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#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
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May 18, 1949

HANFORD WORKS

MONTHLY REPORT

APRIL 1949

Classification Cancelled (Change to
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By Authority of RDO-CG-4
WA Snyder 1-6-92
DJ Krisher 1-31-92
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CLASSIFICATION REVIEW FOR DECLASSIFICATION BUT LEFT UNCHANGED
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May 18, 1949

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GENERAL SUMMARY

APRIL 1949

Manufacturing Divisions

A total of 42 tons of metal was discharged from the three piles, which had an average operating efficiency of 88.6 percent. The nominal power level of 275 M.W. was maintained during the month.

Although approximately 22 tons of alpha-rolled, triple-dipped, partially transformed metal was successfully discharged at a nominal concentration of 320 MWD/ton, considerable difficulty was encountered in discharging three tubes of this material. As a consequence, none of this metal will be allowed to reach concentrations higher than 360 MWD/ton. Approximately 3 tons of completely transformed material was pushed at 320 MWD/ton. This metal continues to be very promising.

A total of 65 tons of acceptable slugs was canned in April at a yield of 90.5 percent. The machining yield of 70.5 percent is the highest yet achieved on rolled rods.

A total of 52 batches was processed through the Isolation phase of the Separations operation. Forty-two batches were started in the Canyon Buildings. The over-all Separation waste losses averaged 2.5 percent.

The transition of the 101 Shops operation from Construction to Manufacturing Divisions was effected smoothly and without incident. Service personnel from the Mechanical Divisions and Power Division were transferred temporarily. In addition to completing unfinished material, the shop personnel will lay-up the graphite in the 105-H pile for the Construction Division.

A letter from F. C. Schlemmer, Manager of Hanford Operations, Atomic Energy Commission, dated April 1, 1949, approved the General Electric Company's recommendation that the Test Plant be cancelled. As a result no further work on the Test Plant was carried on by the Redox group of the Section with the exception of minor contributions to the close-out activities required of the Redox Design Division.

All production and power facilities in the DR Area with the exception of the 107-DR basin have been turned over to Manufacturing by the Construction Division. Remaining small items will be completed by the Mechanical Divisions on work orders issued by the Construction Division. The project is to be closed June 15, 1949.

Technical Divisions

Effectiveness of cadmium coated splines as an emergency control device has been demonstrated by pile tests, thereby making feasible an early increase in power level of the piles.

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Completed tests on pile tubes with restricted water flow have demonstrated that an increase in power level can be effected without encountering adverse corrosion effects in tubes outside of the 0.240-inch orifice zone.

Slugs representative of current production have shown moderate blistering after an exposure of about 350 MD/ton. A few of the alph-rolled, triple dipped sluges which were canned prior to revision in the procedure for bronze dipping have been difficult to discharge after an exposure of 330 MD/ton.

The nominal carbon dioxide concentration in the B Pile was increased to 40%, and in the F Pile to 46% during the month.

Separations Plants operations were normal during the month, except for the need for reqorking several small waste losses and increasing the skimming heel in the first cycle by-product centrifugation at B Plant to improve erratically poor Canyon decontamination. Field laboratory studies indicate that the apparently high extraction waste losses obtained in processing aged 100-B metal may be due to the presence of curium. Spot check evaluation of the plant sand filters has shown that activity removal efficiencies, pressure drops, and air flows have remained within the range of normal operation. Pilot plant studies of the effects of steam injection on particle removal by Fiberglas are being carried out. Hydrogen, ammonia, and iodine evaluations from dissolver operation are being measured.

Administrative control of the 234-5 Building was turned over to the "S" Division by the Separations Technology Division on April 11 and the Process Bay was taken over from Construction by Operations on April 29. The bulk of the remainder of the 234-5 Building will be relinquished by Construction on May 6, from which date General Electric Maintenance will complete installation of equipment in the process line. Completion of the fourth 10-gram scale pilot run through metal reduction has produced average yields of 99.7% through dry chemistry and 97.5% in reduction. Seven trials of the plastic bag technique for removal of contaminated objects from a test hood have demonstrated extremely satisfactory contamination control.

Redox Scale-Up studies were resumed in Building 321 during the middle of the month. Testing of the O.R.N.L. flow sheet in Columns IA, IB, and IC has indicated that throughput ranges and stage efficiencies are essentially unchanged from those of the A.N.L. flow sheet. The Demonstration Unit is being revised to provide for cascade operation of all columns and to increase capacity of operation. Field tests on the reactivity of nitric acid and hexone mixtures when subjected to long slow air-sweep evaporation have been completed, all resulting in violently exothermic and gas-evolving reactions.

Redox laboratory research studies on nitric acid-hexone studies are being continued. Experimental pulse column runs have produced extraction stage heights as low as three inches at high throughputs. Ruthenium ozonization and deposition studies with plant dissolver solution, as well as zirconium scavenging from dissolver solution, have been continued. Up to 99.4% removal of phosphate from metal waste solution has been obtained in studies of Redox feed preparation by sodium diuranate precipitation. An alternative method for plutonium peroxide dissolution in Isolation has been developed in the laboratory, as well as a potential method for recycling 234-5 Process exalate supernatants back to Isolation.

[redacted]

Effective April 4, responsibility for the analytical control of water treatment processes in the 100 Areas was transferred from the Metallurgy and Control Division to the Power Division. This allowed Analytical Section personnel in these 100 Area laboratories to be reduced from 44 to 17, the number needed for (1) technical support of the Power Division, (2) continuing analytical service to the P Division, and (3) performing river water analyses. A further economy in Analytical Section operations will result from the consolidation, on April 20, of T and B Plant control analysis into a single laboratory (222-B). An alalytical research group is to occupy Building 222-T while it is out of control service.

Considerable improvement in the limited facilities for metallurgical studies attended the completion of (1) metallurgy laboratory revisions in Building 3706, under project C-227, and (2) a mock-up radio-metallurgy laboratory in 100-B Area, by conversion of Building 11-B under project C-294.

Discussions of uranium metal quality were held here on April 25 and 26 with representatives from Electromet, Mallinkrodt, and the AEC offices in New York and St. Louis. The results of billet quality improvement efforts at the Electromet and Mallinkrodt plants were reviewed in the light of Hanford reactivity checks on the metal produced. A considerable gain in the reactivity of virgin uranium has been achieved since the program was started last Summer, and it was agreed that no further process changes should be made until additional experience has been acquired with the present product.

Health Instrument Divisions

The force decreased by 11. Two Special Hazards Incidents were reported. Contamination of expensive equipment that otherwise could have been offered for sale occurred in one.

The first case of plutonism (judged to have arisen elsewhere) was reported.

Findings of the H.I. Operational Division followed the usual pattern. The occurrence of plutonium contamination in the air in such buildings as the laundry and the Concentration Buildings and their exhausts reflects the risk that hazards in such locations may exceed those in the primary plutonium-handling facilities, where expensive design is used to combat the obvious hazard. The frequency of occurrence of off-standard conditions in the P-10 Operations, compared with pre-operation forecasts, encourages a conservative attitude in the introduction of other new facilities.

In the Development Division, control results also conformed with the established pattern, except that an apparent breakdown of the 5-6 crib and tile field disposal system in the 200-E Area was noted. Satisfactory performance of a pile effluent beta-activity monitor was finally achieved.

The Biology Division has been mainly occupied with planning for the Animal Farm and Biology Laboratory, including pilot experiments for foreseen waste disposal problems. Biological monitoring was continued without incidents of note.

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Service Divisions

One Major Injury occurred during the month bringing the total to six for the year-to-date with a Frequency Rate of 1.06.

There were eight fires in Industrial Areas and four in Construction Areas with losses of $1300 and $2260 respectively.

Volume in services required from 700 Area Laundry, Printing, Telephone, Mail, and Office Machine Repair dropped noticably during the month.

Employee and Community Relations Divisions

The final report on the Nine-Point Job Improvement Program is presently being prepared.

Open requisitions for additional personnel increased from 5 at the beginning of April, to 22 at the end of April. Total plant roll decreased by 444 employees during April due to the general reduction of force.

Employee Services Counselors made 1,663 contacts during April. Eight employees retired during the month of April, six of which were on optional retirement basis; and three employee deaths occurred during the month. Seventeen Suggestion Awards, totaling $200.00, were granted. A resurvey of the job classifications and job conditions at this Works was made during the third week of April by R. C. Stratton, Supervising Chemical Engineer for the Insurance Underwriters Association.

The Training and Program Devlopment Section was established in the Employee and Community Relations Divisions on April 18, 1949. The purpose of this group is to develop, prepare, and disseminate training material for all employees at the Hanford Works.

Community Relations continued to receive questions from the TRI-CITY HERALD during the month concerning various phases of the current expansion of the town of Richland, to which answers were prepared and released.

The visit to Richland by a member of the staff of the General Electric Vice President in charge of Public Relations resulted in a much better understanding on the part of all Community Relations personnel of the Company's philosophy concerning newspapers.

Informative news releases were sent to the local newspapers and radio stations, as well as to 41 of the leading daily newspapers in the Pacific Northwest during the month.

The major portion of the Special Programs effort during April was directed toward the planning and execution of publicity for the current community-wide free chest X-Ray campaign, and for the forthcoming second annual Open House at Kadlec Hospital.

The Special Programs group supplies information to Reuel C. Stratton, Chemical Engineer representing life insurance companies throughout the United States, who made a study to determine life insurance rates for area workers in various job classifications. This information will be used in an article on atomic power workers which will be published in "The Beacon", the Travelers Insurance Company's house organ.

The activities of the Labor Relations and Wage Rate Division during the month of April have been primarily directed toward the handling of negotiations with the Hanford Atomic Metal Trades Council and conducting research for the purpose of gaining information in order to establish the feasibility of proposals and decisions. Together with the above, a number of Reimbursement Authorizations have been requested from the A.E.C. governing working arrangements and classifications. Notification of request for bargaining rights for Hanford Guards Union, Local #21, was received from the N.L.R.B. Notification was received from the N.L.R.B. regarding a withdrawal of the Union Shop Election petition by the H.A.M.T.C.

Community Divisions

Leases were executed on two hundred eight-one residences and the census of Richland for the month, as determined by information available is 21,394.

All Community Maintenance forces are now located in the 722 Combined Shops building. A total of 71 renovations were completed.

The Community of Richland officially adopted Daylight Saving Time at 2:00 a.m. on Sunday, April 24, 1949.

Outstanding rent accounts have been reduced to minimum.

Rental revenue shows a $17,000 increase over March.

Construction was started on four new business establishments.

A total of 36 fire alarms were answered. One thousand twenty-one individual inspections were made in the interest of fire prevention.

Medical Division

There was a further decrease of 31 in the Medical Division roll from 508 to 477. This was made possible by the decrease in construction activities.

Dr. Norwood attended the annual meeting of the American Association of Industrial Physicians at Detroit, the Biology, Medicine and Health Physics meeting at Oak Ridge, and spent a day at the Atomic Energy Project at the University of Rochester. At the latter location, the progress of the active speck investigative work was reviewed.

Four recognized consultants in the fields of Hospital Administration, General Medicine, and Industrial Medicine are being asked to work with the Medical Division in formulating a long range medical program for this project.

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

Employee physical examinations decreased from 5612 to 3420, while first aid treatments dropped from 12,852 to 11,590 due to decreased construction activity. Total absenteeism dropped to 2.28% while that due to sickness only was down from 2.06% to 1.50%. Eighteen major and twenty-three sub-major injuries were treated. One of the major and two of the sub-major injuries were sustained by G. E. employees. The monthly health topic was "Mosquito Control".

The average daily hospital census was 89.6, a decrease of 14% over the previous month, and a 6% decrease over April, 1948.

Clinic visits decreased by 15% to 8075, which was 13% higher than the April, 1948 figure. The in-patient service at North Richland Hospital was discontinued for the present. Dental clinic visits were 3032.

Net cost of operation of the Medical Division (before assessments to other divisions) was $128,754, an increase of $5,846, largely due to the decrease in revenue caused by decrease in construction personnel and to seasonal decline in illness.

The net expense of hospitals and clinics was $3,409, as compared to $5,053 for February. This expense was made up of hospital $12,737 while the clinic operated at a profit of $9,328.

General Accounting Divisions

Hanford Works Financial Statements for the month of March were issued on April 18 and those for the Nucleonics Department on April 19, 1949. General Divisions' Operating Reports were issued on April 15, 1949.
Due to certain changes in procedures in connection with recording charges to and from other divisions, the date of issuance of General Divisions' Operating Reports has been advanced approximately one week, and it is expected that subsequent months' reports will be distributed no later than the 15th of the following month.

The physical inventory of AEC Plant and Equipment was completed in April. The evaluation of inventoried items is progressing satisfactorily and is now approximately 75% complete. Ten employees of the Plant Accounting Section are engaged in this work.

Budget estimates for the 4th Quarter of Fiscal Year 1949, Fiscal Year 1950 and 1951 were started in April. Budget requirements were discussed with representatives from all General Divisions and letters of instructions were distributed regarding budget preparation together with forms showing actual costs for three months ended March 31, 1949.

Employees and Payrolls statistics for Weekly and Monthly Payrolls showing number of employees on the payroll, gross amount of payroll, and overtime payments are furnished to Management on a weekly and monthly basis. Similar statistics were prepared in chart form for use of Management. Six charts were also prepared for Management indicating salary distribution of technical college graduates according to numbers of years since graduation.

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Work was started on routines to be followed as a result of new AEC Financing procedure to be put into effect as of June 1, 1949, and preliminary discussions were held with representatives of AEC and General Accounting Office.

The following is a comparison of unreimbursed expenditures as of April 30, 1949, as compared with March 31, 1949:

	March 31, 1949	April 30, 1949
Billed on Public Vouchers	$ 8 376 146	$ 7 261 177
Submitted on Pre-Billing Audit Vouchers	2 859 632	2 382 348
Unbilled	3 523 386	3 940 125 *
	$ 14 759 164	$ 13 583 650

* Preliminary totals prior to final closing entries.

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STAFF

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

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FORCE REPORT
APRIL 1949

	Non-Exempt		Exempt		Total	
	3-31-49	4-29-49	3-31-49	4-29-49	3-31-49	4-29-49
GENERAL	19	18	10	11	29	29
LAW DIVISION	3	3	4	4	7	7
DESIGN & CONST. DIVISIONS						
Administrative	24	24	6	5	30	29
Construction	157	134	158	141	315	275
Const. Accounting	74	67	7	8	81	75
Design	131	124	111	117	242	241
Procurement	16	14	53	37	69	51
No. Richland Realty	236	191	27	24	263	215
MANUFACTURING DIVISIONS						
General	3	2	8	6	11	8
Project Engineering	70	69	55	55	125	124
Manufacturing Accounting	44	45	7	7	51	52
OPERATIONS DIVISIONS						
"P" Division	265	257	71	71	336	328
"S" Division	269	264	71	72	340	336
Power	377	382	82	77	459	459
MECHANICAL DIVISIONS						
Maintenance	469	415	72	68	541	483
Electrical	231	223	48	47	279	270
Instrument	170	168	45	44	215	212
Transportation	621	591	70	62	691	653
TECHNICAL DIVISIONS						
Technical General	2	1	5	6	7	7
Pile Technology	21	19	56	56	77	75
Separations Technology	62	62	96	94	158	156
Metallurgy & Control	374	331	114	114	488	445
MEDICAL DIVISION	412	385	96	96	508	481
H. I. DIVISION	231	220	96	96	327	316
ACCOUNTING DIVISIONS						
Accounting - Payroll	75	69	14	14	89	83
Accounting - All Others	89	84	7	6	96	90
EMPLOYEE & COMM. REL. DIV.	49	46	24	26	73	72
SERVICE DIVISIONS						
PLANT SECURITY & SERV.DIV'S.						
Patrol & Security	529	530	59	57	588	587
Safety & Fire	108	111	40	37	148	148
General & Office Serv.	241	227	21	20	262	247
PURCHASING & STORES	166	167	26	26	192	193
COMMUNITY DIVISIONS	703	621	162	150	865	771
GRAND TOTAL	6,241	5,864	1,721	1,654	7,962	7,518

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PERSONNEL DISTRIBUTION - APRIL 1949

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
GENERAL										
Clerical	-	-	-	-	-	-	-	-	11	11
Total	-	-	-	-	-	-	-	-	18	18
	-	-	-	-	-	-	-	-	29	29
LAW DIVISION										
Clerical	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	3	3
	-	-	-	-	-	-	-	-	7	7
DESIGN & CONSTRUCTION DIVISIONS										
ADMINISTRATIVE										
Supervisors	-	-	-	-	-	-	-	-	4	4
Engineers	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	24	24
Total	-	-	-	-	-	-	-	-	29	29
CONSTRUCTION										
Supervisors	-	-	-	-	-	-	10	28	-	38
Engineers	-	21	-	-	9	-	12	22	13	77
Clerical	-	10	-	-	1	1	10	64	4	90
Others	-	12	-	-	-	3	45	6	4	70
Total	-	43	-	-	10	4	77	120	21	275
CONSTRUCTION ACCOUNTING										
Supervisors	-	-	-	-	-	-	-	8	-	8
Clerical	-	-	-	-	-	-	-	66	-	66
Others	-	-	-	-	-	-	-	1	-	1
Total	-	-	-	-	-	-	-	75	-	75

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	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
DESIGN & CONSTRUCTION DIVISIONS										
DESIGN										
Supervisors	-	-	-	-	-	-	-	-	14	14
Engineers	-	-	-	-	-	-	-	-	102	102
Clerical	-	-	-	-	-	-	-	-	60	60
Others	-	-	-	-	-	-	-	-	65	65
Total	-	-	-	-	-	-	-	-	241	241
PROCUREMENT										
Supervisors	-	-	-	-	-	-	-	-	7	7
Engineers	-	-	-	-	-	-	-	-	-	-
Clerical	-	-	-	-	-	-	-	-	18	18
Others	-	-	-	-	-	-	9	-	17	26
Total	-	-	-	-	-	-	9	-	42	51
NORTH RICHLAND REALTY										
Supervisors	-	-	-	-	-	-	-	22	-	22
Engineers	-	-	-	-	-	-	-	4	-	4
Clerical	-	-	-	-	-	-	-	31	-	31
Others	-	-	-	-	-	-	-	158	-	158
Total	-	-	-	-	-	-	-	215	-	215
MANUFACTURING DIVISIONS										
GENERAL										
Supervisors	-	-	-	-	-	-	-	-	6	6
Clerical	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	8	8

