incidents of skin contamination.

A total of 106 special air samples was taken testing the unfiltered and filtered

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Health Instrument Divisions

air from the A leg of Cell 2, and testing of assault mask canisters. The maximum concentrations found were 2×10^{-6} μg Pu/cc in the unfiltered air, and 1.8×10^{-10} μg Pu/cc in the filtered air. Ten samples of the 903 system exhaust air showed a maximum concentration of 3.7×10^{-12} μg Pu/cc.

Maximum gamma radiation levels encountered were 18½ mr/hr on PR containers, 2½ mr/hr at the process hoods, and 5 mr/hr on S.C.

Technical Development Laboratories

Three items, not regulated with respect to handling, were found contaminated on surveys by H.I. personnel. All were below 20,000 d/m. No floor contamination was reported, and there were no incidents of skin contamination.

234-5 Building

General Statistics

	July	1949 to Date
Special Work Permits	162	162
Routine & Special Surveys	250	250
Air Monitoring Samples	1511	1511

Operating Sections

A total of 49 positive air samples was obtained in room 228, and assault masks were worn except at the beginning of the operating period. The maximum concentration to which personnel was exposed without masks was 1.1×10^{-10} μg Pu/cc. Air lock operations were the source of air contamination, and improved technique reduced the air contamination.

Contamination spread was limited to the process rooms, and no floor contamination was found in adjacent areas although three contaminated shoe-covers showing a maximum of 10,000 d/m were noted after passage through the Zone 3 corridors. The improved air lock technique minimized floor contamination in room 228. A leaky flange on a transfer head tank vent valve in room 228 caused the spread of about 250 μg Pu on process equipment and floor and decontamination is in progress.

Neutron and gamma radiation measurements were made at the various process steps. Manipulations in Hood 9 have presented the only significant hazard from these radiations, and at that point the maximum exposure rate while manipulating the process container was 125 mrem/hr due to fast neutrons plus 50 to 75 mrem/hr due to gamma radiation. With the container in normal position in the hood, the exposure rate at the hood face was about 6 mrem/hr.

Low-level skin and clothing contamination resulted from maintenance work in an unused recovery hood, presumably due to transfer of contamination through lines

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Health Instrument Divisions

from this hood to portions of the process equipment which had been activated. Skin decontamination was successful. This incident was formally investigated.

Widespread contamination was found in room 229 resulting from an undetected rupture of a barrier rubber glove. An estimated 10 μg Pu was involved, and decontamination of the floor and equipment was effective. Forearm contamination of the operator involved about 0.4 μg Pu, and was successfully cleaned. Failure to perform surveys required in this operation was the cause of the incident. The incident was investigated formally.

Nine samples of process hood air after primary filtering showed significant concentrations, the maximum being 3.1×10^{-11} μg Pu/cc. Further investigation is in progress to isolate the source. Samples of all building air after secondary filtering showed no significant concentrations.

Control Laboratories

Significant air concentrations of 4×10^{-9} and 7.4×10^{-11} μg Pu/cc were found during the arcing of samples for spectrographic analysis. Personnel exposed did not wear respiratory protection during this time, but assault masks are now prescribed pending further study.

Four incidents of contamination spread occurred in room 154 involving a total of about 10 μg Pu; and about 0.2 μg Pu was spread to the corridor floor outside the room. Three other instances of floor contamination involving a total of 0.1 μg Pu were reported.

The 300 Area

General Statistics

	June	July	1949 To Date
Special Work Permits	178	130	1347
Routine & Special Surveys	162	142	1164
Air Monitoring Samples	203	174	868

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Health Instrument Divisions

Metal Fabrication Plant

Eighteen of 33 air samples taken were above 5×10^{-5} µg U/cc as follows:

Location	Number Taken	Number Above 5×10^{-5} µg U/cc	Maximum Conc. µg U/cc	Conditions
Machining	6	1	5.1×10^{-5}	Normal operation
Chip Recovery	14	5	1.8×10^{-4}	Normal operation
314-Main room	9	8	5.4×10^{-3}	By rod straightener
Oxide Burner	2	2	*	Screening oxide
303-K	1	1	2.2×10^{-4}	Sampling oxide
Railroad Car	1	1	9.4×10^{-4}	Unloading rods

* Samples jammed counter, maximum was 5 mrep/hr at surface.

Two shipments of uranium rods were received in grain cars. All cars were cleaned to less than 4 mrep/hr at the surface and released. However, there is no assurance that considerable uranium was not left on car surfaces to be mixed with future grain shipments.

Due to the extremely large number of rods stored in building 314, it was necessary to limit the working time during a special extrusion run. Respirators were worn throughout the building.

100 Areas Associated Laboratories

An irradiated silver wire from the 100-F Area was brought to the 300 Area for study. The dosage-rate on the outer steel case was 480 mr/hr at 2 inches. During the attempted removal of the wire from the aluminum container the radiation level rose to 3 r/hr at 4 inches, and the work was discontinued to allow for further decay.

A survey of the 50 KV X-ray machine revealed dosage-rates as high as 1 r/hr at closest approach with the hands during certain phases of operation. Sufficient shielding was added to limit the maximum dosage-rate to 2 mr/hr.

Technical Building

An ether and uranium explosion occurred in room 56, and scattered glass into the adjoining corridor. No contamination was found in the corridor and only low-level contamination was found on the laboratory floor. This was easily removed. An air sample taken showed less than 5×10^{-5} µg U/cc.

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Health Instrument Divisions

Cold Semi-Works Building

A total of about 948 lbs. of uranium has been discharged to the waste pond of which about 76 lbs. were added in July. The total uranium in waste solution to the 300-N crib remains at 63 lbs.

Five cases of protective clothing contamination were reported by laboratory personnel involving a maximum of 0.04 μg Pu. Eight items, not regulated with respect to handling, were found contaminated, with a maximum of 0.1 μg Pu involved. Six cases of skin contamination were reported by laboratory personnel and all were successfully cleaned.

Hand Score Summary

A total of 37,792 alpha and 40,635 beta hand scores was recorded. About 0.17% of the alpha and about 0.14% of the beta scores were high. No attempted reduction was recorded for 9 high alpha and 8 high beta scores all in the 300 Area. Where decontamination was attempted, it was successful in every case.

PERSONNEL METERS

Pencils	100-B	100-D	100-F	H&N 200	200-W	300	Total	1949 To Date
Pencils read	9,766	9,884	12,962	23,958	41,608	35,771	133,949	1,049,982
Single readings (100 to 280 mr)	20	17	21	17	100	44	219	1,797
Paired readings (100 to 280 -- mr)	0	0	0	0	1	0	1	14
Single readings (Over 280 mr)	30	27	37	30	107	83	314	1,949
Paired readings (Over 280 mr)	0	0	0	0	2	1	3	20
Paired readings Lost	0	0	1	1	0	0	2	44

No significant pencil result was confirmed by the badge result. Investigation of lost readings showed no possibility of overexposure.

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Health Instrument Divisions

Badge Resume, Construction Areas

	105-DR	241-TX	384	Total	1949 To Date
Badges Processed	500	707	150	1,357	62,164
No. of Readings: (100 to 500 mrep)	0	1	4	5	208
No. of Readings: (Over 500 mrep)	0	0	0	0	19
Lost Readings:	0	4	0	4	56

Three of the lost readings occurred when the sensitive film was not packaged, and the fourth was a recovered lost badge.

Badges	100-B	100-D	100-F	200-E	RRT 200-N	200-W	300	Total	1949 To Date
Badges Processed	1,785	1,861	2,165	2,011	607	3,579	5,929	17,937	138,492
Number readings: (100 to 500 mrep)	5	9	6	7	0	9	101	137	1,784
Number readings: (Over 500 mrep)	0	0	0	0	0	0	2	2	12
Lost Readings	0	2	1	1	0	0	15	19	140

Investigation of results over 500 mrep showed one was due to X-ray exposure in 3706 building, and when the proper calibration curve was used no overexposure was involved. The other result occurred in the 303 Area, and pencils for this employee totalled 90 mr for the period. Other employees on the same work did not show an overexposure.

Lost readings were accounted for as follows:

Open window exposed to X-ray in badge trailer	12
No packet in badge	3
Badge lost in Area	2
Badge dropped in liquid	1
Contaminated badge	1

Investigation of lost readings showed no possibility of an overexposure.

Badges processed, 1949, -	Operations	138,492
	Construction	62,164
	Total	200,656

In addition, 1,378 items of non-routine nature were processed. The 1949 total to date is 17,796.

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Health Instrument Divisions

CONTROL AND DEVELOPMENT DIVISION

Control Functions

Routine water samples were taken as scheduled. One drinking water sample from a new location at the 251 Building had alpha activity of 74 dis/min/liter but this has not yet been confirmed by a re-sample. Test well and river samples were normal.

Atmospheric monitoring and land and vegetation contamination results were at normal levels. Some active particles were observed on a filter paper from Great Falls, Montana.

Geology

Activity in the water samples from Well 361-13-3 dropped below the significant level for the first time since the initial sampling of January 1948 when a level of 2.5 millicuries per liter was obtained. The other two contaminated wells in this area, 361-B-1 and 361-13-9, are following the curves of decreasing activity already established.

The dropping of the water table in the 300 Area has been accompanied by a significant increase in the alpha activity in Wells 303-1 and 303-2. The maximum being about 200 dis/min/liter.

Sampling from 5-6 Crib and Tile Field and in the 241-T Area gave normal results except that a slight amount of alpha activity was detected in a sample of sediment from Test Hole #1 in the 5-6 Crib Area.

Meteorology

Continued drought featured the weather for July 1949, for the second consecutive month. Precipitation totaled only .01 of an inch. Last day with appreciable rainfall was May 1 when .14 of an inch was recorded. Since that date measurable rainfall has occurred on only three days and has totaled only .04 of an inch. So far during 1949 precipitation has totaled 2.13 inches more than half of which was recorded during the month of March. The cumulative deficiency since January 1 now amounts to 1.18 inches.

Temperatures during the past month averaged 75.0 or 1.3° below normal. Warmest parts of the month were from the 9th to the 15th inclusive and on the 30th and 31st. Between these two warm periods temperatures were considerably below the seasonal normal. The monthly high of 104 was recorded on three different dates (the 15th, 30th, 31st). The lowest temperature of the month was 49 on the 21st.

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Health Instrument Divisions

Wind speeds during the past month were near normal and there were no severe storms of any kind.

Forecasts	Number	Percent Reliability
8-Hour Production	93	89.8
24-Hour General	62	85.8
Special	15	86.7

Bioassay

Four hundred and sixteen samples were analyzed for plutonium during the month. The blank samples and samples averaged 0.06 d/m with an average yield of 88% on the spiked samples. An examination of 1088 values since March 14, 1949 has led to a new re-sampling limit of 0.33 d/m. Three re-samples from this month and thirteen obtained in the range of 0.33-0.65 d/m will be obtained and processed.

One hundred and forty urine samples were analyzed for uranium on the fluorophotometer. The uranium content of the samples was:

Job	Maximum ug U/liter Urine	Average ug U/liter Urine
Melt Plant	40	20
Material Handling	13	7
Machining	25	6
Canning and Dipping	21	4
Inspection	15	6
305 Building	6	4

Methods Development

Work on the electroplating of plutonium has shown that stainless steel plates may be used with possible loss of several percent in yields. Attempts to use the TTA analysis as a source of plutonium for plating indicate that the nitrate ion interferes but indications have been obtained that equivalent yields may be obtained by using hydrochloric acid to remove the plutonium from the TTA.

The use of hydrogen peroxide to eliminate background on the alpha film appears satisfactory but more tests are needed to measure the rate at which it grows back in the film. It appears possible to read the alpha tracks under 100 x magnification if there are only a few present. A test of the fission film in the 305 Pile gave results within a factor of two of the calculated values. This is considered good agreement in view of the uncertainties present in the knowledge of the flux. More work is needed to eliminate the fogging of the film noted in this experiment.

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Health Instrument Division

More resin column experiments on the purification of lanthanum and the analysis of urine for fission products have given encouraging results. A final procedure for the lanthanum should result from the measurement of the effects of temperature, flow rates, and optimum column dimensions.

A test of the activity of the hydrogen in the calcium hydroxide formed in the production of acetylene for monitoring tritium has shown that there is no significant difference in the partition of tritium between the acetylene and the calcium hydroxide. Monitoring tests on urine and air samples have continued with some slightly positive results (0.7-5 μc/liter) obtained from samples taken but not run during the time of operation.

Several anthracene crystals were made for the Instrument Development Group. The Argon filled chamber for the low background alpha counter appears unusable because of the poor design of the chamber for this purpose. The Kelekot alpha counter is now operating and appears ready to test on routine samples. A scintillation counter has been received from the Instrument Development Group for test as a low background alpha counter.

All attempts to use acetylene as a counter gas in a proportional counter have given poor results. Future tests with the acetylene as a contaminant in proportional and Geiger counters are planned.

Methods Control

Sample Type	Number
Vegetation	443
Water	815
Solids	101
Fluorophotometer	494
Miscellaneous	57
Special	15
Beta emitters	4,371
Alpha emitters	2,596
Control Points	1,721
Decay Curves	316
Absorption Curves	6

Physics

Fast neutron flux measurements were made at various points in the 234-5 process with the results reported separately.

Health Instrument Divisions

Measurements were also made at several points in the 234 process with a boron trifluoride counter in a "standard" two-inch wall paraffin moderator. The flux densities indicated by these measurements were in reasonable agreement with those determined by the recoil proportional counter, considering the different geometric configurations of the two counters.

Lengths of some 500 recoil proton tracks and nuclear track plate exposed at grazing incidence to Po-Be neutrons have been measured and are being reduced to values which will be used to form a number vs. energy histogram of the neutrons from this source.

In an attempt to provide a convenient means of checking for soft beta contamination on instruments which have been used in the field, a Victoreen mica window GM tube was coated with a thin, opaque aluminum layer by evaporation, to reduce the light sensitivity. This counter can be used with an El Tronics portable GM unit by providing an additional 300 volt battery, and the 1.9 mgm/cm^2 window permits ready detection of carbon-14. The counter can also be used with a "Poppy" chassis by using about one-third of the normal high voltage. The voltage control on the "Poppy" can then be set to operate the counter either in the geiger region in which it will detect alpha, soft beta, hard beta and gamma radiation, or in the proportional region in which it detects alpha radiation only.

Industrial Hygiene

The study of atmospheric contamination in the 314 Building is continuing. Air sampling of the workers environment for particle size analysis is nearly completed. In the study of atmospheric contamination by uranium fume it has been observed that samples which have been collected for microscopic analysis change in appearance as the deposit ages. This change has been recorded in a series of photomicrographs commencing a few minutes after preparing the sample and covering a period of 5 days, but the results have not been studied sufficiently to determine the mechanism or importance of this phenomenon.

Instrument Development

The General Electric alpha scintillation counter has been placed in experimental service in the Methods Group counting room. Final Development laboratory testing showed 30% geometry with a point Plutonium source, a background of 1.2 ± 0.2 counts per hour complete freedom from microphony except when tested abusively, and negligible electrical pick-up from such sources as electrostatic typewriters and soldering guns on the same line. A bio-assay plate gave 25% geometry without taking pains

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to locate it as close to the phosphor as practicable. These characteristics are obtained by using a 1-P-21 photomultiplier, which may accidently be unusually good, and a simple amplifier-discriminator having half power points at about 3 and 5000 cycles.

Work was begun on a beta-scintillation counter using an anthracene crystal and C-7132 photomultiplier. The work progressed sufficiently to observe uranium beta pulses on an oscilloscope screen.

The pulse analyzer ion chamber will require about two additional weeks of shop work for completion. In the interim, the pre-amplifier has been redesigned and tested; a new bias circuit and differential increment control have been designed, and the reliability of a Schmitt trigger circuit was investigated. The new system is designed for studying 0-8.7 MeV alpha particles by scanning 1 or 2 MeV energy intervals at any of 8 differential increments between 4 and 60 KeV. The Schmitt trigger circuit was found to trigger to within less than 0.05 volt of the triggering bias. It is therefore an unimportant source of "spread" at this stage of design.

An experimental magnetically modulated electrometer was set up and found to have a voltage sensitivity of 0.11 volts for 20 microamperes output current, with a 10^{11} ohm signal register. A CK-571 AX tube equipped with an improvised modulating coil driven by a laboratory oscillator comprised the electrometer circuit. A laboratory A.C. amplifier produced the signal fed through one half of the primary winding of a conventional center tapped output transformer while the oscillator fed the other. The secondary was connected to a rectifier and 20 microammeter. This experiment shows the modulation method to be of interest, particularly if an electrometer tube of open construction is developed. By proper selection of components and higher amplifier gain, several orders of magnitude in sensitivity may easily be realized using the present electrometer tube.

An ion chamber consisting of a small spherical high voltage electrode and hemispherical collector was designed and constructed. The chamber will be used for experiments on low-background counting and ion chamber microphonics.

A large size (approximately 100 liters) ion chamber was built and tested for the Methods Group for their work on atmospheric monitoring. Normal background was about 3×10^{-13} ampere.

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19

Health Instrument Divisions

Calibrations

The routine calibrations were:

	Number of Calibrations	
RADIUM CALIBRATIONS	June	July
Fixed Instruments		
Gamma	341	299
Portable Instruments:		
Alpha	205	201
Beta	343	425
Gamma (Radium)	929	1,089
X-Ray Scanning	52	26
Neutron	10	7
Total	1,539	1,748
Personnel Meters:		
Beta	1,085	422
Gamma (Radium)	7,858	9,468
X-Ray	6,264	6,837
Neutron	0	0
Total	15,207	16,727
GRAND TOTAL	17,087	18,774

Victoreen GM Calibration figures have been omitted for 4 months. This report shows the corrected totals to date.

1145 Calibrations have been added.

Health Instrument Divisions

BIOLOGY DIVISION

Aquatic Biology

1. Effect of Pile Effluent on Aquatic Life

Monitoring studied on chinook slamon were terminated on July 14 so that the young fish could migrate to salt water. Results of this study were consistent with those perviously obtained and indicated that the salmon would tolerate area effluent water in concentrations up to five per cent if the temperature remained below 14°C. The chemical toxicity of the pile effluent water (sodium silicate being a slight contributing factor) is largely responsible for the adverse effect on the salmon. Fish held in pile effluent water did suffer a slightly greater mortality than those in pile influent water, however. The fish reared in the effluent water contained activity up to 50 times greater than that of the water. Young trout held in active water and fed algae grown in pile effluent water were nearly 100 times more active that the water. Thus far, such trout do not appear to be adversely affected.

2. Biological Chains

The activity in most tissues of yearling trout which have been feeding exclusively on small carp reared in pile effluent water has remained about the same for the past two months, with the exception of the bone, which has slowly increased in activity. The bone in the trout is more active than the flesh by a factor of about 16. Similar results have been obtained with trout feeding upon active algae. The activity of shiners held in pile effluent water has fluctuated considerably from month to month but in general has remained on a plateau attained late last fall. Shiners fed on active snails have shown approximately the same activity attained during the spring with the advent of warmer water temperatures.

3. Radiobiological Survey

The level of the river had receded sufficiently to allow resumption of routine collecting of bottom samples from the inshore area. Samples of insect larvae and fish collected at Hanford were found to be 5 to 10 times more active than previous averages. The cause of the marked increase is not yet wholly apparent but sampling in this area has been intensified. An insect light trap has also been placed in operation at Hanford to collect adult forms for life history and activity studies.

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Health Instrument Divisions

ZOOLOGY

1. Toxicology of I^{131} in Stock Animals

The biological half-life of I^{131} in the thyroid of a sheep on a low iodine diet has been found to be slightly less than 4 days.

Four sheep have been purchased and placed on a low inert iodine diet. The animals will each be placed on a low level feeding of I^{131} to obtain some bases for calculations of the amount of daily feeding necessary for specific thyroid irradiation dose at an equilibrium level.

Arrangements are in progress to keep supplementary sheep on the State Agricultural Experiment Station at Prosser rather than at a field station on this project. Top quality feed may also be purchased at that station, in order to insure a constant and uniform supply.

2. Biological Monitoring

A new high of about 1 beta μc/kg of bone has been detected in a young pekin duckling from the river near 100-F Area.

Three cormorants have been captured and domesticated. They are to serve as a climax-type animal in demonstrating radioactive accumulation through a chain of food organisms.

Botany

1. Agricultural Field Station

The average beta activity of the soil in the treatment plots was 0.019 μc/kg. Soil samples taken from the Pasco irrigation project gave an average of 0.018 beta μc/kg. Vegetation samples from the station ranged from this activity to about one-third less.

2. Separations Area Control

In the 200-E R3 Danger Zone, Russian thistles showed an increase in activity of 76 per cent over the beta readings at the end of the month of June. A sample of pollen from a Russian thistle in this plot showed a reading of 19 beta μc/kg.

3. Use of Algae for Removal of Radioactivity from Pile Effluent

A combination of Spirogyra and Mougeotia reduced activity of the pile water in a culture flask by a factor of 43.

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22

Health Instrument Divisions

4. Translocation of Radioelements

Equipment is being developed for the study of the translocation of I^{131} in corn and tomatoes.

Biochemistry

1. Collection and Analysis of Active Particles

This work remains suspended until the present Pu investigation is completed.

2. Exposure of Rabbits to Active Particles

The method of preparing frozen sections has been satisfactorily worked out. Work is in progress to determine best procedure for use of liquid emulsions for radioautographs. The availability of the First Aid darkroom has aided greatly in this phase of the work.

3. Analysis of Pu in Animal Tissues

Recovery of Pu from rat carcasses is in the range of 65 per cent, or slightly greater. The subsidiary problem of Pu adsorption on glass is being given attention.

4. G. I. Absorption of Pu

Materials and equipment have been set up for a twenty day chronic exposure of rats to Pu in water, which is Part I of a three-part experiment designed to establish definite limits of Pu concentration in drinking water.

GENERAL ACCOUNTING DIVISION

JULY 1949

GENERAL

Hanford Works and Nucleonics Department Financial Statements for the month of June were completed and distributed on July 20 and July 21, 1949 respectively. General Divisions Operating Reports covering June operations were completed on July 19, 1949.

During the month, work continued in connection with segregating all research and development projects and establishing identifying codes applicable to each in order that costs may be more closely controlled. Authorization forms were prepared and each existing project and subsequent projects will be covered by an authorization specifying the amount authorized, the scope of the work, etc. Health Instrument Research and Development projects have been segregated and July costs have been applied to each. Technical Divisions' Research and Development projects will be handled in a like manner at an early date.

Negotiations were completed and all necessary arrangements were made to open two accounts in the Richland Branch of the National Bank of Commerce as of August 1, 1949. These accounts are to be used by the Community and Manufacturing Divisions.

Plant Accounting personnel, together with consultants retained by AEC, were nearing completion of their work on the plant appraisal. This work has now progressed to the point that within another month schedules of plant accounts will be issued and an adjustment to the Plant and Equipment account reflecting the newly appraised values will be made.

Considerable preliminary work was completed which will enable the Weekly Payroll Section to begin calculation of retroactive payments as soon as the agreement between General Electric and the H.A.M.T.C. has been approved. In this connection, information has been secured from other divisions relative to the various shift schedules worked by their employees. This information is necessary before retroactive payment of shift premiums can be calculated.

Advances from AEC at July 1, 1949 amounted to $8,000,000. After adding the advance received during July in the amount of $6,500,000 and applying cash disbursements in the amount of $7,000,000 the balance at July 31, 1949 was $7,500,000. Items comprising this balance are:

Cash in Bank - Contract Accounts	$ 5,948,002
- Salary Accounts	55,000
- Travel Advance Account	50,000
Unliquidated portion of Advances prior to June 1, 1949	749,924 -a)
Advances to Subcontractors	625,000
Cash in Transit	72,074
Total	$ 7,500,000

-a) July liquidations totaled $272,200 but no entries were made as formal approval from AEC was not received.

General Accounting Division

STATISTICS

Employees and Payroll	Total	Monthly Payroll	Weekly Payroll
Employees on Payroll at beginning of month	7 403	1 636	5 767
Additions and transfers in	134	10	124
Removals and transfers out	(134)	(21)	(113)
Transfers from Weekly to Monthly Payroll	--	10	(10)
Transfers from Monthly to Weekly Payroll	--	(3)	3
Employees on Payroll at end of month	7 403	1 632	5 771

Employees on Payroll at end of month	June	July
Manufacturing	2 995	3 054
Design and Construction	716	670
Community	755	761
Other	2 937	2 918
Total	7 403	7 403

Overtime Payments		
Weekly Paid Employees	$28 420	$25 510
Monthly Paid Employees	1 768	1 311
Total	$30 188	$26 821

Number of changes in Salary Rates and Job Classifications	441	577

Gross Amount of Payroll		
Manufacturing	$1 214 955	$1 005 359
Design and Construction	282 410	237 124
Community	271 224	222 354
Other	1 045 810	884 925
Total	$2 814 399*	$2 349 762**

Annual Going Rate of Payroll		
Manufacturing	$12 776 145	$13 217 899
Design and Construction	3 052 322	2 795 707
Community	2 831 956	2 871 756
Other	11 216 577	11 308 201
Total	$29 877 000	$30 193 563

Average Salary Rate Per Hour***	June			July		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	$1.952	$2.595	$2.062	$1.966	$2.612	$2.074
Design and Construction	1.534	2.628	1.967	1.537	2.636	1.986
Community	1.700	2.309	1.819	1.692	2.296	1.808
Other	1.589	2.498	1.803	1.591	2.511	1.809
Total	$1.751	$2.534	$1.924	$1.763	$2.545	$1.935

*Includes five weeks in case of weekly paid employees.
**Includes four weeks in case of weekly paid employees.
***Includes shift differential, isolation pay, and du Pont employees on loan to General Electric Company. Excludes overtime premiums, commissions, Suggestion Awards, etc.

General Accounting Division

Employee Plans

Pension Plan

	June	July
Number participating at beginning of month	6 411	6 471
New participants and transfers in	109	85
Removals and transfers out	(49)	(68)
Number participating at end of month	6 471	6 488
% of eligible employees participating	92.0%	91.8%

Employees Retired	July	Total to Date
Number	6	88
Aggregate Annual Pensions including Supplemental Payments	$1 615	$20 333*
Amounts contributed by employees retired	$ 630	$ 7 004

*Amount before commutation of pensions in those cases of employees who received lump sum settlement

Group Life Insurance

	June	July
Number participating at beginning of month	6 104	5 890
New participants and transfers in	47	44
Cancellations	(192)	(32)
Removals and transfers out	(69)	(54)
Number participating at end of month	5 890	5 848
% of eligible employees participating	78.1%	78.8%

Insurance Claims

	July	Total to Date
Number of deaths	2	30
Amount of insurance	$7 419	$147 562
Premiums paid by employees who died	$ 153	$ 1 920

Group Disability Insurance - Personal

	June	July
Number participating at beginning of month	6 625	6 541
New participants and transfers in	43	76
Cancellations	(4)	(10)
Removals and transfers out	(123)	(120)
Number participating at end of month	6 541	6 487
% of eligible employees participating	89.3%	89.2%

Group Disability Insurance - Dependent

Number participating at beginning of month	4 028	4 002
Additions and transfers in	32	46
Cancellations	(7)	(8)
Removals and transfers out	(51)	(23)
Number participating at end of month	4 002	4 017

Employee Plans (continued)

Group Disability Claims	June	July
Number of claims paid by insurance company:		
Employee Benefits	75	115
Daily Hospital Expense Benefits	93	90
Special Hospital Services	90	98
Surgical Operations Benefits	76	78
Dependent Benefits Paid		
Daily Hospital Expense Benefits	88	90
Special Hospital Services	86	95
Amount of claims paid by insurance company:		
Employee Benefits	$12 218	$12 550
Dependent Benefits	2 852	3 003
Total	$15 070	$15 553

Group Disability Insurance - Premiums		
Personal - Employee Portion	$11 297	$10 554
- Company Portion	6 960	7 457
- Total	$18 257	$18 011
Dependent- Employee Portion	$ 3 633	$ 3 414
- Company Portion	414	604
- Total	$ 4 047	$ 4 018
Grand Total	$22 304	$22 029

Annuity Certificates (For du Pont Service)	July	Total to Date
Number issued	0	65

U. S. Savings Bonds	Mfg.	D & C	Comm'y	Other	Total
Number participating at beginning of month	1 863	335	371	1 536	4 105
New Authorizations	13	7	6	24	50
Voluntary Cancellations	(40)	(4)	(7)	(27)	(78)
Removals and Transfers out	(9)	(17)	(6)	(24)	(56)
Transfers in	--	3	--	--	3
Number participating at month end	1 827	324	364	1 509	4 024
% participating	59.8%	48.7%	47.8%	51.7%	54.3%
Bonds issued					
Maturity Value	$123 850	$21 275	$21 700	$91 325	$258 150
Number	2 103	358	377	1 556	4 394
Refunds issued	63	17	12	49	141
Revisions in authorizations	22	3	7	30	62
Annual going rate of deductions					
New Plan	$ 829 877	$136 059	$143 317	$620 080	$1 731 333
Old Plan	215 761	38 432	32 957	153 906	441 056
Total	$1 045 638	$174 491	$176 274	$775 986	$2 172 389

Suggestion Awards	July	Total to Date
Number of Awards	16	366
Total Amount of Awards	$205	$4 025

General Accounting Division

Employee Plans (continued)

Employee Sales Plan

	July		
	Total	Major Appliances	Traffic Appliances
Certificates Issued	206	49	157
Certificates Voided	5	3	2

Salary Checks Deposited	June	July
Monthly	861	880
Weekly	892	855
Total	1 753	1 735

Special Absence Allowance Requests		
Number submitted to Pension Board	10	5

Absenteeism (Weekly Paid Employees)	1948	1949
January 1 to July 24	2.29%	2.41%

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING	June	July
Number of Employees		
On Payroll at beginning of month	167	164
Removals and transfers out	(6)	(5)
Additions and transfers in	3	2
Number at end of month	164	161
Net increase (or decrease) during month	(3)	(3)
% of terminations and transfers out	3.6%	3.0%
% of absenteeism	3.4%	2.5%

Changes by division in number of Accounting Division employees during July were as follows:

General Accounting - General: No Change

Accounts Payable: Decrease of two employees

One transfer to Manufacturing Accounting
One transfer to Monthly Payroll

Cost: No Change

General Accounts: Decrease of one employee

One transfer to Construction Accounting

Plant Accounting: Decrease of one employee

One removal due to Illness

Weekly Payroll: No Change

One new hire
One termination

General Accounting Division

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING (continued)

Monthly Payroll: Increase of one employee

One transfer from Accounts Payable
One new hire
One removal due to Illness

Special Assignments: No Change

Injuries	June	July
Major	0	0
Sub-major	0	0
Minor	0	2

Number of Accounting Division employees as of July 31, 1949, were as follows:

	Number of Employees		
	Non-Exempt	Exempt	Total
General Accounting - General	2	3	5
Accounts Payable	22	1	23*
Cost	9	1	10
General Accounts	15	1	16
Plant Accounting	20	3	23
Weekly Payroll	60	5	65
Monthly Payroll	14	1	15
Special Assignments	0	4	4
Total	142	19	161

*Includes 4 employees working on Special Assignments in connection with Construction Accounting.

Non-Exempt employees may be summarized as follows:

	Number as of	
Classification	6-30-49	7-31-49
Accounting A	0	1
Accounting B	3	2
Accounting D	4	5
Clerical Working Leader	6	6
Cost Clerk A	1	1
Cost Clerk B	1	1
Cost Clerk D	2	2
Field Clerk C	3	3
General Clerk A	28	29
General Clerk B	32	28
General Clerk C	21	20
General Clerk D	14	13
General Clerk E	2	2
Office Machine Operator B	15	16
Secretary B	1	1
Steno-Typist A	1	1
Steno-Typist B	4	4
Steno-Typist C	1	2
Steno-Typist D	6	5
Total	145	142

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING (continued)

Open employment requests as of July 31, 1949, were as follows:

General Clerk B	14
Business Graduate	2
	16

General Accounting Divisions

	June	July
Accounts Payable *		
Balance at Beginning of Month	$ 177	$ 53 901
Vouchers Entered	3 775 581 **	949 220
Cash Disbursements	3 722 655 Dr.**	960 307 Dr.
Cash Receipts	798	1 768
Miscellaneous Credits	-0-	-0-
Balance at end of month	$ 53 901	$ 44 582
Number of Vouchers Entered	1 176	1 067
Number of Checks Issued	794	817
Number of Freight Bills Paid	160	171
Amount of Freight Bills Paid	$ 1 892	$ 2 397
Number of Purchase Orders Received	569	709
Value of Purchase Orders Received	$ 51 895	$ 78 628
Public Vouchers (1034) Submitted to AEC		
Not Reimbursed at Beginning of Month	$ 9 739 453	$ -0-
Submitted During the Month	4 786 290	272 200
Sub Total	14 525 743	272 200
Reimbursements During the month	14 525 743	-0-
Not Reimbursed at End of Month	$ -0-	$ 272 200
Public Vouchers (1034) Submitted to AEC		
Not Reimbursed at Beginning of Month	362	-0-
Submitted During the Month	169	42
Sub Total	531	42
Reimbursements During the Month	531	-0-
Not Reimbursed at End of Month	-0-	42

* General Divisions Only.

** Includes $3 000 000 liquidation of AEC Advances.

General Accounting Divisions

	June	July
Pre-Audit Vouchers (1035) Submitted to AEC Not Yet Approved		
Community	$ 7 313	$ 79
Design & Construction	52 793	246 057
General	118 393	83 273
Manufacturing	498	-0-
Sub Total	$ 178 997	$ 329 409
Not Submitted to AEC on Pre-Audit Vouchers		
Community	$ 169	$ 89
Design & Construction	389 925	37 839
General	139 096	78 120
Manufacturing	41 737	32 267
Sub Total	$ 570 927	$ 148 315
Total Unbilled Items	$ 749 924	$ 477 724
Bank Balances at End of Month		
Chemical Bank & Trust Company		
Contract Account	$5 227 725	$5 590 740
Seattle First National Bank-Richland		
Contract Account	255 250	357 262
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
U. S. Savings Bond Account	14 067	225 599
Seattle First National Bank-Seattle		
Salary Account No. 3	5 000	5 000
Escrow Account	59 806	59 806
Travel Advance Account	30 443	28 732
	$5 642 291	$6 317 139
Cash Disbursements		
Community	$ 55 236	$ 55 139
Design & Construction	3 714 571	3 743 472
General	5 610 798*	3 135 298
Manufacturing	541 117	377 509
Total	$9 921 722*	$7 311 418
Material and Freight	$ 997 557	$ 695 220
Lump Sum and Unit Price Subcontracts	125 596	605 409
CPFF Subcontracts		
Labor	2 281 266	2 283 473
Others	936 463	652 878
Advances, Deposits, etc.	25 604	-0-
Accounts Receivable Refunds	2 458	3 811
Miscellaneous	690 182	895 636
Payrolls (net)	1 658 826	1 958 684
U. S. Savings Bonds	203 770	216 307
Liquidation of Advance	3 000 000	-0-
Total	$9 921 722	$7 311 418

* Includes liquidation of $3 000 000 Advance.

General Accounting Divisions

	June	July
Number of Checks Written		
Community	222	218
Design & Construction	527	441
General	794	817
Manufacturing	388	389
Total	1 931	1 865
Cash Receipts		
Community	$ 117 713	$ 100 268
Design & Construction	245 578	114 456
General	6 623 158	7 549 718
Manufacturing	13 220	12 003
Total	$ 6 999 669	$ 7 776 445
Detail of Cash Receipts*		
Hospital	$ 58 211	$ 47 950
Scrap Sales	5 448	4 426
Miscellaneous Accounts Receivable	684	4 134
Educational Program	31	18
Employee Sales	824	1 038
Refunds from Vendors	798	1 768
Income from Special Funds	55 441	-0-
Cash in Transit	-0-	987 101
All Other	1 721	3 283
Advances to G.E.	6 500 000	6 500 000
	$ 6 623 158	$ 7 549 718
Travel Advances and Expense Accounts		
Cash Advance balance at end of month*	$ 9 026	$ 9 223
Cash Advance balance outstanding over one month*	1 181	909
Traveling and Living Expenses:		
Paid Employees	10 545	23 128
Billed to Government	10 757	19 021
Balance in Variation Account at end of month	1 774 Cr.	2 333 Dr.
Hospital Accounting		
Balance at Beginning of Month*	$ 105 526	$ 107 521
Invoices Issued	80 308	75 349
Refunds	760	927
Cash Receipts	(58 211)	(47 955)
Payroll Deductions	(20 862)	(24 632)
Balance at End of Month	$ 107 521	$ 111 210

* General Divisions Only.

General Accounting Divisions

	June	July
PLANT ACCOUNTING		
Number of Transfer Notices Received	423	313
Number of Items Affected	891	672
Number of Receiving Reports Classified	4 002	2 728
Number of Items Tagged at beginning of month	90 827	90 939
Number of Items Tagged this month -- Metal	496	37
Number of Items dropped from record	(384)	(5)
	90 939	90 971
Number of Items Recorded in quantity only at beginning of month	13 531	13 477
Items added to record during month	1	3
Dropped from record during month	(55)	0
Total Items Recorded in Quantity	13 477	13 480
Total Items on Record	104 416	104 451

General Accounting Divisions

ACCOUNTS PAYABLE

The number of accounts payable vouchers entered in July again decreased slightly from the previous month. Freight bills handled increased slightly. New purchase orders received during the month increased 25% over June, an indication that work in this section will definitely increase in the next month or two.

Total vouchers on hand the end of July requiring additional supporting data before they could be called complete was 682 amounting to $79,253.00, a slight decrease from June. Of these 682, 609 were unpaid (including uncollected credit vouchers) and 73 were paid. Vouchers on hand over 60 days old numbered 44 and totaled $10.944.

Accounts Payable general ledger balance the end of July was $44,582.00 compared to $53,901.00 in June and the balance in the general ledger freight account was $196.00, representing paid freight bills not yet distributed to other ledger cost accounts.

An accurate inventory of the number and amount of open purchase orders applying to General Divisions was made during the month. The results showed that as of the end of July there were 721 purchase orders still open for shipment of material and the value of these open items was $145,000.00

COST

General Division Operating reports for the month of June were issued on July 19, 1949.

Considerable time was spent in revising assessment studies. A complete analysis was made of purchase orders issued for the month of June and new liquidation rates were established for the Purchasing Division based on the dollar value of these orders. A similar study was completed for the Stores Division, based on the dollar value of stores tickets. Studies based on the number of personnel were revised and brought up to date.

Extensive work was done in connection with breaking down General Divisions budgets for the first quarter of the 1950 fiscal year.

A procedure was set up which eliminates work order charges authorized by the Technical Divisions in connection with Plant Assistance work from the Divisional I.M.E. This was done in order that plant assistance costs would not enter into assessments to Research and Development.

Costs of Health Instrument Research and Development programs were accumulated for the first time by separate projects.

A special analysis was made of the monthly charges to the Design and Construction Divisions and a comparison was made between May and June charges.

Report covering Plant and Equipment - Uncompleted Projects - General Divisions was issued on July 22 covering work order charges as of June 30 for items which, when complete, will be transferred to Finished Plant - Plant Equipment.

General Accounting Divisions

COST (Cont.)

Report for the period ended June 30 of Comparison of Actual to Budgeted Operations for Hanford Works (exclusive of Design and Construction Division) was issued on July 29.

GENERAL ACCOUNTS

The open balance of ADVANCES RECEIVED FROM A.E.C. was reconciled in detail July 31, 1949. It was determined that, of total net disbursements during July in the amount of $7,072,074, $7,000,000 would be applied against "Advances Received" and cash reimbursement would be requested in the amount of $72,074. This latter amount was booked during July as "Cash in Transit" and the balance of Government advances to Hanford Works was adjusted to $7,500,000.

The unliquidated balance of advances prior to June 1, 1949 was reduced from the June 30, 1949 balance of $749,924 to $477,724. This liquidation of $272,200 has not been applied against the old advance account as formal acceptance from A.E.C. has not yet been received.

During July arrangements were made for the opening of two new bank accounts August 1, with the National Bank of Commerce for the Manufacturing and Community Divisions. These accounts will probably not be used by these divisions until September 1, 1949.

There were 1865 checks issued by all divisions during July of which, 1374 were drawn against the Richland Office, Seattle First National Bank and 491 against the Chemical Bank and Trust Company of New York. The average bank balance for the month was $7,920,061, Richland $,883,228, New York $5,036,833.

General Ledger Trial Balances for June were received on July 20, 1949. A Consolidated Hanford Works Trial Balance was prepared on that date. Hanford Works and the Consolidated Nucleonics Department Financial Statements were completed on July 20, and 21 respectively.

MEDICAL ACCOUNTING

The Accounts Receivable balance of $105,689 is $337 more than the June balance of $105,352. Total sales were $75,349 for July as compared to June sales of $80 308, a decrease of $4,959. The ratio of charge sales to total sales increased considerably over prior months.

A machine operator was trained by a National Cash Register Company representative this month for the machine posting of in-patient accounts. A procedure was written and plans were made to transfer balances and set up ledgers on in-patient accounts which will become a part of the Accounts Receivable Ledger.

Operating reports for the month of June were issued on July 15, 1949.

General Accounting Divisions

PLANT ACCOUNTING

Although the Plant Appraisal work is nearing completion, as yet the new schedule of plant accounts has not been set up and the final amount of the appraisal has not been entered on the books. It is anticipated that this will be done during the month of August.

One of the major features of work still to be done in connection with the appraisal is the inclusion of projects transferred to completed plant accounts of the various divisions between December 31, 1948 and June 30, 1949. This entails distributing the costs accrued against each project to the Property Record Units established by the Property Record Unit Catalog and determining proper charges to the new plant accounts. The assistance of the Design and Construction Divisions and Project Engineering of the Manufacturing Division and to a lesser extent that of the Community Division is required for this work.

SPECIAL ASSIGNMENTS

Special Assignments during the month of July consisted of:

1. Continued assistance to Design & Construction Accounting Division.

2. Continued work on loose leaf type cost code book.

3. Continuation of reviewing accounting procedures of the Accountability Section (S.F. Materials Accountability).

4. Preparation of Completed Project reports giving breakdown by projects as charged to all four divisions.

5. Preparation of estimated average employment report for fiscal years 1950 and 1951 by skills for A.E.C.

6. Checking status of uncompleted projects.

General Accounting Division

PAYROLLS

During July there were 134 removals from payroll of which 31 were removals due to lack of work.

Weekly Salary and Vacation Payrolls to and including the week ended July 24, 1949 (paid on July 29) and Monthly Salary Payroll to and including July 31, 1949 have been reported by the General Accounting Division to the Government on the Report of Disbursements.

U. S. Savings Bonds and Custody Receipts for U. S. Savings Bonds purchased by employees through payroll deductions in June were delivered to employees on July 22, 1949. There were 4,120 items delivered. During July, 148 employees participating in the Stock Bonus Plan withdrew from the Plan 581 U. S. Savings Bonds having a maturity value of $26,370.

The Payroll Division addressographed approximately 19,200 items during July for the Employee and Community Relations and Service Divisions.

Weekly Payroll Division maintains a file of approximately 5,000 addressograph plates indicating employees' home addresses. This file is maintained for the purpose of mailing literature to employees' homes. In July this file was compared with new address forms recently completed by employees and necessary changes were recorded on the addressograph plates. Future changes of address of employees will be corrected on a current basis when the forms are received from employees.

During July there were 423 time cards received late in Payroll from the various divisions.

Federal and State Reports of Taxable Earnings for Social Security purposes for the second quarter of 1949 were completed and filed.

Certain retroactive payments will be necessary under the Agreement between the Hanford Atomic Metal Trades Council and General Electric Company. In this connection, the Weekly Payroll Division has accomplished as much preliminary work as possible in order to begin calculation of the retroactive payments promptly when the Agreement is placed into effect. Requisition has been placed for 12 comptometer operators necessary to calculate the above mentioned retroactive payments.

Representatives of the Finance Division of the Atomic Energy Commission audited bank reconciliations for the month of June covering the U. S. Savings Bond Account and Salary Accounts Numbers 2 and 3.

The number of du Pont employees on loan to General Electric Company as of July 31, 1949 had been reduced to five.

PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - JULY 1949

SUMMARY

Hanford Works completed its third consecutive month without a lost-time injury, further reducing the frequency rate for the year to 0.76.

The 234-5 Area was established as an exclusion area during the month.

New telephone directories were issued during the month. The printing of the directories is under contract by an outside printing firm, and future directories issued under the dial system will be the same size and form.

PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - JULY 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	3	3		
Patrol and Security	582	585	3 (a)	
Safety and Fire Protection	147	145		2 (b)
Office Services (General Services, Clerical Services, & Records Control)	261	260		1 (c)
TOTALS	993	993	3	3

NO INCREASE OR DECREASE

(a) - Patrol and Security
- 1 - New Hire (Patrol-Clerical)
- 5 - Rehires (Patrol)
- 1 - Transferred from Safety & Fire Protection (Patrol)
- 1 - Transferred from Community (Patrol)
- 3 - Terminations (Patrol)
- 2 - Removed from Roll due to Leave of Absence (Patrol)

(b) - Safety and Fire Protection
- 1 - Transferred to Patrol and Security (Safety)
- 1 - Discharged (Fire Protection)

(c) - General Services:
- 1 - Rehired
- 2 - Terminations due to Reduction of Force

Clerical Services:
- 9 - New Hires
- 1 - Transferred from Construction
- 2 - Terminations
- 5 - Transfers to other Divisions
- 1 - Removed from Roll due to Leave of Absence

Records Control Division:
- 1 - Transferred to Employee & Community Relations Division
- 1 - Termination

Plant Security and Services Divisions

SAFETY AND FIRE PROTECTION

Injury Statistics

Days since last Major Injury	98
Accumulated Exposure Hours since last Major Injury	3,780,511
Major Injury Frequency Rate (start-up to date)	0.853

	June	July	Year to Date
Major Injuries	0	0	7
Sub-Major Injuries	3	3	21
Minor Injuries	347	282	2542
Exposure Hours	1,118,120	1,162,767	9,193,381
Major Injury Frequency Rate	0.0	0.0	0.76
Major Injury Severity Rate	0.0	0.0	0.033
Minor Injury Frequency Rate	3.10	2.43	2.77

Sub-Major Injury No. 148

July 8, 1949, at 11:45 a.m. an employee of the Transportation Division, working opposite the 300 area, sustained a simple fracture to the tip of Distal Phalanx of the right third toe when a railroad tie broke off and dropped on his right foot.

Sub-Major Injury No. 149

July 8, 1949, at approximately 1:50 p.m., an employee of the Transportation Division was walking from the clock alley located near the southeast corner of the Bus Terminal lot to the 1131 Garage, his place of employment, approximately 75 feet from the clock, when he stepped on a small rolling stone and turned his ankle. Medical recommended the employee return to guided work (no walking or standing on foot). Such work was provided and employee finished the shift that date and was furnished such assistance necessary to return home without undue strain on ankle.

Sub-Major Injury No. 150

July 25, 1949, at approximately 8:30 a.m., an employee of the P Division, 300 Area, incurred a back strain. The injured and a fellow employee were lifting a barrel containing oxide. As they turned to dump the oxide into another container, the injured felt a sharp pain in his back which resulted in temporary paralysis or severe back pain.

100 Areas Activities

The Safety Award Booklet recognizing the Area's fourth year without a lost-time injury has been approved by the Area Council and is now in the Plant Printing Shop being made up; delivery has been promised for the first week of August. The Area Council agreed that to avoid confusion and controversy, employees, in order to be eligible for the award, should have been assigned to the 100-B Area on or before May 26, 1949.

A Near-Serious Accident involving the removal of a large frame work from the dock of 108-B Building by the Maintenance Minor Construction and Transportation crews was investigated and a report written.

Plant Security and Services

A study was made of a proposed use of perchloric acid in the 111-B Building and a report was submitted for consideration.

An unusual incident resulting in damage to a Chemox Breathing Apparatus case and the box in which it was mounted, near the 183-B Building, was investigated. A truck, driven by a Transportation employee, was backed into the box when the driver failed to observe area into which his truck was backing.

In their regular Safety Meetings most of the Divisions have been stressing the proper method of lifting and other factors that will prevent back injuries, strains, and sprains, and also emphasizing good housekeeping and fire prevention.

An investigation was made of a small hydrogen explosion which resulted from the work of P-10-A Technical group at the 108-B Building. This problem is still under consideration by the Area Accident Prevention Committee.

A concentrated safety education program for the Transportation Railroad employees transferred from the Morrison Knudsen Company was continued. Particular stress was placed on the merits of safety shoes and the prompt reporting of minor injuries. Plans for a joint visit with the general foreman to all Railroad maintenance crews were made.

The 100-F Council is considering a program to bring accident causes to the attention of employees currently.

200 Areas Activities

A study was made on hazards of using metallic calcium and recommendations were passed on to supervision.

An investigation was started on the type of respirators used in paint spraying operations. Further study is needed before recommendations are made.

An informal special investigation was made of the hydrofluoric acid burn that was incurred by a man in the Technical Division in the 231 Building on June 28. The injured wrote a report on the incident which was circulated to the S Division.

A study has begun on the use of hazardous chemicals, and inspections have been made of operating installations for their use. The systems inspected to date have been satisfactory.

Suggested changes were submitted on the procedures for compressed gas manifold installations.

Recommendations have been made for highlighting striking and bumping hazards in new construction.

Changes in safety valve exhaust on high pressure air systems have been recommended to prevent serious injury to ears and eyes of personnel.

Proper storage facilities have been requested for inflammable substances and recommendations given on storage of volatile and explosive fluids.

Recommendations have been given to provide safe operation and maintenance of hydraulic lift equipment.

Plant Security and Services

300 Area Activities

Construction on the 384 Power Building is almost completed. An inspection was made and several conditions were noted that will be corrected after the building is released for operation.

Changes in equipment arrangement in the 314 Building were checked and found to be satisfactory.

The extrusion process was placed into operation for a short time in the 314 Building. No unusual incidents were observed.

A new power stapler was installed in the printing room of the 321-A Building; an inspection was made and changes were suggested. Work orders have been issued to make a guard for the point of operation and to move the starting switch.

The newly organized Area Safety Committee held its first meeting July 29. Organization procedure was completed during the month.

The 3706 isolation area badge house has been moved and enlarged. The new location relieves, to a great extent, a traffic hazard that had previously existed at the fence gate.

700-1100 Area Activities

An inspection was conducted on the new trailer-truck transporting cylinders containing compressed gases and liquids to the industrial areas. The inspection showed the truck and method of handling the cylinders met all safety requirements.

The 700 Area Council has assigned a specific person to assume the responsibility of good housekeeping thoughout the yard area.

The 700 Area Council has reports of unsafe conditions of pedestrian traffic under consideration.

The Safety Record Board in front of the Administration Building was changed to accommodate the new Purchasing and Stores Division.

An inspection of the various buildings throughout the 700 Area showed good housekeeping and safe conditions in general.

During the month of July approximately seven minor injuries were changed by Medical from Industrial and Observation to Personal. This change was made after the Safety Division submitted evidence showing there was no industrial activity connected with or arising out of the employee's employment. As a result of this condition, all minor injuries are being carefully investigated by the Safety Engineer.

FIRE PROTECTION

A new form for reporting fires has been developed and put into use.

P-11 Project was reviewed and recommendations for fire protection were made.

The Redox Building layout and construction was reviewed and several changes were recommended.

165

AREA INJURY AND ACTIVITY RECORD
JULY, 1949

	100-B Area	100-D Area	100-F Area	100-H & 101 Area	200-E Area	200-W Area	300 Area	700 Area	1100 Area	3000 Area	Pasco Area	Misc. Area	TOTAL
Minor Injuries - Present Month	20	19	32	4	37	50	50	5	42	10	6	7	282
First Preceding Month	28	18	36	8	39	44	83	22	40	16	5	8	347
Second Preceding Month	22	19	22	15	38	43	60	23	39	18	0	4	303
Third Preceding Month	28	17	21	8	36	64	67	34	35	10	2	15	337
Sub-Major Injuries - Present Month	0	0	0	0	0	0	1	0	0	0	0	2	3
First Preceding Month	0	0	0	0	1	0	0	0	2	0	0	0	3
Second Preceding Month	0	0	0	0	0	3	1	0	0	0	0	0	4
Third Preceding Month	0	0	0	0	1	0	1	0	0	0	0	0	2
Major Injuries - Present Month	0	0	0	0	0	0	0	0	0	0	0	0	0
First Preceding Month	0	0	0	0	0	0	0	0	0	0	0	0	0
Second Preceding Month	0	0	0	0	0	0	0	0	0	0	0	0	0
Third Preceding Month	0	0	0	0	0	1	1	0	0	0	0	0	2
Days Since Last Tabulatable Major Injury	431	199	223	122	215	118	98	559	541	321	731	150	
Days Since Last Sub-Major Injury	394	180	161	122	54	61	6	230	45	276	199	23	
Days Without A Minor Injury	16	18	16	28	11	6	11	27	10	23	25	25	
Safety Meetings Conducted	47	58	55	27	68	85	72	41	71	25	13	19	581
Safety Meetings Attendance	300	450	483	168	609	673	887	610	1041	250	45	301	5817
Safety Spectacles Delivered	3	8	5	1	5	12	3	8	8	0	0	0	53
Safety Spectacles Serviced	30	23	45	3	10	11	12	10	12	0	0	0	156
Special Investigations													
Minor Injuries	4	4	6	0	2	1	10	0	5	0	0	1	33
Near Serious Accidents	1	0	0	0	1	1	2	0	0	0	0	0	

MONTHLY INJURY ANALYSIS

JULY

Minor Injuries

	Number of Personnel	Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Bodies	Blisters	Unclassified	TOTAL JULY	TOTAL 1st Preceding month	TOTAL 2nd Preceding month	TOTAL 3rd Preceding month
GENERAL	100	0	0	0	0	0	0	0	0	0	0	0	1	0	1
"P" DIVISION	323	2	2	2	3	2	0	1	1	1	1	15	25	11	12
"S" DIVISION	351	0	3	3	6	2	0	0	0	0	1	15	13	14	14
POWER	515	1	3	2	1	0	0	0	1	1	1	10	19	11	9
MAINTENANCE	497	10	10	8	15	6	5	6	3	1	7	71	93	82	84
PROJECT ENGINEERING	128	0	0	0	0	0	0	0	0	0	0	0	1	0	0
ELECTRICAL	272	1	6	4	6	1	2	1	2	1	0	24	25	18	31
INSTRUMENT	217	3	3	1	7	0	0	1	0	0	0	15	17	12	15
TRANSPORTATION	686	1	2	2	6	1	3	1	2	2	4	24	35	23	26
COMMUNITY	752	1	5	3	5	0	1	4	3	2	4	28	26	33	38
ACCOUNTING	162	0	0	0	0	1	0	0	0	0	1	2	0	0	1
TECHNICAL	663	3	1	3	7	3	1	2	0	2	1	23	29	30	40
MEDICAL	431	1	0	2	6	1	0	0	0	0	1	11	16	14	8
HEALTH INSTRUMENT	317	0	4	0	9	0	0	0	0	0	1	14	14	19	12
SECURITY AND SERVICES	989	0	0	4	4	2	2	1	2	0	3	18	16	22	36
PURCHASING AND STORES	228	0	1	1	2	0	0	0	1	0	0	5	5	—	—
EMPLOYEE AND COMMUNITY RELATIONS	74	0	0	0	0	0	0	0	0	0	0	0	0	2	0
DESIGN AND CONSTRUCTION	687	0	1	2	1	0	0	2	0	0	1	7	12	12	10
TOTAL	7392	23	41	37	78	19	14	19	15	10	26	282			
1st Preceding Month		31	63	42	95	16	21	25	17	14	23		347		
2nd Preceding Month		33	51	35	73	20	16	18	26	10	21			303	
3rd Preceding Month		45	72	41	83	20	17	17	20	7	15				337

Plant Security and Services

The layout of the H. I. Building in the new Technical center was reviewed and fire alarm boxes and extinguishers were located.