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	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MANUFACTURING DIVISIONS										
PROJECT ENGINEERING										
Supervisors	-	-	-	-	1	-	-	-	14	15
Engineers	-	-	-	-	3	1	-	-	36	40
Drafting Personnel	-	-	2	-	5	1	-	-	29	37
Clerical	-	-	1	-	-	-	-	-	15	16
Others	-	-	1	-	2	-	-	-	13	16
Total	-	-	4	-	11	2	-	-	107	124
MANUFACTURING ACCOUNTING										
Supervisors	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	45	45
Total	-	-	-	-	-	-	-	-	52	52
OPERATING DIVISIONS										
"P" DIVISION										
Supervisors	15	17	17	-	-	16	-	-	6	71
Operators	46	52	48	-	-	98	-	-	-	244
Clerical	2	2	2	-	-	3	-	-	4	13
Total	63	71	67	-	-	117	-	-	10	328
"S" DIVISION										
Supervisors	-	-	-	32	31	-	-	-	9	72
Operators	-	-	-	107	142	-	-	-	-	249
Clerical	-	-	-	4	8	-	-	-	3	15
Total	-	-	-	143	181	-	-	-	12	336

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	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
OPERATING DIVISIONS										
POWER										
Supervisors	14	13	13	6	7	1	4	-	-	58
Engineers	2	2	8	-	-	-	7	-	-	19
Operators	88	85	89	24	36	10	1	-	-	333
Clerical	1	1	1	-	1	-	5	-	-	9
Others	8	9	8	5	6	4	-	-	-	40
Total	113	110	119	35	50	15	17	-	-	459
MECHANICAL DIVISIONS										
MAINTENANCE										
Supervisors	2	7	10	5	15	7	13	-	2	61
Engineers	-	1	5	1	1	1	4	-	6	19
Mechanics	22	44	41	38	70	43	67	-	-	325
Clerical	-	2	3	2	2	2	5	-	1	17
Others	3	3	6	4	15	9	21	-	-	61
Total	27	57	65	50	103	62	110	-	9	483
ELECTRICAL										
Supervisors	2	2	5	1	5	2	2	-	22	41
Electricians	14	12	15	11	14	16	-	-	95	177
Clerical	1	-	1	1	1	1	2	-	6	13
Others	1	1	3	1	4	1	2	-	26	39
Total	18	15	24	14	24	20	6	-	149	270
INSTRUMENT										
Supervisors	3	4	2	2	4	6	-	-	5	26
Engineers	2	-	-	-	1	8	-	-	7	18
Mechanics	7	5	8	7	15	23	-	-	8	73
Clerical	1	1	1	-	1	4	-	-	5	13
Others	7	9	9	8	11	33	-	-	5	82
Total	20	19	20	17	32	74	-	-	30	212

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	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MECHANICAL DIVISIONS										
TRANSPORTATION										
Supervisors	10	2	3	2	3	1	-	-	41	62
Drivers(Based on areas served)	47	26	28	30	37	13	-	-	57	238
Mechanics	10	3	3	1	8	1	-	-	79	105
Trainmen	4	4	8	4	4	4	-	-	3	31
Laborers	20	11	3	6	14	6	-	-	10	70
Clerical	-	-	-	-	1	1	-	-	26	28
Others	18	9	8	10	22	-	-	-	52	119
Total	109	55	53	53	89	26	-	-	268	653
TECHNICAL DIVISIONS										
TECHNICAL GENERAL										
Supervisors	-	-	-	-	-	-	-	-	6	6
Clerical	-	-	-	-	-	-	-	-	1	1
Total	-	-	-	-	-	-	-	-	7	7
PILE TECHNOLOGY										
Supervisors	1	1	-	-	-	11	-	-	-	13
Chemists-Engineers-Physicists	6	6	2	-	-	32	-	-	-	46
Laboratory Assistants	3	4	1	-	-	6	-	-	-	14
Clerical	-	-	-	-	-	2	-	-	-	2
Total	10	11	3	-	-	51	-	-	-	75
SEPARATIONS TECHNOLOGY										
Supervisors	-	-	-	1	5	19	-	-	1	26
Chemists-Engineers & Tech. Grads.	-	-	-	5	14	54	-	-	1	74
Laboratory Assistants	-	-	-	-	-	8	-	-	-	8
Clerical	-	-	-	-	2	8	-	-	1	11
Others	-	-	-	-	1	36	-	-	-	37
Total	-	-	-	6	22	125	-	-	3	156

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	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
TECHNICAL DIVISIONS										
METALLURGY & CONTROL										
Supervisors	1	2	-	6	7	33	-	-	6	55
Chemists-Engineers-Metallurgists-Technologists & Technical Grads.	2	5	1	13	13	99	-	-	1	134
Laboratory Assistants	1	5	2	44	18	93	-	-	-	163
Clerical	-	1	-	1	1	39	-	-	32	74
Others	-	-	-	-	-	19	-	-	-	19
Total	4	13	3	64	39	283	-	-	39	445
MEDICAL DIVISION										
Physicians	-	-	-	-	-	-	5	8	26	39
Dentists	-	-	-	-	-	-	-	2	9	11
Technicians	1	1	1	1	-	-	-	5	23	32
Clerical	2	1	1	1	-	-	-	20	79	104
Others	10	3	4	4	5	2	3	24	240	295
Total	13	5	6	6	5	2	8	59	377	481
H. I. DIVISION										
Supervisors	1	1	3	3	8	16	-	-	7	39
Engineers	3	4	11	11	20	7	-	-	1	57
Clerical	-	-	2	1	1	3	-	-	5	12
Others	9	10	22	35	61	59	5	-	7	208
Total	13	15	38	50	90	85	5	-	20	316
ACCOUNTING DIVISIONS										
ACCOUNTING - PAYROLL										
Supervisors	-	-	-	-	-	-	-	-	14	14
Clerical	-	-	-	-	-	-	-	-	69	69
	-	-	-	-	-	-	-	-	83	83
ACCOUNTING - ALL OTHERS										
Supervisors	-	-	-	-	-	-	-	-	6	6
Clerical	-	-	-	-	-	-	-	-	84	84
Total	-	-	-	-	-	-	-	-	90	90

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
EMPLOYEE & COMMUNITY RELATIONS DIV.										
Supervisors	-	-	-	-	-	-	-	-	26	26
Employee Relations Counselors	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	34	34
Others	-	-	-	-	-	-	-	-	8	8
Total	-	-	-	-	-	-	-	-	72	72
SERVICE DIVISIONS										
PLANT SECURITY & SERVICE DIVISIONS										
PATROL & SECURITY										
Supervisors	5	6	11	5	9	7	10	-	4	57
Patrolmen	36	47	128	67	123	65	9	-	38	513
Clerical	-	-	-	-	-	-	13	-	1	14
Seamstress	-	-	-	-	-	-	3	-	-	3
Total	41	53	139	72	132	72	35	-	43	587
SAFETY & FIRE										
Supervisors	9	-	-	-	4	5	10	-	9	37
Firemen	38	-	4	-	14	14	-	-	14	84
Inspectors	5	4	4	4	1	1	3	-	1	23
Clerical	-	-	-	-	-	-	2	-	2	4
Total	52	4	8	4	19	20	15	-	26	148
GENERAL & OFFICE SERVICES										
Supervisors	-	-	1	2	2	-	-	-	15	20
Laundry Operators	-	-	-	-	8	-	-	-	1	9
Janitors	4	5	7	7	12	14	-	-	35	84
Office Machine Operators	-	-	-	-	-	-	-	-	46	46
Clerical	-	-	-	-	-	-	-	-	28	28
Others	-	-	-	-	28	-	-	-	32	60
Total	4	5	8	9	50	14	-	-	157	247

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	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
SERVICE DIVISIONS										
PURCHASING & STORES										
Supervisors	-	-	-	-	-	-	-	5	21	26
Clerical	1	-	-	-	1	-	-	13	152	167
Total	1	-	-	-	1	-	-	18	173	193
COMMUNITY DIVISIONS										
Supervisors	-	-	-	-	-	-	-	-	150	150
Others	-	-	-	-	-	-	-	-	621	621
Total	-	-	-	-	-	-	-	-	771	771
GRAND TOTAL	488	476	557	523	858	972	282	487	2875	7518

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HW-13190-DE

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HW-13190-DEL

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MANUFACTURING DIVISIONS

APRIL 1949

SUMMARY

Operations Divisions

A total of 42 tons of metal was discharged from the three piles, which had an average operating efficiency of 98.6 percent. The nominal power level of 275 M.W. was maintained during the month.

Although approximately 22 tons of alpha-rolled, triple-dipped, partially transformed metal was successfully discharged at a nominal concentration of 320 MWD/ton, considerable difficulty was encountered in discharging three tubes of this material. As a consequence, none of this metal will be allowed to reach concentrations higher than 360 MWD/ton. Approximately 3 tons of completely transformed material was pushed at 320 MWD/ton. This metal continues to be very promising.

A total of 65 tons of acceptable slugs was canned in April at a yield of 90.5 percent. The machining yield of 70.5 percent is the highest yet achieved on rolled rods.

A total of 52 batches was processed through the Isolation phase of the Separations operation. Forty-two batches were started in the Canyon Buildings. The over-all Separation waste losses averaged 2.5 percent.

Mechanical Divisions

The transition of the 101 Shops operation from Construction to Manufacturing Divisions was effected smoothly and without incident. Service personnel from the Mechanical Divisions and Power Division were transferred temporarily. In addition to completing unfinished material, the shop personnel will lay-up the graphite in the 105-H pile for the Construction Division.

Expansion Problems Section

Redox

A letter from F. C. Schlemmer, Manager of Hanford Operations, Atomic Energy Commission, dated April 1, 1949, approved the General Electric Company's recommendation that the Test Plant be cancelled. As a result no further work on the Test Plant was carried on by the Redox group of the Section with the exception of minor contributions to the close-out activities required of the Redox Design Division.

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Manufacturing Divisions

Expansion Problems Section (Continued)

100-DR

All production and power facilities in the DR Area with the exception of the 107-DR basin have been turned over to Manufacturing by the Construction Division. Remaining small items will be completed by the Mechanical Divisions on work orders issued by the Construction Division. The project is to be closed June 15, 1949.

C. N. Gross

C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

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MANUFACTURING DIVISIONS

PATENT REPORT SUMMARY
FOR
MONTH OF APRIL, 1949

Richland, Washington
May 9, 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
NONE	

C. N. Gross

C. N. GROSS

MANAGER, MANUFACTURING DIVISIONS

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MANUFACTURING EXPANSION PROBLEMS SECTION

APRIL 1949

GENERAL

The Section contributed specific information as requested by the various divisions for preparation of the 1950-51 budget. Aside from this special work, the Section was occupied with the 100 Area Program, the Redox Program, and the Rala Program, which have constituted the major segments of activity since its inception. At month end, there was a revival of interest in exploratory work concerned with the DR Water Works Study.

ORGANIZATION

C. G. Lewis, who has been a member of the 100 Area Production Group in the Section, was returned to a P Division operational assignment during the month. There were no other changes in organization.

ACTIVITIES

Redox

A letter from F. C. Schlemmer, Manager of Hanford Operations, Atomic Energy Commission, dated April 1, 1949, approved the General Electric Company's recommendation that the Test Plant be cancelled. As a result of this cancellation, no further work on the Test Plant was carried on by the Redox Group of the Section with the exception of minor contributions to the close-out activities required of the Redox Design Division. The Survey Report made by the DuPont Committee was received during the month and comments on the report were returned to the Washington Office of the Commission. The Section assisted in the review of the report and the formulation of comments. As has been indicated elsewhere, the necessity for re-scoping the basis for a Main Redox Plant design has been recognized by the General Electric Company.

The need for this re-scoping was also emphasized by the Survey Committee report. In order to lose no time in accomplishing this re-scoping, the Technical, Design, and Manufacturing Divisions mutually agreed to carry on basic re-scoping activities as outlined in the letter of recommendations sent to the Commission March 22, 1949. A Committee including members from the Technical and Design Divisions and the Expansion Section of the Manufacturing Divisions was formed to guide this re-scoping program. During the month, members of this committee visited all sites where Redox work is being carried on and at month end had formulated the general outline for the re-scoping work. At the same time the Design and Construction Divisions requested the Kellex Corporation to reduce forces to a minimum nucleus required for maintenance of organization during the period while re-scoping is in progress. At month end no answer had been received from the Commission giving a directive basis for the re-scoping work; however, it was not intended to hold this work in abeyance for this reason.

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Manufacturing Expansion Problems Section

Rala

The Rala Group, using the modified basis outlined by the Commission during April, continued their program of study and formulation of design specifications. On April 13 and 14 members of the group participated in meetings at Los Alamos which had been scheduled in order to clarify the scope of processing which would be required in a Hanford Plant and to obtain firm specifications for delivered material. As a result of these meetings, it was determined that a Hanford Plant would be required to accomplish the full processing activities now carried on by the Oak Ridge Rala Plant. This will make the possibilities of providing a Hanford Plant within the available monetary allocation a great deal more difficult.

It had been hoped that the later phases of the process, which involve very small scale operations, might be transferred to Los Alamos since the adaptation of the large scale remote facilities in the T Plant to this small scale work imposes a very difficult and possibly quite expensive design and construction problem. Also, as a result of this meeting, it was determined that definite specifications for the delivered material are not available. In consequence, the design of a Hanford Rala Plant can only be governed by Oak Ridge and Los Alamos experience with no firm assurance that such a plant will be capable of delivering acceptable material. It is hoped that properly detailed specifications may be obtained from Los Alamos at some later date.

Oak Ridge National Laboratory personnel, who were also present at the Los Alamos meeting, indicated that they would present to the Commission during the latter part of the month, a proposal for modifying the existing Oak Ridge facilities to make them capable of producing Rala in accordance with the forecasted requirements for the next several years. In order to give the Commission as complete information as possible as a basis for selecting either Oak Ridge modified facilities or a Hanford Rala Plant for carrying out the Rala Program, the Rala Section of the Manufacturing Expansion Problems Section is making an effort to expedite their studies, so that the basic designs and cost estimates required for a project proposal may be made available as soon as possible. It is not yet reasonable to predict how much improvement in schedule will be possible.

100-DR and H Area (Production)

DR Area

All production facilities in the DR Area with exception of the 107-DR basin have been turned over by Construction. Remaining small items will be completed by the Mechanical Divisions on work orders provided by the Construction Division. These work order items are scheduled to be completed no later than June 15.

With the exception of forces engaged on the 107-DR repairs, construction forces left the Area on April 6, 1949.

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Manufacturing Expansion Problems Section

H Area

Construction progress has been generally satisfactory. It is expected that the graphite layup will start early in May.

On the basis of Technical Division studies, which indicate that Van Stone corrosion problems can be corrected by the use of aluminum nozzles on the rear face and galvanized stainless steel nozzles on the front face, verbal information was given to the Design Division on April 29 indicating our desire to have these alterations included in the 105-H construction. This verbal request will be confirmed in writing early in May.

100-DR and H Area (Power)

DR Area

All work by construction forces was completed by April 6, 1949. Certain small items will be completed by the Mechanical Divisions no later than June 15. These items are covered by work orders issued by the Construction Division.

A modified spillway was installed on the sewer system with the proviso that it was intended to serve the 105-DR only, and that it would be subject to review and probable modification as part of the project if at any time a water plant for 105-DR is to be built.

H Area

The general progress of construction has been satisfactory, although electrical work was delayed by an electricians' walk-out.

As a result of a review by the Design Division and the 100 Area Power Groups of the Manufacturing Expansion Problems Section, it was agreed that the precast wall type of reinforcement for the H Area sewers would be used. This decision was based upon the very high cost of excavation and encasement.

It was agreed that inspection of the sewers would continue throughout the period of construction and that additional evidences of distress would be the basis for considering additional reinforcement. It was further agreed that the basis for adopting precast wall reinforcement would be incorporated into the final acceptance papers.

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Manufacturing Expansion Problems Section

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P DIVISION

APRIL, 1949

I. GENERAL

All piles operated at 275 M.W. throughout the month except for outages listed under Area Activities in this report. The average "operating efficiency" was 88.6 percent.

A slight earth tremor occurred at 11:55 a.m. on April 13 which registered on some of the pile control instruments. No adverse effects were observed.

A total of 42 tons of metal was discharged from the piles during the month.

During the month, 21.90 tons of alpha-rolled, triple-dipped, partially transformed (Group IV) material was discharged at a nominal concentration of 320 MWD/ton. Considerable difficulty was experienced during the discharge of three tubes of this material. (See Operating Experience below). The discharge of 2.75 tons of alpha-rolled, triple-dipped, completely transformed (Group V) metal at a nominal concentration of 320 MWD/ton was accomplished without incident, and inspection of selected tubes of this material from this and previous discharges indicated that exposures at this level are satisfactory.

As a result of the cumulative experience with Group IV material, a program of accelerated discharge of this type metal was begun late in the month. No Group IV material is to be discharged at a nominal concentration of higher than 360 MWD/ton.

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - April, 1949

Beginning of Month	335
End of Month	325
Net Decrease	10

Six operators were terminated under a planned reduction of force and one Clerk C was transferred to the Service Division.

W. P. Nicklason, Area Supervisor, resigned April 30.

R. V. Carlisle and M. J. Stedwell, Supervisors in Training, were transferred to the Technical Divisions on April 1.

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P Division

III. AREA ACTIVITIES

PILE SUMMARY	PILE B	PILE D	PILE F
Time Operated (%)	95.3	85.5	90.4
Operating Efficiency	93.9	83.8	88.0
*Power Level (MW)	275	275	275
*Inlet Water Temperature (°C)	8.7	8.4	8.4
*Outlet Water Temperature (Maximum °C., 10 tubes, 0.240" zone)	49.5	47.9	49.1
Number of Scrams	0	0	0
Number of Purges	2	2	2
Helium Consumption (cu. ft.)	31,701	82,128***	39,974
Metal Discharged (tons)	9.53	16.26	16.28
**Inhours Gained (this month)	26	5	20
*Inhours Poisoned	418	496	480
*Inhours in Rods	120	73	47

* Month end figures.
** Does not include increased reactivity due to CO_2 in gas system.
*** Includes gas losses incident to maintenance of positive gas pressure on DR Pile.