Minor Construction in the 100-F Area was given temporary fire protection at the farm project by the use of fire barrels. Hydrants will be installed soon.

Additional fire extinguishers are being installed in the 234-5 building in the 200-West Area. Hazardous chemicals in the 234-5 building are being studied.

The Purchasing and Stores Division is being urged to have fire doors in Pasco warehouses put in working order and draft stops installed along docks at fire walls.

	Number of Fires		Estimated Damage	
	June	July	June	July
Industrail	19	13	$ 40.00	$ 0.0
Construction	4	5	0.0	0.0
Community	8	22	0.0	$274.21
A. E. C.	0	0	0.0	0.0

Routine Duties

Fire Extinguishers

Inspected	2982
Installed & Relocated	67
Refilled	57
Serviced	10
Salvaged	7
Resealed & Repaired	49

Gas Masks

Inspected	91
Serviced	8

Fire Drills and Lectures

Outside	67
Inside	93
Auxiliary Brigade	33
Safety Meetings	26

All fire alarm boxes in the Industrial Area were tested.

All fire hose houses, hydrants, and lines in the Industrial Area were inspected.

OFFICE SERVICES DIVISION

General Services

Laundering volumes were as follows:

Plant Security and Services

	June	July
Plant Laundry (Building 2723)		
Coveralls - Pieces	26,612	26,384
Towels - Pieces	8,369	7,852
Miscellaneous - Pieces	58,470	61,804
Total Pieces	93,451	96,040
Total Dry Weight - Lbs.	131,776	135,628
Richland Laundry (Building 723)		
Flatwork - Pieces	88,362	62,708
Rough Dry - Pieces	41,127	29,979
Finished - Pieces	4,054	3,811
Total Pieces	133,543	96,498
Total Dry Weight - Lbs.	86,803	61,724
Monitoring Section (Building 2723-W)		
Poppy Check - Pieces	58,770	55,890
Scaler Check - Pieces	89,231	76,661
Total Pieces	148,001	132,551

2723 Laundry

Increased volume in this laundry was brought about by the opening of the 234-5 Building.

723 Laundry

Continued decrease in volume in this laundry is caused by the continued lay-offs in the North Richland Construction Camps. It was necessary during the past month to reduce the force by two employees (Laundry Sorters).

Clerical Services

Telephone Exchange

Traffic counts during the month were as follows: 24,035; 27,768; and 26,463.

	June	July
Lines working as 1 - 0 Lines	629	633
2 - 0	51	48
0 - PBX	31	27
1 - N	26	25
2 - N	4	4
2-0-R Combination	1	1
Total Official Lines	742	738

Plant Security and Services

	June		July	
Lines working as 1 - F Lines	110		119	
2 - F	22		21	
F - PBX	7		7	
1 - R	8		8	
2 - R	1184		1182	
2 - RF	85		93	
3 - RF	1		2	
Total Non-Official Lines		1417		1432
Vacant Lines		41		30
Total Lines in Multiple Bank		2200		2200

Mail Room

	June	July
Pieces of Internal Mail Handled	191,224	192,368
Pieces of Postal Mail Handled	49,924	50,703
Pieces of Registered Mail Handled	1,051	1,076
Pieces of Insured Mail Handled	179	240
Pieces of Special Delivery Mail Handled	106	132
Total Mail Handled	242,484	244,509
Total Amount of Postage Used	$ 1,295.11	$ 2,143.75
Teletypes sent out	667	772
Teletypes Received	622	710
Total Teletypes Handled	1,289	1,482
Total number of store orders filled		1,426

Office Equipment

A purchase requisition for necessary office equipment was approved by the A and B Committee, but we have been advised by the AEC that our requisitions will be held until such time as they receive funds for purchase.

Arrangements were made for Operations to take over all Construction office equipment: handling, ordering, warehousing, excessing, etc. This will give us complete control of all equipment on the plant.

The Office Equipment Section has been assigned one bay in warehouse No. 8 in Pasco for storage of office equipment.

	June	July
Office Machines repaired in shop	227	168
Office Machine service calls	239	194
Total machines serviced	446	362

Plant Security and Services

Printing

	June	July
Multilith Orders received	220	330
Multilith Orders completed	220	329
Multilith Orders on hand at month end	44	45
Mimeograph Orders received	1747	2154
Mimeograph Orders completed	1767	2154
Mimeograph Orders on hand at month end	0	0
Ditto Orders received	1690	924
Ditto Orders completed	1690	924
Ditto Orders on hand at month end	0	0

Stenographic Services

	June		July	
	Hours	Quantity	Hours	Quantity
Dictation & Transcription	0	0	0	0
Machine Transcription	21:40	44	28:30	42
Letters	46:05	87	120:50	144
Manual & Procedures	29:30	94	36:45	78
Duplicating - Stencils & Dittos	271:45	676	191:00	332
Special	324:25	809	376:35	568
Training			177:20	
Total Hours	693:15		931:00	
Employees loaned to other Divisions	823:45		626:00	
Total Hours Available	1517:00		1557:00	

Records Control Division

A visit was made by the Records Division Supervisor to Westinghouse Records Archives in Pittsburgh to study their record retention and disposal program with the view of adopting workable parts of their system to our use at Hanford.

C. C. Moore records, contract No. G-157, are now being received for storage.

Purchase Orders have been placed for shelving and cartons to be used in 712-B for records storage. This equipment is same as will be used in the Records Depository being designed and can be readily utilized in the new building when it is ready for operation.

	June	July
Cases of Records Received and Processed:	102	59

Summary of records received and processed in July:

Accounting Division	4	#1 Oxford Files
Construction Division	4	#1 Oxford Files
Purchasing & Stores Divisions	33	#1 Oxford Files
Service Divisions	1	#1 Oxford File

Plant Security and Services

Subcontractors:		
C. C. Moore Co.	4	#1 Oxford Files
C. C. Moore Co.	1	#2 Oxford File
C. C. Moore Co.	11	#8 Oxford Files
Transportation Division	1	#1 Oxford File
TOTAL	59	Oxford Files

	June	July
Cases issued to various divisions for filling:		226
Persons viewing records:		53

PATROL AND SECURITY

General

A Kardex Identification System was established in the 303 Building, 300 Area, on June 27, 1949.

Effective July 1, 1949, a revised pass procedure for the National Guard at the Pasco Depot was placed into effect.

Effective 12:01 a.m., July 3, the 234-5 Area was established as an Exclusion Area.

Beginning July 3, seven posts were established in the 234-5 Area to cover operations: five men assigned at doors controlling entrance to restricted rooms, one man at vault door, and one on roving Patrol.

Effective 5:00 p.m., July 4, the post at the construction badge house (241-TX) was discontinued.

Beginning 7:45 a.m., July 5, all coverage at doors to restricted rooms and vault and the roving Patrol within the 234-5 Area was discontinued.

Effective 7:45 a.m., July 5, seven new posts were established at air locks within the 234-5 building. Twelve additional men were added to cover these posts.

Effective 7:45 a.m., July 5, the Observer Post in Motor Patrol #806, 200-East Area was temporarily discontinued.

Effective July 6, coverage at Railroad Crossing #15, was discontinued. This crossing was manned from the 200-West Area.

A Section on the West side of the 300 Area was fenced out to permit the construction of the new Personnel Meter and Records Building on July 6. This area has been established as a "controlled" area.

Effective July 7, visitors to the 303 Exclusion Area will be escorted by the P Division Supervisor who is most directly concerned with the visit. This escorting will also apply to employees who enter the 303 Exclusion Area only occasionally.

Plant Security and Services

On July 9, at 12:01 a.m., two new posts were established in the 234-5 Building Location, corridors five and six and Room 205.

Effective July 11, 1949, all old type Hanford Works Photo Passes (Buff background with a red, yellow or blue disc) were declared void. Operations Order Number I-208 Revision Number One was issued.

The 305 and 3706 Badge houses were exchanged and relocated on July 15, to permit the establishment of Kardex Identification Systems at these points. The systems will be established within the near future.

Effective 6:00 a.m., July 18, 100-H Area assumed the responsibility of manning Railroad Crossings Number Ten and Eleven. These Crossings were formerly manned by 100-D Area.

Effective 6:00 a.m., July 18, 100-F Area assumed the responsibility of manning Railroad Crossing Number Five and Six. These Crossings were formerly manned by 100-H Area.

Effective July 18, Airlock Posts numbers 109-114-213-261-319 in the 234-5 Bldg. were discontinued. Men borrowed from the 100 Areas were returned to them.

Effective July 19, Post Number One, Zone One, within the 105 Exclusion Area 100-H Area, was discontinued. The Patrolman released by this discontinuance is being utilized as a general roving Patrol within the 105-H Exclusion Area.

Effective 12:01 a.m., July 19, Tower Posts No. 7 and No. 5 were established in the 234-Exclusion Area. These Towers will be manned with one man 24 hours per day.

Effective July 26, closer control was established at barricades on persons entering the Controlled Area for any reasons other than official business.

Effective 5:00 a.m., July 29, the Air Weather Service was cleared to operate a plane to collect weather data over all portions of the project, including the plant area.

The Area Councils have been cooperating with the Security Office in the matter of wearing area badges. A more strict enforcement of this procedure is to be exercised.

Area Councils are assisting the Security Office in an effort to revitalize the Security Meeting Program.

PATROL

The 200 Areas handled 418 process escorts between the areas.

Requests handled totaled 615, consisting mainly of opening doors and gates, and escorting employees of other divisions.

There were 15 Construction employees escorted into areas for First Aid treatment.

A total of 80 Unusual Incident Reports were received, consisting mainly of lost badges and pencils, contrabands picked up at barricades, traffic accidents, and fires.

Plant Security and Services

Patrol supervision handled three First Aid cases during the absence of the area nurse.

Classified escorts totaling 29 were handled during the month.

Practice evacuations were held as follows:

100-B Area	7/13/49	12:35 p.m.
100-D Area	7/13/49	10:38 a.m.
100-F Area	7/31/49	2:20 a.m.

Arrest Summary

	June	July
Citation tickets issued	0	0

Accident Summary

	June	July
Total Accidents	3	3
Government permits revoked	0	0
Warning tickets issued	2	0
Verbal warning given	0	0
Citation tickets issued (traffic only)	0	0

Training

The courses for instruction at the Training School this month were:

	Hours
Pistol	2
Security topic--Bulletins 37, 38, and 39	1
Safety Topic--"Have I Promoted Safety?"	1½
Health talk--"You Can Beat the Heat"	1
Class on Directional Finding and Altitude	4
Code of Ethics of Security Patrolmen	½
Familiarization of Classified Material	1
Report Writing	2½

A member of the Patrol Training Staff is in the Process of taking a training film within all the areas of all Patrol Activities.

The competetive safety program is being continued.

SECURITY

Operations Section

There were 245 Security Meetings held and attended by 3,608 General Electric employees.

Plant Security and Services

Employee Clearance

Class "Q" clearances received on old employees this month	2
Class "Q" clearances received on old employees to date	4,455
Class "Q" clearances received on new employees this month	36
Class "Q" clearances received on new employees to date	5,940
Class "Q" clearances received on both old and new employees since February 17, 1947:	10,395
Formal "P" clearances awaiting change to "Q"	50
Authorizations issued this month	18

Statistical Summary of Outstanding Area Badges

June

	A	B	C	Total
100-B	656	1580	486	2722
100-D	710	751	546	2007
100-F	721	1555	499	2775
200-E	966	1668	377	3011*
200-W	1377	1585	367	3329
200-N	50	870	129	1049
300	1363	1589	254	3206
241-BY	285	109		285

*Includes 43 "A" badges at Riverland Yards

July

	A	B	C	Total
100-B	642	1605	487	2734
100-D	764	785	544	1093
100-F	721	1576	494	2791
200-E	993	1654	372	3019*
200-W	1443	1592	352	3387
300	1342	1579	248	3169
200-N	49	853	128	1030
241-BY	Closed out 7/6/49---------			

*Includes 41 "A" badges at Riverland Yards

Visitor or Temporary Badges

Area	June	July
100-B	365	390
100-D	644	782
100-F	643	677
200-E	551	586
200-W	385	478
200-N	914	945
300	1145	1129
234-5	closed	----
241-BY	111	----
	4758	4042

Special Clearance Section

Following is a statistical summary of clearance status of vendor and consultant vendor companies:

Total companies forward to AEC this month: (3 consultant personnel included)	7	Personnel:	26
Total companies forwarded to AEC last month:	6		20
Total companies forwarded to AEC to date:	208		2,108

12-17-71

175

Plant Security and Services

Total companies cleared for restricted data this month:	4	Personnel:	15
Total companies cleared for restricted data last month:	5		5

New companies forwarded to the Atomic Energy Commission this month:

Laboratory Furniture Company, Inc.
37-18 Northern Boulevard
Long Island 1, New York

Number and type of clearance granted by the Atomic Energy Commission this month to vendors and consultants:

Formal "Q"	15	(6 of these were "QE" clearances. This office requested formal "Q", but through arrangements between AEC at Hanford and Morganton, N.C., these 6 emergencies were granted)
Formal "P"	7	
Emergency "Q"	0	

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HANFORD WORKS
General Electric Company
Richland, Washington

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
MEDICAL DIVISION							
I. Visitors to this Works							
S. T. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Medical consultation	W. D. Norwood, M.D. P. A. Fuqua	7-14-49	7-15-49	X		
J. Moshman Oak Ridge National Laboratory Oak Ridge, Tennessee	Health instrument consultation	P. A. Fuqua	7-19-49	7-19-49	X		300 3706
CONSTRUCTION DIVISION							
I. Visitors to this Works							
K. A. McMillan MacMillan Construction Company Kennewick, Washington	Inspect brocks 100-H Area, prior to purchase	J. W. Mercke	7-13-49	7-13-49		X	100-H
W. D. Royce MacMillan Construction Company Kennewick, Washington	Inspect removal of bricks from 100-H Area	J. W. Mercke	7-18-49	7-20-40		X	100-H
M. Dickinson, Jr. MacMillan Construction Company Kennewick, Washington	Inspect removal of bricks from 100-H Area	J. W. Mercke	7-19-49	7-20-49		X	100-H
J. F. Fries MacMillan Construction Company Kennewick, Washington	Inspect removal of bricks from 100-H Area	J. W. Mercke	7-19-49	7-20-49		X	100-H

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
H. A. Lovely Diamond Power Specialty Co. Detroit, Michigan	Check and adjust boiler equipment in 100-H Area	J. W. Mercke	7-27-49	8-1-49		X	100-H
J. Jorgenson Hartford Steam Boiler Inspection Seattle, Washington	Inspect boilers in 100-H Area Service	J. W. Mercke	7-28-49	7-29-49		X	100-H
G. L. Byers Refinite Corporation Omaha, Nebraska	Supervise installation and testing of equipment furnished by his firm on order HWC 1836	H. A. Hauser	7-5-49	7-5-49		X	
M. B. Brown Fairbanks Morse Company Portland, Oregon	Supervise installation and testing of equipment furnished by his firm on order HWC 5458	H. A. Hauser	7-11-49	7-11 49		X	
F P. Robinson General Electric Company Seattle, Washington	Supervise installation and testing of equipment furnished by his firm on order HWC 5459	H. A. Hauser	7-11-49	7-13-49		X	
D. F. Morton Ingersoll Rand Company Phillipsburg, New Jersey	Supervise installation and testing of equipment furnished by his firm on order HWC-5585	H. A. Hauser	7-13-49	7-13-49		X	
A. M Mohr American Blower Company Detroit, Michigan	Supervise installation and testing of equipment furnished by his firm on order HWC-6679	H. A. Hauser	7-6-49	7-6-49		X	
H. A. Michele General Electric Company Seattle, Washington	Supervise installation and testing of equipment furnished by his firm on order HWC-7537	H. A Hauser	7-26-49	8-1-49		X	100-H
F. B. Chamberlin Arthur Forsyth Company Buffalo Forge Company Seattle, Washington	Supervise installation and testing of equipment furnished by his firm on order HWC 7545	H. A. Hauser	7-21-49	7-21-49		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
II. Visits to other Installations							
L. G. Jones to: City Galvanizers Portland, Oregon	Establish inspection procedures	Mr. Williams	7-18-49	7-19-49		X	
L. G. Jones to: Puget Sound Naval Shipyard Bremerton, Washington	Establish inspection procedures	S. F. Allison	7-20-49	7-21-49	X		
DESIGN DIVISION							
I. Visitors to this Works							
J. E. Schroeder Peerless Pump Company Los Angeles, California	Vendors contact	T. Williams	7-1-49	7-1-49		X	
C. K. McArthur The Dorr Company Seattle, Washington	Discuss sewage disposal plant, 300 Area	W. C. Royce	7-8-49	7-8-49		X	
T. H. Carpenter P. R. Mallory & Co., Inc. Indianapolis, Indiana	Discuss metallurgical problems	G. H. Syrovy R. T. Jaske R. J. Schier	7-19-49	7-19-49		X	
L. H. Burcham P. R. Mallory & Co., Inc. Portland, Oregon	Discuss metallurgical problems	G. H. Syrovy R. T. Jaske R. J. Schier	7-19-49	7-19-49		X	
[illegible] Schroeder Peerless Pump Company Portland, Oregon	Conference on pumps	H. M. Parker	7-20-49	7-20-49		X	
[illegible] G. Monroe Peerless Pump Company Los Angeles, California	Conference on pumps	H. M. Parker	7-20-49	7-20-49		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
E. W. Lundy Peerless Pump Company Los Angeles, California	Conference on pumps	H. M. Parker	7-20-49	7-20-49		X	
R. L. Tower Charles J. Yost Company Seattle, Washington	Inspection	A. E. Rhodes G. R. Hosack	7-28-49	7-29-49	X		200-W XXX
II. Visits to other Installations							
A. G. Silvester to: Gen. Eng. & Consulting Lab. Schenectady, New York	Consultation on Phase III, 234-5 Program	D. H. Marquis	7-18-49	8-8-49	X		
J. B. Medlin to: City Galvanizers Portland, Oregon	Galvanized inlet nozzles	Mr. Williams	7-18-49	7-20-49		X	
F. H. Ames to: Roberts Filter Company Darby, Pennsylvania	Consultation with vendor	F. R. Haddock	7-23-49	7-29-49	X		
F. H. Ames to: The Dorr Company New York, New York	Consultation with vendor	J. Hitch, Jr.	7-23-49	7-29-49		X	
F. H. Ames to: S.P. Powell, Consultant Baltimore, Maryland	Consultation with vendor	S. P. Powell	7-23-49	7-29-49		X	
W. R. McKenna to: City Galvanizers Portland, Oregon	Galvanized inlet nozzles	Mr. Williams	7-25-49	7-27-49		X	
J. B. Medlin to: City Galvanizers Portland, Oregon	Galvanized inlet nozzles	Mr. Williams	7-25-49	7-27-49		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
W. R. McKenna to: Puget Sound Naval Shipyard Bremerton, Washington	Galvanized inlet nozzles	S. F. Allison	7-25-49	7-27-49	X		
J. B. Medlin to: Puget Sound Naval Shipyard Bremerton, Washington	Galvanized inlet nozzles	S. F. Allison	7-25-49	7-27-49	X		
HEALTH INSTRUMENT DIVISION							
I. Visitors to this Works							
B. G. Cunningham Gen. Electric X-ray Corp. Milwaukee, Wisconsin	Install a 2 MEV X-ray unit	H. M. Parker P. L. Eisenacher R. J. Gandy	7-11-49	8-12-49		X	
P. E. Church University of Washington Seattle, Washington	Meteorology consultation	D. E. Jenne	7-21-49	7-24-49	X		
II. Visits to other Installations							
F. E. Adley to; Washington State College Pullman, Washington	Health physics problems	P. Anderson	7-27-49	7-28-49		X	
C. C. Gamertsfelder to; General Electric Company Schenectady, New York	Attend Instrument Committee	M. A. Edwards	7-28-49	7-29-49	X		
J. M. Smith, Jr. to: Oak Ridge National Lab. Oak Ridge, Tennessee	Study of health physics procedures and Redox consultation	D. G. Reid	7-29-49	8-13-49	X		
INSTRUMENT DIVISION							
I. Visitors to this Works							

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
K. E. Atwood Bailey Meter Company Seattle, Washington	Inspect instrument installations " "	E. Hilgeman " "	7-1-49 7-11-49 7-20-49 7-25-49	7-1-49 7-16-49 7-22-49 7-29-49	X X X X		100-H each visit (Exc)
II. Visits to other Installations							
N. T. Hildreth to: Argonne National Laboratory Chicago, Illinois	Discuss instrument problems	F. R. Shonka	7-11-49	7-25-49	X		
PROJECT ENGINEERING DIVISION							
I. Visits to other Installations							
J. S. McMahon to: Knolls Atomic Power Laboratory Schenectady, New York	Inspection	W. S. Macaulay	7-21-49	7-22-49	X		
LAW DIVISION							
I. Visits to other Installations							
G. C. Butler to: Kellex Corporation 233 Broadway, New York, New York	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11 49	7-20-49	X		
G. C. Butler to: Kellex Corporation 2 Lafayette St., New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49	X		
G. C. Butler to: Kellex Corporation 44 Beaver St., New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49	X		
G. C. Butler to: Kellex Corp. Laboratory Jersey City, New Jersey	Inspection of facilities and program discussions concerning Job 11	G. White, Jt.	7-11-49	7-20-49	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
MANAGEMENT							
I. Visits to other Installations							
F. K. McCune to: Kellex Corporation 233 Broadway, New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49		X	
F. K. McCune to: Kellex Corporation 2 Lafayette St., New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49		X	
F. K. McCune to: Kellex Corporation 44 Beaver St., New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49		X	
F. K. McCune to: Kellex Laboratory Jersey City, New Jersey	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49		X	
DESIGN MANAGEMENT							
I. Visits to other Installations							
J. R. Kelly to: Kellex Corporation 233 Broadway, New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49		X	
J. R. Kelly to: Kellex Corporation 2 Lafayette St., New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49		X	
J. R. Kelly to: Kellex Corporation 44 Beaver St., New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49		X	
J. R. Kelly to: Kellex Laboratory Jersey City, New Jersey	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49		X	

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153

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
MANUFACTURING DIVISION MANAGEMENT							
I. Visits to other Installations							
H. H. Miller to: Gen. Eng. & Consulting Lab. Schenectady, New York	Consultant and inspection on Project 432	D. H. Marquis R. S. Neblett	8-1-49	8-5-49	X		
"P" DIVISION							
I. Visits to other Installations							
E. P. Lee to: City Galvanizers Portland, Oregon	Inspection of nozzles being process for 100-H Area	H. Williams	7-27-49	7-27-49		X	
"S" DIVISION							
I. Visits to other Installations							
R. R. Messick to: Oak Ridge National Lab. Oak Ridge, Tennessee	Research work	D. G. Reid	7-11-49	7-15-49	X		
H. A. Moulthrop to: Gen. Eng. & Consulting Lab. Schenectady, New York	Consultation and inspection on Project 432	D. H. Marquis	8-1-49	8-5-49	X		
STORES DIVISION							
I. Visitors to this Works							
M. Brill Lee and Estes Pasco, Washington	Pick up freight for outbound shipments	R. Ryals	7-14-49	7-14-49		X	100-B XXX
J. Thompson United Freight Lines Pasco, Washington	Deliver load of 80 pieces clay pipe (sewer)	H. O. Monson	7-21-49	7-21-49		X	100-F XXX

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass.	Areas
K. Rakestraw Propane Gas & Equipment Company Kennewick, Washington	Deliver propane gas to 300-3706	G. Q. Mathews	7-27-49	7-27-49		X	300 3706
H. S. Mickey Mickey General Hauling Enumclaw, Washington	Deliver posts for perimeter fences into areas	H. O. Monson	7-13-49	7-13-49		X	100-F 300
		H. O. Monson	7-20-49	7-20-49		X	300
TECHNICAL DIVISIONS							
I. Visitors to this Works							
A. N. Morgan Los Alamos Scientific Laboratory Los Alamos, New Mexico	Chemistry and metallurgy consultation	B. Weidenbaum	7-13-49	7-20-49	X		200-W 221-T 231 234 & 235
J. D. Carter Los Alamos Scientific Laboratory Los Alamos, New Mexico	Chemistry and metallurgy consultation	B. Weidenbaum	7-27-49	8-6-49	X		200-W 221-T 231 234 & 235
E. J. Boyle Oak Ridge National Laboratory Oak Ridge, Tennessee	Metallurgy consultation	R. Ward	7-20-49	7-23-49	X		300 3706 100-B 105
S. Siegel Westinghouse Electric Corp. Pittsburgh, Pennsylvania	Discuss irradiation experiments proposed for H Pile	H. H. Greenfield R. E. Nather L. W. Fox	7-19-49	7-20-49	X		300 3706 100-H Exc.
J. T. Stiefel Westinghouse Electric Corp. Pittsburgh, Pennsylvania	Discuss irradiation experiments proposed for H Pile	H. H. Greenfield R. E. Nather L. W. Fox	7-19-49	7-20-49			300 3706 100-H Exc.
W. J. Koshuba Fairchild Engine & Airplane Co. Oak Ridge, Tennessee	Discuss properties of materials in fuel channels	J. B. Lambert	7-21-49	7-22-49			300 3706 100-D 105 100-H Exc.