PILE BUILDING

Outage Breakdown

Date of Outage	Scheduled Metal Discharged	Scheduled Maintenance	Unscheduled	Length of Outage (Hours)
4/5/49 through 4/9/49	D			80.6
4/5/49		F		20.7
4/10/49	D*			2.8
4/12/49	B			19.0
4/13/49	F			24.2
4/20/49	F			23.1
4/26/49	D			21.1
4/27/49	B			15.1

* Shutdown for removal of temporary poison columns following extended shutdown.

Operating Experience

Production tests having operational significance are reported below:

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

1.490"	1.485"		1.480"
4676-F	4562-B	4678-B	4582-D
	4584-B	4565-D	
	4668-B		

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105-168-P (Replacement of Pile Helium Atmosphere with CO_2)
The CO_2 concentration in B pile was raised from 25% to 40% over the period April 18-22. The D pile CO_2 concentration was maintained at 40% throughout the month. The F pile CO_2 concentration was increased from 40% to 46% over the period April 18-20. No unexpected changes in operating conditions were observed.

105-214-P Supplement A (Silica Feed Reduction)
The silicate concentration in the process water was reduced from 5.0 ppm (nominal) to 2.5 ppm (nominal) at D and F piles during the month. At B pile the silicate concentration was reduced from 2.5 ppm to 1.5 ppm nominal. No abnormal conditions have been observed.

105-245-P (Poison Effectiveness of Cadmium Coated Splines)
A test of the poison effectiveness of cadmium coated splines was conducted in Tube No. 1674-B on April 27. The results of the test will be published by the Technical Divisions in the near future.

During the hydrostatic testing of a 3XX safety flood tank at D pile on April 14, water containing a low concentration of borax was inadvertently introduced into eight vertical rod thimbles. This condition was successfully corrected by syphoning out the water, rinsing with clear water, and drying the thimbles with methanol. Details may be found in Document No. HW-13140, (Water Removal from Vertical Thimbles - D Area, J. A. Haaga to File, 4-26-49). The completion of this program required an extended outage of 80.6 hours.

Tubes 1176-D and 1267-D, which contained alpha-rolled, triple-dipped, partially transformed (Group IV) material, were discharged with difficulty during the outage of April 6. Forces up to 5,000 pounds per square inch were required to discharge the metal. Tube No. 3080-F, also containing Group IV material, required forces up to 3,200 pounds per square inch to effect the discharge of the metal on April 13. Inspection of the material from these tubes revealed four warped pieces.

Mechanical Experience

All horizontal and vertical safety rods are in satisfactory operating condition at month end with the exception of #14 Vertical Safety Rod at D Area and #20 Vertical Safety Rod at F Area.

Attempts to correct the binding conditions of rod #14-D reported in March have not been completely successful and at month end this rod is still out of service. Further action is contemplated during the next outage.

Occasional difficulty is still being experienced with vertical safety rod binding of Rods Nos. 14, 33, and 38 at F pile.

P Division

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Work of an unusual nature performed during the month at F pile included:

1. Vertical Safety Rod No. 20 and its guide were removed on April 20 and replaced with a flexible "knuckle jointed" rod and a stainless steel rod guide two feet shorter than standard. The rod failed to enter the pile smoothly under power and remains inoperable at month end. Examination of the thimble revealed a severe rub near the top which appears to be obstructing the entry of the rod.

2. The cadmium plated thermocouple tip installed on No. 18 rod (see March report) was removed.

Repair of all known leaks in the north 107-B basin reduced the leakage rate from 850 gpm to 313 gpm. A further survey of the problem is in progress at month end. Tests of the west 107-F basin indicated a leakage rate of 122 gpm. No repairs are contemplated at the F basin at this time.

Process Tube No. 2186-D, which had been removed in connection with PT-105-174-P (Annealing of Graphite) was replaced and returned to service on April 8. Tube No. 2695-F, which had contained a stuck charge on March 27, was removed and established as an unloaded air column on April 5.

Observation of the effluent sewer at 1904-B indicates intermittent partial plugging of the line. A survey by Project Engineering, however, did not reveal any unusual condition in the lines. It is planned to investigate this condition more thoroughly when river conditions permit.

Pile Development

During the month, the gas dryer cycles in the 115 Buildings were modified to permit 24 hour drying and 4 hour regeneration. The full effect of this change on gas losses and steam consumption will not be determined until after a prolonged period of operation.

GAS PROCESSING BUILDING

The gas processing buildings operated normally throughout the month.

SPECIAL HAZARDS

The gamma dosage rate from the beam at the top far edge of the F pile continues to increase, although at a somewhat lower rate. The reading at month end was 3020 mr/hr compared to 2800 mr/hr for March.

300 AREA - METAL FABRICATION

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Production Statistics

Production for the month of April was as follows:

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P Division

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Billets Produced	19 Tons
Rods Machined	94 Tons
Bare Pieces Machined	67 Tons
Acceptable Pieces Canned	65 Tons

Melt Plant

The casting yields were as follows:

	March	April	To Date 1949
Billet	65.8	67.2	67.2
Solid Metal	86.9	88.1	86.4

An increase in billet and solid yield resulted from melting a higher percentage of TXB that was processed from pickled chips. Approximately 44 percent of the TXB used this month was pickled as compared with 25 percent in March.

Preliminary work was started on Production Test No. 313-59-M, (Effect of Furnace Pressure on Quality of Remelted Uranium). This test consists of running a sufficient number of heats to provide significant data on the effect of furnace pressures, ranging from 0 to 500 microns, on metal quality.

Nine of the remaining 25 heats were run to determine possible causes of high silicon content in billets. The limited quantity of reject slugs for melting from the recovery operation has delayed the completion of this test.

Machining

Machining yields were as follows:

% Yield		
March	April	To Date 1949
68.9	70.5	68.5

Rods machined from stock rolled at Simonds from Hanford and Mallinckrodt billets continued to be generally of good quality. Only two lots of rods rolled from Electro-Met billets were machined. They were of poor quality, showing voids, folds, and badly checked areas. Diameters varied within a range of 1.420" to 1.467" on all rods machined.

Chip Recovery

The Chip Recovery yield was as follows:

% Yield		
March	April	To Date 1949
89.5	92.6	90.8

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The entire Chip Recovery process was operated four shifts, with the press operating an additional nine shifts. A total of 47,026 pounds of TXB was produced, of which approximately 61% was processed from pickled chips.

The material burned in the Oxide Burner was as follows:

Weight Out - Pounds		
March	April	To Date 1949
10,760	13,123	58,370

Canning Operation

The canning yield was as follows:

% Yield		
March	April	To Date 1949
90.6	90.5	90.8

Canning rejects, by cause, were:

	Percent		
	March	April	To Date 1949
Non Seating	0.8	0.3	0.9
Marred Surface	2.9	2.5	2.8
AlSi on Outside of Can	0.9	1.2	0.9
Frost Test	2.3	3.2	2.1
Bad Welds	0.6	0.6	0.7
Miscellaneous	1.9	1.7	1.9
	9.4	9.5	9.2

Frost test and AlSi rejects increased, while all other types of rejects were reduced slightly during the month. A large number of the frost test rejects resulted from unbonded areas just below the base of the caps. Examination of the rejects showed that both the slug and can had been wetted in nearly all cases. Some reduction in frost test rejects was evident during the later part of the month as a result of reducing to a minimum the time cans were held between cleaning and canning, and of changing facing tools about every two hours to minimize torsional strain transmitted through the cap to the bonding layer. Canning techniques, the effect of can aging on cleaning and wetting, and other factors are being investigated.

After converting from a canning cycle on March 28, 1949, it was observed that a higher than normal number of test pieces was penetrated to within 0.015" of the outer can wall. The longer canning cycle had permitted an increase of in both the can and sleeve assembly preheat and submerge times, although remaining within process specifications. The preheat and submersion times were reduced to

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the previous nominal times on April 12. Pieces checked thereafter showed an average penetration of about 0.020" of the outer can wall.

Forty-two additional slugs were canned in conformance with Production Test No. 313-107-M, Supplement A, (Effect of Canning Conditions on Slug Yield and Quality). Fourteen of these slugs were canned using a can preheat of and the remainder using a can preheat of .

A total of 1785 bismuth slugs, 867 lead slugs, and 2217 poison slugs was canned during the month.

Slug Recovery Operation

	% Recovered		Average Wt. - Lbs.	
	April	To Date 1949	April	To Date 1949
Z Slugs	89.4	86.7	3.910	3.911
X Slugs	9.2	10.9	3.861	3.858
Rejects	1.4	2.4	—	—
	100.0	100.0		

Inspection and Testing

Autoclave rejects were as follows:

March	April	To Date 1949
0.06/M	0.09/M	0.04/M

Three autoclave failures occurred in April.

The original test piece taken from H canning line on April 7 and 11, respectively, showed penetration within 0.010" of the outer can wall. Three retest pieces taken in both cases did not show penetration within 0.010" and the pieces involved were released for normal handling. Eleven pieces from the total tested, including the above, 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")		
	March	April	To Date 1949
Aluminum Cans	94.6	92.1	95.1
Aluminum Caps	94.7	97.0	94.1
Steel Sleeves	77.3	92.5	85.5

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An initial shipment of 186 aluminum cans received from the Scovill Manufacturing Company was inspected and 94.6% were acceptable. From a total of ten cans rejected, seven were for marred outer surface and three for dents. The acceptable cans gave satisfactory results on a use test.

Material Handling

A total of 76.6 tons of rods was received from Vulcan Crucible Steel Company and 86.6 tons were received from Simonds Saw and Steel Company. Fifty-seven tons of billets were shipped to Simonds Saw and Steel Company and 19 tons of oxide were shipped to Vitro Manufacturing Company.

305 Test Pile

A total of 106 tests was run on canned slugs, 62 on billet eggs, 468 on graphite, and the following on special work requests:

Request No.		No. of Tests
76	To determine the effectiveness of the purifying process by testing graphite blocks to which rare earths had been added and which were subsequently purified.	14
77	To test cross-sections of various materials.	9
78	To test coveralls used in 101 Building to find a possible reactivity effect in laundry soap.	4
79	To find the reactivity of ash deposits in a quartz tube.	4

Special Hazards

No unusual conditions developed during the month.

Development

A second crucible having a 1½" lip around the top, which had been installed in 4A bronze furnace, was removed after 32 days service when the furnace elements failed. The crucible was in good condition and there was no evidence of flux having run down over the outside; additional crucibles of this type have been installed in 3A and 4A furnaces for further evaluation.

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S DIVISION

APRIL, 1949

OPERATING SECTION

I. GENERAL

Forty-one batches were started in the Canyon Buildings and fifty-two batches were processed through the Concentration Buildings and the Isolation Building. The average purity for the completed batches was 98.5 percent.

The over-all material balance for the T and B Plants (including the Isolation Plant) averaged 99.3 and 101.9 percent, respectively, for a combined average of 100.9 percent. Waste losses for the two plants averaged 2.5 percent.

A slight earth tremor was felt in the 200 Areas at approximately 12:00 N on April 13, 1949. An inspection of all operating buildings, waste storage fields and stacks indicated that no damage was suffered.

Canyon and Concentration Building Production Performance Data - (4-1-49 to 4-30-49, inclusive)

	B Plant	T Plant	Combined
Number of charges started	23	18	41
Number of charges completed	33	19	52
For completed charges:			
Percentage of starting product in waste:			
This month	2.5(a)	2.5(a)	2.5
Last month	2.7(b)	2.4(b)	2.5
Cumulative to date	4.6(c)	4.3(c)	4.4
Percentage of starting product recovered:			
This month	99.4	96.8	98.4
Last month	98.3	94.0	95.7
Cumulative to date	97.3	95.4	96.4

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S Division

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	B Plant	T Plant	Combined
Percentage of starting product accounted for:			
This month	101.9	99.3	100.9
Last month	101.0	96.4	98.2
Cumulative to date	101.9	99.7	100.8
Gamma decontamination factor (Log.)			
This month	7.51	7.66	7.57
Last month	7.73	7.53	7.59
Cumulative to date	7.35	7.33	7.34

(a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.010%-T Plant; 0.010%-B Plant. (b) 0.012%-T Plant; 0.015%-B Plant. (c) 0.113%-T Plant; 0.008%-B Plant.

Isolation Building Performance Data (4-1-49 to 4-30-49, inclusive)

	% of Incoming Product				
	Prepared for Shipment	Recycle	Waste	Retained Samples	Material Balance
Average for this month	93.4	5.46	0.001	0.02	98.9
Average for last month	95.4	4.93	0.01	0.005	100.3
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	342
End of month	338
Net decrease	4

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

2 transfers from other divisions (both weekly roll)
4 terminations (all weekly roll)
2 removals from payroll for illness (both weekly roll)

Changes in Supervisory Organization:

The Special Assignment Groups formerly reporting to T and B Plant supervision were combined on April 1, 1949 to form the S Division Process Control Group. Personnel assigned to this group are:

R. C. Grant, Assistant Chief Supervisor (effective 5-1-49)
R. R. Messick, Senior Supervisor
S. G. Smolen, Senior Supervisor
R. K. Smith, Shift Supervisor

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S Division

F. R. Lewis, Shift Supervisor
T. J. deVries, Supervisor-in-Training
A. C. Morgenthaler, Supervisor-in-Training
W. E. Gehring, Supervisor-in-Training
G. R. Harr, Supervisor-in-Training

O. F. Beaulieu, Area Supervisor, 224-B, and L. F. Hardy, Area Supervisor, 221-B, exchanged assignments on April 1, 1949.

J. C. Glover was promoted from Supervisor-in-Training to Shift Supervisor, B Plant on April 1, 1949.

J. J. Courtney was promoted from Shift Supervisor to Senior Supervisor, B Plant, on April 1, 1949.

J. P. Derouin was promoted from Technical Graduate to Supervisor-in-Training on April 1, 1949.

234-5 Project

On April 11, 1949, the S Division assumed the direction of all items pertaining to the start-up of the 234-5 Building except the specification of process conditions which remains the primary function of the Technical Divisions (see letter R. S. Bell to File dated March 30, 1949). At this time six Technical Division employees were loaned to the S Division to assist in the operator training and start-up program. Nine operators were transferred to the 234-5 Building during the month from other S Division operations bringing the total of S Division employees assigned to the 234-5 operation to twelve operators and eight supervisors.

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants

Volume Reduction - Production Test 221-T-13

Operation at 30 percent volume reduction at the completion of the extraction step was continued during the month. There were no significant changes in waste losses or decontamination factors which may be attributed to volume reduction.

Extraction Waste Losses

All runs were processed through the extraction step in accordance with standard procedures. All material processed at T Plant originated in the 100-D and 100-F piles. Extraction losses at this plant were normal; original waste analyses averaging 0.54 percent (on 18 batches) with final throw-away losses averaging 0.35 percent. At B Plant the bulk of the material processed originated in the 100-B pile and extraction losses continued to be high with the original analysis averaging 0.74 percent (23 runs) while the

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started on March 17, 1949, was continued with a total of 319,000 gallons being jetted to the crib during the month.

Metal Waste Supernate Samples

Two 100-gallon metal waste supernate samples were taken from the 103-U tank on April 25, 1949, completing the request for 600 gallons of waste supernate to be shipped to site K-25.

Waste Status

The status of the Waste Storage Areas as of April 30, 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
x101,2,3	Metal	100	100	100	0	0	0	0
x104,5,6	Metal	-	100	41.3	-	0	158	158
x201,2,3,4	Metal	0	100	-	-	0	-	0
x112	Metal	-	-	0	-	-	90	90
x107,8,9	Metal	-	-	-	-	-	-	-
x107,8	Metal	-	-	-	-	-	-	-
x107,8,9	1st Cycle	100	100	47.9	0	0	230	230
x110,11,12	1st Cycle	-	100	-	-	0	-	0
x104,5,6	1st Cycle	-	-	-	-	-	-	-
x104,5,6	2nd Cycle	38.5	-	-	391	-	-	391
x110,11,12	2nd Cycle	100	-	-	0	-	-	0
x110,11	2nd Cycle	-	-	0	-	-	424	424

T Plant

Bldg. 241 Tanks	Waste	Percentage Full			Reserve Capacity in Batches to Process			
		T	U	TX	T	U	TX	Total
x101,2,3	Metal	100	100	0	0	0	421	421
x104,5,6	Metal	-	100	0	-	0	421	421
x201,2,3,4	Metal	0	0	-	-	37	-	37
x107,8,9	Metal	-	82.2	-	-	52	-	52
x107,8	Metal	-	-	0	-	-	281	281
x107,8,9	1st Cycle	100	-	-	-	-	-	0
x110,11,12	1st Cycle	-	100	-	-	0	-	0
x104,5,6	1st Cycle	100	-	-	0	-	-	0
x109,10,11,12	1st Cycle	-	-	13.8	-	-	707	707
x115,18	1st Cycle	-	-	0	-	-	410	410
x104,5,6	2nd Cycle	-	-	-	-	-	-	-
x110,11,12	2nd Cycle	71.0	-	-	170	-	-	170
x113,14,16,17	2nd Cycle	-	-	0	-	-	1123	1123

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MECHANICAL PERFORMANCE

Precipitator Tank Replacement - T and B Plants

Due to excessive leakage of the cooling jackets which could not be repaired because of excessive radiation, the 8-1 extraction and 13-1 first cycle by-product precipitator tanks at T Plant and the 13-1 first cycle by-product precipitator tank at B Plant were replaced with the unused catch tanks from Sections 9 and 10 at T Plant and Section 9 at B Plant. The replacement tank jackets were reinforced with compression bands and the jacket vents were modified to permit movement due to expansion in accordance with a design provided by the Project Engineering Division in Recommendation Report No. 111.

The ruptured 17-1 second cycle product precipitator tank at T Plant was removed from the cell, the jacket successfully welded and returned to service during the month. Previous repairs to the jacket, effected with the tank in place, had not proven satisfactory.

Jet Assembly Failure - B Plant

The 14-1 to 14-2, first cycle product precipitator to centrifuge, "A" jet assembly failed and was replaced by standard remote control methods with a previously salvaged and regasketed connector. The failure is thought to have been due to a flange leak in the dip leg of the assembly. No loss of product was involved.

3-5R Dissolver Scrubber Sampler - B Plant

In order to facilitate the study of the I^{131} balance by the Separations Technology Division, the standard 3-5R dissolver sampler was removed and a sampler of special design was installed in the cell to permit the direct sampling of the water effluent from the 3-5R dissolver scrubber.

Filter Replacement - 231 Isolation Building

Due to restricted flow, it was necessary to replace the filters in the A and E positions over Cell 3. The filter over the A position was replaced with a rock wool filter box of original design which was available. The cartridge in the filter (previously modified) on the E position was replaced with a new CWS Type 6 filter cartridge. The old cartridge had been in service for sixteen months.

234-5 Construction Status

Following a delay in construction caused by a sixteen day strike of the construction electrical workers, the S Division reached

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agreement with the Construction Division for the operating group to take over the process bay on April 29, 1949 and the remainder of the building and facilities on May 6, 1949 with certain exceptions, such as balancing the ventilation system, completing the refrigerated water system, making repairs to the elevator piston, etc. All highly classified equipment will be installed by General Electric forces.

Final inspections were conducted during the month on the process waste system, the guard towers, and on various portions of the 234-5 Building (these were: Rooms 100-108, 160, 162 - 169, 171 - 175, 301 - 305, 337, 338, the Phase II Area and all filter rooms (except 316). Minor exceptions to completion were found in all cases.

Of the construction work remaining, the balancing of the ventilation system, which was started on April 27, 1949, will probably require the most time (four to six weeks). A process run book has been prepared and submitted to the Separations Technology Division for final review and issuance. It is expected that processing will be started on approximately June 1, 1949.

SPECIAL HAZARDS

Contamination Spread - T Plant

Following several incidents of shoe contamination of personnel who had been working in the railroad cut outside the 221-T Canyon Building tunnel, a complete survey was made from the Canyon Building to the heavy equipment burial ground, which revealed the spread of contaminated dust particles, with the maximum levels being detected in the immediate vicinity northeast of the burial ground. A Lima motor crane which was outside the burial ground in this vicinity was found to have an average contamination of 7 mrep/hr. Investigation indicates that this contamination was caused by active dust being blown from a box in the burial ground which had previously been used to haul discarded heavy process equipment to the burial ground. The box was buried and the bulldozer which was used to cover the trench was found to be contaminated with dust which had readings of up to 10,000 c/m.

Decontamination work is in progress at month end to clean up the contaminated area and to decontaminate the equipment. The incident has been formally investigated and steps are being taken to prevent a recurrence.

Stack Gas Decontamination

Operation of the sand filters was satisfactory during the month; efficiency and through-put remaining essentially unchanged for both the T and B Plant units.

The project proposal for the installation of the dissolver off-gas filter units was submitted to the Appropriation and Budget Committee for approval.

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throw-away losses averaged 0.54 percent. A study of the decay curves by the Technical Divisions indicates the presence of an alpha emitter other than normal plutonium in the extraction wastes from the 100-B pile material.

Laboratory Service

In order to reduce manpower requirements, the Metallurgy and Control Division discontinued the service of the 222-T Analytical Laboratory on April 20, 1949. All T Plant process and chemical control samples are now being transported to the 222-B laboratory in the 200 East Area.

Improved Reworking Procedure

An improved method of reworking bismuth phosphate by-product wastes in the Concentration Building was developed during the month. A change in the procedure was made so that the make-up acid is now added to the Cell A solution tank prior to oxidation rather than being added to the Cell A precipitator after oxidation. Experience gained on the three runs reworked by this method during the month indicates an additional savings of 0.1 to 0.2 percent per rework. This will justify the reworking of wastes of a lower product concentration than was previously economical.

Isolation Building

AT Retain Samples

With the development of a method of analysis AT retain samples are again being taken on each run processed. Although the accuracy of the method at the present is only ± five percent, it is expected that the figure will be improved with further development.

WASTE DISPOSAL

241-BY Tank Farm - Project C-271

Construction progress by the sub-contractor is progressing satisfactorily. The steel liners on all twelve 758,000 gallon tanks have been completed and the concrete sides have been on eleven tanks. Domes have been poured on two tanks and backfilling is in progress.

241-TX Tank Farm - Project C-163

Work on the General Electric phase of Parts II and III continued during the month. The completion of this project with the exception of the proposed Part IV, which involves tieing in the 224-U Concentration Building waste system is expected during early May.

Cribbing of Second Cycle Waste - T Plant

The cribbing of second cycle waste from X-112-T tank which was

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POWER DIVISION
APRIL 1949

GENERAL

On April 1, the Power Division assumed the responsibility for the operation of all power equipment in the 101 Shops Area.

An earth tremor of minor intensity was noted at 11:57 a.m. on April 13, with no apparent adverse effects on power operations, or buildings, structures, and equipment.

PERSONNEL AND ORGANIZATION

Number of employees on payroll	April
Beginning of month	459
End of month	462
Net Increase	3

The indicated net increase is the result of three voluntary terminations, one death, one layoff for lack of work, one transfer out of the Division, and nine transfers into the Division.

The responsibilities of the day foreman at the filtration plant in each of the 100 Areas have been assumed by other supervision. The three men formerly assigned to this work are being given training in other phases of power operation and will be used in connection with the start-up of the 100 H Area.

Five monthly salaried employees were transferred to weekly roll, four returning to operational jobs and one to results work.

100 AREAS

The sodium silicate feed in process water was reduced in the 100 D and 100 F Areas from 5.5 ppm to 2.5 ppm, and in the 100 B Area from 2.5 ppm to 1.5 ppm, on April 14, The sodium silicate feeds are expressed as ppm of SiO_2.

The residual iron content of the process water in the 105 Pile Buildings, Valve Pit, increased to .04 ppm on April 22 because of floc penetration in the filter beds. Normal conditions were restored by increasing the frequency of filter backwashing and by increasing the coagulant feed to 18-20 ppm. This unusual condition was a result of the rise in river level and the accompanying increase in the turbidity of the river water.

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Power Division

The change in responsibility for water control analyses from the Technical Division to the Power Division was accomplished without difficulty on April 4, 1949.

The ashcolite discharge line on the ash sluicing system was inspected in the three areas during the month. Normal abrasion was observed on the bottom of the line.

On April 15, the Nos. 1, 2, 3, and 4 2000 HP refrigeration motors in the 100 D Area and the Nos. 3 and 4 refrigeration motors in the 100 F Area were removed from service at the request of the Electrical Division. These motors were being operated for power factor improvement.

In the 100 B Area, roof repairs to the soft water elevated tank were completed at the month's end.

The 184 Building Power House smoke stacks in the 100 B and 100 D Areas were checked for alignment during the month and found to be satisfactory.

Work is progressing on the project to make the 108 Chemical Mixing Building in the 100 F Area available to the H. I. Division. At month end all of the equipment to be excessed had been removed from the building. The Nos. 1 and 2 refrigeration units were removed from the 189 Refrigeration Building, and stored, making space available for relocating the silicate and dichromate mixing equipment in this building.

200 AREAS

Cross-bracing has been installed on all elevated water tanks in the 200 Areas to provide support for the wooden frost boxes. Metal bands have been installed on all frost boxes, approximately three feet apart. This work was completed on April 6.

The conversion of the No. 2 water softener in the West Area, 284 Building, Power House from Zeo-Dur to Zeo-Carb was completed on April 29. This completes the conversion of all three softeners.

A 5 HP, 1725 RPM Motor on the flight coal conveyor in the West Area, 284 Building Power House was replaced with a 7½ HP, 1150 RPM motor to correct an overload condition. An extension of the flight conveyor for the new No. 4 boiler was completed on April 20. This equipment is now operating satisfactorily.

A final acceptance inspection of the new steam lines to the 234-5 Building was made on April 26, and all exceptions noted on preliminary inspections were satisfactorily completed.

A final inspection of the septic tank and tile field for the 234-5 Building was made on April 28. This equipment was accepted for operation by the Power Division.

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Power Division

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300 AREA

A complete steam outage in the 300 Area was effected on April 1 from 2:00 pm to 3:20 pm for repair of leaks in the outside steam lines.

The construction of new coal handling facilities, the ash removal system and the expansion of the 384 Building Power House, is progressing on schedule.

101 SHOPS AREA

Eight Power operators were assigned to the operation of the boiler house, air conditioning equipment, air compressors, pumps, and water distribution system at the 101 Shops on April 4.

A complete overhaul of No.2 boiler was started on April 19, as approximately 30 tubes and 4 stay bolts were leaking in this boiler and the tubes were badly scaled. After cleaning, the remaining tubes and tube sheet were found to be in fair condition and the repair of leaks is now in progress.

The 6-inch check valve in the discharge line of the 3000 gpm emergency fire protection booster pump was found to be defective and was replaced with a new check valve on April 22.

WHITE BLUFFS

Operations normal.

Ice in storage at the month's end was 4,260,300 pounds.

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POWER DIVISION STATISTICS

From April 1, 1949

Through April 30, 1949

			AREAS		
			100-B	100-D	100-F
RIVER PUMP HOUSE (Building 181)					
River stage	Feet above sea level	(max)	395.7	386.2	372.6
		(min)	386.6	379.0	365.3
		(avg)	390.8	382.1	368.8
River temperature	avg. °F.		43.3	43.8	44.1
Water pumped to Reservoir	gpm avg. rate		38748	40629	37915
Water pumped to Refg. Condensers	gpm avg. rate			0	0
RESERVOIR (Building 182)					
Water pumped to Filter Plant	gpm.avg. rate		33646	34145	33869
Water pumped to Condenser System	gpm avg. rate		3423	4802	3529
Water pumped to Export System	gpm avg. rate		1679	1682	517
	gpm normal rate		3878	3878	3878
Chlorine added at #1 inlet	pounds		10599	15260	10000
FILTER PLANT (Building 183)					
Filtered water to Power House	gpm avg. rate		252	262	250
Filtered water to Process	gpm avg. rate		31177	28268	30079
Filtered water to Fire & Sanitary	gpm avg. rate		102	188	139
Chlorine used in Water Treatment	pounds		6564	6540	4000
	ppm avg.		1.3	1.58	1.06
Lime used in Water Treatment	pounds		51021	38000	30200
	ppm avg.		4.2	3.1	2.5
Coagulant used in Water Treatment	pounds		181277	165435	163365
	ppm avg.		14.9	13.5	13.4
Raw Water pH	pH avg.		7.95	7.9	8.0
Finished Water pH	pH avg.		7.58	7.5	7.48
Alkalinity, M. O. - Raw	ppm avg.		66	67	66
Finished	ppm avg.		64	62	62
Residual Chlorine - Settled	ppm avg.		.18	.22	.18
Finished	ppm avg.		.07	.13	.13
Iron - Raw	ppm avg.		.43	.49	.32
North Clearwell	ppm avg.		.017	.02	.02
South Clearwell	ppm avg.		.017	.02	.02
Hardness - Finished	ppm avg.		84	78	87
Turbidity - Raw	ppm avg.		16.5	15.0	16.0
Filtered	ppm avg.		0	0	0

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From April 1, 1949

Through April 30, 1949

POWER HOUSE (Building 184)

Steam generated - Total	M pounds	93202	93909	90039
Average rate	lbs./hr.	129627	130611	125228
225 psi Steam to plant (est.)	M pounds	78479	79079	75992
15 psi Steam to plant (est.)	M pounds	556	556	361
Coal consumed	Tons	7061	8916	8121
Coal in storage (est.)	Tons	22851	26275	26109

DEAERATOR PLANT (Building 185)

Water flow	gpm avg. rate	30927	28018	29829
Chemicals consumed:				
Dichromate	pounds	21780	19600	22800
Sodium Silicate	pounds	97792	147579	151040
Chemical Analysis:				
pH	pH avg.	7.63	7.65	7.60
Dichromate	ppm avg.	1.9	1.9	1.9
Silica	ppm avg.	1.9	3.8	3.6
Dissolved Iron	ppm avg.	.026	.02	.023
Free Chlorine	ppm avg.	.06	.15	.19

PROCESS PUMP ROOM (Building 190)

Total water pumped	gpm avg. rate	30752	27843	29654
	gpm normal rate	31475	31200	31290
Water temperature	avg. °F.	47.1	47.9	46.2

VALVE PIT (Building 105)

Chemicals consumed:						
Solids		pounds		3600	4000	3250
Chemical analysis:						
A, B, C, & D Headers	Standard limits					
pH	7.5-7.8	pH	(max)	7.63	7.70	7.60
			(min)	7.58	7.60	7.55
			(avg)	7.60	7.67	7.60
SiO_2		ppm	(max)	3.0	5.5	5.5
			(min)	1.5	2.0	2.0
			(avg)	2.0	3.8	3.7
$Na_2Cr_2O_7$	1.8-2.2	ppm	(max)	2.0	2.0	2.0
			(min)	1.8	1.9	1.8
			(avg)	1.9	1.9	1.9
Iron		ppm	(max)	.04	.04	.04
			(min)	.02	.02	.01
			(avg)	.02	.03	.022
Chlorides		ppm avg.		1.9	1.9	1.9

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From April 1, 1949

Through April 30, 1949

		200 AREAS	
		200-E	200-W
RESERVOIR (Building 282)			
Raw Water Pumped	gpm avg. rate	1790	2088
FILTER PLANT (Building 283)			
Filtered Water Pumped	gpm avg. rate	262	328
Chlorine Consumed	lb.	153	231
Alum Consumed	lb.	2211	2274
Chlorine Residual - Sanitary Water	ppm	.5	.7
POWER HOUSE (Building 284)			
Steam Generated - Total	M lb.	18858	29384
Steam Generated - Ave. Rate	lb./hr.	26228	40867
Coal Consumed (Est.)	tons	1453.6	2098.9
Coal in Storage (Est.)	tons	11412.2	9371.4

		300 AREA
POWER HOUSE (Building 384)		
Steam Generated - Total	M lb.	8438
Steam Generated - Avg. Rate	lb./hr.	11718
Coal Consumed - Total (Est.)	tons	721.5
Coal in Storage (est.)	tons	1883.5
SANITARY AND FIRE SYSTEM (300)		
Well Water Pumped - Total	gal.	24,163,300
Well Water Per Day	gal/day	805,392
Well Water	gpm avg. rate	559
Chlorine Residual	ppm	.41

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INSTRUMENT DIVISION

MONTHLY REPORT

APRIL, 1949

GENERAL

During the month there has been considerable re-assignment of personnel within the Division. This was necessary to adjust standard crews after lay-offs and provide personnel for 234-5 assignments.

100 AREAS (Reference Report HW-13195)

The time interval will be increased between routine overhauls on all 184 Building equipment per agreement with the Power Division.

The tie strap strain gauge installations were completed and calibrated at 105-B.

The chambers in "A" and "D" holes at 105-B were replaced during April, due to erratic performance and lack of sufficient current to operate the galvanometer, respectively. Both units showed considerable corrosion.

"P" Division has requested range changes in the L&N power level recorder at 105-D in order to provide better readings for an anticipated change in power level. Alterations have been started.

The installation of electro-pneumatic bowing indicator was completed at 105-F.

The faulty chamber in tube 4444, 105-F unit, to quadrant monitor was replaced.

A new five-fold B&G hand and foot monitor was received and installed at 1705-F.

The increase in CO_2 concentration at 105-F has caused internal temperatures to exceed the range of the BGST recorder. The range will be changed from 0-300°C to 0-400°C.

200 AREAS (Reference Report HW-13196)

A ring balance flow recorder has been installed at 221-B to provide a record of water flow to the off-gas scrubber spray for dissolver 3-5R. Special studies of scrubber operation necessitated a record of the water flow to this scrubber.

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Instrument Division

200 AREAS (Cont.)

A liquid level manometer calibrated to indicate quantity in terms of U.S.P. glycerine, was fabricated for the glycerine head-tank in 231-W. Previously there has been no means of indicating the quantity of glycerine in the tank.

Four new five-fold B&G hand and shoe monitors were received in 200-W Area. Three were placed in operation, the fourth is being held in the 271-T Instrument Shop for assignment.

A counting rate meter with an L&N recorder in a 614 Building in 200-E was equipped with a scaler and chronolog recorder. This installation will record any power failure which would result in an inoperative monitor.

Analytical work carried on in 222-T has been transferred to 222-B. The 222-T laboratory is being taken over by a Technical Development Group. It is expected that the work load for this building will increase.

Acceptance testing of the boiler addition to 284-W has been completed.

300 AREA (Reference Report HW-13197)

Correction of lighting in the 3717 Machine Shop is complete. Light intensity surveys indicate that original specifications have been met at all working locations.

Design for ten air samplers has been approved by the Health Instrument Divisions. Unit manufacture has been started.

Forty new electronic G.M. survey meters have been received and are being put in service.

Work has been started on an explosion proof poppy for the 321 Building Technical Group.

A system of routine maintenance has been established to afford regular service on analytical balances used in the outer areas.

As requested by the operations group, three mechanics have been temporarily loaned to the group at the 101 Building, Hanford.

700-1100 AREAS (Reference Report HW-13199)

Most of the mica window tubes manufactured this month were filled with a neon-amyl acetate mixture instead of the argon-ethyl alcohol mixture. The advantage of the new mixture is that it makes possible a higher yield although their relative efficiency is about 5% lower.

Four Miller gage tubes were rechecked. It was found that after a period of two months, they showed little change in relative sensitivity.

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Instrument Division

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DESIGN AND CONSTRUCTION (Reference Report HW-13198)

Agreements were reached by the various construction crafts as to jurisdiction regarding various phases of instrument work. Work has been started again toward completion of jobs held up by these disputes.

A revised estimate is being prepared for Rala Study, G.E.T. 12, in view of the limited funds available for this job. This will take into consideration using as much equipment as is now available on the project.