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
R. W. Coyle Fiarchild Engine & Airplane Co. Oak Ridge, Tennessee	Discuss properties of materials in fuel channels	J. B. Lambert	7-21-49	7-22-49	X		300 3706 100-D 105 100-H
I.a. Consultant to this Works - Technical							Exc.
G. W. Watt University of Texas Austin, Texas	Inspection and consultation 234-5 Program	R. H. Beaton	7-18-49	7-26-49	X		300 3706, 321 200-E 221-B 200-W 221-T, 231, 234 and 235
II. Visits to other Installations							
O. H. Greager to: Kellex Corporation 233 Broadway, New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49	X		
O. H. Greager to: Kellex Corporation 2 Lafayette St., New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49	X		
O. H. Greager to: Kellex Corporation 44 Beaver St., New York, N.Y.	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49	X		
O. H. Greager to: Kellex Laboratory Jersey City, New Jersey	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-11-49	7-20-49	X		
R. H. Beaton to: Kellex Corporation New York, New York	Inspection of facilities and program discussions concerning Job 11	G. White, Jr.	7-14-49	7-15-49	X		
A. E. Smith to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Instruction and training in DP West operations	E. R. Jette M. Roy R. D. Baker	7-12-49	7-19-49	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
R. B. Richards to: Knolls Atomic Power Lab. Schenectady, New York	Redox technical consultation	J. Marsden	7-14-49	7-15-49	X		
R B. Richards to: Gen. Eng. & Consulting Lab. Schenectady, New York	Redox technical consultation	D. E. Carr	7-14-49	7-15-49	X		
J. F. Gifford to: Wash. Iron & Machine Wks. Seattle, Washington	Consultation on Jr. Cave design	F. G. Frink, Jr.	7-20-49	7-20-49	X		
A. R. Matheson to: Radiation Laboratory Berkeley, California	Consultation and work on special X-ray studies	D. H. Templeton	7-25-49	8-5-49	X		
W. W. Marshall to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Discuss analytical problems	C. F. Metz	7-19-49	7-26-49	X		
C. E. Lacy to: Knolls Atomic Power Lab. Schenectady, New York	Discuss metallurgy program	J. P. Howe	7-19-49	7-21-49	X		
C. E. Lacy to: Battelle Memorial Institute Columbus, Ohio	Discuss metallurgy program	H. W. Russell H. A. Saller	7-22-49	7-22-49	X		
C. E. Lacy to: Argonne National Lab. Chicago, Illinois	Attend meeting dealing with coordination of project irradiation work	J. C. Slater	7-25-49	7-27-49	X		
R. E. Savidge to: Battelle Memorial Institute Columbus, Ohio	Attend metallography conference	H. A. Saller	7-12-49	7-12-49	X		
U. M. Staebler Atomic Energy Commission, Washington, D. C.	Consultation	G. Weil	7-18-49	7-19-49	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
J. M. West to: Oak Ridge National Lab. Oak Ridge, Tennessee	Witness K-25 experiments	C. K. Beck A. D. Callahan	7-20-49	7-25-49	X		
J. M. West to: Argonne National Lab. Chicago, Illinois	Technical consultation	W. H. Zinn M. Ingram	7-25-49	7-29-49	X		
J. B. Lambert to: Argonne National Lab Chicago, Illinois	Attend Slater Committee meeting on radiation damage	J. C. Slater	7-25-49	7-28-49	X		

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PURCHASING AND STORES DIVISIONS
SUMMARY
JULY, 1949

Personnel of the Purchasing and Stores Divisions was increased during the month by a total of fifteen due to the fact that the Stores and Receiving functions heretofore performed by the Design and Construction Divisions were transferred to us with the personnel involved as of July 25, 1949.

	Total Personnel as of 6-30-49	Total Personnel as of 7-31-49	Net Change
Exempt	45	45	0
Non-Exempt	185	200	Plus 15
TOTALS	230	245	Plus 15

It was necessary to requisition sixty-eight additional employees for the Stores Division during the month in order to get inventories of surplus materials on a current basis. Preliminary surveys indicated that this would take three to four months to accomplish at the end of which time those temporary employees will be laid off.

The work load in the Purchasing Division increased approximately twenty-five per cent during the month.

Notification was received from the Commission that the Voluntary Allocation of Aluminum has been officially terminated and that the Voluntary Allocation of Steel will expire September 30, 1949.

As a result of rate reductions obtained from the carriers, a total savings in freight charges for the month amounted to $19,074.46.

A procedure whereby all General Electric purchase requisitions will be screened against Atkinson and Jones stocks was put into effect.

An agreement was reached with the Transportation Division whereby their stocks of automotive spare parts together with nine employees heretofore engaged in handling these parts will be transferred to the Stores Division during the month of August. A complete physical inventory of the parts to be transferred was in progress at month end.

PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION
JULY, 1949

GENERAL

The work load increased during the month. 1,152 purchase orders were placed as compared to 960 placed in June. 1,864 purchase requisitions were received as compared to 1,347 received during June. Requisitions on hand at month end totaled 447 as compared with 406 at the end of the previous month.

During the month fifteen additional orders were placed for Project P-10-A with deliveries satisfactorily scheduled.

Notification was received that the Voluntary Allocation of Aluminum has been officially terminated and that the Voluntary Allocation of Steel will expire by law on September 30, 1949, and the Department of Commerce will not ask for an extension.

The problem of galvanizing special stainless steel nozzles was settled by splitting the total quantity required between the Puget Sound Naval Shipyard and City Galvanizers Company of Portland, Oregon. Work is progressing satisfactorily at both establishments.

To meet our annual coal requirements, we exercised the option contained in the Continental Coal Company contract by increasing the total tonnage from 200,000 tons to 400,000 tons.

Shipment was made during the latter part of the month by the Big Horn Coal Company of the thirty cars of coal ordered for test purposes in evaluating their offer to supply all or part of our requirements.

Invitations to bid were mailed requesting quotations on our estimated requirements of 9,000,000 pounds of Ferric Sulphate. In the past, this material has been available only from manufacturers in the East, but this year the Stauffer Chemical Company is building a plant at Stege, California, and we hope to effect a considerable savings in freight on shipments from that point.

An annual contract for our requirements of Rock Salt was awarded to the Leslie Salt Company.

PERSONNEL

	Total Personnel as of 6-30-49	Total Personnel as of 7-31-49	Net Change
Exempt	24	21	Minus 3
Non-Exempt	25	24	Minus 1
TOTALS	49	45	Minus 4

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	1
Number of Employees attending	45
Minor Injuries	0

PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION

STATISTICS

	G	D	Total
Requisitions on hand 7-1-49 (includes 61 assigned to Govt.)	374	32	406
Requisitions received during July	1,740	124	1,864
Requisitions placed during July	1,697	126	1,823
Requisitions on hand 7-31-49 (includes 25 assigned to Govt.)	417	30	447

		Number	Value
HW Orders placed		1,045	$399,648.56
HW Alterations issued		113	25,575.61 CR.
	Total:	1,158	$374,072.95 DR.
HWC Orders placed		107	$286,206.77
HWC Alterations issued		52	682.943.22 CR.
	Total:	159	$396,736.45 CR.
AEC Orders placed		145	$ 41,004.53
DC Orders placed		12	$ 23,044.94

	OR	ORC	Total
Government Transfers	4	0	4

Open Orders		
HW Orders	967	
HWC & HWN Orders	198	
Govt. Orders	15	
Total:	1,175	

Number of new orders requiring inspection during month	14
Number of completed orders requiring inspection during month	12
Number of orders outstanding requiring inspection at close of month	58
HW Orders expedited (special request)	173
HW Orders expedited (routine)	265
HWC Orders expedited (routine)	174

PURCHASING AND STORES DIVISIONS
STORES DIVISION
JULY, 1949

GENERAL

During July, 1949, general Stores inventories were reduced from $2,720,440.63 as of the close of June to $2,590,231.83 as of the close of July. Obsolete and surplus materials valued at $54,588.89 were declared excess during the month.

Plans and schedules for the transition of physical control of automotive materials now carried by the Transportation Division, have been developed and the cut-over of responsibility will take effect August 15th. Nine employees of the Transportation Division heretofore engaged in this work will be transferred to the Stores Division. Identification and tagging of all parts is in process; a complete inventory will be taken; and the monetary investment credited to the Transportation Division and debited to Stores.

A new procedure for screening all General Electric purchase requisitions by Atkinson & Jones for availability in their stocks and subcontractors' stocks was developed and will be effective August 3rd.

Requisitions for sixty-eight additional employees were put in process during the month. This personnel will be hired on a temporary basis to inventory materials and equipment declared excess by the Construction Division and Subcontractors. Complete inventories will be furnished the Design Division so that all materials and equipment available on the Project can be fully utilized.

Excess lists Numbers 130, 132, 138 through 145, a total of ten, were transmitted to the Atomic Energy Commission during the month. Twenty field lists were circulated throughout the Project. Six lists were approved as excess and fourteen lists are pending.

Thirty-five representatives of Government agencies and private businesses were escorted through our warehouses and scrap yards for the purpose of negotiating the purchase of scrap and transfer of excess property. In addition, numerous individuals and groups of individuals interested in the purchase of tract houses and shacks were escorted throughout the Project.

Twenty-seven condemned tract houses with outbuildings and approximately fifty smaller shacks have been sold during the month. A survey by Commission representatives and a representative of the Scrap Section indicates that there are approximately 293 additional tract houses on the Project yet to be sold.

The functions of Construction Stores & Receiving were transferred to us on July 25th, and employees remaining in that group were transferred to our rolls.

PURCHASING AND STORES DIVISIONS
STORES DIVISION

An effort is being made to consolidate and reduce Stores stocks in Pasco Warehouse No. 8 with the view of eventually centralizing all such materials in the Richland Area. Incidental to this program, a work order has been processed to increase the size of the black top area adjacent to the oil warehouse in the 700 Area so that all drum stock currently in Pasco can be moved to this location.

PERSONNEL

	Total Personnel as of 6-30-49	Total Personnel as of 7-31-49	Net Change
Exempt	18	21	Plus 3
Non-Exempt	150	166	Plus 16
TOTALS	168	187	Plus 19

SAFETY AND SECURITY

Inventory Control	
Safety and Security Meetings Scheduled	1
Number of Employees Attending	29
Minor Injuries	0
Receiving, Warehousing & Disbursing	
Safety and Security Meetings Scheduled	4
Number of Employees Attending	40
Minor Injuries	2
Surplus, Salvage & Scrap	—
Safety and Security Meetings Scheduled	6
Number of Employees Attending	80
Minor Injuries	2

STATISTICS

Inventory Control

Number of items added to Stores stock	122
Number of items deleted from Stores stock	1,627
Items in Stores stock at month end	48,513
Store Orders filled	14,991
Inventory valuation (903-all captions, 906 & 912)	$2,590,231.83
Inventory valuation (Spare Parts) at month end	1,539,639.66
Total value inventories at month end, including Spare Parts	4,129,871.49
Value of Disbursements, not including cash sale items	176,453.89 *

Inventory Control (Cont.)

Value of Cash Sales	732.36
Value of transfers from Excess & Salvage to Stores	4,419.28
Value of materials declared excess and removed from Stores Stock	54,588.89
Value of materials returned to Stores stock for credit	1,452.17

* Includes $32,129.74 disbursed to Construction and CPFF subcontractors.

Receiving, Warehousing & Disbursing

Receiving Reports issued	2,164
Emergency Store Orders filled	5
Returnable containers on hand at month end	5,446
Returnable containers on hand over six months	1,393
Shipments processed (containers and material) during this month	125

Surplus, Salvage & Scrap

Excess Account #10.10 Balance 6-25-49		$7,294,696.72
Receipts 6-25-49 to 7-25-49		
Lumber	$ 8,229.64	
Automotive Equipment	1,105,325.06	
Machine Tools & Equipment	35,314.95	
Office Furniture, Machines, etc.	21,701.67	
Household Furniture, etc.	1,483.05	
Material and Supplies	99,905.00	
Miscellaneous Equipment	46,282.17	
	1,318,241.54	1,318,241.54
		$8,612,938.26
Disbursements 6-25-49 to 7-25-49		
On Project:		
Process Equipment	32.80	
Automotive Equipment	36,289.60	
Machine Tools & Equipment	1,647.63	
Office Furniture, Machines, etc.	163.00	
Material and Supplies	12,547.98	
Miscellaneous Equipment	16,262.54	
Lumber	1,140.46	
Off Project:		
Automotive Equipment	556,467.34	
Office Furniture, Machines, etc.	6,120.19	
Household Furniture, etc.	7,892.54	
Material and Supplies	40,140.26	
Miscellaneous Equipment	9,489.50	
Lumber	152,591.67	
	840,784.91	840,784.91

PURCHASING AND STORES DIVISIONS
STORES DIVISION

Surplus, Salvage & Scrap (Cont.)

Balance of Account #10.10 as of 7-25-49 (See attached list for breakdown of materials in this account by classifications)	$7,772,153.35
Total Receipts To Date	$10,037,422.50
Total Disbursements To Date	2,265,269.15
Scrap and Salvage Disbursed	
Scrap Sales Completed	15
Scrap Sales in Process	11
Scrap Sale Revenue for the month	$10,456.97
Total Scrap Sale Revenue to Date	$76,378.60

PURCHASING AND STORES DIVISIONS
STORES DIVISION

RECAPITULATION BY CLASSIFICATION OF ACCOUNT 10.10

Class	Description	Monetary Value
1	Gun Emplacements, Fire Control Instruments	$ 1.25
2	Small Arms	784.52
3	Lethal Device Equipment	10.00
4	Ammunition	3.43
5	Flags, Bunting, Pennants, etc.	201.71
7	Fuel	10.34
8	Motor Vehicles: Electric trucks, tires, tubes	213,817.87
10	Outboard Motors and all accessories	342.00
11	Pumps and Pump Parts	74,847.06
12	Marine Hardware	174.72
13	Engine & Fireroom Fittings	116.32
14	Lubricants	3,870.12
15	Electric Cable and Insulated Wire	22,154.78
16	Radio and Sound Signal Apparatus	17,944.92
17	Electric Apparatus	754,997.79
18	Instruments of Precision & Photographic Equipment	25,207.63
19	Blocks	4,485.08
21	Cordage: Hemp, Jute, Oakum, Twine, etc.	290.00
22	Wire Rope, Bare Wire, etc.	4,589.65
24	Canvas, Duck, Tentage, etc.	173.90
26	Furniture	92,704.22
27	Textiles: Thread, Findings, Floor Coverings	44,760.28
29	Toilet Articles	24.38
30	Bathroom and Toilet Fixtures	4,562.93
31	Non-Electric Lighting Apparatus	2.40
32	Fire-Surfacing and Heat Insulating Materials	28,959.29
33	Gaskets, Hose, Packing, Sheet and Strip Rubber, Hose Fittings, Flexible Tubing	10,810.04
34	Belting, Harness, (Leather) etc.	201.40
36	Music and Musical Instruments	8.50
37	Special Wearing Apparel and Athletic Equipment	14,085.94
38	Brooms and Brushes	17.30
39	Lumber	1,732,368.56
40	Machine Tools	169,583.51
41	Hand Tools	19,920.22
42	Builders and General Hardware	26,125.50
43	Bolts, Nuts, Rivets, Screws, Washers, etc.	21,509.60
44	Pipe and Non-Flexible Tubes and Tubing	172,995.61
45	Pipe Fittings	251,022.02
46	Metal in Bars: Including Flat, Hexagon, Etc.	11,375.42
47	Metal in Plates and Sheets	412.74
48	Metal Shapes and Structural	398.58
51	Acids, Chemicals, etc.	14,178.73
52	Paints and Paint Ingredients	57,870.24
53	Pens, Pencils, Paper, Drafting Room & Printers' Supplies	21,499.20
54	Office Equipment	37,840.75
55	Clothing	2,511.17

PURCHASING AND STORES DIVISIONS
STORES DIVISION

RECAPITULATION BY CLASSIFICATION OF ACCOUNT 10.10 (Cont.)

Class	Description	Monetary Value
57	Laboratory Equipment	$ 31,769.86
58	Fire Fighting Apparatus: Railway Equipment, Prefabricating Buildings, etc.	120,642.37
59	Building Materials: Asphalt, Brick, etc.	28,988.28
60	Boilers and Power Plants	42,004.08
63	Tableware	7,508.86
64	Kitchen Utensils and Apparatus	63,743.98
65	Ovens, Ranges, Stoves, etc.	22,827.73
66	Machinery: Pneumatic Tools, etc.	46,257.92
69	Animal and Hand-Drawn Vehicles	3,877.43
70	Agricultural Implements	1,885.79
73	Caps, Hats, Gloves, etc.	317.20
74	Infantry and Landing Force Equipment	512.62
78	Motorized Equipment & Heavy Construction Equipment	3,541,930.28
83	Airplane Accessories, Equipment and Parts	95.33
	Total Account 10.10	$ 7,772,153.35

PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION
JULY, 1949

GENERAL

In accordance with our request of June 27, 1949, the North Coast rail lines approved a rate of 50¢ per cwt. to apply on Liquid Chlorine Gas from Tacoma, Washington to Hanford. Approval of the Washington Public Service Commission was secured and publication was made on one day's notice, effective July 23, 1949. This will effect savings of 25¢ per cwt., or approximately $75 per car.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of July amounting to $19,074.46. This makes a total savings to date of $1,116,576.79.

PERSONNEL

	Total Personnel as of 6-30-49	Total Personnel as of 7-31-49	Net Change
Exempt	1	1	0
Non-Exempt	9	9	0
TOTALS	10	10	0

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	1
Number of Employees attending	8
Minor Injuries	0

STATISTICS

Savings Report

The following are savings made through July, 1949 resulting from:

1. Rate reductions obtained from the carriers:

Commodity	Origin	Savings for July	Savings thru June	Total Savings to Date
Liners, Furnace	Morganton, N.C.	$ 7,225.00		
Soda, Caustic	Tacoma, Wash.	683.94		
Ferric Sulphate	East Point, Ga.	9,960.09		
Sodium Nitrite	Solvay, N.Y.	1,205.43		
		$19,074.46	$1,097,502.33	$1,116,576.79
2. Freight Bill Audit		274.24*	45,332.49	45,606.73*
3. Loss & Damage, & Overcharge Claims		2,067.88	71,382.39	73,450.27
4. Ticket Refund Claims		544.26	5,892.62	6,436.88
5. Household Goods Claims			13,830.88	13,830.88
		$21,960.84	$1,233,940.71	$1,255,901.55

* Includes $143.64 for the AEC
** Includes $19,327.21 for the AEC

PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION

STATISTICS (Cont.)

Work Volume Report

Reservations Made	Rail		60
	Air		75
	Hotel		53
Expense Accounts Checked			65
Household Goods & Automobiles			
	Movements Arranged inbound		4
	Movements Arranged outbound		8
	Shipments Traced		5
	Insurance Riders issued		4
	Insurance Bills approved		6
	Furniture Repair Orders		2
Ticket Refund Claims			
	Filed		6
	Collected - Number		12
	Collected - Amount		$544.26
Freight Claims			
	Filed		22
	Collected - Number		18
	Collected - Amount		$2,067.88
Freight Bill Audit Savings			
	GE		130.60
	AEC		143.64
Freight Shipments Traced			31
Quotations			
	Freight Rates		120
	Routes		57
Bills Approved	Air Freight	GE	1
	Air Express	GE	3
		AEC	4
	Carloading	GE	71
		AEC	3
	Express	GE	78
		AEC	34
	Rail	GE	611
		AEC	12
	Truck	GE	167
		AEC	60
Carload Shipments			
	Inbound		576
	Outbound		61

STATISTICS (Cont.)

Report of Carloads Received

Atkinson & Jones Construction Co.			
	Hardware	1	
	Lumber	2	
	Valves	1	4
E. J. Bartells			
	Insulating Material	1	1
Bonneville Power Administration			
	Steel	6	6
Richland Concrete Company			
	Cement	2	2
General Electric Company			
	Aluminum	1	
	Asphalt	3	
	Caustic Soda	8	
	Cement	9	
	Chemicals	3	
	Chlorine	2	
	Coal	491	
	Express	3	
	Ferric Sulphate	11	
	Filters	1	
	Furnace Liners	10	
	Lime	4	
	Merchandise	3	
	Nitric Acid	7	
	Phosphoric Acid	1	
	Soda Ash	2	
	Sodium Bichromate	1	
	Sodium Nitrite	1	
	Track Material	1	
	Wallboard	1	563
Total Entire Project			576

200

EMPLOYEE AND COMMUNITY RELATIONS DIVISION

SUMMARY - JULY, 1949

Open requisitions for nonexempt personnel increased from 180 at the beginning of the month to 266 at the end of the month. Total plant roll decreased during the month from 7,393 to 7,385. Turnover rate including terminations due to lack of work during July was 1.85%. Turnover rate exclusive of terminations due to lack of work during July was 1.45%.

Four employees retired during July, two of which were on optional retirement. Two employee and one retired employee deaths occurred. Thirty-eight suggestion awards, totaling $955.00 were granted during the month. Judgment of $12,110.00 rendered in the Superior Court of Washington for Ivan E. Nagle against the General Electric Company was settled prior to appeal for $8,750.00.

The training program on the spirit and intent of the Agreement with the H.A.M.T.C. was completed during July, and a total of 644 exempt employees attended. Seven bulletins, giving questions and answers, resulting from such meetings, were distributed during the month. Fifteen meetings were held during the last three weeks of July on grievance procedure with a total of 564 members of management attending. The General Electric movie "By Their Works" was exhibited in all areas on July 25, 26, and 28.

The activities of the Labor Relations and Wage Rate Division during the month of July have been directed toward the handling of post negotiation arrangements, processing grievances, preparing change of wage rate system procedure, and completing the necessary records to convert classifications and wage rates in accordance with the G.E. - H.A.M.T.C. Contract and indirect changes related thereto. A request by the Atomic Energy Commission for clarification of the provisions of the Union Contract was answered by the Company. A report showing the effect of the housing rental adjustment was submitted to the Hanford Atomic Metal Trades Council. Transcripts of the previous formal hearings with the National Labor Relations Board with regard to the petition requesting bargaining rights for the Hanford Guards, Local No. 21, were received and are being reviewed, after which a corrective stipulation will be forwarded by the Company to the N.L.R.B. Weekly meetings were held between the Council Grievance Committee and the Management Negotiating Committee in which contract application practices and grievances were reviewed. Approval was received from the A.E.C. on the reimbursement of five additional classifications. Reimbursement authorization was requested for two additional classifications. Classification reviews were conducted in several divisions.

Employee and Community Relations Division

Summary

Twenty-two daily newspapers were added to the "General List" of the G.E. Nucleonics Department News Bureau. The new additions to the list are published in portions of Oregon, Idaho and Montana that are near the Washington border.

During July, thirteen informative releases were sent to ten newspapers and three radio stations that comprise the "Local List." Also during the month, eight news releases of more general character were sent to sixty-seven papers on the News Bureau's "General List".

A plan was put into effect during July for tabulating those news releases sent out by the News Bureau which were reproduced in the sixteen newspapers subscribed to by Community Relations. This will make it possible to check the distribution of specific news releases or a group of news releases to those Northwest newspapers in which we are most interested.

On July 24, 25 and 27, a series of three news stories about Richland were distributed by the Chicago Tribune Service to newspapers throughout the United States. The series, written by Seymour Korman, described Richland as a mismanaged, monopolistic, police state. An informative release quoting the Assistant General Manager of the Nucleonics Department and correcting some of the inaccuracies in one of the stories was mailed to local papers and the SPOKESMAN-REVIEW. The SPOKESMAN-REVIEW was the only newspaper in the Northwest that printed the series of stories. The General News Bureau in Schenectady answered the series on a nation-wide basis and they were kept informed of our actions in the Northwest.

Promotion of the G-E teen-age magazine, "Adventures Ahead", was concluded during July. A year's free subscription to this bi-monthly magazine was made available to all teen-age children of G.E. employees at Hanford Works as part of the over-all community information program. The Special Programs promotion activities were carried out through such plant media as the WORKS NEWS, letters to supervisors, descriptive brochures, and posters. A subscription list of 1,097 eligible subscribers has been sent to the "Adventures Ahead" editor through whom distribution will be accomplished.

Arrangements were made through the Purchasing Division to have 6,000 GE-HAMTC Agreement Booklets printed in a commercial printing shop. The Walla Walla Union Bulletin commercial printing shop was selected as the successful bidder.

To inform supervisors of progress being made at Hanford Works, the General Manager presented a status report to a capacity audience of supervisors in Carmichael Junior High School auditorium during July. He explained that the over-all progress achieved at Hanford Works has been tremendous, although some errors were made due to the speed with which the construction program had to be carried out. It is anticipated that other status reports will be made to supervisors by the General Manager when appropriate. The recently appointed Assistant General Manager, Mr. F. K. McCune, was introduced at the meeting, and the 45-minute color movie, "By Their Works", was shown following Mr. Prout's address.

EMPLOYEE AND COMMUNITY RELATIONS DIVISION

JULY, 1949

ORGANIZATION AND PERSONNEL

Employee Relations

Employment:

Effective July 19, 1949, a General Clerk "D" was added to the Investigation and Files Section.

Effective July 25, 1949, a Field Clerk "C" in the Plant Security and Services Division was transferred back to the Employment Group and upgraded to an Employment Interviewer and Investigator "B".

Employee Services:

No organization changes were made in this Group during July.

Training and Program Development:

No organization changes were made in this Group during July.

Labor Relations and Wage Rate

On July 1, one General Clerk "A" was removed from the payroll on leave of absence due to pregnancy.

Effective July 11, one Stenographer Typist "B" was transferred from the Stenographic Service Section into this Division.

Effective July 19, one Secretary "B" was transferred from this Division to Management Division.

Effective July 25, one exempt employee, Staff Assistant, was transferred into this Division from the Construction Division.

Community Relations

Effective July 1, one General Clerk "A" was removed from the payroll on leave of absence due to pregnancy.

Employee and Community Relations Division

Number of Employees on Payroll	July, 1949
Beginning of Month	75
End of Month	76
Net Increase	1

This increase was due to an increase in the volume of work.

Employee and Community Relations Division

ACTIVITIES

Employee Relations

Employment:

	6-1949	7-1949
Applicants interviewed	1,534	1,546

Open requisitions

Exempt	2	1
Nonexempt	180	266

Of the 180 nonexempt open requisitions at the beginning of the month, 85 were covered by interim commitments. At the end of the month of the 266 open requisitions, 192 were covered by interim commitments. At the beginning of the month, there were 2 open requisitions for exempt nontechnical personnel, both of these requisitions have been filled. At the end of the month there was on requisition open for exempt nontechnical personnel, and while an offer has been made no acceptance has been received.

	6-1949	7-1949
Employees added to the roll	182	129
Employees removed from the roll	171	137
Net gain or loss	+ 11	- 8

Of the 137 removed from the rolls during the month, 30 were terminated due to lack of work. Twenty-seven of these employees so terminated were outside the Bargaining Unit. Turn over rate for the month of July including those who were terminated due to lack of work was 1.85%, as compared with a turn over rate of 2.31% for the month of June. The turn over rate of employees exclusive of those who were terminated due to lack of work was 1.45% in July, as compared with 1.69% during June.

During the month of July, 44 new requests for inter-Divisional transfers were received and reviewed by the Employment Office. As a result of these requests, 13 transfers were effected.

In addition, during July, 25 transfers were effected for employees who had received notice of termination due to lack of work.

Effective July 18, 1949, the exit interviewing of all terminated employees was transferred from the Employee Services Group to the Employment Group.

Employee and Community Relations Division

Employee Services:

During the month of July, Instructions Letter No. 50 on Nonexempt Ratings was completed, and final arrangements were made for the printing and distribution of these forms. Several meetings were held with the Training and Program Development Group, in order that this Group might be thoroughly familiar with the Instructions Letter on Nonexempt Ratings, particularly with respect to the procedure to be followed, as well as the intent, on which portions of this letter were based.

Arrangements have been made with the Medical Division, whereby the Employee Services Group will be promptly notified of Company employees admitted to the hospital, in order that these employees may be visited by a representative of the Employee Services Group.

The following employees retired during the month of July:

Samuel LaVigne, Transportation Division, (Optional);
John A. Bloom, Community Division;
Roy D. Harris, Community Division, (Optional);
John L. Boling, Community Division.

The above named employees were participating in the Pension Plan and all were interviewed prior to their retirement, and fully informed as to the benefits each would receive under this Plan.

Two employee and one retired employee deaths occurred during the month of July:

"P" Division;
"P" Division;
(retired), formerly Power Division.

In each of these cases the employees' families were contacted, and information relative to insurance benefits, social security forms, and pension refund were furnished at that time.

Six salary checks were delivered to employees absent during the month of July due to illness.

Suggestion System:

At the end of July, the volume of work in the Office of the Secretary of the Suggestion System was as follows:

	June, 1949	July, 1949	Total since 7-15-1947
Suggestions received	78	40	3, 644
Investigation Reports completed	97	38	3, 467
Awards granted by Suggestion Committee	0	38	390
Cash Awards	$ 0	$ 955	$ 4, 785

206

Employee and Community Relations Division

A Suggestion System cartoon appeared in the July 22 issue of the Works News, through the assistance of a member of the Community Relations Division.

Insurance and Compensation:

Public Liability

v.s. General Electric Company, Claim No. -- In connection with the appeal of the judgement for $ 12,110.00 rendered in the Superior Court on this case, a meeting was held on July 22 attended by representatives of the Travelers Insurance Company, the Atomic Energy Commission, and the General Electric Company, at which time the Travelers Insurance Company recommended to the General Electric Company and the Atomic Energy Commission that they be authorized to negotiate a settlement in an amount of less than $ 10,000.00. This recommendation was approved, and authority was granted, after which the Travelers Insurance Company attorney negotiated with the plaintiff's attorney in this case. A settlement in the amount of $ 8,750.00 was obtained.

Property Damage

During the past month, it has been reported to the Insurance Section five instances where personal automobiles were sprayed with paint due to the house painting program being conducted by the Community Division. All such claims have been referred to the Travelers Insurance Company. It is worthy of note that the number of claims reported as a result of such a painting program have been greatly reduced as compared to the claims reported during a similar program held during the summer of 1947.

Workman's Compensation

-- This case involves an alleged hernia injury, to which the Company opposed allowance of any compensation claim. The State Department of Labor and Industries sustained the Company's position. On July 7, a hearing was held in Seattle, at which time the claimant's testimony on appeal was heard. Testimony as to the Company's position with respect to this appeal is now being prepared for submission to the Board of Industrial Insurance Appeals.

It should be noted that due to more comprehensive reports being submitted by the Medical Division on each individual compensation claim, as well as due to a more conservative attitude on the part of the State Department of Labor and Industries, since the change in administration on January 1, 1949, that the number of claims rejected by the Department has increased from approximately 2% in 1947 and 1948 to 10.4% for the first six months of 1949.

Life Insurance

Code information for use by insurance companies in issuing insurance to employees of this Works was furnished to 26 insurance companies and investigating agencies during the month of July.

Employee and Community Relations Division

Training and Program Development:

During the first week in July, the training program relative to the spirit and intent of the agreement made between the Company and the H.A.M.T.C. was completed. A total of 644 exempt employees attended these meetings.

As a result of the questions which arose during these meetings, special bulletins were prepared by the Training and Program Development staff, and distributed to all exempt employees during the month of July. One bulletin was issued during June, and six were issued during July.

On July 19 and 20, and also July 26 and 27, meetings were held in all areas for supervisors and exempt employees, at which time the grievance procedure, as outlined in Instructions Letter No. 114, was reviewed in detail. The following material was distributed to those who attended these meetings:

Supervisory Guide Outline of the meeting,
How to Bargain with a Steward,
Fundamentals of Good Relationship between Supervisory-Management and Steward

A total of 564 supervisors and exempt employees attended these meetings. In an effort to obtain comments and suggestions from members of top management, a preview meeting to the grievance procedure program was held for the benefit of all members of management on July 15. A total of 40 members of management attended this meeting.

On July 25, 26, and 28, the General Electric movie, entitled, "By Their Work", was exhibited in all areas, in order to give those supervisors who did not have an opportunity to see it at the time it was shown in connection with Mr. G. R. Prout's talk at Carmichael Junior High School on July 6, 1949.

A number of meetings were held during the month by the Training and Program Development staff, together with representatives of the Employee Services Group, for the purpose of preparing a training program to be presented during August in connection with the rating of nonexempt employees.

Effective July 1, the Training and Program Development Group assumed the responsibility of orientation of all new employees, this function being transferred to this Group from the Employee Services Group.

During July a total of 61 new employees were given orientation, of this number 51% elected to participate in the Group Life Insurance Plan, and 60% elected to participate in the Group Disability Insurance Plan. In addition to the above new employees, 59 re-engaged employees were given orientation.

Employee and Community Relations Division

Printing of the contents for the Supervisors' Handbook was completed during the latter part of July. This material is now being gathered for insertion in the Handbook binder, in preparation of distribution through training meetings during the month of August.

STATISTICS

Number of employees on rolls	6-30-1949	7-31-1949
Exempt	1, 623	1, 620
Nonexempt	5, 770	5, 765
Totals	7, 393	7, 385

ADDITIONS

	Exempt	Nonexempt	Total
New Hires	6	52	58
Re-engaged	2	58	60
Re-activations	2	7	9
Transfers from other Plants	1	1	2
Actual Additions	11	118	129
Payroll Exchanges	9*	6**	15
Gross Additions	20	124	144

TERMINATIONS *****

Actual Terminations	15	95	110
Removals from rolls	2	25	27
Payroll Exchanges	6***	9****	15
Gross Terminations	23	129	152

GENERAL

	6-30-1949	7-31-1949
Applicants interviewed	1, 534	1, 546
Photographs processed	3, 411	4, 307
Fingerprint impressions taken (in duplicate)	281	180
Procurement letters written	326	327

* Transferred from Weekly Salary Roll
** Transferred from Monthly Salary Roll
*** Transferred to the Weekly Salary Roll
**** Transferred to the Monthly Salary Roll
***** Approximately 73% of all terminations were on a voluntary basis, and most of these were for the following reasons: (a) Personal Reasons (b) Another Job (c) To be Married.

Employee and Community Relations Division

ABSENTEEISM STATISTICS
(Weekly Salary Roll)*

	6-30-1949	7-31-1949
Male	1.58 %	1.50 %
Female	2.92	2.52
Total Plant Average	1.93	1.76

INVESTIGATION STATISTICS

Cases pending at beginning of month	822
Cases received during the month	292
Cases closed	173
Cases pending at month end	941
Number found satisfactory for employment	244
Number found unsatisfactory for employment	1
Cases closed before investigation completed	2
Special investigations conducted	3

	6-1949	7-1949	Total since 9-1-1946
Claims received and reported to the Department of Labor and Industries	135	84	2, 887
Claims received and reported to the Travelers Insurance Company	14	8	336

* Statistics furnished by Weekly Payroll Division

Employee and Community Relations Divisions

Labor Relations and Wage Rates

Labor Relations

The activities of this division relative to Labor Relations have been primarily concerned with handling post negotiation arrangements on the H.A.M.T.C. contract and grievances.

On July 11, 1949 a letter was received from the Atomic Energy Commission requesting clarification of certain provisions of the reimbursement authorization request covering the G.E. - H.A.M.T.C. agreement. A reply was forwarded to them on July 27, 1949 outlining in detail the Company's interpretation of the provisions of the Agreement in response to their questions.

A report showing the effect of the housing rental adjustment on all employees in the bargaining unit was submitted to the Council on July 26, 1949.

A transcript of the hearing held by the N.L.R.B. on June 29, 1949 in regard to the pending petition requesting bargaining rights for certain employees engaged in guard work was received. Stipulations correcting the transcript have been prepared and will be sent by the Guard's Union and the Company to the N.L.R.B.

H.W. Instructions Letters were issued at the request of the H.A.M.T.C. on the following subjects:

1. Third week of vacation without pay
2. Grievance Procedure

An Instructions letter is being prepared to cover policies governing the provision of lunches as set forth in Article VIII of the contract.

A report was prepared and forwarded to the General Accounting Division in response to questions posed by them relative to those articles of the G.E. - H.A.M.T.C. contract that were not deemed to be clear as to accounting interpretation.

Weekly meetings were held between the Council Grievance Committee and the Company Negotiating Committee as follows:

July 7, 1949 - Topics:

1. H.A.M.T.C. office space in Richland
2. Seniority
3. Check-off
4. Time limit on discussion of grievances during conference
5. Approval of contract Reimbursement Request by A.E.C.
6. Revised Instructions Letter regarding grievances
7. Seniority groupings
8. 1131 garage employee's shift schedule
9. Copies of Agreement
10. Stewards lists
11. Bulletin boards
12. One grievance settled of five scheduled for review

Employee and Community Relations Divisions

July 14, 1949 - Topics:

1. Check-off
2. Temporary upgrading of employees
3. Seniority status of employees transferred back into the bargaining unit
4. Notice of meetings to Council Grievance Committee Members
5. Council Grievance Committee members working on rotation shifts
6. H.A.M.T.C. office space in Richland
7. Approval of contract Reimbursement Request by A.E.C.
8. Seniority groupings
9. Four grievances settled of five scheduled for review

July 21, 1949 - Topics:

1. Job descriptions - "P" and "S" Divisions
2. Stewards lists
3. Notice of meetings to Council Grievance Committee Members
4. Check-off procedure
5. Office space
6. Seniority groups
7. Notice of Step Two Settlements to stewards
8. Recalled employees temporarily rejected by Medical Division
9. Employee accepting job in different seniority group in lieu of layoff
10. Group disability insurance plan
11. Fire brigade pay
12. Approval of contract Reimbursement Request by A.E.C.
13. One grievance settled of eight scheduled for review

July 28, 1949 - Topics:

1. Group disability insurance plan
2. Job descriptions
3. Seniority group lists
4. Stewards lists
5. Check-off procedure
6. Millwright's jurisdiction
7. Notice to stewards regarding layoff of employees
8. Bidding for other jobs by employees
9. Two grievances settled of six scheduled for review

Grievance Statistics

Twenty-three "Employee Contact Reports" were received during the month, bringing the total received to date to seventy-one.

Health Instrument	1
Mfg. Electrical	2
Mfg. Instrument	6
Mfg. Maintenance	6
Mfg. Transportation	2
Service	4
Technical - Metallurgy & Control	1
Village Maintenance	1
Total	23

Employee and Community Relations Divisions

"Employee Contact Reports" are regarding the following subjects:

Absence	2
Jurisdiction	2
Lunch Period	1
Seniority	1
Supervision	1
Transfer	2
Transportation	1
Upgrade	1
Wage Rate	7
Work Assignments	5
Total	23

Wage Rates

The activities of this Division relative to wage rates have been concerned with the preparation of change of wage rate system procedure, and the mechanics of completing the necessary records to convert the classifications and wage rates of all non-exempt employees affected by the G.E. - H.A.M.T.C. contract provisions

An Instructions Letter is being prepared to cover the policies governing the wage rate procedure as provided in Article XX of the G.E. - H.A.M.T.C. contract and Working Rules.

In addition to the above, similar instructions are being prepared to cover non-unit groups.

Supervision of the Manufacturing, Village Public Works and Service Divisions were requested to submit information relative to:

1. The presentation of change-over information to all non-exempt employees receiving a change of classification and/or rate due to the establishment of the new wage rate system.

2. The instruction of supervision in regard to the new wage rate system.

3. The distribution of unit and non-unit job classification manuals.

A number of meetings have been held with representatives of various unions during the month for the purpose of negotiating job classifications and definitions.

The following reimbursement authorizations have been approved by the A.E.C.

1. Reimbursement Authorization #51, approved on July 11, 1949, established the additional classifications of Business Graduate, grade 17, and Recreation Leader, grade 7.

2. Reimbursement Authorization #52, approved on July 11, 1949, established the additional classifications of Personnel Meter Clerk and Badge Worker, both grade 6 jobs and effective April 11, 1949, and Claim Adjuster-Purchasing, grade 14, effective July 1, 1949.

Employee and Community Relations Divisions

The following reimbursement authorizations have been submitted to the A.E.C. and are pending approval:

1. Request for the additional classification of Party Chief, submitted July 7, 1949.

2. Request for the additional classification of Orderly, submitted July 19, 1949.

In addition to the above a number of reviews have been made together with the day-to-day handling of terminations and transfers. General reviews are as follows:

1. All clerical employees in the Village Maintenance Division.

2. All employees in the Construction Division.

3. Area clerical employees in the Manufacturing Division.

4. All employees in the Tenant Service Group of the Village Realty Division.

Statistics

Transfers from Weekly to Monthly Payroll	10
Transfers Approved	45
Job Reclassifications Approved	257
Automatic Increases	214
Merit Increases	8

Employee and Community Relations

Community Relations

Twenty-two daily newspapers were added to the "General List" of the G.E. Nucleonics Department News Bureau. The new additions to the list are published in portions of Oregon, Idaho and Montana that are near the Washington border. The 22 papers are located in the following towns: Albany, Astoria, Corvallis, Eugene, Salem, The Dalles in Oregon; Boise, Coeur d'Alene, Lewiston, Moscow, Pocatello in Idaho; and Billings, Bozeman, Butte, Kalispell, and Missoula, Lewistown in Montana.

The film, "By Their Works," was shown to approximately 750 Hanford Works Supervisors at an evening meeting at Carmichael Junior High School on July 6. "By Their Works" was presented at the Pasco Kiwanis Club on July 15 and was introduced by a member of the division. Approximately 40 supervisors who had not previously seen the film "By Their Works" attended showings during the week of July 25 through 29.

To inform supervisors of progress being made at Hanford Works, the General Manager presented a status report to a capacity audience of supervisors in Carmichael Junior High School auditorium during July. He explained that the over-all progress achieved at Hanford Works has been tremendous, although some errors were made due to the speed with which the construction program had to be carried out. It is anticipated that other status reports will be made to supervisors by the General Manager when appropriate. The recently appointed Assistant General Manager, Mr. F. K. McCune, was introduced at the meeting, and the 45-minute color movie, "By Their Works," was shown following Mr. Prout's address.

"Public Information" - Community

Informative newspaper releases made during the month to the "Local List" of newspapers and radio stations served, which includes the VILLAGER, TRI-CITY HERALD, SPOKANE CHRONICLE, HANFORD WORKS NEWS, WALLA WALLA UNION-BULLETIN, PASCO EMPIRE, PASCO HERALD, KENNEWICK COURIER-REPORTER, YAKIMA MORNING HERALD, LIND LEADER, radio stations KPKW, KIT, KWIE, including release dates were as follows: (A large number of both local and general news releases are being sent out for immediate release. In such cases the date on which the release was sent from this office is indicated below).

7/1 It was announced that arrangements had been made for Richland and North Richland residents to renew their driver's licences at Richland Patrol Headquarters.

7/1 An electrical outage affecting part of Richland was announced.

7/7 A follow-up story reminding residents that Washington State Drivers licences could be renewed locally was sent to local newspapers.

7/8 An informative release stated that only two minor accidents occurred in Richland over the Fourth of July holiday--an enviable record when compared with the number of accidents in the nation over the three-day period.

Employee and Community Relations Division

7/11 Installation of a permanent telephone distribution cable in the ranch house area during the next two months was announced. It was explained that some excavation in residents' yards would be necessary.

7/12 An appeal was made to Richland people to observe the low-speed limit over the Baily Bridge between Richland and the "Y." This was necessary because the bridge is a temporary structure.

7/13 The Public Works Division suggested measures to combat small insects called the false chinch bug that is damaging Richland lawns and gardens.

7/15 The beginning of the third annual Community Patrol Bicycle Safety School for Richland children was announced.

7/19 An informative release explaining in detail the operation and advantages of the Bicycle Safety School was sent to local media because enrollment in the school was considerably below previous years. Attention was drawn to the above story in the "ear" of the Works NEWS. Other local media were asked to give the story as much prominence as possible. Groups of spot announcements were also prepared and given to KPKW and KWIE urging children to attend the course. Photographs showing dangerous bicycle riding practices were also taken and distributed to local media.

7/20 Arrangements for the renewal of drivers' licences in Richland were re-emphasized in an article on this date.

7/26 Richland residents were urged in an informative release to follow several rules suggested by the Public Works Division when watering lawns. Attention was drawn to the fact that considerable wastage of water was going on.

7/26 Two electrical outages were announced for the coming week.

7/28 The appointment of Dr. D. Charles Sutch, a specialist in psychiatric treatment, as a Kadlec Hospital staff member was announced. Photographs of Dr. Sutch were given to the local newspapers.

"Public Information" - General

Informative newspaper releases were sent to 67 of the leading daily newspapers, wire services and radio stations in the Pacific Northwest during the month. The release date is given for each story, and they are as follows:

7/12 The Superintendent of the Commercial Facilities Division announced that a bid received in the name of the Record Publishing Company and submitted by R. M. Frayn of Seattle was the only bid received for the publication of a newspaper in Richland. It was pointed out that discussions concerning

the proposal of the TRI-CITY HERALD publishers to establish an office in Richland would get underway during the following week.

7/17 The Manager of Hanford Works Design and Construction Divisions announced that a contract for paving and related work in Richland had been awarded to J. A. Terteling and Sons, Inc., and that work would begin in the new commercial area on the following day.

7/19 The Howard P. Foley Company of Salt Lake City, Utah, was announced as the apparent low bidder for a contract to do electrical construction work in Richland.

7/20 Copies of two photographs were sent to groups of daily newspapers on the "General List" marking the Hanford Works visit of Dr. K. T. Compton, Chairman of the Research and Development Board of the National Military Establishment. Dr. Compton was accompanied by 23 members of the Board's Committee on Atomic Energy. A photograph of Dr. Compton with the Nucleonics Department General Manager and the Manager of the Hanford Operations Office was sent to the WALLA WALLA UNION-BULLETIN, Portland DAILY JOURNAL OF COMMERCE, and the Seattle TIMES. A photograph of Major General Schlatter and Brigadier General J. McCormack, Jr., with the General Manager of the Nucleonics Department and the Manager of the Hanford Operations Office, were sent to the SPOKESMAN-REVIEW, OREGONIAN, the SEATTLE POST-INTELLIGENCER, and the YAKIMA MORNING HERALD.

7/24 The award of a contract for electrical construction work in Richland to the Howard P. Foley Company was announced.

7/27 An announcement was made that the TRI-CITY HERALD had been awarded a ground lease for construction of an office building in Richland.

7/27 It was revealed that Morgan & Olberg will construct and operate a new Thrifty Drug Store in the new commercial area.

7/29 "Inaccurate and misleading" were words used in an informative release by the Nucleonics Department Assistant General Manager to describe a news article about Richland and distributed to newspapers by the Chicago Tribune Service. Inaccuracies in the Tribune story were cited and the facts presented. This story was distributed to the VILLAGER, TRI-CITY HERALD, and radio stations KWIE and KPKW. It was telegraphed to the SPOKESMAN-REVIEW, the only paper in the Northwest to print the Tribune article. The SPOKESMAN-REVIEW published the Assistant General Manager's story on the front page.

"Public Information" - Other

Thirty copies of "Applications of Atomic Power," 30 copies of "Adventures Inside the Atom," and 50 copies of "Nuclear Power" were supplied for use in the Health Instrument Divisions' Training Program.

Employee and Community Relations Division

Arrangements were made with the Stores Division for the procurement of "Electrical Developments of 1948" for placement in the display racks as soon as the supply of "Electrical Developments of 1947" is depleted.

The number of businesses and residential units in Richland and North Richland was supplied to the TRI-CITY HERALD. They needed this information in order to become a member of the Audit Bureau Circulation.

Three photographs and additional information about Richland's sewage treatment plant were sent to the Assistant Editor of McGraw-Hill's ENGINEERING NEWS-RECORD Magazine. A representative of the magazine spent several days in Richland during June and intends to publish three articles about Richland some time in the future. The three articles were sent to this office for clearance during the month. The articles were read by division personnel and other interested persons at Hanford Works, corrections made and returned.

The number of houses occupied in Richland and North Richland and the expected future supply and demand for housing was supplied to a representative of the Mayor of Yakima, who is conducting a housing survey in this part of the state.

"Public Information" - Films

The film, "By Their Works," was shown to approximately 750 Hanford Works Supervisors at an evening meeting at Carmichael Junior High School on July 6. "By Their Works" was presented at the Pasco Kiwanis Club on July 15 and was introduced by a member of the Division. Approximately 40 supervisors who had not previously seen the film "By Their Works, attended showings during the week of July 25 through 29.

"Employee Information" - Special Programs

Promotion of "Adventures Ahead," the G-E magazine for teen-age children, was started in June and carried to conclusion during July. A year's free subscription to this bi-monthly magazine was made available to all teen-age children of G.E. employees at Hanford Works as part of the over-all community information program. The original approval from the Atomic Energy Commission was extended, through the AEC Public Relations Office, to include those children who will become teen-agers within the term of the subscription, and teen-age relatives of employees, if such teen-agers live in the immediate area. The approval limited subscriptions to one per family, and provided that subscriptions will not be automatically renewed at the end of the first year's subscription, but that new subscription blanks must be provided at that time.

Promotion of the magazine was accomplished by Special Programs through various plant media. "Teaser" posters and "Announcement" posters were displayed throughout the plant, with distribution in the outer areas being accomplished with the aid of Industrial Patrol. News stores, pictures with captions, and boxed notices in the Works NEWS aided the promotion. The Works NEWS also printed subscription blanks

in several issues to assure each employee-parent an opportunity to arrange a subscription for his child. The promotion also included sending a letter, subscription blanks and a descriptive brochure to each supervisor with the request that employees be informed of the free subscription offer. A second letter was sent to supervisors requesting that they inform employees of the subscription deadline and that they forward all subscription blanks to Special Programs by July 26. A subscription list containing the names and addresses of 1,097 eligible subscribers was sent to the editor of "Adventures Ahead" in Schenectady through whom distribution of the magazine will be accomplished. In addition to the eligible subscribers, a number of ineligible subscription blanks were received, the majority of which were made out for children under the age limit of 12 years. Promotion activities also included the distribution of sample copies of the magazine at a meeting of the Richland Hi-Spot Club. Posters, brochures and subscription blanks were also displayed prominently in the clubroom, and a picture of teen-age members reading the sample copies was printed in the Works NEWS.

Copies of the report on the 1949 Kadlec Hospital Open House activities, which was prepared by Special Programs during June, were forwarded to the Atomic Energy Commission with covering letter from Mr. Prout.

Arrangements were made by Special Programs to have 6,000 G.E.-H.A.M.T.C. Agreement booklets printed. Bids were obtained by Purchasing Division for the printing of the booklets in a commercial printing establishment. The Walla Walla Union-Bulletin commercial printing shop was the successful bidder. Complete copy, instructions, sample booklets, cover dummy and two G-E signature logotypes were supplied. Final arrangements with the printer, including the correcting, of original and revised proofs, was accomplished to insure completion of the booklets at the earliest possible date.

A portion of the front cover of the current Richland telephone directory was re-designed by the division commercial artist to make it suitable for use as the front cover for the forthcoming Richland telephone directory.

A large portion of Special Programs effort during July was directed toward preparing a safety celebration booklet to commemorate 100-B Area's fourth year without a lost-time injury. Activities in this special program included arranging for pictures of 100-B Area employees and groups, planning the layout, preparing copy, obtaining approvals, and arranging for printing in the plant print shop. A visual printer's dummy was prepared in detail by the division commercial artist to assist 100-B Area Council members in visualizing the final product. The booklet is now in the hands of the printer. It is felt that other areas may wish to have similar booklets prepared to commemorate future safety achievements.

Arrangmeents were made by Special Programs to have color photographic slides, which were used during the Nine-Point Job Program presentation at Hanford Works, returned via rail express to the New York office.

Employee and Community Relations Division

Assistance was rendered the Community Safety Supervisor in the preparation of the first of a series of three articles on child safety to appear in the Richland VILLAGER. The articles are part of the summer-long Child Safety Campaign. The articles will cover safety hazards to the three child age groups: one to four, five to nine, and ten to fourteen years of age.

In line with Special Programs' Kadlec Hospital activities directed toward maintaining favorable community and employee relations for the hospital, the appointment of a psychiatrist as a Kadlec Hospital staff member was announced via a news release and pictures.

The safety proposal presented at the June meeting of the Safety Program Committee, which proposed the preparation and use of individual safety booklets covering specific job classifications, was discussed further at the July meeting of the Committee. It was decided that each division should determine whether such booklets are needed for their particular types of work activities. This division and the Safety Division will assist in preparing or obtaining the required booklets. Minutes of the Safety Program Committee meetings are kept by the Special Programs supervisor in this capacity as secretary.

A portion of the advance preparation for the General Manager's status report, which was presented at a meeting of supervisors during July in the auditorium of Carmichael Junior High School, was accomplished through Special Programs. Details included arranging for: public address system installation and operation, recording of the General Manager's report by wire recorder, typing of the report from the wire recorder, and for maintaining security regulations concerning the wire recording of the report. Assistance was also rendered in taking news photos and in the showing of the film, "By Their Works."

"Employee Information" - Hanford Works NEWS

Five issues of the Works NEWS were published during the month of July. "Candid Camera" was inserted in the July 29 issue. During the month the distribution of the Works NEWS was cut to 7,800 copies.

During the month publicity was given to free subscriptions being available to the youth magazine "Adventures Ahead." In the July 18 issue a resume was given of AEC Hanford Operations Office Manager's talk on the tremendous program being conducted at this location, and the Nucleonics Department General Manager's talk on the status of Hanford Works.