Design work on the water plant for G Area has been started.

The change in planning for Redox will necessitate a new start in planning insofar as instrumentation concerned.

The Construction Division withdrew from 100-DR Area on April 8, 1949. Several jobs remain to be completed by Manufacturing Divisions personnel.

Investigation of erratic reading of the 100-DR graphite thermocouples, disclosed the cause to be water between the terminal block and the compound seal of the upper junction on the rear face. No reason for the presence of water has been determined. All thermocouples have been repaired.

Full shift coverage for the Redox scale-up unit in the 321 Building was started on April 15, 1949.

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MAINTENANCE DIVISION
APRIL, 1949

A total of 60 weekly employees were terminated from the Maintenance Division during the month. Five exempt employees were downgraded to mechanics classification.

On April 1, the Construction Division transferred the responsibility of operating the 101 Building to the Manufacturing Division, which included the transfer of 3 monthly and 4 weekly roll employees to the Maintenance Division. Additional personnel of one monthly and 10 weekly employees were supplied by the Maintenance Division to provide a suitable force for continued operation of this facility.

As of April 30 the Maintenance Division backlog was 9,924 mandays of which 4,679 mandays was Minor Construction work. This represents a decrease of 13.6% from the March backlog.

100 Areas:

Process tube #2186 was removed from the "D" Pile and a 72-S aluminum tube was put in as a replacement. Also, process tube #2695 was removed from the "F" pile due to internal damage from a stuck slug.

Vertical safety rod and guide #21 were removed from the "D" pile because of rust accumulations. They were replaced with a stainless steel rod and rod guide.

The 105 DR Building has been accepted by the Manufacturing Division. Maintenance forces are engaged in final preparations in getting the building ready for operation.

Construction of the Technical special Metallurgical studies facilities in 111-B Building was completed.

200 Areas:

A seam leak in the jacket of process vessel 17-1 in the "T" canyon was repaired by welding. In order to stop these leaks from developing in the future, two compression bands were installed on vessels #9-3 and #10-3 in the "T" canyon and on #9-3 in the "B" canyon.

The program of repairing and installing sway bracing on the stand pipe frost boxes, of the high tanks, has been completed in both East and West Areas.

22 replacement cell connector assemblies for the Canyon Building were fabricated. One 40" replacement centrifuge was completed, run in, and is on standby for replacement when needed.

Due to high velocity winds temporary repairs were necessary to 700 linear feet of perimeter fencing which was blown down in the 200 West Area.

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Maintenance Division

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300 Area:

Rehabilitation of the 321 Building has progressed sufficiently to permit the startup of operations. Remaining new work to be done in this building has to do with improvement and revision of facilities and structure rather than rehabilitation of old structure.

A cooling coil was installed in the chip recovery press, hydraulic system oil reservoir in order to maintain the oil viscosity, and thus, full working pressure.

High velocity winds blew down 250 feet of perimeter fence and removed approximately 1,000 square feet of roofing felt from the 3703 Building. Temporary repairs were made to the fence and a new section of roofing felt with a hot asphalt application was placed on the 3703 Building.

101 Shops Section

General

On April 1, 1949 the responsibility for the operation of the 101 Area was transferred from the Design and Construction Divisions to the Manufacturing Divisions.

In order to man the 101 Shops, it was necessary to draw personnel from the Maintenance, Instrument, and Transportation Divisions. The greater part of the month has been spent in training new personnel in methods of operation for the 101 Area. The training program had to be conducted at a stepped up rate in order to have sufficient personnel trained and capable of meeting demands of the Construction Division during the final handling of graphite in the 105-H Area. The 101 Shops will be responsible for packout operations and fabrication of replacements required during the first period.

Operation

Work has continued on the receiving and storing of raw material received from the National Carbon Company. Surfacing and transporting of material to the 300 Area for testing is being continued.

During the month several graphite test units for the Design Division were fabricated and delivered.

The responsibility for the operation of the Power Facilities in the 101 Area including boilers, water systems, Buffalo forge units, and compressors, was transferred over to the Power Division by the 101 Shops.

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ELECTRICAL DIVISION

APRIL, 1949

GENERAL

The backlog of unfinished work as of April 30 was 10,395 mandays, a decrease of 386 mandays during the month. A decrease of telephone, minor construction, and distribution backlog was partially balanced by increase of Project backlog in the 100 Areas.

An Assistant Area Engineer was assigned to the "Z" Area (in 200-W), and one Assistant Area Engineer remains assigned to cover both 200-E and 200-W. One Foreman was layed off for lack of work. The total Division personnel at the end of the month was 270, a net decrease of nine.

The new, completely revised issue of the Electrical Division Safety Handbook was issued and is being distributed to all personnel.

The load chart for the peak day of the month, April 29, is attached, showing a peak of 59,160 KW for the entire project with coincidental demand for the combined 66 KV and 115 KV systems (Richland, 300 Area and vicinity) of 24,560 KW. This decrease is in accordance with seasonal expectations.

AREA ACTIVITIES

The eight 2000 HP synchronous motors in the 100 Areas, operating as synchronous condensers during the winter season, have been shut down and "layed away", two as of April 1, and six as of April 15.

Final checking of adjustments, and clean-up of small details is proceeding in 105 DR Building, including partial replacement of defective back face wiring with expectations of final completion and acceptance by June 15.

In addition to previous assignment of Assistant Area Engineer, an Electrical Foreman has been assigned to 100-H Area for general inspection and acceptance work. Procedures for preliminary test prior to energization of 151-H Substation have been written for the Construction Division, and final tests after energization are under study.

Projects P-10 and P-10A in 100-B Area are on accelerated electrical minor construction schedule; electrical drawings for P-10A have not yet been received.

In 200-E, the right hand impact wrench on the 75 ton crane in Building 221-B failed due to internal short circuit and was replaced.

Preliminary inspection of electrical wiring and equipment of various sections of Building 234-5 continues. Rectifier for cathodic protection of underground stainless steel is being installed. One of the 125 ampere oil circuit breakers, 252-Z1 station, has been sent to Westinghouse for rebuild of defective overload unit at their representative's request.

The Assistant Superintendent of the Division visited Seattle for the purpose of attending a lecture and discussion on the subject of corrosion of stainless steel

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by a consultant of the Columbia Steel Company before the American Society of Metals. Their experience on corrosion of buried stainless steel is negligible, since they do not recommend burial under any circumstances, but we feel re-assured that our studies and recommendations for elimination of such corrosion are correct, and as has been verified by experience.

TRANSMISSION AND DISTRIBUTION

Village maintenance work has been suspended for the balance of the fiscal year at the request of the Community Division. However, construction work remains at a high level in both work areas and the Village, and with recent reduction of personnel of line crews backlog is expected to remain substantially constant.

The final Richland Village load transfer from the old 66 KV system to the new 115 KV system was completed on April 21. The 300 Area and North Richland remain energized from the 66 KV. A re-study of possible near future load requirements in the 300 Area resulted in cancellation of the second 3750 KVA transformer for the new 115 KV station pending development of final plans for this area. The entire substation maintenance crews are now assigned to installation of the 300 Area 115 KV 2300 volt and 440 volt substations. Work has been started toward rebuilding of feeders in this area for the new substations, Project C-177. The old 66 KV station, B1-S2, including feeder tap line, 66 KV, has been dismantled.

Preliminary inspection has been made of the "F" Housing Area south of Lee Boulevard, and listed findings sent to the Construction Division for correction prior to final acceptance.

In 100-D Area, four transformer radiators, 230 KV main bank, have been removed and delivered to 100-H Area for installation in the 151-H Substation, main bank, as previously agreed upon with Design and Construction. Sixteen additional radiators will be removed from F and D Area transformers.

There were no unscheduled outages of consequence in the work areas, but there were two on the 115 KV system affecting Richland Village only and causing a total outage of one hour and 34 minutes. These were caused by damaged jumper at the Pasco Substation and by a switching error on the Bonneville Power Administration system. A total of 40 scheduled circuit outages were planned and arranged for purposes of maintenance and construction. These were scheduled without affecting production.

TELEPHONE SECTION

On Project C-138, New Richland Dial Exchange, 95 percent of the equipment has now been received and is 70 percent installed. Replacement of present telephones with dial phones in residences is 100 percent complete.

On Project C-276, all underground cable has been installed on George Washington Way, Williams Boulevard, Stevens Drive and Lee Boulevard, but some splicing remains on the latter two cables.

A preliminary acceptance inspection of 200 E-W Exchange Building has been made. Equipment has been installed, but only 10 percent of wiring and testing is complete.

A private line circuit has been established from Gable Mountain Radio Station to Richland Airport at the request of the Atomic Energy Commission.

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POWER STATISTICS - ELECTRICAL DIVISION
FOR MONTH ENDING APRIL 30, 1949

ITEM	ENERGY - MW HRS. March	ENERGY - MW HRS. April	MAX. DEMAND - KW March	MAX. DEMAND - KW April	LOAD FACTOR - % March	LOAD FACTOR - % April
230 KV SYSTEM						
A-2 Out (100-B)	7,490	7,010	11,200	11,000	89.9	88.5
A-4 Out (100-D)	7,750	7,230	13,100	12,700	79.5	79.1
A-6 Out (100-F)	7,310	6,790	11,800	11,600	83.3	81.3
A-8 Out (200 Areas)	2,860	2,450	4,900	4,500	78.4	75.6
TOTAL OUT	25,410	23,480	41,000**	39,500**	83.3	82.6
MIDWAY IN	25,763	23,868	38,000*	36,800*	91.1	90.1
Transm. Loss	353	388	-	-	-	-
Percent Loss	1.4	1.6	-	-	-	-
66 KV SYSTEM						
B1-S1 Out (Richland)	3,852	869	8,800	5,000	58.8	34.5
B1-S3 Out "	1,127	445	2,800	2,300	54.1	42.4
B1-S2 Out "	653	-	2,254	-	38.9	-
B3-S4 Out (300 Area)	231	195	492	456	63.1	59.4
B3-S5 Out "	516	482	1,160	1,480	59.8	45.2
B1-S4 Out (N.Richland)	2,592	1,843	5,069	3,686	68.7	69.4
B7-S10 Out (W.Bluffs)	408	306	1,305	945	42.0	45.0
B9-S11 Out (100-H)	562	509	1,480	1,320	51.0	53.6
Hanford Out	281	271	500	500	75.5	75.3
TOTAL OUT	10,222	4,920	23,860**	15,687**	57.6	43.6
Hanford In	6,617	3,503	19,500*	8,600*	45.6	55.8
Pasco In	3,731	1,438	9,600*	6,400*	52.2	31.2
TOTAL IN	10,348	4,941	29,100**	15,000**	47.8	46.1
Transm. Loss	126	21	-	-	-	-
Percent Loss	1.2	.4	-	-	-	-
115 KV SYSTEM						
BB1-S1 Out (Richland)	454	3,080	3,960	9,720'	15.4	44.0
BB1-S2 Out "	3,100	2,828	7,500*'	7,920*	55.6	49.6
TOTAL OUT	3,554	5,908	11,460	17,640**	41.7	46.5
Benton In	3,480	3,120	8,460*	8,640*	55.3	50.2
S. Richland In	528	3,120	4,320	9,720	16.4	44.6
TOTAL IN	4,008	6,240	12,780**	18,360**	28.0	47.2
Transm. Loss	454	332	-	-	-	-
Percent Loss	11.3	5.3	-	-	-	-
PROJECT TOTAL						
230 KV	25,410	23,480	41,000**	39,500**	83.3	82.6
66 KV	10,222	4,920	23,860**	15,687**	57.6	43.6
115 KV	3,554	5,908	11,460*	17,640*	41.7	46.5
TOTAL OUT	39,186	34,308	76,320**	72,827**	69.0	65.4
230 KV	25,763	23,868	38,000*	36,800*	91.1	90.1
66 KV	10,348	4,941	29,100**	15,000**	48.8	45.3
115 KV	4,008	6,240	12,780*'	18,360**	42.1	47.2
TOTAL IN	40,119	35,049	66,200*	70,160**	81.5	69.3
Transm. Loss	933	741	-	-	-	-
Percent Loss	2.3	2.6	-	-	-	-

* Coincidental Demand
** Non-Coincidental Demand
' Denotes estimate

Average Power Factor - 230 KV System--99.4
Average Power Factor - 115 KV System--92.9
Average Power Factor - 66 KV System--89.4

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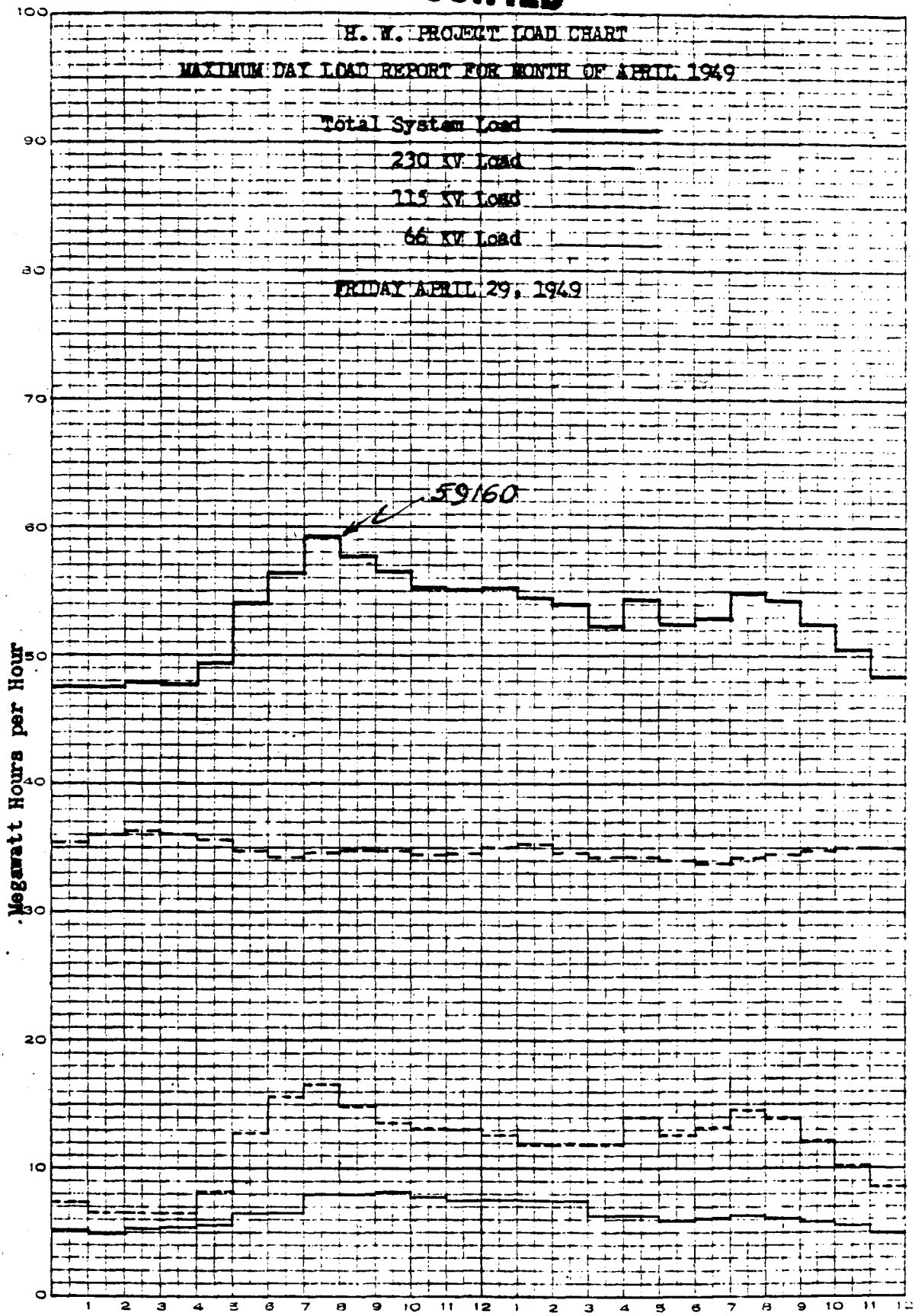

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TRANSPORTATION DIVISION
MONTHLY REPORT
April 1949

General

Transportation Division personnel forces were decreased during the month from 693 to 653 in the following manner: Five transfers in, 16 transfers out, 25 reduction of force terminations, and four terminations for other reasons.

Railroad Activities

Commercial inbound tonnage decreased approximately 39% over March. Process movements were slightly below normal. Total cars handled dropped from 3,175 in February to 2,274 in March and 1,376 in April as a result of the recent curtailment of the construction program.

Work train service was provided for the movement of concrete aggregate from the Central Mix Plant to the 241-BX Area and for spot ballasting on Project C-214.

Two 120-ton and two 65-ton Diesel-Electric Locomotives were declared excess to our needs.

Morrison-Knudsen, Track Maintenance Subcontractor, continued to progress satisfactorily on the Plant Railroad Rehabilitation Program. Their total force as of April 30 was 196 which is a decrease of 35 over March.

Automotive Activities

Area and Village Bus Systems registered a combined decrease of 25,914 passengers over March. A 65% increase in revenue was realized by the Village Bus System due to the increase of fare from 5¢ to 10¢ effective March 8, 1949. Half-hour Village Bus Schedules were initiated as of the same date.

The Equipment Control Section assumed responsibility for planning and scheduling Area Cargo Trucking Service previously under the jurisdiction of the Stores Division.

Construction and Labor Activities

Labor and transportation facilities were supplied for Projects C-138, C-163, C-177, C-189, C-214, C-227, C-238, C-268, C-276, C-279, C-291, C-294, C-308, and Well Drilling operations.

Traffic

Washington Intrastate truck lines were granted a 4% rate increase effective May 2, 1949.

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Traffic - Continued

Transcontinental truck lines were granted an average increase of 9.6% in rates, effective May 1, 1949.

Office of Defense Transportation General Order No. 18-A, imposed to alleviate the freight car shortage, placed under suspension effective 12:01 AM February 14, 1949, has been continued under suspension until June 30, 1949, at which time it will be vacated. The restrictions under this order may be reimposed at any time before June 30th, if a freight car shortage develops. This in effect relieves a shipper of loading cars to full capacity; or to obtain permits to ship cars not fully loaded.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of April amounting to $16,496.47.