Two women's pages appeared in five issues of the Works NEWS during the month of July. On July 1, a feature appeared on backyard gardens being developed and maintained by G-E people in Richland. On July 15 the women's page featured free patterns to be distributed to readers for the asking. As a result of this feature 60 free patterns, supplied by various mailing services, were mailed to readers. The response to this feature on needle work was greater than in the past,

making it necessary to order more patterns to supply the demand. Several requests were received for vacation information on nearby Western resorts and dude ranches as a result of a short women's page article announcing the availability of such material.

Northwest chambers of commerce and colleges were contacted for information for an "Off the Reservation" or some like column to consist of football schedules and various week end entertainment schedules. It is planned to incorporate this information with community activities of general interest.

Every week a column appears in the Works NEWS listing rides or riders seeking transportation to various week end and vacation spots. One hundred and sixty-five requests were received during the month of July for rides or riders to the following destinations: Minnesota, Colorado, South Dakota, Texas, Indiana, Oklahoma, Illinois, Alabama, New York, Tennessee, Mississippi, Ohio, Detroit, Michigan; Chicago; Denver; Salt Lake; Los Angeles; San Francisco; Casper, Wyoming; Bozeman, Montana; Kansas City; Memphis, Tennessee; Pittsburg; Omaha; Louisville, Kentucky; Ogden, Utah; Bellingham, Seattle, Spokane, Portland, and Yakima.

COMMUNITY DIVISIONS

SUMMARY - JULY, 1949

ORGANIZATION AND PERSONNEL

Number of employees on roll:	Beg. of Month	End of Month
Community Administration	6	6
Community Accounting	27	28
Community Public Works	429	433
Community Safety	3	3
Community Commercial Facilities	16	16
Community Housing	38	38
Community Fire	137	133
Community Patrol	84	83
Community Activities	18	19
	758	759

Changes in the force of the Community Divisions during the month of July, 1949, were as follows:

	Reduced	Increased
Community Administration	-	-
Community Accounting	-	1
Community Public Works	-	4
Community Safety	-	-
Community Commercial Facilities	-	-
Community Housing	-	-
Community Fire	4	-
Community Patrol	1	-
Community Activities	-	1
	5	6

TOTAL INCREASE, July, 1949 = 1.

GENERAL

Sales of various basic items indicate little or no change over the previous month.

Sowell's Malt Shop opened for business, and two new facilities began construction on buildings.

A combined water usage peak for the 700, 1100, 3000 and 300 areas amounted to 28.2 MG on July 14, 1949.

Washington State Highway Patrol established offices in the 770 Building during the month of July to renew drivers' licenses.

A total of thirty-nine fire alarms were received, four of which were off of the Project.

COMMUNITY DIVISIONS
PUBLIC WORKS DIVISION
JULY 1949

ORGANIZATION & PERSONNEL

Number of employees on payroll:	Exempt	Non-Exempt	Total
June 30, 1949	56	373	429
July 31, 1949	56	377	433

Personnel changes made during the month:

New Employees	1	13
Transfers - From Maintenance Divn.		3
" Power Division		1
" Transportation Divn.		1
- To Power Division		9
" Electrical Division		1
" Comm. Activities	1	-
Returned from sick leave		1
Terminations		5

GENERAL

Effective July 1 responsibility for the direction of maintenance of parks and public buildings was transferred to the Activities Division. Actual grounds maintenance work will still be performed by the Public Works labor section employees at the request of the Activities Division.

On July 14, 19.2 m.g. of sanitary water, plus approximately 9 m.g. of irrigation water, was used in Richland, 3000 area and the 300 area. This water was supplied from the Richland Water supply system and the irrigation system. This peak was reached after several successive days of above normal temperatures. Since this was the approximate maximum production with the installed equipment it appeared questionable whether the system would stand this heavy pumping load. Temperatures dropped, however, and an additional 1000 gpm pump was installed in 1100-8 well, on project C-336-R, and ready for operation by July 26, 1949.

It is not expected that any criticle period will be reached from this point on as temperatures are generally lower in August than July according to statistics. Publicity is being furnished the local newspapers, however, in an effort to discourage residents from wasting water by careless and improper irrigation methods.

The roof maintenance contract with the Lone Pine Roofing company for 1332 prefabs expired July 31 and an extension of the contract was not granted. A request has been made by the Housing Division to prepare information for submitting invitations to bid on a similar type contract for the coming year.

Community Public Works Division

General (Continued)

Unit costs have been prepared and made available to the Tenant Relations group for use on back charge work to be done for tenants by General Electric mechanics after August 1, in accordance with the new housing contract. It is not expected that the number of calls of this nature will be great; rather it is felt that tenants will perform the bulk of these jobs themselves or make other arrangements for performance of the work.

On July 1 a service order repair crew was organized and commenced operation under the new centralized and cost recording plan. One foreman supervises the crew, consisting of 5 electricians, 5 plumbers, 2 glaziers, 2 locksmiths, 2 carpenters, 2 millwrights and one clerk. The mechanics perform patrol order work and record the time they spend on each job so that accurate maintenance costs may be established. The method appears to be very effective, and it is expected that reduced costs will result.

PROJECTS

C-146 - Extension to present irrigation system: This project was closed during the month, and a report written summarizing all work completed under the project.

C-274 - Central Fuel Oil Storage: This project is 100% complete

C-282 - Rev. - Dust and Pollen Control Program: A survey of the condition of street trees has been started to determine the number of replacements required. Routine maintenance was the only work done in the nursery.

Tests were started to determine the feasibility of introducing other plant material more tolerant to alkali in those areas where a large percentage of the plants were killed due to excessive alkali.

C-336 - Additional Water Supply, Well 1100-8: This job was completed to the extent of the pump operating and connected to the 30" water main on July 22. At months end all pipe work was completed, all concrete poured, all electrical work completed, and other work constituting in all 93%. Some back filling, clean up, and painting have yet to be performed.

ENGINEERING SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
June 30, 1949	16	11	27
July 31, 1949	16	11	27
Personnel changes made during the month:			
Transferred to Commercial Act.	1		
New Employees	1	1	
Terminations		1	

Community Public Works Division

ENGINEERING SECTION (Continued)

General

The following routine items were processed during the month:

Requisitions	47
Store Stock Requests	4
Store Stock Adjustments	2
Purchase Orders Expected	12

Stock of Stores items which were used only in maintenance of school buildings were turned over to School District No. 400 and the items cancelled.

C. E. Lange was appointed chairman of the Architectural and Civil Standards Committee.

C. E. Lange attended a meeting, in Seattle, Washington, of the 14th Annual Institute of Government on July 12 and 13.

The following Engineering Service Requests were completed:

Job. No.	Description	Remarks
149-CM	Addition & Alteration to Fire Station #2.	Comp. 7-28-49
197-PW	Irrigation Ditch Weed Control	" 7-13-49 Report No.27
208-PW, 2-H	Control of Algae	Comp. 7-5-49 Recom. Report #28
228-CH	Attic Duct Insulation, 449 Precut Houses	Comp. 7-8-49
229-CH	Cleaning Coal-fired furnaces, 2500 Conventional houses	Comp. 7-25-49
234-CF	82-X Bldg. Study & Report prior to Use	Comp. 7-20-49
236-PW	Water Line to Tract House K-781	Comp. 7-19-49

Technical information and instructions were furnished the following prospective facility operators:

Diettrich Food Store - Duportail and Wright
West Side U. P. Church - Wright and Lee
House Dry Cleaning Plant (Redesign)
Johnson Hobby Shop (Bldg. 82-X)

Plans were started for redecking the Bailey Bridge. The present planking is breaking up under the heavy traffic. The use of a metallic tread is being studied.

Community Public Works Division

ENGINEERING SECTION (Continued)

The status of facility sponsored construction is as ollows:

Block's Shoe Store - Construction started 4-21-49, 85% complete

Carlston & Hansen - Construction started 5-18-49, 70% complete

Densow's Drug - Construction started 6-22-49, 35% complete

Theater - Awaiting detailed plans and specifications

Angerman - Women's apparel - Awaiting preliminary plans.

House Dry Cleaners - Awaiting detailed plans and specifications.

Anderson Motors - Construction started 7-5-49, 5% complete

Shell Service Station - Construction started 4-13-49, 85% complete

Sowell's Fountain - Complete

Yakima Tent & Awning - Construction started 3-9-49, 99% complete

Mickey's Shoe Renew - construction started 6-28-49, 65% complete

Dawson & Richards - Final inspection to be made.

Mobiloil Service - Construction Started 6-21-49, 50% complete

Davis Furniture - Construction Started 6-8-49, 35% complete

Morgan's Warehouse - Final inspection to be made

Washington Investment, Construction started 5-24-49, 70% complete

National Bank of Commerce - Awaiting award of contract.

Standard Service Station - Construction started 4-1-49, 65% complete

Hanson Barber Shop, Construction started 6-21-49, 35% complete

Union Oil Service, Construction started 5-2-49, 70% complete

NW Fuel & American Lumber - Construction started 6-30-49, 60

Davis & Walker Auto Parts - Awaiting start of construction.

Bozo's Drive Inn , Awaiting detailed plans.

Dietrich Food Store - Preliminary plans being reviewed.

Kaiser & Johnson Food and Drugstore - Awaiting detailed plans.

4.

Community Public Works Division

ENGINEERING SECTION (Continued)

The status of Community Activities sponsored construction is as follows:

L. D. S. Church - Construction stopped

S. S. U. P. Church - Final inspection to be made.

Richland Baptist - Final inspection to be made

Assembly of God - Awaiting re-submittal of plans.

Church of the Nazarene - Construction started 4-12-49, 35% complete.

Church of Christ - Awaiting detailed plans

Richland Lutheran - Construction started 4-8-48, 50% complete.

Junior High School #2 - Preliminary plans being reviewed

New Elementary School - Awaiting preliminary plans.

Sacajawea Grade School Improved Heating Facilities - Detailed plans being reviewed.

Sacajawea Grade School, Cafeteria Addition - Detailed plans being reviewed.

Complete new sidewalks were put in at 90 and 92 Hodges Court to raise them to ground level, and a drainage ditch was provided at the rear of 90 Hodges Ct. to Howell Ave.

The inverted syphon that was placed in the culvert on Van Giesen Road to make clearance for 30 inch water line clogged up during the month and it was practically impossible to open, since a large log had lodged in the syphon. Had a protective grill been installed this additional expense to the Community would have been avoided. The grill over the box sewer was so coarse that a small child could get through, making a very serious hazard. This was also corrected by community forces.

The plywood doors on the closets in the ranch type houses show warping of 1 inch or more so that the doors cannot be opened or closed.

It was necessary to cut out drainage ditch the entire length of the 1700 block between Davison and Hunt north of Wordrop and reseed in order to eliminate a poor drainage condition.

Community Public Works Division

MAINTENANCE SECTION

Organization & Personnel

Number of Employees on Payroll:	Exempt	Non-Exempt	Total
June 30, 1949	18	154	172
July 31, 1949	18	159	177

Personnel changes made during the month:

New Employees	3
Transfers - From Maintenance Divn.	3
" Power Division	1
- To Electrical Divn.	1
Returned from Sick Leave	1
Terminations	2

General

During the month 57 renovations were completed of which 39 were permanent type houses and 18 were prefabs. One of the permanent type houses was a complete paint job. Thirty-one were partially painted, and 8 were cleaned only. Four of the prefab renovations were complete paint jobs, 9 were partially painted and 3 were cleaned only. There were on hand at the end of the month 17 orders for renovations not completed. A minimum amount of repair painting and cleaning was done in houses which were renovated this month.

On the exterior paint program 128 conventional houses were repaired and completely painted. 76 houses were sprayed (shakes) in Division VII. This completes all spray work in this division. Percentage of completion for Division VII as of the end of the month is 95%.

The bleachers on the softball and hardball fields were sprayed with one coat of deep green paint, and painting of the football bleachers on the east side of the field is now in progress.

Sixteen bathrooms were caulked and enameled; tile board was installed in twelve.

Street and curb painting is in progress.

Spraying shakes as first step in exterior program for the Commercial Facilities will be started Monday, August 1, at 4:12 AM.

Laundry trays were replaced in 4 homes, hot water heaters in 10, bath tubs in 9, kitchen sinks in 8, and wash basins in 2. Shower stalls were repaired in six prefabs.

Eleven household refrigerator units were changed, 16 ranges were rebuilt, 123 dining room fixtures were changed in prefabs.

Community Public Works Division

MAINTENANCE SECTION (Continued)

A new sidewalk, 55 feet long, was installed on each side of Torbett Street west of Wright, also laid 70 feet of new sidewalk north of the new malt shop.

Extension of water service from K-777to K-778 is approximately 85% complete. This will also feed domestic water to K-781.

Tract house at 507 Barth was connected to the main sewer line and the cess pool filled.

The annual repacking of valves in the steam trunk lines is complete with the exception of the boiler house and the line immediately out of the power house.

Richland No. 15 domestic water well pump was removed; repairs included the installation of a new turbine.

A two inch water line was installed for domestic service to new coal facility operator's building.

Number 2 boiler overhaul at the 784 building is completed and Number 3 overhaul is in progress.

A 24 inch roof vent was made and installed at Kadlec hospital. Also, an exhaust fan was installed over new autoclaves and an ice machine was installed, including the lining of the ice bin.

Desert coolers were installed in the Hospital kitchen, 713-A, 705 building and 720 building.

Installation of steel fire proof windows in 703 building vault is 50% complete.

The fire alarm detector system in hutments 712-A and 712-B was completed.

Inspection of elevators and of the Bailey Bridge have been made.

UTILITIES SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-Exempt	Total
June 30, 1949	9	65	74
July 31, 1949	9	59	68

Personnel changes made during the month:

New Employees	1
Transfers - From Labor Section	2
- To Power Division	9
Terminations (Retirement)	1

Community Public Works Division

UTILITIES SECTION (Continued)

General

After discussions with the Labor Relations and Wage Rate Division a classification of "Power Operator - Journeyman" was established for the day operator at the sewage disposal plant as a result of the increased load at the enlarged disposal plant.

Steam facility operations were normal throughout the month. Routine overhaul and maintenance work on all steam facility equipment in preparation for the coming heating season is about 90% complete. Routine maintenance and valve repacking on the steam distribution has been scheduled a section at a time to keep the interruption of service to a minimum. All shut downs have been scheduled during the normal working hours.

On Saturday July 23 the pump shaft packing gland blew out on Richland #12 well, allowing water from the well pump to get into the motor. The motor windings were damaged. The motor was taken out and sent to Area Shops for repairs.

Some difficulty is still being encountered with sand in the domestic water lines. An average of about five calls each week have come in from tenants complaining about sand in their water. When ever a complaint comes in, the water mains in the immediate vicinity are thoroughly flushed. This practice seems to relieve the situation considerably. This is done in addition to the scheduled flushing program.

Operations at the disposal plant were normal throughout the month. The digestors at the new disposal plant are producing more gas than is necessary to be self sustaining. A considerable amount of maintenance work and equipment adjustment has been done during the month. Some difficulty is being encountered with the alignment of the mixers on the new primary digestor.

Irrigation system operations were normal throughout the month. The main irrigation ditch was treated for aquatic weed control on July 6, 1949. The treatment was apparently very effective. It was necessary to shut down all irrigation stations for about six hours while the chemical solution passed through the ditch.

A fire hydrant on the east side of the Multiple Apartments pulled away from the water main at a dresser coupling. This was caused by a large slab of concrete poured around the hydrant base by construction. The slab settled, causing the hydrant to pull away from the water main. It was necessary to remove the fire hydrant and break the concrete away. The dresser coupling was removed and the hydrant connection was welded.

SEWAGE TREATMENT PLANT REPORT

Sewage Flow:	104. M.G.	Average rate of flow:	2330 G.P.M.
Avg. daily flow:	3.355 G.P.D.		
Chlorine Used:	8894 lbs.	Lime Used:	3075 lbs.

MONTHLY REPORT OF UTILITY OPERATIONS

Period from July 1, 1949 to July 30, 1949

STEAM

784 Bldg.	Total M. Gal.	Total M. Lbs.	Rate	Unit
Water Softened	1456.0	12,143.	32.62	G.P.M.
Steam to Auxiliaries		1,735.	2332	Lbs/Hr.
Boiler Feed Water		13,878.	18653.	"
Steam Generated		10,841.	14571.	"
Blowdown		3,037.	21.88	Percent
Steam leaving plant		9,106.	12239	Lbs/Hr.
Coal Consumed		1,825.	2453	"
Coal Received		1,530.7		
Coal in storage		9,843.5		

B.T.U./Lb. Dry Coal	10,683	Salt Used, Lbs.	1200
Evaporation/Lb. Coal	5.94	Sulphuric Acid Used, lbs.	5248
Average CO_2 -%	7.4	Posphate Used, lbs.	40
		Sulphite Used, lbs.	10

WATER ANALYSIS - PPM	RAW Average	SOFT Average	BOILER Maximum	BOILER Minimum
Phenolphthalein Alkalinity	---	---	180	38
Methyl Orange Alkalinity	207	23	230	92
Chlorides	19	20	190	92
Hardness	139	22	---	--
Phosphate	---	--	21	5
Sulphite	---	--	70	15

DOMESTIC WATER SYSTEM

PRODUCTION:

	Well Production Million Gals.	Average Daily Prod. M.G.D.	Average Rate Prod. G.P.M.	Chlorine Used/lbs.	Average CO Res.
Richland	168.9877	5.451	3786	1646	0.25
North Richland	227.3480	7.334	5093	3750	0.75
Columbia Field	83.5812	2.696	1872	613	
Total	479.9169	15.481	10751	6009	

CONSUMPTION:

	Total Consumption Million gallons	Average Daily Consumption Million G.P.D.	Average Rate of Consumption G.P.M.
Richland	380.0772	12.261	8514
North Richland	64.3116	2.075	1441
300 Area	34.0344	1.098	762
Total	478.4232	15.434	10717

Maximum Daily Production, M.G. 18,6548 Date July 15, 1949
Maximum Daily Consumption, M.G. 19.2 Date July 14, 1949

Community Public Works Division

LABOR SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-Exempt	Total
June 30, 1949	11	141	152
July 31, 1949	11	146	157

Personnel changes made during the month:

New Employees	8
Transfers - From Transportation Divn.	1
- To Utilities Section	3
Terminations	1

General

Twenty five work orders were completed during the month on miscellaneous excavations, and nineteen are partially completed. 1200 feet of excation and backfill for domestic water service to tract houses K-778 and K 781 is 95% complete.

Installation of 1500 feet of retaining wall for "blow sand" west of Cottonwood and Elm streets has been completed. Approximately 1100 discarded railroad ties were utilized for this construction.

Grounds maintenance consisted of mowing, trimming and watering of parks, playgrounds, public areas and cleanup of open areas not seeded.

Five men were engaged in watering and discing of orchards during the entire month. Considerable difficulty was experienced during the month by people driving vehicles in the orchards and destroying irrigation trenches.

Work was started and progressed satisfactorily on patch seeding around school areas. The football stadium was graded and re-seeded.

Irrigation canal maintenance was normal for the month.

Ten lots of personal furniture were handled during the month. Considerable time was expended moving government furniture and fixtures. Warehouse No. 1 in Pasco was vacated with all furniture and fixtures being transferred to Warehouse No. 8. Foreman and crew used in grounds maintenance when not needed for furniture handling.

Garbage and trash collection continued on the usual basis, 5 days a week with the exception of eating facilities which require a Saturday pick up. Residential trash collections were made on Wednesday of each week.

Road, street and walk maintenance continued throughout the month. Considerable patch work was accomplished during the month. A section of George Washington way north of Swift was torn up and reprocessed.

Community Public Works Division

LABOR SECTION (Continued)

Fuel Inventory

COAL

On hand - beginning and end of month 1,078,700 pounds
No receipts
No deliveries

OIL

On hand - beginning and end of month 1,911 gallons
No receipts
No deliveries

COMMUNITY DIVISIONS

COMMUNITY ADMINISTRATION

JULY, 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	July
Beginning of month	6
End of month	6

GENERAL

Approvals were received from the AEC for construction of additions to Auxiliary Fire Station in Richland and North Richland, and alterations to the Central Fire Station, Richland, for the purpose of providing facilities to operate the Fire Division on a platoon system.

Appropriation Request No. 62, Watt-Hour Metering of 4,293 Housing Units, was approved by the Appropriations and Budget Committee and Project Proposal C-344 transmitted to AEC for approval.

Appropriation Request No. 63, Steam Line to Multiple Apartments, Richland, was approved by the Appropriations and Budget Committee and request for informal approval forwarded to AEC.

AEC Directive No. HW-143 was issued covering Additional Sanitary Water Supply Well 1100-8.

A total of twenty-three part time business permits were issued during the month of July, 1949.

Recently four Community Council members resigned: Messrs. B. Lih, Councilman-at-large; J. S. Crowder, Councilman-at-large; and E. S. Bell, Councilman-at-large, for the reason that increased responsibility on their jobs demands more of their time and therefore they no longer have sufficient time to devote to the Council duties; and R. H. Kennelly, Councilman representing District III, for the reason that he no longer lives in Richland. Three new members were appointed, to serve the remainder of the terms left vacant by virtue of these resignations, by the Community Council: Mrs. Kay Walton, Councilman-at-large; H. L. Friend, Councilman-at-large; and J. H. Grigg, Councilman representing District III -- one vacancy still remains to be filled for an additional Councilman-at-large. Inasmuch as J. S. Crowder was serving as Mayor of the Council a new Mayor was selected by the Council -- David McDonald.

COMMUNITY COMMERCIAL FACILITIES DIVISION

July, 1949

ORGANIZATION AND PERSONNEL — JULY

Number of employees on payroll:

Beginning of month	16
End of month	16

COMMERCIAL FACILITIES

The following figures indicate trends in commercial activities as related to various basic items:

	June	July
Cafeteria meal customers	50,674	47,953
Percent of room-day occupancy - Desert Inn	63%	57%
Gallons of ice cream sold	6,069	6,169
Carnation milk and cream deliveries	71,964	73,335
Darigold milk & cream deliveries	3,027	2,954
Morning Sun Dairy milk and cream deliveries (Units)	34,148	34,450
Theater customer count	48,957	42,726
Gallons of gasoline sold	131,326	130,816

Total number of Commercial Facilities Operators' employees, full and part-time as of July 31 - 961. This shows a net decrease of 41 from last month's 1002.

Sowell's Malt Shop, located on The Greenway, opened for business July 19.

Mickey's Shoe Renewing held its formal opening of new Luggage Department July 28.

Construction was started on the following facility buildings:

Anderson Motors - 941 Stevens Drive - Construction started July 5.

Northwestern Fuel Company - On by-pass highway, near Wellsian Way - Construction started July 13.

Morgan and Olberg completed construction of a warehouse to provide storage for Thrifty and Pennywise Drug Stores on July 11.

Richland Thrifty Drugs was issued a building permit on July 11 to remove a partition separating the stock-room from retail sales room, to provide more sales space. This work is to be done at Operator's expense.

COMMUNITY COMMERCIAL FACILITIES DIVISION

Richland Shoe Salon was issued a building permit on July 21 to alter and modernize the east and west display windows of existing facility building. This work is to be done at Operator's expense.

The following routine items were processed:

Work Orders	65
Patrol Orders	70
Back Charges	13

Current inventory was taken of Government-owned equipment located in the Junior Chamber of Commerce and the Hi-Spot Club. Due to the change of Operators from Progressive Cafeteria to C. D. Newland, a final inventory was taken of all Government-owned equipment located in the cafeteria.

The sale of Government-owned equipment and fixtures was completed for the following facilities: Safeway Food Store, C. C. Anderson Co., Tidewater Associated Oil Company, True's Oil Company.

CONTRACTS AND NEGOTIATIONS

Supplemental Agreement #II, dated June 1, 1949, was entered into with Vance Properties, Inc., covering the assignment of space in the Desert Inn to John T. Kennell for use as a flower shop.

Supplemental Agreement #IV, dated July 1, 1949, was entered into with Garmo's Food Store, to provide for a fuel allowance to the Operator, owing to the discontinuance of fuel deliveries by General Electric Company to the Facility.

Assignment and Acceptance of Lease, dated June 15, 1949, was entered into, assigning Elmer J. Hanson's right, title and interest as an Individual to Commercial Facility Lease dated May 1, 1949, to Hanson Enterprises, Inc.

Greyhound Post Houses, Inc., Operator of the Richland Bus Depot, was granted permission to sell bottled beer on the premises, with the understanding that it would be necessary for them to obtain a license from the Washington State Liquor Control Board which would permit minors to enter the premises.

Village Taxi was authorized to operate a Hertz Drive UR Self service in connection with the Village Taxi operation.

Vance Properties, Inc. was authorized to install a refrigerated type of air conditioning in the banquet room of the Desert Inn.

Commercial Facility Leases were entered into with the following firms for the construction of buildings and operation of businesses as outlined below:

Deymonaz's Fountain Lunch and Smoke Shop (A. J. Deymonaz and L. F. Deymonaz). Lease dated May 1, 1949.

COMMUNITY COMMERCIAL FACILITIES DIVISION

American Lumber Company - Coal and Fuel Oil Dealership, selling lumber, building materials and allied products. Lease dated May 23, 1949.

Richland Thrifty Drugs - Warehouse. Lease dated April 11, 1949.

Invitations to Bid were mailed on Food Store to be established in the New Commercial Area, Richland.

Bids were received on the following listed prospective facilities to be established in Richland. Awards have not yet been made.

Newspaper

Photographic Studio - New Commercial Area

Super Food Market - New Commercial Area

The proposal of Johnson and Reutlinger, a partnership, of Bremerton, Washington, to operate a gift and traffic appliance department, toy and hobby department, and radio and electrical appliance repair department in Building 82-X was accepted on July 5, 1949. The lessee is in process of remodeling the building and expects to open for business in August.

A radio station award was made to Cascade Broadcasting Company, Yakima, Washington. This Company is expected to construct its own buildings.

A ground location in the existing commercial area was awarded Tri-City Herald for the construction by the Lessee of a building to house an office for acceptance of subscriptions, receipt of classified advertising, collection and transmission of news stories, service of display advertising for merchants, and distribution of newspapers to downtown street sales boys.

REQUESTS FOR ESTABLISHMENT OF BUSINESSES IN RICHLAND

A number of individuals and firms, the majority of which were not interested in constructing their own buildings, expressed a desire during the month to establish and operate businesses in Richland. The types of establishments desired are shown in the following list:

Cabinet Shop
Cigar, Tobacco, Magazine Concession
Electrical Appliance & Repair
Furnace Service
Fur Shop
General Business
Gift Shop
Glass & Paint Store
Insurance Office
Restaurant
Shoe Repair
Watchmaker
Welding Shop

COMMUNITY DIVISIONS

COMMUNITY HOUSING DIVISION

July, 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll	July
Beginning of month	38
End of month	38
Increase	0

RICHLAND HOUSING

Housing Utilization as of Month End

Houses Occupied by Family Groups	Conventional	Block	T	Pre-Cut	Ranch	Prefab	Arts.	Tract	Total
Operations	2184	262		384	862	1085	62	42	4881
Facilities	140	5		21	61	115	2	10	354
Government	101	32		10	23	29	4	4	203
Kellex Corporation		6		2		2	1		11
Morrison-Knudsen	4			1			1		6
Atkinson-Jones	16	18		8	18	9	1		70
J. Gordon Turnbull	1	2		2	2	11	1		19
Giffels & Vallet	2			2	7	7			18
J. A. Terteling & Sons			8	1	1				10
McNeil Construction Co.	1			2		3			6
Newberry Neon Electric	1	2		2		1			6
Urban, Smythe & Warren	2	1		1	1	1	1		7
Robert's Filter	1								1
Graysport Construction				1				7	8
Newport-Kern Kibbe								1	1
Vernita Orchards								5	5
Scott Butner						1			1
TOTAL HOUSES OCCUPIED	2453	328	8	437	975	1264	73	*69	5607
Houses utilized for special purp.								1	1
Houses assigned (leases written)	14	3	1	3	6	16			43
Houses assigned - awaiting tenants	33	2	1	10	19	52	1		118
Government houses - unassigned								**36	36
TOTAL HOUSES	2500	333	10	450	1000	1332	74	106	5805

* Occupancy figure includes 4 houses occupied by Bonneville Power in Priest Rapids and White Bluffs.

** This includes 31 Tract Houses boarded up for salvage.

COMMUNITY HOUSING DIVISION

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2458	51	56	2453	Minus 5
Block Type	324	11	7	328	Plus 4
T Type	8	1	1	8	None
Precut Type	437	14	14	437	None
Ranch Type	974	32	31	975	Plus 1
Prefab Type	1288	36	60	1264	Minus 24
Apartments	71	4	2	73	Plus 2
Tract	69	1	1	69	None
Total	5629	151	172	5607	Minus 22

Dormitory Statistics

Dormitories		Occupants	Vacancies	Total Beds
Men - Occupied	14	480	76	556
Men - Unoccupied				
Women - Occupied	14	*466	126	592
Women - Unoccupied				

Women's Dormitories occupied by:

G. E. Office	1
Education	1
Apartments	1
	31

* This includes space of 6 beds in W-9 being used for Supply Rooms and Dormitory offices.

GENERAL

Allocation Section Statistics

Total houses allocated to new tenants	69
Exchanged houses	32
Moves (within the Village)	27
Total new leases signed	151
Turnovers	1
Houses sent to renovation	49
Houses assigned "As Is"	48
Terminations	55
Total cancellations	172

Tract house L-903 was rented on July 7.

New leases were prepared and mailed to all village tenants during the week ending July 23.

The house move and exchange procedure resulted in 122 requests to move to lower rental housing and 378 requests to move to other type houses. These

people are being called as houses become available. They are being called in the same manner as those on the master list.

TENANT RELATIONS

The processing of Service Orders, Work Orders and Backcharges during the month is as follows:

	Issued from July 1 to 28	Incomplete July 24	Issued Previous Month
Service Orders	4347	1267	3526
Work Orders	430	614	209
Backcharges	69	3	66

76 Conventional houses exterior sprayed shakes as compared to 63 the previous month.

128 Conventional houses exterior painting completed as compared to 44 the previous month.

216 Home fire inspections were reported and processed. 443 Homes were visited.

1,538 Pounds of grass seed were issued as compared to 6,759 pounds the previous month.

ITEMS OF INTEREST	Total Outstanding	Total Outstanding Previous Month
Laundry Tubs	62	25
Bathtub replacement	48	56
Faucets	101	62
Sink Linoleum replacement	48	85
Bathroom painting	18	33
Window glass	130	241

Alteration permits issued during the month of July, 1949 totaled 161 as compared to 326 during the month of June.

Automatic washers	6	Install back door in prefab	1
Air conditioners	83	Buried garbage can	1
Cooling pads in furnace	35	Humidifier in furnace	1
Patio	3	Outdoor fireplaces	3
Fence	13	Tile on bathroom walls	1
Partition basement	1	Seal coal bin	1
Basement excavation	2	Paint outside of house	1
Clothes poles	5	Thermostatic control of furnace	2
Construct driveway	7	Extend roof over back steps	1
Install clothes dryers	4	Construction of dog pen	1
Electrical alterations	3	Install awnings	1
Refinish floors	9	Installation of shelves	1

TENANT RELATIONS

1,013 Inspections were made during the month of July. A breakdown of the inspections shows the following distribution.

Linoleum	153
Shades	84
Grass Seed	108
Sidewalks	75
Walls	81
Bathtubs	55
Top Soil	53
Lot Lines	37
Floorboards	32
Leaking basements	6
Miscellaneous	329

In addition to the above, field clerks have contacted tenants in regard to watering of inner-block areas, and made calls on tenants who are parking on lawns and driving on seeded areas.

M. S. Warehouse Monthly Report for July, 1949.

Orders Handled for July, 1949		Items
Recall Orders	24	154
Delivery Orders	9	23
Dormitory Exchange Orders	15	57
Total Orders	48	234
Received from Maintenance		55
Sent to Maintenance		23
Three-burner ranges exchanged in Village		7
Refrigerators exchanged in Village		18
Trips to Pasco		2
Trips to North Richland		3
Noisy refrigerators adjusted		9
Oven door fixed		1

Tenant Relations Store:

Orders Disbursed	375	
Items Disbursed	1165	
Value	$6,702.26	
Items Received	697	
Value	$13,611.37	
TOTAL M. S. WAREHOUSE INVENTORY		$72,124.07

DORMITORY PROGRESS REPORT FOR JULY, 1949.

GROUNDS Periodic clean-up of miscellaneous trash was accomplished during the month.
Guard post replacement: Due to press of other business this particular item was not finished. Several items of ground maintenance are still pending because of labor shortage. Definite efforts have been made to get these things accomplished.

BUILDINGS Interior redecorating program has been reactivated.
Steam repairs: Orders have been placed for repairs of boiler rooms and allied services.

Orders have been issued for the repair or replacement as necessary of linoleum and stair treads.

A survey was made to determine the feasibility of putting metal trays beneath washing machines to prevent water damage.

Extensive renovation program is in progress on floors. Sample floors have been put up for vendors to exemplify type of materials used.

Washing of blankets is now in progress.

The state bee inspector exterminated a swarm of bees. Type of materials used were approved by Public Health and Safety Divisions.

COMMUNITY SAFETY DIVISION
JULY 1949

ORGANIZATION AND PERSONNEL

Number of employees on Payroll:	July
Beginning of month	3
End of month	3

GENERAL

The Village Safety Committee met this month and determined or passed a resolution that our Public Safety Campaign program should be adopted for the coming twelve months. This campaign will be based on Operation Safety as published by the National Safety Council. Four of these subjects will be held as major campaigns.

The Village Safety Committee also agreed upon the adoption or recommendation of constructing a Highway Bulletin Board at both entrances, the south and the west entrance into Richland. These will be twenty-five by ten feet long, twenty-five feet long by ten and a half feet high. They will be changed four times a year, or each quarter.

The plans for the new Junior High School were reveiwed by this office for safety and fire prevention measures. (The preliminary plans). Also various other plans and specifications were reviewed for new commercial facilities, as well as an addition to the cafeteria and the Sacajawea elementary school.

One radio program has been produced and will be given by the Junior Players, which will be given by children of six to ten years of age over Station K . . I E in conjunction with the August Safety program, "Courtesy and Defensive Driving" which will be carried on throughout the country. Spot announcements will be given over K W I E for the entire month of August.

A number of newspaper articles have been prepared and presented to the publishers.

A bicycle training school has been going on which is sponsored by Richland City Patrol. A good attendance has been experienced.

COMMUNITY FIRE DIVISION

July 1949

Organization and Personnel

Number of employees on payroll	July
Beginning of the month	137
Terminations	4
End of the month	133

	Richland	North Richland
Response to Alarms	30*	9
Fire Loss (Estimated)		
Hanford Works	$190.00	$ 40.00
Personal	135.96	122.00
Investigation of minor fires and incidents	7	1
Safety Meetings held	16	8
Inside Drills	74	30
Outside Drills	66	53
Alarm Boxes Tested	171	74

* Includes 3 off-project fire responses, one of which was mutual-aid call to Pasco grade-school fire on July 26th.

Miscellaneous Fire Department Activities:

1. Conducted safety meeting for 705 Building personnel.
2. Pumped water from siphon at George Washington Way and Van Giesen while maintenance work performed inside siphon.
3. Cleaned weeds and trash from around 8 fire hydrants.
4. Maintained standby with apparatus during controlled burning between Recreation Hall and Tri-City Herald office.
5. Stood by during controlled burning in hazardous area at mixing plant at Davison and Snyder Roads.
6. Stood by while cutting torch was being used on steel poles at Yacht Club.
7. Replaced one defective section of fire hose for house line in 760 Building.
8. Group of 14 day-nursery children were given conducted tour of Richland and North Richland fire stations.

1.

9. Four Boy Scouts were successfully examined for firemanship merit badges.

10. Eight MSA Industrial Masks were tested and new cannisters installed for Construction Safety.

11. North Richland fire truck flushed disposal pump at North Richland Boiler House.

Fire Preventions

Fire Inspections

700 Area Buildings	102
1100 Area Buildings	105
Government Airport Buildings	10
Commercial Facilities (Gov't Owned)	129
Schools, Clubs and Churches	30
Homes	216 *
Dormitories	30
	622

Fire Extinguishers

Inspected	1247
Installed	3
Recharged	15

* 227 "no answers" encountered in addition to above home inspections.

Miscellaneous Activities:

1. All inspectors (3) were detailed to perform the following work during the last two weeks in July:
   a. Repaint, recharging and testing equipment.
   b. Repaint all faded CO2 fire extinguishers.
   c. Graphite pumps on all water pump cans installed in Richland buildings.
   d. Make necessary repairs to old extinguishers in stock.

2. Conducted a safety meeting on "Home Hazards" for employees of Community Carpenter Shop.

3. An outdoor fire extinguisher demonstration and 30-minute talk on "Home, Automobile and Office Fire Hazards" were conducted for 40 employees of the Reproduction Section.

4. All sprinkler systems in Hospital, Public Health and 703 Building were inspected weekly. No reply has been received to our request that Hospital maintenance man be delegated the responsibility of checking and servicing the Hospital systems. The Hospital systems are still leaking and require weekly pressurizing.

2.

5. A report was made in June of the serious weed condition and close spacing of trailers within Abbott Street compound. July inspections reveal no corrective action taken to date.

6. Inspection of the wiring and fusing in Desert Inn revealed that most of the basement circuits were over-fused and overloaded to a point that several fuses were hot to touch. A detailed report was sent to the Commercial Facilities Division.

7. A re-inspection of the Pennywise Drug Store basement revealed that no work has been done to correct the hazards reported May 5th.

8. Inspection of the Progressive Cafeteria revealed that the new operator has installed a maze of temporary wiring with nails and tacks driven through extension cords, circuits over-fused and hot, and fuses and connections inside panel coated with grease and lint. Report of conditions made to Commercial Facilities Division July 18th.

9. Tested fire alarm system at the Desert Inn twice during the month. Tests were satisfactory.

COMMUNITY DIVISIONS

COMMUNITY PATROL

JULY 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	July
Beginning of month	84
End of month	83
Net Decrease	1

Reason: 1 Transfer to Security and Services Division

GENERAL

During the month, periodic checks were begun of Columbia Camp which has been shut down. A temporary post was established there for two days due to a telephone outage.

Beginning Thursday, July 7, and every Thursday, Friday, and Saturday during the month, the State Patrol renewed drivers licenses at Richland Patrol Headquarters with the assistance of Patrol members. This was done to relieve the congestion at the Kennewick office of the State Patrol and as a courtesy to Richland drivers.

During the month of July, 22 prisoners were processed through the Richland Jail.

During the month of July, a total of 48 Unusual Incident Reports were received, which consisted mainly of Public Intoxications, Public Nuisances, Domestic Troubles, and Thefts. Regular Traffic Violation and Offense Statistics are presented in separate tables attached to this report.

TRAFFIC

Traffic accidents in Richland dropped to seven, compared with twenty-five for the same month of last year. North Richland accidents dropped from twenty during July of 1948 to three during July of 1949.

Richland has received recognition in three national magazines, the past three months for an excellent traffic safety record. The National Safety Council rates Richland first in the nation in the ten to twenty-five thousand population group, for low death rate, for the first six months during each of the past three years.

A recommendation for installation of ten traffic signals was forwarded to the Community Safety Committee, July 28, 1949. Locations named are at intersections where surveys have shown a heavy volume of both vehicle and pedestrian traffic.

The Bicycle Safety Training courses were started on July 18, 1949, for all children in Richland between the ages of seven and fifteen. The classes are being conducted at the various schools. It is estimated that approximately 350 children will attend.

TRAINING

Subjects covered in the lieutenant's training classes for the month of July were as follows:

Methods of Patrolling
Fire Watch
Checking of Buildings
Care of Automotive Equipment
Neatness and Personal Appearance
Thompson Machine Gun
Riot Gun
Police Bulletins
Money Wagon

Advance training for Community Patrol members at the Small Arms Range for the month of July was divided into field instruction as follows:

Pistol	2 hours
Machine Gun	2 hours

Progress of scores and qualifications on the Army-L Course:

	May		June		July	
	No.	Percent	No.	Percent	No.	Percent
Unqualified	2	6%	7	10%	4	7%
Marksman	4	11%	9	13%	9	15%
Sharpshooter	7	20%	7	10%	5	8%
Expert	22	63%	46	67%	43	70%

No scores were kept on the Machine Gun Course. Each man, however, fired practice shots and received the regular instructions on the handling and firing of the weapon.

ACTIVITIES AND SERVICES (RICHLAND)

	May	June	July
Check on absentees	8	8	8
*Persons assisted	266	270	236
Doors & windows found open in commercial facilities	24	67	46
Lost children found	15	16	11
Ambulance runs	29	19	30
Lost dogs reported	5	3	4
Dog, cat, loose stock complaints	51	37	67
Persons injured by dogs	14	14	12
Bank escorts & details	37	38	38
Fires investigated	30	23	27
Miscellaneous escorts	27	40	33
Complaints investigated	148	132	106
Missing persons reported	0	5	7
Totals	654	672	625

* Includes: Persons admitted to residence; delivery of messages to residents who have no telephone; relay of messages; handling of requests of out of town police; miscellaneous aids to private parties; and opening trailer parking lot for individuals.

ACTIVITIES AND SERVICES (NORTH RICHLAND)

	May	June	July
Check on absentees	0	2	2
*Persons assisted	251	196	164
Doors & windows found open in commercial facilities	45	9	14
Lost children found	2	4	1
Ambulance runs	6	0	5
Lost dogs reported	0	0	0
Persons injured by dogs	1	0	0
Dog & cat complaints	6	7	5
Bank escorts & details	54	41	14
Fires investigated	8	6	10
Miscellaneous escorts	10	20	14
Complaints investigated	15	12	13
Missing persons reported	0	0	0
Totals	398	297	238

* 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.

COMMUNITY PATROL DIVISION

FORCE REPORT

JULY 1949

Patrol		Entire Patrol 6-30-49	Entire Patrol 7-31-49
Patrol Supervisor		1	1
Captains		5	5
Lieutenants		8	8
Sergeants		11	11
Patrolmen		55	54
	Total	80	79
Clerical			
Steno-Typists		2	2
Clerks	Total	2	2
		4	4
	Grand Total	84	83

PATROL DIVISION - TRAFFIC CONTROL STATISTICS

July - 1949

MOTOR VEHICLE ACCIDENTS:

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	June	July	June	July	June	July	June	July
Richland	14	7	0	0	0	0	2	2
North Richland	6	3	0	0	0	0	0	1
Totals	20	10	0	0	0	0	2	3

ACCIDENT CAUSES:

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Causes	
	June	July	June	July	June	July	June	July
Richland	7	3	4	3	0	0	3	1
North Richland	0	3	4	0	0	0	2	1
Totals	7	6	8	3	0	0	5	2

PLANT WARNING TRAFFIC TICKETS ISSUED:

	Speeding		"Stop" Sign		Parking		Imp. License		Def. Equip.		Other Violations		Totals	
	June	July	June	July	June	Jul.	June	July	June	July	June	July	June	July
Richland	2	1	0	1	70	86	1	0	7	5	1	1	81	94
North Rich.	0	1	1	1	36	11	0	0	3	7	1	0	41	20
Totals	2	2	1	2	106	97	1	0	10	12	2	1	122	114

COURT CITATION TRAFFIC TICKETS ISSUED:

	Speeding		"Stop" Sign		Drunken Dr.		Reckless Dr.		Right of Way V.		Neg. Dr.		Parking V.		Other V.		Totals	
	June	July	June	July	June	July	June	July	June	July	June	Jul.	June	July	June	Jul.	June	Jul.
Richland	30	32	11	10	2	2	2	0	1	2	7	8	6	1	15	13	74	68
N. Rich.	3	7	2	7	5	0	2	1	0	0	3	4	0	1	1	1	16	21
Totals	33	39	13	17	7	2	4	1	1	2	10	12	6	2	16	14	90	89

TRAFFIC VOLUME: Average 24-hour Traffic Volume Count for week ending on July 29, 1949, on George Washington Way at Lockwood Street - 6,973 Cars.

COMMUNITY PATROL DIVISION
RICHLAND JUSTICE COURT CASES
JULY 1949

VIOLATION	NO. OF CASES	NO. OF CONVICTIONS	TOTAL FINES	TOTAL SUSP.	SENTENCED TO JAIL	SENTENCE SUSP.	LICENSE REVOKED	AVERAGE FINE PAID	CASES DISMISSED	WARRANTS ISSUED
Drunken Driving	2	2	$130.00	0	0	0	2	$65.00	0	0
Reckless Driving	1	1	$37.50	0	0	0	1	$37.50	0	0
Negligent Driving ****	6	6	$147.50	0	0	0	0	$24.58	0	0
Speeding *	42	42	$465.50	$10.00	0	0	0	$11.09	0	3
Stop Sign ***	10	10	$57.00	$5.00	0	0	0	$5.70	0	0
Following to Closely **	1	1	$7.50	0	0	0	0	$7.50	0	0
Failure to Observe Traffic Light	1	1	$7.50	0	0	0	0	$7.50	0	0
Driver's License	1	1	$7.50	0	0	0	0	$7.50	0	0
Imp. Passing	3	3	$17.50	$5.00	0	0	0	$5.83	0	0
Delaying Officer	1	1	$17.50	$17.50	0	0	0	$17.50	0	0
Imp. Parking	1	1	$3.50	0	0	0	0	$3.50	0	0
Public Intoxication	9	9	$102.50	$20.00	0	0	0	$11.39	0	0
Public Nuisance	3	3	$52.50	0	0	0	0	$17.50	0	0
Vagrancy *****	2	2	0	0	2	0	0	0	0	0
Petit Larceny	1	1	$27.50	0	0	0	0	$27.50	0	0
Third Degree Assault	1	1	$27.50	0	0	0	0	$27.50	0	0
Indecent Exposure	2	2	$2.50	$12.50	1	1	0	$1.25	0	0
Unlawful Discharge of Firearms.	1	1	$2.50	$22.50	0	0	0	$2.50	0	0
	88	88	$1,113.50	$92.50	3	1	3	$280.84	0	3

Total Fines	$1,113.50
Less Suspensions	$92.50
Total Fines Rec.	$1,021.00

* 6-cases included with other violations.
** 1-case included with other violation.
*** 1-case included with other violation.
**** 1-case included with other violation.
***** 1-case included with other violation.

Note: Rape - 1 case brought in on Warrant. Taken to Prosser, Wn., to await trial in Superior Court. Charge reduced to "Indecent Liberties with a Minor".

Sodomy - 1 case turned over to Sherrif, in Benton County and taken to Prosser, Wn., to await trial in Superior Crt/ Grand Larceny - 1 case taken to Prosser, Wn., to await trial in Superior Court.

Community Patrol Division

CRIME PREVENTION SECTION
MONTHLY REPORT
JULY, 1949

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Offenses June	Actual Offenses July	Offenses Cleared By Arrest	Offenses Cleared By Other Action	Perpetrators Involved	
Assault	2	0	3	2	1	0	1	
Attempted Arson	1	0	0	1	0	0	u	
Breaking and Entering	2	0	2	2	0	0	u	
Attempted Brk. & Entering	1	0	0	1	0	0	u	
Larceny (Except Auto & Bike)								
Over $50.00	8	0	6	8	1	0	1	a
Under $50.00	17	1	15	16	0	11	13	b
Larceny by Check	1	0	0	1	0	1	1	
Bike Theft	6	0	17	6	0	5	1	c
Destruction of Personal Prop.	0	0	2	0	0	0	0	
Destruction of Gov't. Prop.	1	0	3	1	0	1	1	d
Loss or Theft of Gov't. Prop.	2	0	4	2	0	1	2	
Tampering With U.S. Mail	1	0	0	1	0	1	1	e
Disorderly Conduct	1	0	1	1	1	0	1	
Drunkenness	8	0	5	8	8	0	8	
Disturbance	3	0	4	3	0	3	6	f
Narcotics	0	0	1	0	0	0	0	
Missing Persons	2	0	6	2	0	2	2	g
Offense Against Family & Children	3	0	2	3	0	3	6	
Pickup for Outside Agency	1	0	0	1	0	1	1	
Prowlers	1	0	1	1	0	0	u	
Public Nuisance	3	0	2	3	3	0	3	
Mental Case	0	0	1	0	0	0	0	
Co-Habitation	1	0	0	1	0	1	2	
Indecent Liberties With Minor.	1	0	0	1	1	0	1	
Lewdness	4	0	1	4	2	2	4	
Sodomy	1	0	0	1	0	1	1	h
Vagrancy	2	0	0	2	2	0	2	
Vandalism	6	0	6	6	0	2	5	i
Impersonation	0	0	1	0	0	0	0	
Miscellaneous	9	1	7	8	1	6	6	j
Juveniles (Other Than Above)	1	0	1	1	0	1	3	k
Malicious Mischief	5	0	1	5	0	5	8	l
(See Page Two) TOTALS	94	2	92	92	11	47	69	x

a--1 Case Perp. by 1 Juv. Age 19.
b--1 Case Perp. by 1 Juv. Age 8.
1 Case Perp. by 1 Juv. Age 15.
1 Case Perp. by 2 Juv. Ages 9 & 11:
4 Cases Perp. by 8 Juv. Ages 13,14,15, & 16.
c--1 Case Perp. by 1 Juv. Age 14.
d--1 Case Perp. by 1 Juv. Age 17.
e--1 Case Perp. by 1 Juv. Age 8.
f--1 Case Perp. by 4 Juv. Ages 14.
1 Case Perp. by 1 Juv. Age 18.
g--2 Cases Perp. by 2 Juv. Ages 8.
h--1 Case Perp. by 1 Juv. Age 14.
i--1 Case Perp. by 2 Juv. Ages 6.
j--1 Case Perp. by 1 Juv. Age 16.
1 Case Perp. by 2 Juv. Ages 14:
k--1 Case Perp. by 3 Juv. Ages 15,16, & 17.
l--1 Case Perp. by 2 Juv. Ages 8.
1 Case Perp. by 2 Juv. Ages 6 & 8.
1 Case Perp. by 1 Juv. Age 19.
1 Case Perp. by 2 Juv. Ages 17 & 18.
1 Case Perp. by 2 Juv. Ages 14 & 18.

x--4 of the Perp. Involved are Colored.
u--Represents Unknown.

Property Recovered for the Month--$480.28

Number of offenses known to police per 10,000 inhabitants in cities between 10,000 and 25,000 inhabitants:

Classification	Wash. Oregon & Calif. Six Months (Jan-June 1948)	Wash. Oregon & Calif. One Month Average	Richland and North Richland Six Months (Jan-June 1948)	Richland and North Richland June 1949	Richland and North Richland July 1949
Murder	181	.031	0	0	0
Robbery	3.47	.58	1.00	0	0
Aggravated Assault	1.75	.29	6.66	2.00	1.33
Burglary	35.69	5.95	4.63	1.33	2.00
Larceny	127.06	21.18	47.16	20.0	20.6
Auto Theft	15.56	2.59	3.10	0	0

Number of offenses known to police per 10,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

Classification	State of Washington Six Months (Jan-June 1948)	State of Washington One Month Average	Richland and North Richland Six Months (Jan-June 1948)	Richland and North Richland June 1949	Richland and North Richland July 1949
Murder	.140	.023	0	0	0
Robbery	4.90	.82	0	0	0
Aggravated Assault	.78	.13	6.66	2.00	1.33
Burglary	36.91	6.15	4.63	1.33	2.00
Larceny	92.22	15.37	47.16	20.00	20.6
Auto Theft	18.15	3.03	3.10	0	0

The portion of offenses committed by persons under the age of 25 years, is shown by the following figures:

Classification	National Average Six Months (Jan-June 1948)	Richland and North Richland Six Months (Jan-June 1948)	Richland and North Richland June 1949	Richland and North Richland July 1949
Robbery	55.5	0	0	0
Burglary	59.9	8%	0	0
Larceny	45.2	13%	10%	48%
Auto Theft	71.6	0	0	0

Note: Statistics of Juvenile offenses throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation, which states: "It should be remembered that the number of arrests recorded is doubtless incomplete in the lower age groups because of the practice of some jurisdictions not to fingerprint youthful offenders."

COMMUNITY DIVISIONS

COMMUNITY-ACTIVITIES DIVISION

July, 1949

ORGANIZATION AND PERSONNEL

Number of employees on roll

Beginning of month		18*
Additions (full-time)	1	
Terminations	0	
End of month		19

*Seven summer part-time recreation employees.

Effective July 5, 1949, Mr. W. R. Jones was transferred to the Community - Activities Division from the Public Works Division - Community Engineering Section as a landscape architect. Mr. Jones duties will include the planning, developing, and maintenance supervision of all park and recreation areas operated by the Community - Activities Division.

SCHOOLS

Retroactive to July 1, 1949, as recommended by the Community - Activities Division on June 6, 1949, the assignment of maintenance and utilities for school buildings to School District #400 was approved by the Atomic Energy Commission on July 21, 1949. Arrangements have been made for the transfer of all functions previously assigned to the Community - Activities Division to the School District or the Community Management Section of the Atomic Energy Commission.

For one week during the month a School District employee worked with Activities Division personnel learning procedures for scheduling and billing school facilities.

As soon as possible electric meters will be installed in all school buildings. In the interim period the School District is being billed for all utilities services on an estimated basis.

Until such time as the School District is able to perform certain types of maintenance including lawn mowing, electrical, and plumbing the General Electric Company has agreed to perform the required work, where possible, on a backcharge basis.

On July 28, 1949, a meeting was held with representatives of the Community - Housing Division, Atomic Energy Community Community Management, and the Community-Activities Division to arrange for the transfer of functions, including housing allocation and records, personnel clearance, building inspections, and other administrative relationships, to the Atomic Energy Commission.

Invitations to bid for the completion of the extension of the steam line from the central heating plant and for the pipe work within the North Richland John Ball Grade School are to be issued August 8,. The total work is scheduled for completion in advance of the heating season.