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

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PROJECT ENGINEERING DIVISION

MONTHLY REPORT
April 1949

PRESENT STATUS OF WORK

Projects or Suspense Codes Authorized and Under Construction

100 Areas

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-172	Dismantling of Equipment in Demineralization & Deaerating Plants (Remaining work deferred)	15	8-19-47	$ 486,000
C-184	Experimental Animal Farm (Directive received covering scope of revised project)	0	4-28-49	288,000
C-192	Biology Lab. Bldg. 108-F (Directive received covering scope of revised project)	37	3-10-49	101,000
C-290	Fabricate & Install Spectrometer	32	9-29-48	17,400
C-294	Mock-Up Facilities for Metallurgical Studies	99	10-22-48	47,700
C-306	Revised Pile Shielding - Front Face Shield Nozzle Caps (Postponed until after July 1, 1949)	0	11-30-48	88,000
C-323	Vertical Rod Replacement - 105 B,D,F	66	3-10-49	280,000
	(Susp.Code 481,000) Lithium-Aluminum Alloy Prep.(P-10-A)Proj.awaiting approval	25	1-28-49	242,000
	TOTAL Estimated Cost Active 100 Area Projects			$1,550,700

200 Areas

C-163	Additional Waste Storage & Tie Lines 200-W (G.E.Portion Only-Subcontract not incl.)	91	7-25-47	800,000
C-298	Decontamination Stations for Small Equipment - 221-T,B	50	11-15-48	33,000
	TOTAL Estimated Cost Active 200 Area Projects			$ 833,000

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Project Engineering Division

Projects or Suspense Codes Authorized & Under Construction (Cont'd)

300 Area

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-189	Bldg. 3745-A X-Ray Facility	92	8-20-47	$ 33,000
C-219	Construction of Additional H.I. Instruments	81	1-27-48	97,200
C-227	Conversion of Offices to Labs Bldg. 3706 & Construction of 3707-C Change House	92	3-15-48	557,000
C-287	Experimental Metallurgy Lab.Bldg.3730 (Postponed until after July 1, 1949)	0	12-2-48	140,000
C-308	Process Development Lab Bldg. 3732	20	1-17-49	50,000
	(Susp.Code 476,000) Increased Ventilation 313 & 314 Bldgs. (Proj. awaiting authorization)	0	9-24-48	540,000
	(Susp.Code 482,000) Rehabilitation of Bldg. 321 (Proj. awaiting authorization)	85	1-31-49	227,000
	TOTAL Estimated Cost Active 300 Area Projects			$1,644,200

GENERAL PLANT AREAS

C-138	Richland Telephone Exchange - Bldg. 702	71	5-12-47	470,500
C-144	Additional Tel. Cables - Richland	75	5-12-47	71,000
C-177	115 KV Power Transmission Line	70	8-14-47	1,364,000
C-214	Rehabilitation of Plant Railroad	84	2-18-48	3,206,000
C-265	Additional Telephone Cable - Richland to Kennewick	75	7-29-48	30,000
C-276	Overall Plant Telephone Project	74	10-6-48	1,232,000
C-291	Security Fences - All Areas	1	10-18-48	441,800
C-333	H.I. Operational Survey Insts.	0	4-20-49	85,000

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Project Engineering Division

Projects or Suspense Codes Authorized & Under Construction (Cont'd)

GENERAL PLANT AREAS (Cont'd)

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-322	Osmose Treatment of Plant Elec. Poles & Replacements where necessary (Postponed until after July 1, 1949)	56	2-1-49	$ 154,000
	TOTAL Estimated Cost Active Plant General Projects			$7,054,300
	GRAND TOTAL Est. Cost Authorized Work - ALL AREAS			$11,082,200

Informal Project Requests Authorized and Under Construction

100 AREA

Request Number		% Phys. Complete	Date Auth.	Est. Cost
M-704	Special Cadmium Plated Splines (Field Release issued)	5	2-7-49	$ 18,300
		TOTAL		$ 18,300

Projects Being Routed for Authorization

E.R. No.	Project No.		
A-3061	C-330	Improvement of 313 & 314 Buildings Ventilation for Control of Air-Borne Contamination	$ 540,000
941	C-184 (Rev. Part I)	Experimental Animal Farm	288,000
A-1077	C-334	Facilities for Manufacture of Lithium-Aluminum Alloy Slugs (P-10-A)	242,000
2460	C-337	Dissolver Off-Gas Filtration Facilities	337,000
A-530	C-331	Rehabilitation, Remodeling and Increased Ventilation - Bldg. 321	227,000
TOTAL Est. Cost of Projects Awaiting Authorization			$1,634,000

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Project Engineering Division - Area Reports

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

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-1066	Mock-Up Facilities for Metallurgical Studies (Designs for Proj. C-294)	99
A-1067	Design Handling, Can Opening and Processing Facilities for SR-65 Slugs	5
A-1068	Prepare Informal Request for Developing a Flexible Vertical Rod	17
A-1070	Prepare Project for Changes to Unit Motion Instruments	100
A-1074	Design Moisture Extraction System for Gas System - 105 Building	2
A-1075	Recommend Adequate Warehousing for 100 Areas, 200 & 300 Areas	6
A-1076	Prepare Project to Replace V.S.R. and Guides in 105 B,D,F (Designs for Project C-323)	77
A-1077	Prepare Project for P-10 Alloy Facilities	65
A-1080	Thermocouple for 105 Process Tube	52
A-1083	Hot Thimble Mock-Up	87
A-1085	Prepare Project for Pile Operation with 100% CO_2 Atmosphere, 100F Area	15
A-1086	High Tank Control Valves - 105 Area	75
A-1089	Design Draft Free Glass Blowing Table P-10	5

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Project Engineering Division - Area Reports (Cont'd)

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

100 AREAS (Cont'd)

E. R. No.		% Engineering Complete
A-1093	Prepare "CM" Project	10
A-1094	Prepare Informal Request for Algae Removal	60
A-1095	Survey Process Sewer Discharge Line to the River	100
A-1096	Study Lubrication of Process Tubes During Charging	0

200 AREAS

2266	As-Built Drawings	10
2279	Prepare Project for Regasketing Facilities - 221 T & B	85
2355	TX Waste Storage (Field Engr. for Project C-163)	91
2456	Prepare New Map of Underground Water and Sewer Lines - 200 E & W	100
2459	Design Facilities for Diluting Caustic Solution 221 Areas	75
2460	Design Filter for Dissolver Off Gas	90
2461	Survey Sanitary Tile Field Addition 200 EW	30
2467	Engineering Contact on New Processes	15
2471	Design & Estimate Optical Block Bldg. 221	100
2472	Design Equipment for Radioactive Source Building 234-5	75
2473	Design Precipitator Tank Including Expansion Joints	100
2474	Design & Est. Railing & Mirrors for Diversion Boxes	65

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Project Engineering Division - Area Reports (Cont'd)

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

200 AREAS (Cont'd)

E. R. No.		% Engineering Complete
2478	Design Hangers for Bldg. 231-234-5 Cask Truck	100
2479	Design Temp. Device for #1 Tank Spray Building 221-B	0
2481	Revise Drawings for Agitator Shafts Bldgs. 221 T B	0
2482	Design & Install Drain Line from 292-B to Waste Cribs	75
2484	Design Apparatus for Pulling Pipes in Concrete	0

300 AREA

A-3002	As-Built Drawings	25
A-530	Change in Air Conditioning System 321 Bldg.	70
A-3060	Temporary Melting & Fabrication Bldg. (Design for Project C-287)	78
A-3061	Increased Ventilation - 313 & 314 Bldgs. (Designs for Project C-330)	42
A-3062	Design & Estimate Cost of Installing 300 Area Rolling Mill (Study in Progress to Install in 314 Bldg.)	12
A-3063	Evaluate CO_2 System for Rooms 4A and 6 Building 3706	96
A-3066	Revise Maps - 300 Area Water and Sewer Systems	0
A-3067	Billet Lifting Tongs (Design sent to "P" Div. for Approval)	60
A-3069	Solvents Storage - 3706 Building	2

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Project Engineering Division - Area Reports (Cont'd)

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

300 AREA (Cont'd)

E. R. No.		% Engineering Complete
A-3075	Design for Nine Tube Mock Up for 105BDF Design (Rough Draft of Proj. Prepared)	50
A-3077	Design Installation for Three Automatic Screw Machines 313 Building	27
A-3080	Design and Estimate Loading Platform & Acid Storage Area, Bldg. 3706	0
	GENERAL PLANT AREAS	
E-403	Install four traffic signals at Richland Railroad Crossings	75
E-405	Electrical As-Built Drawings	0
E-406	Prepare Project - Additions to Village Distribution System	80
E-407	Prepare Project - Inst. Htrs. on Evacuation Busses & Service Facilities	95
E-411	Study Design & Est. Cost of Dual Feed to Sewage Lift Station	50
A-420	Engineering Work for Rehabilitation of Plant Railroad. Project C-214	90
A-452	Prepare Project for Expansion of Main Plant Telephone Sys. (Design Work Only)	90
A-492	Additional Telephone Trunk Cable - Richland to Kennewick (Design Work for Project C-265)	100
E-505	Electrical Standards	15
A-509	Drafting for 300 Area Planning Committee	65
A-511	Prepare Project for Butt Treatment of Power Line Poles	100
A-514	Prepare Project for Improvement to Area Fence Lighting	15

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Project Engineering Division - Area Reports (Cont'd)

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

GENERAL PLANT AREAS (Cont'd)

E. R. No.		% Engineering Complete
E-413	Study & Project - Telemetering 115 & 230 KV Lines & Remote Control on 115 KV Substation	0
A-526	Field Information for 300 Area As-Builts	60
A-530	Design Work for Rehabilitation of Bldg. 321 Project C-331, SC 482000	90
A-532	Design Work for Project to Construct Biology Lab. - Bldg. 108-F, Pts I & II	6
A-534	Remodel Refrigeration Cooling System Kadlec Hospital	85
A-536	Additional Capacity for Sewage Lift Pumps Richland	10
A-537	Survey for Maintenance of R. R. Inside Restricted Areas	20
A-538	Survey to Check Boiler House Stacks for Alignment	30
887-R	Coal Pile Survey - 100 B, D & F Areas	100
941	Designs for Experimental Animal Farm Project C-184	90
E-962	Designs for 115 KV Power Line Through Richland	95
PM 1310	Fence Layout & Cylinder Storage Removal Personnel Meters Bldg.	85

ENGINEERING STUDIES GROUP REPORT

Studies Completed This Month

E. R. No.		Date Completed
4360	Ingersoll-Rand Backwash Pump Inspection 283W	3-29-49

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Project Engineering Division DECLASSIFIED

ENGINEERING STUDIES GROUP REPORT (Cont'd)

Studies Completed This Month (Cont'd)

E. R. No.		Date Completed
4348	Soft Water System -- Kadlec Hospital	3-30-49
4357	Lubrication Survey - 234-5 Building	4-14-49
4359	Concrete Procurement Procedure	4-19-49

Studies Added This Month

E. R. No.		Date
4364	Railroad Truck Maintenance	4-8-49
4365	Methods Study, P Div., 300 Areas	4-15-49

Active Studies

E. R. No.		% Complete
4326	Use of Inhibited Oil in Turbines - 190 Bldg.	99
4327	Maintenance of Pitched Roofs	70
4336	Review Oil Coding System	50
4361	Chip Recovery Method	75
A-505-S	Electrical Equipment Standards	25
4362	Mfg. Divisions Personnel Analysis	75
4363	Proj. Engr. Div. Personnel Analysis	75
4364	Railroad Track Maintenance	20
4365	Methods Study, PDiv., 300 Areas	-

Studies Deferred or * Cancelled

E. R. No.		Date
4346	Welding Line Analysis - 313 Bldg.	4-8-49
4347	Improved Frost Line Test - 313 Bldg.	4-8-49

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Project Engineering Division

ENGINEERING STUDIES GROUP REPORT (Cont'd)

Studies Deferred or * Cancelled (Cont'd)

E. R. No.		Date
4354	Bronze Furnace Heating - 313 Bldg.	4-8-49
*4356	Project Engr. Div. Procedure	4-8-49

BACKLOG SUMMARY

	Work on Hand 3-31-49 Estimated Man Days	Work on Hand 4-30-49 Estimated Man Days
Studies	204	244
Project & Design	8,412	7,592
	8,616	7,836

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TECHNICAL DIVISION

April 1949

SUMMARY

Pile Technology Division

Effectiveness of cadmium coated splines as an emergency control device has been demonstrated by pile tests, thereby making feasible an early increase in power level of the piles.

Completed tests on pile tubes with restricted water flow have demonstrated that an increase in power level can be effected without encountering adverse corrosion effects in tubes outside of the 0.240-inch orifice zone.

Slugs representative of current production have shown moderate blistering after an exposure of about 350 MD/ton. A few of the alpha-rolled, triple dipped slugs which were canned prior to revision in the procedure for bronze dipping have been difficult to discharge after an exposure of 330 MD/ton.

The nominal carbon dioxide concentration in the B Pile was increased to 40%, and in the F Pile to 46% during the month.

Separations Technology Division

Separations Plants operations were normal during the month, except for the need for reworking several small waste losses and increasing the skimming heel in the first cycle by-product centrifugation at B Plant to improve erratically poor Canyon decontamination. Field laboratory studies indicate that the apparently high extraction waste losses obtained in processing aged 100-B metal may be due to the presence of curium. Spot check evaluation of the plant sand filters has shown that activity removal efficiencies, pressure drops, and air flows have remained within the range of normal operation. Pilot plant studies of the effects of steam injection on particle removal by Fiberglas are being carried out. Hydrogen, ammonia, and iodine evaluations from dissolver operation are being measured.

Administrative control of the 234-5 Building was turned over to the "S" Division by the Separations Technology Division on April 11 and the Process Bay was taken over from Construction by Operations on April 29. The bulk of the remainder of the 234-5 Building will be relinquished by Construction on May 6, from which date General Electric Maintenance will complete installation of equipment in the process line. Completion of the fourth 10-gram scale pilot run through metal reduction has produced average yields of 99.7% through dry chemistry and 97.5% in reduction. Seven trials of the plastic bag technique for removal of contaminated objects from a test hood have demonstrated extremely satisfactory contamination control.

Redox Scale-Up studies were resumed in Bldg. 321 during the middle of the month. Testing of the O.R.N.L. flow sheet in Columns IA, IB, and IC has indicated that throughput ranges and stage efficiencies are essentially unchanged from those of the A.N.L. flow sheet. The Demonstration Unit is being

[redacted]

revised to provide for cascade operation of all columns and to increase capacity of operation. Field tests on the reactivity of nitric acid and hexone mixtures when subjected to long slow air-sweep evaporation have been completed, all resulting in violently exothermic and gas-evolving reactions.

Redox laboratory research studies on nitric acid-hexone studies are being continued. Experimental pulse column runs have produced extraction stage heights as low as three inches at high throughputs. Ruthenium ozonization and deposition studies with plant dissolver solution, as well as zirconium scavenging from dissolver solution, have been continued. Up to 99.4% removal of phosphate from metal waste solution has been obtained in studies of Redox feed preparation by sodium diuranate precipitation. An alternative method for plutonium peroxide dissolution in Isolation has been developed in the laboratory, as well as a potential method for recycling 234-5 Process oxalate supernatants back to Isolation.

Metallurgy and Control Division

Effective April 4, responsibility for the analytical control of water treatment processes in the 100 Areas was transferred from the Metallurgy and Control Division to the Power Division. This allowed Analytical Section personnel in these 100 Area laboratories to be reduced from 44 to 17, the number needed for (1) technical support of the Power Division, (2) continuing analytical service to the P Division, and (3) performing river water analyses. A further economy in Analytical Section operations will result from the consolidation, on April 20, of T and B Plant control analysis into a single laboratory (222-B). An analytical research group is to occupy Bldg. 222-T while it is out of control service.

Considerable improvement in the limited facilities for metallurgical studies attended the completion of (1) metallurgy laboratory revisions in Bldg. 3706, under project C-227, and (2) a mock-up radio-metallurgy laboratory in 100-B Area, by conversion of Bldg. 111-B under project C-294.

Discussions of uranium metal quality were held here on April 25 and 26 with representatives from Electromet, Mallinkrodt, and the AEC offices in New York and St. Louis. The results of billet quality improvement efforts at the Electromet and Mallinkrodt plants were reviewed in the light of Hanford reactivity checks on the metal produced. A considerable gain in the reactivity of virgin uranium has been achieved since the program was started last Summer, and it was agreed that no further process changes should be made until additional experience has been acquired with the present product.

ABG:dg

A. B. Greninger Jr.

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PILE TECHNOLOGY DIVISION

APRIL, 1949

May 11, 1949

VISITORS AND BUSINESS TRIPS

There were no visitors during the month of April.

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

J. T. Carleton and U. M. Staebler visited Los Alamos Scientific Laboratory, Los Alamos, New Mexico, from April 13-15, 1949, for Rala consultation.

R. L. Dickeman and P. R. Gillette visited Radiation Laboratory, University of California, Berkeley, California, April 19-20, 1949, to attend the Neutron Detection and Measurement Conference.

C. W. J. Wende attended an Atomic Energy Commission meeting at Oak Ridge National Laboratory, Oak Ridge, Tennessee, on Materials Testing Reactor. He was there April 25-26, 1949.

C. W. J. Wende visited Schenectady, N. Y., on April 11 and 12, 1949, for general consultation.

ORGANIZATION AND PERSONNEL

	March	April
Pile Physics Section	44	36
Pile Engineering	24	30
P-10 Project	6	6
Administration	3	3
Special Assignment	--	1
	77	76

W. K. Woods was appointed Division Head on April 25, vice C. W. J. Wende who was placed on special assignment. Concurrent organizational changes included A. A. Johnson as Section Chief, Pile Engineering, vice W. K. Woods; J. C. L. Chatten as Group Head, P-10 Project, vice A. A. Johnson; and C. W. Botsford as Group Head, vice H. W. Ritchey.