CHURCHES

The following is a tabulation of full-time paid personnel, as of July 31, 1949:

	Ministers	Staff	Total
Assembly of God	1	0	1
Catholic	2	2	4
Central United Protestant	2	2	4
Church of Christ	1	0	1
Church of God	1	0	1
Episcopal Church	1	0	1
Free Methodist	1	0	1
Mission Baptist	1	0	1
Mo. Synod Lutheran (Redeemer)	1	1	2
National Lutheran	1	2	3
Nazarene	1	0	1
Regular Baptist	1	0	1
United Protestant - North Richland	1	0	1
United Protestant - West Side	1	0	1
United Protestant - South Side	1	0	1
United Protestant - Northwest	1	0	1
	18	7	25

The lease form for all organizations constructing buildings at their own expense was approved by the General Electric Company and the Atomic Energy Commission legal authorities July 8.

On July 18, the signed lease for the Church of Jesus Christ of the Latter Day Saints was submitted to project authorities for execution.

Preliminary sketches and floor plans of the Northwest United Protestant Church were reviewed by the Activities Division on July 11. This church site is located on Sacramento Avenue north of Spalding Grade School. These sketches were forwarded to the Community-Public Works Division, Engineering Section, for approval. prior to granting approval in principle of the site to the church.

The Nazarene Church, located at the corner of Wright and Humphries, is 80% complete. All of the work done on this building is by volunteer labor of the church members.

The addition to the Richland Lutheran Church, located on the corner of Van Giesen and Stevens Drive, is 90% complete.

It was announced that on July 28 the Richland Baptist Church will start making a door to door census of the people in Richland to interest unaffiliated Baptist and other interested persons who do not have a church affiliation.

COMMUNITY ORGANIZATIONS & CLUBS

The Richland American Legion sponsored "Fourth of July Day" for residents of Richland. A "kiddies" parade was held in the afternoon with the Ninth Infantry Band from Fort Lewis and the Legion Drum and Bugle Corp from Yakima providing the marching music. Contests for children were held on the Legion grounds after the parade. A fireworks display was held in the Bomber Bowl in conjunction with concerts given by the Infantry Band and the Drum and Bugle Corps. It was estimated that 5,000 people attended this affair.

At 8:30 PM on July 14, the first Village Band Concert, sponsored by the Richland Junior Chamber of Commerce, was held. These concerts were held every Thursday evening during July at the Village Park. At each concert a community organization was honored. The first August concerts will be held in connection with Atomic Frontier Days.

On July 13, representatives of the Fire Protection and Community-Activities Division inspected all clubs and organizations leasing buildings in Richland. Also, all churches were inspected.

On July 18, the Traffic Division of the Richland Patrol sponsored their annual Bicycle Safety School. This school will be continued through August 10. The program is of two-and one-half hours duration each day and is being held at the elementary schools.

Flood lights and convenience outlets were installed at the Columbia playfield tennis courts. This installation permitted the Richland International Folk Dancers to move their program from the Sacajawea Gymnasium to the tennis courts on July 13.

As of July 29, 1949, organizational personal included:

Villagers, Inc.	7
American Legion	2
Coordinate Club	1
Youth Council	1
Boy Scouts	1
Camp Fire Girls	2
Hi-Spot Club	1
Red Cross	3
Castle Club	1
Post Office	62
Veterans Administration	2
Girl Scouts	2
	85

The number and types of organizations presently served by the Activities Division include 13 business and professional clubs, 24 churches and church organizations, 5 civic organizations, 16 fraternal organizations, 8 music and art association, 10 private instructors, 46 recreation and hobby groups, 8 schools and 8 parent teachers associations, 2 social clubs and organizations, 11 veteran and military organizations, 5 welfare organizations, 19 Boy Scout troops, 15 Camp Fire Girl troops, 42 Girl Scout troops, 8 other youth groups, and 11 miscellaneous organizations.

On July 12, 1949, the regular monthly meeting of the Recreation Advisory Committee was held. New Organizations requesting approval include: Chess Club and Richland Glider Club. These organizations were approved by the Atomic Energy Commission August 2, 1949.

Seventy-three Brownies and Girl Scouts participated in the day camp held from July 12 to July 21 in the Village Park.

The Richland Camp Fire Girls Day Camp was conducted in the Richland Park for two weeks beginning July 26 with 95 girls enrolled.

On July 31, beginning at 12:00 the Richland Boat and Yacht Club held open house. During the open house the $200 High Water prize was given and $85.00 was given to the Swimming Pool Association as their share of the receipts.

RECREATION

On July 5, arrangements were made for assignment of space for playground recreation publicity in the Villager. The recreation program in general has been awarded one page in the paper which is to include pictures of special activities.

Mrs. Dorothy Liddick, Social Service Worker of the Public Health Division, met with the Recreation Section to discuss plans and feasibility of correlating activities of the Social Service child cases with activities of the Recreation Section. General procedure was worked out whereby Mrs. Liddick will bring various members of her group to the park and make the initial contacts with the play leaders and suggest various types of activities which might be of benefit to the children.

Special programs conducted at the Village Park included the Pet Parade on July 6, with fifty-five entries; Yo-Yo Demonstration and Contest, July 5 to July 8; Doll Show July 13, with sixty-five entries; On Wheels Parade, July 20 with nine entries; Smile Contest on July 27, with 158 children participating. Spectator interest in all of the above events has been very good.

On July 28, a Folk Dancing Class was started in the south end of the Recreation Hall under the direction of the Recreation Section. The participation and interest in this phases of the program has been very good.

The total attendance at the swimming pool for the month was 21,666. The peak pool attendance days were July 9, 10, 11, 12, and 13, with a capacity of 1050 each day, the low attendance was on Sunday, July 29, with 156 swimmers.

The average weekly participation in activities at the Village Park was 2,200. The average weekly attendance at the school locations was 246.

The Junior Theater group of the park recreation program will present "Papa Pompino and the Prizefighter" as their feature performance of the summer. Casting has been completed and the Juniors will present the play during the first week in September at their theater in the Village Park.

Community - Activities Division

Effective August 1, the recreational activities at school centers will be discontinued and this part of the program will be conducted at the Grange Hall Park and Playlot, at Stevens and Van Giesen Streets. This change is being made because of the fact that attendance at the school centers is not adequate to justify the program. However, attendance at the Grange Park has been encouraging and facilities at this park are more adequate for general recreational use than those at the school centers.

A pamphlet on "Backyard Play Equipment" has been prepared in conformance with recommendations of the National Recreation Association and the Community Safety Engineer. The publicity has been given in the Villager as to availability and use of the pamphlet and many copies have been picked up by local residents who plan to construct approved home playground equipment.

Arrangements for the State Softball Tournament to be held in Richland August 25 through August 28, are well underway. Several meetings have been held with the President of the Washington State Softball Association in this matter. Arrangements have been made for the use of North Richland barracks to house players and other personnel. Also arrangements have been made to play some games at the Columbia High School Stadium in order to take care of the anticipated attendance. Four hundred portable bleachers are on order and will be delivered in time to use at the Memorial Softball Field during the tournament.

The swimming pool facilities were made available for private swimming parties for the following organizations from 6:45 to 7:45 PM: Central United Protestant Young People - July 1, West Side United Protestant Church - July 18, and Richland Dormitory Club - July 25. The pool supervisor was in charge of the pool and lifeguards were furnished by the organizations.

American Red Cross swimming classes for beginners have been conducted throughout the month each week day, except Wednesday, from 9:30 AM until 12:00 noon. Also evening classes for adults have been held each Tuesday and Thursday from 7:00 to 8:00 PM. Over 300 children and adults have participated in this program during July. Junior and Senior Life Saving classes were also included. On July 21, 16 Red Cross Beginners Swimming Certificates were awarded to Richland children.

On July 5, a group of 45 teachers from the Central College of Education at Ellensburg, Washington were conducted on a tour of Richland and North Richland by a member of the Community - Activities Division. This was the second annual tour of the teachers in the Richland area. Professor R. M. Shaw of the college's division of Social Science and History was in charge of the party.

The Second Annual Atomic Frontier Days program has been set for August 12, 13, and 14. The general program will consist of the following events:

1. Kangaroo Court - August 8 - 11, Biddle Street.

2. Show - 8:30 PM, Friday, August 12, High School Stadium.

3. Fire Works Display - 10:30 PM, Friday, August 12, Village Park.

4. Parade - 9:30 AM, Saturday, August 31.

5. Events and Contests - 1:00 PM, Saturday, August 13 at Village Park.

6. Show - 8:30 PM, Saturday, August 13 at High School Stadium.

7. Church Service - 8:00 AM, Sunday, August 14, at High School Stadium.

8. Model Plan Contest - Sunday afternoon at the High School football area.

9. Exhibits - South End of Recreation Hall - Sunday 11:00 AM, to 6:00 PM.

The concession booths will be located on Lee Blvd. east of the Library. All streets and driveways leading to this area will be barricaded during the entire program activities. The Kangaroo Court will be set up on Biddle Avenue and this street will be barricaded from August 8 through August 11 for this activity. Arrangements have been made with the Richland Youth Council for the use of the south end of the Recreation Hall for exhibits. Several meetings have been held involving various chairmen and members of the Community - Activities Division and arrangements are well underway for the entire program.

MAJOR ACTIVITIES DURING THE MONTH

July	2	Renton vs. American Legion	Memorial Softball Field
	3	Renton vs. American Legion	Memorial Softball Field
	4	Fourth of July celebration	Bomber Bowl and American Legion Building
	13	Fishers Ghosts vs. American Legion	Memorial Softball field
	14	Fishers Ghosts vs. Eagles	Memorial Softball Field
	12-21	Girl Scout Day Camp	Richland Park
	12	Public School Music Institute Concert	Richland Park
	14	First 1949 Park Band Concert	Richland Park
	26 to August 4	Camp Fire Girls Day Camp	Richland Park
	28	Triple Teen Club Parents Night	Spalding Gr. Sch. cafeteria
	29	Third Annual Circus Days	Co-ordinate Club
	31	Boat & Yacht Club	Open House
	31	Fishers Ghosts vs. Terteling	High School Stadium

GENERAL ELECTRIC COMPANY
HANFORD WORKS
COMMUNITY ACCOUNTING DIVISION

MONTHLY REPORT FOR JULY, 1949

ORGANIZATION

Employees Beginning of Month	27	Exempt	6	Male	10
New Employees	1	Non-exempt	22	Female	18
Total	28	Total	28	Total	28

One employee was added to our Cost Accounting Division in order to effect the costing of tenant service orders.

ACCOUNTS RECEIVABLE

RENTS

	JULY	JUNE
House leases processed:		
New leases	162	161
Modifications	None	1
Cancellations	170	168
Active total house leases	5646	5654
Dormitory:		
New assignments	102	99
Removals	97	156
Total	954	949
Rental revenue was as follows:		
Equipment	$ 76.50	$ 104.21
Houses	240,722.52	241,536.11
Dormitories	13,189.52	13,402.47
Facilities	39,940.31	32,140.07
Total	$293,928.85	$287,182.86
Unoccupied house revenue loss	$ 4,695.82	$ 3,882.83
Unoccupied dorm revenue loss	2,607.98	2,395.03

Twelve facilities still have equipment on a rental basis.

All accounting rental records have been revised, and we are ready to begin to collect rental on the basis of the new revised rates effective August 1, 1949.

TELEPHONE

	JULY	JUNE
Number of work orders processed	130	169
Number of working phones	2578	2542
Revenue including services	$5,228.37	$5,054.78

L

COMMUNITY ACCOUNTING DIVISION

The subject of telephone rental rates has again been reviewed, and a firm recommendation is expected to be transmitted to the A.E.C. in the immediate future.

MISCELLANEOUS

There were 93 invoices issued during July accounting for $556.75. Revenue from dog licenses amounted to $10.

Miscellaneous invoices involving tenant service backcharges are expected to increase as a result of the new relationship between the landlord and tenant which gives more responsibility to the tenant with regard to maintenance around the respective residences.

The following building permits were issued:

LESSEE	AMOUNT
Joe Nance (Northwest Fuel)	$ 31.45
A.J. Anderson (Anderson Motors)	137.20
Total July fees	$ 168.65
Previously reported	2,667.11
Total fees to date	$2,835.76

Government owned equipment located in the respective facilities was sold during July at an agreed-upon price:

Randall & Doyle Groceteria	$ 3,414.30
Elite Shop	1,671.69
Richland Shoe Salon	353.27
Tidewater Associated Oil Co.	260.59
C.C. Anderson Co.	12,655.85
True's Oil Co.	422.09
	$18,777.79
Previous Sales	71,697.49
Total to date	$90,475.28

Twenty-four collection letters were written resulting in the payment of 14 accounts in the total amount of $1,463. 26.

ACCOUNTS PAYABLE

STATISTICS

	JULY	JUNE
Accounts Payable Vouchers processed	231	235
Freight bills processed	15	33
Purchase orders received	44	42
Net amount of purchase orders	$10,853	$ 5,854
Receiving reports received	66	73
Total net amount disbursed	$55,139.08	$55,236.10

Freight bills continue to decrease in volume since fuel shipments, which accounted for the majority of freight bills have now been discontinued.

The Accounts Payable balance of $175.47 consists of four credit items and these vendors have been contacted in an effort to collect the outstanding accounts.

Payments to subcontractors increased again this month, being $4,500 more than was paid last month. Final payment were made to Puyallup Gardens (G-216) and Grayaport Construction (G-231).

A summary of active subcontracts is shown below:

SUBCONTRACTOR	SUBCONTRACT NUMBER	AMOUNT AWARDED	PAID THIS MO.	TOTAL PAID	AMOUNT RETAINED
Richland Maint.Co.	-----	*$ 14,097.98	$ 6,702.08	$ 14,097.98	$ -0-
Graysport Const.	G-187	20,684.80	-0-	18,450.00	2,050.00
Puyallup Gardens	G-216	109,576.84	24,167.21	109,576.84	-0-
West Coast Painters	G-219	46,449.19	-0-	18,640.97	2,071.22
Lone Pine Roofing	G-227	7,500.00	-0-	6,750.00	** 750.00
Graysport Constr.	G-231	44,536.46	2,226.82	44,536.46	-0-
Frederickson,Dr.J L.	--	* 186.00	186.00	186.00	-0-
		$243,031.27	$33,282.11	$212,238.25	$4,871.22

* Total amount of contract will be total of estimates as submitted.

** Work completed but contract terms provides for final payment upon submission of approved certificate after 7-1-49.

Community Division estimated cash disbursements for August amounted to $49,300 and estimated cash receipts amounted to $108,000.

COST

REPORTS

The June operating report was completed and distributed on July 21, 1949. The late completion date was due to the attempt to include all known cost in the 1949 fiscal year which ended June 30, 1949.

The June utility report was issued July 28, 1949.

The Comptroller's Appropriation and Project report for June was issued on July 25, 1949.

BUDGET

A record of the budget estimate versus actual expenditures from January 1 through June 30, 1949 is as follows:

Month	Actual Expenditures	Budget Estimates	Monthly Over - Under	To Date Over - Under
January	$ 268,209	$182,608	$85,601 (over)	$ 85,601 (Over)
February	239,405	172,610	66,795 (over)	152,396 (over)
March	188,200	158,548	29,652 (over)	182,048 (over)
April	75,908	151,722	75,814 (under)	106,234 (over)
May	69,994	154,225	84,231 (under)	22,003 (over)
June	162,729	154,266	8,463 (over)	30,466 (over)

Charges of an unusual nature occured in June which accounted for the budget overrun.

1. The coal and oil in village homes as of June 30, 1949 was written off to cost in the amount of $68,309. Fuel is normally charged to cost on a consumption basis, but as of July 1, the tenants were responsible for their own fuel and received what fuel was in storage at each residence.

2. The School District received $37,559 more in June from the A.E.C. than was originally anticipated.

WORK ORDERS

The costing of Tenant Service Orders went into effect on July 1, 1949 and supplied the following statistics from July 1 through July 24:

Craft	Number Service Orders	Labor Inc.Overhead	Material	Total
Plumbing	1,009	$1,836.94	$ 512.51	$2,349.45
Electrical	1,168	1,951.50	1,285.78	3,237.28
Heating & Vent.	241	287.07	157.50	444.57
Glazing	225	613.53	236.84	850.37
Lock and Key	149	326.71	297.39	624.10
Carpentry	288	565.44	95.52	660.96
	3,080	$5,581.19	$2,585.54	$8,166.73

Since the new house lease becomes effective August 1, 1949, it is expected that backcharges will increase to some extent.

It has been agreed that on all minor repair work fixed charges in accordance with a predetermined price schedule will determine the cost to the tenant and work of a major nature will be done on an actual cost basis.

Statistics covering regular work orders:

	JUNE	JULY	NET CHANGE
Active routine orders	518	467	-51
Active normal orders	718	635	-83
Total active orders	1236	1102	-134
Normal orders received	435	398	
Normal orders completed	430	481	
		-83	

GENERAL LEDGER

The June trial balance and supporting financial statements were forwarded to the General Division for consolidation on July 18, 1949.

STATISTICS

	NO.	AMOUNT
Second Class Invoices Received	73	$ 89,116.64
Second Class Invoices Issued	27	139,483.79
*Public Vouchers forwarded for Government billing	1	79.50

* Involves items prior to June 1, 1949

[redacted]

DESIGN DIVISION

JULY, 1949

PERSONNEL

Additions

1 Estimator
1 Steno-Typist B
1 Steno-Typist C
1 Reproduction & Photo Assistant E

Separations

1 Project Engineer
1 Draftsman I
1 General Clerk C
1 Steno-Typist C

Total Number of Employees on Payroll

	Beginning of Month	End of Month	Net Increase or Decrease
Design Division	247	247	0
On Loan to Design Division	9	9	0
	256	256	0

PILE AREA "G" - PROJECT C-300

The project proposal requesting funds for the fiscal year of 1950 was completed and submitted for approval. The total estimated Design Division cost for fiscal 1950 is $970,000.00, whereas the funds requested are $879,812.00. The difference between these figures is due to the net balance available from fiscal 1949 funds.

The design program and the manpower allocation within the design groups have been changed in order that we may concentrate our efforts on the most difficult and long-range problems which must be solved to attain the objective of 800 MW power level. Specifically, these are:

(a) Third Safety Device
(b) Process Tube Heat Transfer
(c) Materials

These have been assigned an "A" priority and are of the first order of importance. A second group of problems, which have been assigned a "B" priority, are being worked on as expeditiously as possible without conflicting with the "A" priority problems. These are:

(a) Control Rod Development
(b) Shielding
(c) Recirculation

[redacted]

The remainder of the problems have been assigned a "C" priority and will be worked on only when manpower and facilities permit.

Test requests have been prepared for both the short-length process tube heat transfer investigation, as well as for the full-scale tests. Quotations and delivery schedules have been requested for the special DC generators required by the heating elements in these tests.

An investigation is under way to find whether or not a 5% boron titanium alloy can be obtained for the sheet control rods. Other alloys are also being investigated.

The procurement of hafnium-free zirconium for process tubing is also being investigated.

The test sample sheet control rod was received from the outside vendor and installed in the test tower, where it is being prepared for preliminary drop tests. Provisions have been incorporated in this tower to distort the column of carbon blocks to duplicate the conditions that may be encountered in the actual pile. Also included in this test facility are shock absorbers for decelerating the sheet rods after a free fall. The initial drop tests are scheduled to occur in August.

Layout studies of the continuous charging devices are proceeding. These investigations include several alternate arrangements of the charging equipment and the sealing device. The possible use of synthetic rubber seals for the control sheet rod is being studied. Several proposed materials have been subjected to irradiation in the 100-F Pile, under controlled conditions. After ten hours of irradiation, the samples became hard and brittle.

Several members of the Design Division, as well as a representative of the A.E.C., have completed plans for visiting various sites to become familiar with reactor development programs. This trip will be of material benefit in the design of the new "G" reactor.

Plans are being formulated for the tests of a recirculation water system in the "H" Pile. Phase I of these tests will be run in one of the test holes. The basic flow diagram for this test has been prepared and will be discussed with representatives of the Technical and Operating Divisions.

Instrument Development of Rapid Scanning of Process Tube Temperature

A test of commutation with silver to silver contacts both rolling and sliding type was made. The rolling contacts produced too much noise due to bumping of roller. The brush contact eliminates this but will cause excessive maintenance. Further work is being done on a stepping-switch - commutation combination which may permit capacitor pick-up with greater signal to noise ratio.

DESIGN OF "DR" WATER PLANT - PROJECT C-342

Definite action was initiated to obtain an architect-engineering firm for this project. A preliminary outline of the design criteria was prepared for submittal to various prospective firms. These will be transmitted to a selected number of firms after the necessary clearance requirements have been satisfied.

[redacted]

At the request of the 100-Area Section, the Mechanical, Power, and Water Group made studies of equipment installations in various designs for the 190-DR Building. Explorations were made of the estimated savings in first cost and of other advantages and disadvantages of setting the pumping equipment in a 190-DR Bldg., at various angles with the center line of that building.

PILE AREA "H" - PROJECT C-165-A

All of the contemplated acceptance test procedures (a total of 90) have been issued. A vendor in Portland is now producing a satisfactory galvanizing coat on the stainless steel nozzles. During the past month Bldg. 1704-H was accepted with five exceptions, and Bldg. 1621-H was accepted without exceptions.

DESIGN AND TESTING OF VENTILATION SYSTEM FOR 234-5 BUILDING - PROJECT C-198

During the past month, Design Division engineers have been balancing the ventilation system for the 234-5 Building. Since production started in this building on July 5, 1949, the system has operated satisfactorily without unusual incident. Considerable work still remains to perfect all the details of the system and to balance the flow between the individual rooms.

Air supply to the building is supplied by seven fans which discharge into a common air supply plenum chamber. The air is taken in through grilles in the side of the building and passes through a dry filter, steam preheater, air washer, and reheater before entering the fan. By suitable controls on these the air temperature can be regulated to comfort temperature in both summer and winter - the air washer cooling the dry desert air by evaporative cooling in the summer. Air is taken from the plenum chamber by ducts to the various rooms and spaces in the building.

The exhaust from sections of the building which have no contamination hazard go directly to the atmosphere through the roof either through gravity dampers or mechanical exhaust. Exhaust from the rooms which have a contamination hazard is collected into a common air exhaust manifold. It is drawn from this exhaust manifold through Chemical Warfare Service #6 paper filters by five exhaust fans operating in parallel and discharged out of the top of a 200-foot stack at a velocity of 30 miles per hour.

The system is controlled to maintain certain pressures in various contamination hazard zones in the building. The pressures being maintained are tabulated below and the zone numbers indicate increasing degrees of contamination hazard:

Zone	Static Pressure Inches of Water
1	0.29
2	0.22
3	0.15
4	-0.35

Zone pressures are controlled by automatic controls which sense zone pressure and adjust throttling dampers in the supply duct leaving the air supply plenum chamber. The suction in the air exhaust manifold is maintained constant by an automatic control which controls a throttling damper on one of the exhaust fans.

After the construction of the system was completed and the mechanical components proven to operate satisfactorily, four major problems developed in starting operation of the system:

(a) At first the automatic throttling dampers could not be made to control the system. This condition was corrected by balancing the air flows to the various rooms so that there was a slight pressure across all the air inlet grilles in the rooms. In addition, the exhaust grilles from the various rooms had to be balanced by throttling until the flow through all of the rooms was reduced sufficiently so that the throttling dampers in the supply ducts controlled the pressures in the various rooms.

(b) In order to control the pressures in the zones to the values required, it was necessary to have a stable atmospheric reference. Wind gusts and building aerodynamic effects complicated this problem, but a solution was obtained using a sensing tip about 15 feet above the roof and a large plenum chamber and orifice to dampen out the variation due to wind gusts.

(c) The usual difficulties due to hunting of automatic control were encountered, and this was overcome by adjusting the throttling dampers to respond as fast as possible and throttling the sensing tips in the zones to slow down the response.

(d) It was found that opening doors from Zone 1 to the outside disturbed the operation of the system so much that it was necessary to install air locks on these doors. Air locks had already been provided in the design of the building on all doors between zones.

When the satisfactory operation of the system had been established, an extensive series of tests were conducted to prove its reliability. These consisted of endurance tests, shutdown and start-up tests, tests of various emergency conditions including complete electrical power failure, tests of air lock violations, and tests of operation under non-standard conditions. During this period the various Manufacturing Divisions who will operate this system were educated, and operating procedures were developed.

TECHNICAL CENTER

A review of the design criteria for the ventilation of the buildings which have been proposed to house the Technical Center was made by the Mechanical, Power and Water Group. It was recommended that the criteria be revised to require series flow of ventilating air in the direction from areas of little contamination to areas of greater contamination. Certain requirements were recommended for incorporation into the design criteria for the purpose of directing the attention of the architect-engineer to the difficult problems involved in working comfort ventilation and reliability of operation into the designs for the ventilating systems of the proposed buildings.

Design Division

WASTE DISPOSAL

Investigations of the basic problems involved in the safe evaporation to the atmosphere of water from radio-active waste solutions have been made by the Mechanical, Power, and Water Group. The purpose of these investigations was to make certain that no presently insurmountable difficulty is now apparent which would make further, more detailed, consideration of the evaporation method of waste disposal impractical at this time.

No such difficulty was encountered in the preliminary investigations made.

PROJECT AND RELATED PERSONNEL - JULY 1949

	6-30-49		7-29-49	
GOVERNMENT EMPLOYEES				
Civilian Personnel - Atomic Energy Comm.	330		330	
Civilian Personnel - G. A. O.	8		8	
Total		338		338
RICHLAND VILLAGE PERSONNEL				
Commercial Facilities (Includes No. Richland)	1,275		1,201	
Organizations, Clubs & Etc.,	85		85	
Schools	309		317	
Churches	25		25	
Total		1,694		1,628
MORRISON-KNUDSEN PERSONNEL (Columbia Camp)		3		3
CONSTRUCTION SUB-CONTRACTORS				
Atkinson-Jones	2,705		1,984	
Newberry Neon	586		560	
Urban, Smyth, Warren Co.,	888		760	
Kellex Corp.,	310		230	
J. Gordon Turnbull	110		17	
Giffels & Vallet, Inc.,	182		37	
Morrison-Knudsen Co.,	25		8	
C. C. Moore	52		34	
Curtis Sand & Gravel	11		14	
National Carbon Co.,	298		145	
Trowbridge & Flynn Elect. Co.,	1		-	
J. A. Terteling & Son	16		35	
McNeil Construction Co.,	18		12	
Haughton Elevator Co.,	4		3	
E. J. Bartells Co.,	40		46	
Combustion Eng. Co.,	1		1	
Indust. Eng. & Contractors	1		12	
National Blower & Sheetmetal	3		8	
Warsaw Elevator	3		-	
Scott-Buttner	13		11	
Howard P. Foley	-		13	
North Electric Mfg. Co.,	-		17	
Great Lakes Carbon	-		130	
Graham, Anderson, Probst & White Inc.,	-		17	
Anning-Johnson	-		7	
McCorkle Const. Co.,	-		25	
Edmund P. Erwin	-		15	
Link-Belt	-		2	
Total		5,267		4,143
GENERAL ELECTRIC PERSONNEL		7,393		7,385
GRAND TOTAL		14,695		13,497