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During the month two Lab. Assts. D and one Steno-Typist D terminated; one Lab. Asst. B, one Lab. Asst. D, and one General Clerk B transferred into the Division; one Lab. Asst. B transferred out of the Division to Metallurgy and Control Division. Eight personnel were transferred from Physics Section to Engineering Section as a result of organizational changes within the Division.

PILE PHYSICS

Higher Power - Effectiveness of Cadmium Coated Splines - Production Test No. 105-245-P

The effectiveness of one and two cadmium coated splines in a process tube in the flattened zone of a pile was tested in the B Pile. A single spline between the ribs of the tube was found to be worth 10.5 inhours. Two splines in the same tube were worth 19 inhours. On the basis of these results a schedule has been formulated for charging these splines as an emergency supplement to the control power of the present rod systems when the piles are taken to higher power levels.

Limitations on Shutdown Time

The presence of carbon dioxide in the atmosphere of the F Pile has reduced the time interval between minimum and maximum down times even more than in the case of the D Pile. This time interval is only about one hour at 40% carbon dioxide for normal operating conditions. Each start up of the F Pile will have to be made to a reduced power level when the carbon dioxide content is increased to 60%. This difference appears to be due to two reasons: 1) Calibrations of the horizontal rod systems show the rods at D to be worth 15 inhours more than those in the F Pile, and 2) the reactivity contribution of the over-all power coefficient is about 20 inhours greater for the F Pile than for the D Pile.

Graphite Development

Efforts to make high purity graphite by gas baking and purifying bars prepared from Whiting coke have been unsuccessful. Whiting coke contains large amounts of various impurities which are not removed in this process but which are removed by normal graphitization followed by purification. It is believed that the failure of the GBF process is due to the large shrinkage of Whiting material in the purification furnace which destroys electrical contact with the packing around the bar thus lowering the temperature of the bars. More experiments are planned to determine how gas baked Whiting bars can be purified. The objective is to master the techniques for this material so that, in case Cleves coke should become unavailable, the readily available Whiting coke can be used.

Tests have now been completed on graphitization and purification of graphite to which known amounts of rare earths were added. Results indicate that large fractions of the rare earths are removed in the graphitizing process and that the remainder are removed during purification. Results on all tests on rare earths in graphite indicate that europium, samarium, and gadolinium are present in unpurified graphite and are removed by purification. Dysprosium, if present, will also be removed in purification but no positive evidence of its presence has been obtained. These four rare earths are the only ones with large neutron absorption cross sections. In order to have damaging reactivity effects, any other rare earth elements would have to be present in concentrations large

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enough to be detected by ordinary spectroscopic methods. None were found in this way.

Shielding - Pile Life

Irradiations of indium foils in the beam through the opening between the top and far side shields of the F Pile show about 10,000 n/cm^2/second in the energy range 0 to 2 or 3 volts and about 3500 n/cm^2/second in an energy range above indium resonance. This corresponds to dosage rates of more than 100 mrem/hr but less than 500 mrem/hr, depending upon the actual energy distribution.

Neutron flux measurements have been made in a shielding plug constructed of masonite and iron layers to match the surrounding shield. These results indicate a neutron relaxation length of 7.5 cm which is considerably longer than the value of 5 cm found by other researchers. The reason for this difference has not been established but it may result from deterioration of the masonite.

Indium foils have been irradiated on the seams of the far side shield of the F Pile to compare present neutron leakage beams with those measured in July, 1947. Results of these measurements indicate an increase of about 50% in less than two years. The same foils and the same geometry were used as in the previous irradiations. The neutron leakage at this point is presumably due to a crack between the laminated structure and the web of the T-Beam and no conclusions can be drawn from these observations regarding a change in the condition of the masonite. The present intensity of these beams is so low that they are not considered to represent an operating problem.

Critical Mass Experiments

The first part of a formal project to cover this work is being prepared and will be submitted for approval early in May.

Thermocouples in the DR Pile

Failure of many of the thermocouples placed in the DR Pile to measure graphite temperatures was traced to water in the junction boxes on the rear face of the pile in which the thermocouples are connected to external wiring. Water was found in the top junction box and there was evidence that water had been present in the bottom junction box. Some of the thermocouple leads were found to be corroded completely through but it was possible to splice to these leads and retain the identity of the thermocouples. All of the B.G.S.T.N. thermocouples in the DR Pile are now operating satisfactorily.

Reactivity

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

	B Pile	D Pile	F Pile
In rods	120 ih	72 ih	47 ih

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	B Pile	D Pile	F Pile
In xenon	497	478	482
In over-all coefficient	-170	-160	-179
Total cold, clean reactivity	865	885	830

Reactivity gains during the month were: B Pile, 26 inhours; D Pile, 5 inhours; and F Pile 20 inhours.

Status of Special Irradiations

The status of Hanford Requests is reported for the current month in documents HW-13179 and HW-13179-A.

PILE ENGINEERING

Corrosion and Blistering of Slugs

Alpha-rolled, triple-dipped, completely transformed metal (Group 5 material) has shown marked blistering tendencies when examined after an exposure of 348 MD/ton. The blisters are small and uniformly distributed, and based on examinations to date will permit higher exposures. It appears probable that the maximum exposure of this type material will be limited by the blistering tendency.

Alpha-rolled, triple-dipped, incompletely transformed metal (Group 4 material) has been examined at exposures up to 332 MD/ton. A small portion of this metal has been observed to be badly distorted and four tubes of such metal were stuck during the month. The slugs which warped excessively were all canned on the same date indicating that possibly a canning variable was out of control on that day. An upper limit of 360 MD/ton has been placed on all Group 4 material remaining in the piles, and the portion charged August 4 to August 13, 1948, will be limited to an exposure of 320 MD/ton.

The results of the slug corrosion test observed in Production Test 105-103-P, in which tubes were operated at higher water temperatures by restricting the water flow, show that there was no noteworthy increase in slug jacket corrosion rates in any zone of the pile. This evidence indicates that slug corrosion will not prevent operating the piles with reduced water flow at the present power levels, and that corrosion difficulties probably will not be encountered if the power level is increased.

Self-Seating of Uranium Slugs

Flow laboratory tests show that downstream movement of uranium slugs in a process tube is improbable even in the 0.240 orifice zone. The elimination of the back seating appears unattractive due to loss of reactivity caused by water-filled voids in the slug columns. It is intended to verify these results by a production test.

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Recommendation for Process Tube Nozzles for 105-H

A decision has been reached to equip the tubes of the H Pile with zinc galvanized stainless steel nozzles on the front face and 356 T6 aluminum alloy nozzles on the outlet face.

This decision was based on the previously reported facts that zinc protects aluminum from galvanic corrosion at temperatures below 50°C. and replacement of stainless steel by aluminum or aluminum alloy offers the only acceptable method tested to date for protection of the rear face flanges. Rear face nozzles made of 5-1/2% silicon aluminum alloy gave complete protection to rear face Van Stone flanges in a plant test of 15 months' duration. Corrosion cell test data and flow laboratory exposure tests indicate that a 5 mil zinc coating on the inlet stainless steel nozzles will offer protection for approximately 5 years before obtaining corrosion rates currently experienced with stainless steel nozzles. This life estimate is based on the rate of zinc removal expected to progress down the pigtail inlet tube. Both type nozzles were satisfactory in all mechanical hydraulic, and functional acceptance tests.

Magnesium Alloy Test Program

A sufficient amount of 3% Al-97% magnesium alloy has been procured to make preliminary tests to study the corrosion resistance and suitability of this alloy for use as process tubes and slug jackets. Tests are in progress to determine the following: (1) solution corrosion rate in process water, (2) galvanic corrosion rate of various metallic couples in process water, (3) effect of carbon dioxide atmosphere at elevated temperatures, (4) effect of carbon dioxide saturated water and water vapor at temperatures up to 80°C., and (5) formability and machining properties of the alloy.

Carbon Dioxide Adsorption on Silica Gel

Calculations based on data found in the literature show that silica gel in contact with carbon dioxide at 25°C. and 0.4 atm. pressure is capable of adsorbing 250 cubic feet of CO_2 (converted to standard conditions per 1000 lbs. of gel). The release of the adsorbed carbon dioxide during silica gel regeneration probably explains most of the pressure increase noted at the 100-F Area during cycles of dryer regeneration.

Graphite Expansion

The carbon dioxide in the B Pile atmosphere was increased from 25% to 40% during the month. No immediate effects were observed except an increase in the graphite temperature. The central zone is now about 37°C. higher than with no carbon dioxide. At the F Pile the carbon dioxide was increased from 40% to 46% on April 18 and 19. Further increases to 60% were temporarily deferred because of a discrepancy between the Orsat analysis and thermal conductivity measurement apparently caused by leakage of air into the pile during shutdown. Measurements of the biological shield movement indicate a significant decrease in rate of graphite expansion at the F Pile during March and April. Wye level measurements of the elevation of the center of the Top show a rise of 0.00" ± 0.04" from February 15 to April 20 as compared to a previous rate of 0.03" per month. The outward movement of the top center of the Far Side also show a decrease in rate.

The program for improving the instrumentation used for measurement of graphite expansion and thermal movements was continued. The instruments installed this month include: tight wires on the Front Face and Far Side of the B Pile, electro-pneumatic bowing instruments on the Rear Face of the B and F Piles, and improved micrometer brackets and dial gages at all three piles.

Higher Power Level

Estimates were made of some of the thermal effects which would be encountered at higher power levels as a basis for a proposed production test increasing the power level of the D Pile to 325 MW.

Apparatus is under consideration to determine experimentally the heat transfer coefficients and flow characteristics of a process tube and slugs. Tests were started on a small section to determine the feasibility of construction of a full scale model.

Rale Project

Discussions were held with Los Alamos personnel on a proposal to irradiate pure U^{235} in the Hanford Piles for production of Ba^{140}.

Vertical Safety Rods

A second knuckle jointed vertical control rod was tested in the 185-F mock-up. Through a shortened rod guide the rod performed satisfactorily to a minimum deflection of 2.25" at a point 7-1/2 feet below the top of the unit. When this rod was tried in the #20-F thimble it hung up at a point 8 or 9 feet in.

Improved equipment is being developed for inspection of vertical thimbles.

Third Safety System

Performance tests of the 3X system with a heated thimble were made in the 185-F Building. Tests were made with the thimble heated at various temperatures up to a maximum of 400°C. Additional heat was supplied after tripping the 3X to simulate heat flow from the graphite to the thimble. Under the most severe test conditions with the thimble heated to 400°C. and an initial heat flow of 8 KW no flash of steam was observed where the 3X was tripped. Some spray of water was carried out by the displaced air; however, this was not significantly greater than with a cold thimble. There is some doubt whether these tests duplicate pile conditions because first the thermal conductivity of the irradiated graphite surrounding the thimble is unknown and secondly, the heat transfer coefficient between graphite and thimble will vary depending upon the position of the thimble in the hole.

Graphite Monitoring

A sample of graphite mined from process tube opening 3169-F at the position of the SR-15 rupture released 121 calories of stored energy up to 630°C. This high value and the shape of the stored energy curve indicate that the rupture of the process tube was not caused by release of stored energy in the graphite. A graphite sample mined from a metal-bearing tube released 160 calories of stored energy up to 630°C.

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All-flour CS graphite expands at the same rate as standard CS (flour and particles) for an exposure of 339 MD/CT.

Electrical resistance measurements on CS graphite during pile exposure have been made up to an exposure of 75 MD/CT to obtain information on neutron damage at low exposures. The indications from a small amount of earlier work that the ratio of the final to initial resistance can be fitted to an equation of the form

$$\rho/\rho_0 = C\left(1 - e^{-C_2 \frac{MD}{CT}}\right) + 1$$

have been verified. The behavior of the electrical resistance during start-up and shutdowns indicate that neutronic rather than thermal annealing is predominant at test hole temperatures.

P-10 Project

A total of [redacted] of product were extracted from 357 fluoride slugs. At the present rate all of the fluoride slugs will be processed before the end of May.

Design work on furnaces and slug handling equipment for alloy slugs is in progress. The present goal is to have one extraction line in operation on alloy slugs by the end of June and to have all four lines in operation in September.

A total of 1072 alloy slugs are now being irradiated. Slugs with [redacted] exposure were discharged and will be examined and extracted by Argonne early in May. For slugs with [redacted] exposure, Argonne has reported a yield of [redacted] per slug and purity of [redacted] per cent.

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 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
None	

Signed W. K. Woods
W. K. Woods, Head
Pile Technology Division

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HW-13190-Del

May 10, 1949

SEPARATIONS TECHNOLOGY DIVISION

APRIL, 1949

VISITORS & BUSINESS TRIPS

G. W. Pomeroy's loan to the Oak Ridge National Laboratory for assistance to Redox pilot plant operations was extended from April 1 to May 1.

F. W. Woodfield visited the Knolls Atomic Power Laboratory from April 5 to 9 for consultations on Redox.

B. Weidenbaum visited the Los Alamos Scientific Laboratory April 11 through 15 for technical consultations on the 234-5 program.

W. M. Harty visited the Los Alamos Scientific Laboratory April 13 to 15 for Rala consultations.

R. B. Richards and J. G. Bradley visited the Argonne National Laboratory on April 18 and 19, the Oak Ridge National Laboratory on April 20 through 22, and the Knolls Atomic Power Laboratory and Kellex Corp. from April 25 to 27 for Redox consultations.

ORGANIZATION AND PERSONNEL

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

	March	April
Administration	2	2
Process Section	27	28
Development Section	94	93
Research Section	31	32
	154	155

One new hire, a Chemical Engineer, was added to the Development Section. Two Chemical Engineers were transferred from the "P" Division, one to the Process Section and one to the Development Section. Two Steno-Typists were transferred

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from the Service Division, one to the Development Section and one to the Research Section. Terminations were as follows: one Chemical Engineer, one Operator A, one Operator D, and one Steno-Typist B - all from the Development Section.

200 AREA PLANT ASSISTANCE

Canyon Buildings

Ferrous ammonium sulfate solution instead of nitric acid was inadvertently used for the first cycle product cake solution of Run B-9-03-B-37 at B Plant. The iron solution product precipitate slurry was diluted, adjusted to 0.2 M in phosphoric acid, and recentrifuged, washed, and dissolved in the standard manner. The loss for these operations was 0.05%.

A period of poor decontamination through the Canyon Building was experienced at B Plant. The average log gamma decontamination factor for Runs B-9-04-B-5 through B-9-04-B-12 was 3.91. It was observed during this period that skimming was erratic in the first cycle by-product precipitation and that all excess solution had been removed from some precipitates. In an attempt to improve decontamination, the skim heel was changed to 15 gallons from 10 gallons, starting with B-9-04-B-13. The average log decontamination factor for nine runs processed since this change was 4.28.

Samples of off-gas from the bismuth dissolver indicated a maximum of 0.57% hydrogen during the early part of the reaction. The hydrogen content of samples taken through the major portion of the dissolving was too low for detection. Since difficulties prevented sampling the initial part of the reaction where hydrogen evolution appeared to be greatest, further investigation will be made.

Processing metal which had been held in the 100-B Pile during the extended shut down of this unit has resulted in high extraction losses. It was determined that the amount of alpha activity carried by lanthanum fluoride from oxidized metal solution and metal waste solution was higher for this material than for material exposed in a conventional manner in the 100-D and 100-F Piles. Since these data suggested the presence of alpha emitters other than product, a decay study of the activity carried from oxidized metal and metal waste solutions by lanthanum fluoride was initiated. Decay over a three-month period has shown a half-life of 139 to 234 days at a 99% confidence level with a most probable half-life of 174 days. The data were analyzed by the Statistics Group and are reported in Document No. HW-12938. The irradiation history of the metal received from the 100-B Pile has been compared with the extraction losses. Best correlation was found with a mechanism involving three successive neutron captures during the period of initial exposure, the decay of this end product during the extended shut down, and one neutron capture of the decay product after the subsequent start up. This mechanism is one involved in the formation of Cm^{242} via Am^{241}. The half-life of Cm^{242} is 150 days and the half-life of Am^{241} is approximately 500 years. Both curium and americium would be expected to be carried by lanthanum fluoride precipitates in reducing or oxidizing systems. The correlation data have been submitted to the Statistics Group for evaluation and a new decay study has been started in the 222-B Laboratory for a check of the original data.

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At month-end, considerable difficulty was being experienced at both B and T Plants in establishing individual run batch sizes. This is being investigated at present.

Concentration Buildings

Difficulties of an undetermined origin at T Plant resulted in bismuth phosphate by-product precipitation losses of 0.83%, 0.56%, and 4.84% for Runs T-9-03-D-46, T-9-03-D-50, and T-9-04-D-3, respectively. These wastes were reworked with total losses of 0.39%, 0.14%, and 0.21%. No further difficulties were experienced during the latter part of the month.

The metathesis waste assay of Run B-9-04-B-8 at B Plant was 0.17%. Recentrifugation of this waste on top of the product cake of the run following increased the assay to 0.42%. A small lanthanum strike followed by a third centrifugation reduced the product content to 0.04%. This waste was discarded.

A portion of the lanthanum fluoride by-product precipitate overflowed the centrifuge into the product effluent of Run B-9-04-B-12 during cake washing operations. The maximum PR-Can activity for this run was 41 mr/hr, whereas the average activity for the previous ten runs was 15 mr/hr.

A check of the metathesis centrifuge skimmer calibration following the routine metathesis waste rework centrifugation of Run T-9-04-F-6 increased the waste assay from 0.10% to 0.25%. This waste was reworked a second time with a resultant loss of 0.07%.

REDOX DEVELOPMENT

Building 321 Rehabilitation and Modifications

Revisions to the canyon during the month were carried to the point where safe operation of the Scale-Up Unit could be resumed. The pressure relief panels located in the east and west walls were cut and covered with plywood pending installation of the hinged windows. All explosion resistant steel doors have been hung with temporary hinges. An alarm system has been installed to indicate any lack of negative pressure within the canyon. Painting has been completed within the canyon and started in the operating gallery. No work has been started on revisions to the air conditioning and ventilation.

During the month, work was started on the revisions to the Demonstration Unit which will provide greater capacity and cascade operation for the IA-IB-IC extractors. The first phase of the work will deal with enlargement of the solvent handling facilities.

A series of leak tests on the Scale-Up tank farm (together with the necessary solubility calculations) has shown that a 250 CFH inert gas generator will provide adequate gas blanketing for the tanks. Such a unit will be substituted at equivalent cost for the former equipment design to handle solid CO_2. Cylinder CO_2 is presently being used to provide an inert gas blanket and the recirculating samplers are being actuated by steam.

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Separations Technology Division

Scale-Up Studies

Because of the superiority of the alkaline-type Redox flow sheet as demonstrated by O.R.N.L. pilot plant studies, it was deemed necessary to confirm the prediction that column scale-up factors and limiting capacities for such a flow sheet would not differ markedly from those prevailing for the acidic A.N.L.-type flow sheet. Accordingly, on April 17, a series of IA, IB, and IC uranium H.E.T.S. studies was started. The studies were conducted so as to utilize the composite product (IAU) from the IA series as feed for the IB series and the IBU composite as feed for the IC series. In this manner, H.E.T.S. estimations could be realized rapidly without the usual delays associated with feed adjustment and waste reworking. For all studies, feed compositions were as stipulated by the O.R.N.L. No. 1 Redox Flow Sheet. The most recent process flow sheet is contained in O.R.N.L. Technical Division (Pilot Plant Section) Report for March 1949, Document GE-H-14,551. The results of the IA series are tabulated below.

SCALE-UP IA STUDIES: FIVE-INCH COLUMN (SIMPLE)

Flow Sheet: O.R.N.L. No. 1
Packed Height: 19.6 ft. (Extraction Section)
Packing: 1/2 x 1/2-inch stainless steel Raschig rings
Approx. IAFS Composition: 1.0 M UNH, 1.1 M $Al(NO_3)_3 \cdot 9H_2O$, -0.2 M HNO_3
Approx. IAX Composition: Neutral Hexone

Run No.	Approx. Vol. Flow Ratio IAX/IAFS	Total Volume Velocity Gal./(Hr.)(Sq.Ft.)	Short Tons U Metal Per 24 Hours	% of Feed U In IAW	Prelim.(1) U H.E.T.S., Ft.
5"-16-U	2/1	556	0.63	0.01	1.5
5"-14-U	2/1	710	0.76	0.01	1.5
5"-15-U	2/1	900	0.84	0.02	1.6
5"-17-U	2/1	1070	1.06	0.04	2.1

(1) Calculations subject to further refinement. Presently based on an approximate equilibrium curve and incomplete analytical data.

During Run No. 14 and the initial two-thirds of Run No. 15, a crack in the stainless steel IAFS filter permitted a fine white precipitate to enter the column. During this time, a 2-ft. emulsion layer prevailed above the interface and attempts to operate at 1000 gal./(hr.)(sq.ft.) resulted in complete flooding. After changing to a different IAFS filter, the suspended solids no longer entered the column, the emulsion subsided gradually, and a check test indicated stable operation at a total volume velocity of 1650 gal./(hr.)(sq.ft.). Thus, it appears that the limiting capacity of the alkaline IA system will not be widely different than the value of 1800 ± 100 gal./(hr.)(sq.ft.) determined previously for the ANL acid flow sheet.

Following the above series, the IAU composite was employed as feed for two compound Column IB studies in the 8.42-inch diameter column. The pertinent data for these studies are listed below.

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IB COMPOUND-COLUMN STUDIES: 8.42-INCH COLUMN (ORNL NO. 1 FLOW SHEET)

Packing: 4.3 Ft. (Extraction), 13.9 Ft. (Scrub), ½ x ½-in.-Raschigs
Approx. IBF Composition: 0.4 M UNH, 1 g./l. HNO_3
Approx. IBX Composition: 1.3 M $Al(NO_3)_3 \cdot 9H_2O$, 0.05 M $Fe(NH_2SO_3)_2$, 0.05 M HNO_3
Approx. IBS Composition: 0.05 M HNO_3 in Hexone

Run No.	Total Volume Velocity Gal./(Hr.)(Sq.Ft.) (Below Feed)	Short Tons U Metal Per 24 Hrs.	% of Feed U In IBP	Approx.(1) Uranium H.E.T.S. Scrub(Below Feed)
8"-1-BU	404	2.5	1.6×10^{-4}	3.9
8"-2-BU	664	4.2	1.2×10^{-4}	2.9

(1) Based on approx. equilibrium data. Subject to further revision.

It is estimated that one additional stage should produce the flow sheet IBP losses of 2.5×10^{-5}% of the original feed uranium. Although firm H.E.T.S. values must await more reliable equilibrium data, it appears that the scale-up factor is reasonable and will result in a production plant IB Column having a scrub section not exceeding 20 ft. in length.

The IC series of runs conducted in the 5-inch column was started at the end of the month. Only preliminary data are available at present, but ICW uranium losses appear to be below the 0.01% specified by the flow sheet.

Equipment Development Studies

During the month, an hydraulic test stand was equipped to life-test an automatic flow control device consisting of a Roth Turbine Pump providing head to a Hammel-Dahl control valve actuated by a Fischer and Porter recording-controlling rotameter. The rotameter unit is constructed entirely of stainless steel and could be adapted quite easily to conditions requiring remote maintenance. Calibration tests with salt solutions and water are currently in progress. Subsequently the assembly will be life-tested with aqueous process solutions.

The unit designed to remove crud and emulsification agents by precontacting the IAF feed with equilibrated solvent was placed in operation during the month. Preliminary tests indicated poor efficiency. However, it is believed that certain design modifications will greatly improve the efficiency of crud removal.

Lithcoat on steel has been resistant to IAX for 58 days. Stalpic on concrete failed after 20 days exposure to IAX.

Hexone Stability Tests

The air oxidation tests with IAX in five 8.8-gal. stainless steel drums were completed during the month. In three of the drums, the evaporation rate prevailing in the 55-gallon submerged pump test drum prior to the January 23 explosion was simulated. The evaporation rates in the fourth and fifth container were respectively maintained at one-half and twice the above evaporation rate. In the first three containers, methyl isopropyl diketone, dinitroisobutane,

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and organic acids increased gradually to approximate values of 5.5, 0.3, and 2.0 g./l., respectively. During this period of about 436 hours, the HNO_3 increased to about 2.0 M. The three units were maintained at a temperature of 83-92°F. In each case, after periods of 8 to 32 hours following the cessation of air flow and heat (test period ca. 436 hours), a violent reaction took place which bulged the ends of the drums (vent either open or closed) about 1/2 inch and caused the drum temperature to rise to 300-340°F. No rupture occurred and no combusion took place. At the conclusion of the reaction, the methyl isopropyl diketone and dinitroisobutane were of the order of 40-60 g./l. and the HNO_3 concentration was reduced to about 1/2 g./l. Similar behavior was encountered in the remaining containers. The unit operating at one-half the nominal air rate produced greater amounts of the diketone and organic acids prior to shut down. The details of these tests will be set down in a forthcoming report. Such behavior as characterized by the above could well account for the seized bearings, the high temperature, and slightly elevated pressure which would be necessary to explain the explosive violence resulting from air-hexone ignition within the torque tube of the submerged pump test. The investigation of the physical and chemical variables surrounding the January 23 solvent explosion is essentially complete. It is believed that a plausible explanation is now on hand. A final summary report will be issued shortly.

Process Laboratory

Preliminary studies have been directed toward ascertaining the chemical conditions required to produce a precipitate of $Al(NO_3)_3$ from IIAW having maximum purity. Washing and separation techniques will also be studied.

Countercurrent batch equilibrium studies employing process compositions stipulated by the alkaline O.R.N.L. No. 1 Flow Sheet were completed during the month. In addition, four countercurrent equilibrium studies conducted by A.N.L. personnel in the box mixer-settler units were analyzed at this site and the data correlated. The studies consisted of process modifications associated with the O.R.N.L. No. 1 alkaline flow sheet.

The pertinent filtration studies conducted to date are being prepared in report form.

REDOX RESEARCH

Reaction of Nitric Acid and Hexone

Work has continued on the mechanism of the reaction between nitric acid and hexone. The evidence to date indicates that the various reactions involved are essentially as outlined in a previous report (HW-12673).

Isobutylnitrolic acid is a possible intermediate in the hexone-nitric acid decomposition. Attempts to synthesize this compound have met with considerable difficulty due to its instability. Two methods, however, appear promising. One is the nitrosation of mononitroisobutane with nitrous acid, and the other is the reaction between dibromomononitroisobutane and hydroxylamine.

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A highly purified sample of the potassium salt of dinitroisobutane gave extinction coefficients of 10,000 and 13,900 at 395 millimicrons in distilled water and in 6 N potassium hydroxide, respectively. These values indicate that dinitroisobutane is a slightly weaker acid (pKa = 0.2) than previously reported (HW-12673).

The apparent inhibition by air of the reaction of 2 to 3 M HNO_3 in hexone has been tentatively attributed to the volatilization of the materials necessary to produce HNO_2 and by the slow rate of formation of HNO_2. Fast reactions involved are (1) $4HNO_2 \rightleftharpoons N_2O_4\ (g) + 2NO\ (g) + 2H_2O$

(2) $2NO\ (g) + O_2\ (g) \rightleftharpoons N_2O_4\ (g)$.

The slow and probably rate determining step is $N_2O_4 + H_2O \longrightarrow HNO_2 + H^+ + NO_3^-$. The water content and total oxides of nitrogen of such solutions have been found to be very low.

Physical Properties of the System: $UO_2(NO_3)_2$ - HNO_3 - $Al(NO_3)_3$ - H_2O - Hexone

The viscosity of this system was extended into the alkaline region (0.2 M acid deficient). These data on alkaline solutions can be coupled to the old date in neutral solution by the equation:

$$\log \eta_{\text{sol'n with NaOH}} - \log \eta_{\text{sol'n}} = -0.047\ \underline{M}_{NaOH} + 0.040\ \underline{M}_{NaOH} \cdot \underline{M}_{UNH}.$$

When UO_3 was used to make a 1 M aluminum nitrate solution 0.2 M alkaline, the viscosity was found to be slightly lower than when NaOH was added. In UNH solutions greater than one molar, the viscosity is not appreciably changed by the addition of either NaOH or by substitution of UO_3 for $UO_2(NO_3)_2$. The density of "UO_3-alkaline" solutions was found to be lower than for neutral solutions, and the density coefficient for the alkalinity was equal but of opposite sign to the coefficient for HNO_3, namely -0.031 per base equivalent.

Pulse Column Studies

The one-inch diameter x 20-inch pulse column was run as a simple column (IAFS feed) under alkaline conditions (ORNL #1 flow sheet). Plate spacing and hole size were correlated with column throughput and H.E.T.S. In general, the column operated very well. No difficulty was encountered with disengaging of phases, and equilibrium was attained in five minutes at high flow rates.

A minimum H.E.T.S. of 3.1 inches was measured at 875 gal./sq.ft./hr. throughput, 50 cycles/min. pulse frequency, 0.27 gal./sq.ft. liquid displacement per half cycle, two-inch plate spacing and 56 holes of 0.039 inches diameter per plate. Larger holes (0.060") or greater plate spacing (four inches) required higher pulse frequencies to bring the H.E.T.S. down to values of five inches. However, the column capacity was greatly increased and the H.E.T.S. found to be essentially constant over a broad range of flow rates.

The 20-inch column has been converted to a 68-inch compound column, which should furnish about 20 stages.

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Separations Technology Division

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Ruthenium Investigations

Using Hanford dissolver solution diluted one to ten with synthetic dissolver solution, the distillation of ruthenium as RuO_4 by ozone oxidation has been found to be dependent upon the acidity of the solution as it comes from the dissolver. Approximately 96% of the ruthenium distilled rapidly from a sample of dissolver solution at a pH of 1.6 whereas 99% distilled rapidly from solutions with negative pH.

With dissolver solution at a pH of 1.6 and 0.025 M in $NaNO_2$ the last 3.5% of ruthenium removal followed a first order rate law, leaving less than 0.2% in the residue after six hours, as compared with 0.6% when no nitrite had been added.

Employing one ml. of Hanford dissolver solution at full level (no dilution) with no $NaNO_2$ added and at a pH of -0.1, 99% of the ruthenium was removed in two hours at 95°C. In five hours, 0.49% was left in the residue.

With stainless steel coupons which had been treated with dichromate cleaning solution, ruthenium activity pick-up on ozonization did not increase markedly above the initial pick-up in a total of eight runs. The pick-up by gold strips was small in all runs except one. In the latter case, gold and stainless steel coupons were touching and the activity left the stainless steel strip while activity was picked up on the gold strip. Attempts to reproduce this observation with the same strips failed, and the activity on the gold was reduced upon further ozonization runs.

Upon ozonization of stainless steel strips which had been precoated with inactive ruthenium, more ruthenium activity was picked up by the strips in the solution than by the strips which had not been so pretreated. The pick-up by gold strips under similar conditions was not significantly greater than by gold strips not precoated except for a slight increase on those immersed in the solution.

The effect of acetone on ruthenium distribution was not found to be particularly effective unless the solution were first pretreated with sodium nitrite.

Pretreatment of the aqueous solution with allyl alcohol decreases markedly the extraction of ruthenium. When solutions were made one per cent in allyl alcohol, allowed to stand at room temperature for 2-1/2 hours, made 0.1 M in $Na_2Cr_2O_7$ and then allowed to stand overnight, E_a^u values of 10^{-5} to 10^{-4} were obtained. The effect of allyl alcohol on plutonium and uranium distribution is being investigated.

Head End Scavenging

With dissolver solution at pH 0.0 to 0.1, plutonium (VI) adsorption on Filtrol is negligible within experimental error (<0.1%). Plutonium (IV) adsorption, on the other hand, is prohibitive on both Filtrol (85%) and Vycor (3-7%).

Fresh (two days old) dissolver solution at pH of 0.0 to 0.1 has been used to study adsorption as a function of concentration of Filtrol. In three successive contacts at 100°C. for one hour each, employing 20 grams of Filtrol per liter,

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99% of the zirconium was adsorbed; using 40 grams per liter, 99.8% of the zirconium was adsorbed. One experiment was performed employing a single contact at 100°C. for one hour with 60 grams per liter of Filtrol. Only 0.03% of the initial zirconium activity was not adsorbed. Using 80 grams of porous Vycor powder per liter of dissolver solution, 97.4% of the zirconium activity was adsorbed in a single contact.

Zirconium Investigations

Difficulties have been encountered in the determination of zirconium polymerization from a study of the first TTA chelate equilibrium as a function of zirconium concentration. When an attempt is made to interpret the spectrophotometric data in terms of polymerization, the calculation involves subtracting two large numbers of the same order of magnitude. The spectrophotometric readings would have to be accurate to less than 0.1% before they would be of any significance. Conditions must be found where such extreme accuracy is not required.

It has been found that the rate of zirconium depolymerization proceeds at a measurable rate. From these rate data it is possible to calculate the degree of polymerization in the original zirconium stock solution. For example, it was found that a 0.0625 M zirconium perchlorate solution in 2 M perchloric acid was 74% polymerized and that the half-time for depolymerization of this zirconium in 4 M perchloric acid was five minutes.

During an investigation of the effect of temperature on the first chelate equilibrium, evidence was obtained for the polymerization of zirconium in a 4.7×10^{-4} M solution of zirconium in 4 M perchloric acid at 35°C. It is believed that zirconium exists largely as a monomer under these conditions at 25°C.

An attempt was made to study zirconium nitrate complexing by determining the effect of nitrate ion on the first TTA chelate equilibrium. However, it appears as though there were traces of nitrous acid in the nitric acid used which reacted with the very small concentrations of TTA employed in these experiments (10^{-5} M TTA).

Cerium Distribution in Column IIA Following Ozone Oxidation

In the previous report of this series an experiment was described in which an ORNL IBP solution was acidified, ozonized for RuO_4 removal, then subjected to consecutive Column IIA extractions. Analytical results have now been completed for cerium distribution in the first extraction contact. Although the small number of cerium counts present limited the accuracy of the determination, E_a^b for cerium appears to have been about 0.0035. In a parallel experiment employing 0.02 M $Na_2Cr_2O_7$ at room temperature as the oxidizing agent, an E_a^b value of 0.086 was obtained.

Preparation of Solvent Extraction Feed from Metal Wastes

Phosphate removal obtained in the precipitation of sodium diuranate from synthetic 103-T supernaté has been increased to >97% by following precipitation with a caustic metathesis. A tentative laboratory procedure as applied to 100 parts by volume of 103-T-Sp includes the following steps: (1) precipitation of sodium

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diuranate by slow, simultaneous addition of 12 parts of 20% NaOH at room temperature to achieve a phosphate separation factor of ca. 5, a gross separation from the high concentration of sodium salts, and a volume reduction of ca. 15-fold; (2) metathesis of the diuranate with 12 parts of 20% NaOH for 1 hour at 95°C. to convert phosphate present to a soluble form; and (3) washing six times with 10 parts of 1% NaOH at 95°C. to remove sodium phosphate.

Washing by centrifugation and decantation gave 97.4% phosphate removal, corresponding to a diuranate having a U/PO_4 mole ratio of 16; washing by filtration gave 98.3% phosphate removal ($U/PO_4 \cong 24$). Uranium recovery was $>$ 99.5%, losses consisting of 0.3% in the precipitation, 0.03% in the metathesis, and 0.03% in the washing. Phosphate removal may be further increased and uranium losses decreased at the expense of increased waste volumes and reagent consumption. For example, 99.4% phosphate removal ($U/PO_4 = 70$) has been obtained by modifying the washing procedure to six 10 minute washes of 30 parts each, and uranium losses in precipitation have been reduced to $<$ 0.12% by substitution of 20 parts of 20% NaOH.

The caustic used in metathesis and washing could be returned to process to reduce caustic consumption and waste volume. Without such recycling or waste evaporation, the outlined procedure would require 2.4 weights of NaOH per weight of uranium and would produce ca. 1.8 volumes of waste solution per volume of 103-T-Sp. With recycling, the NaOH/U weight ratio would be reduced to 1.1 and the waste/103-T-Sp volume ratio to $<$ 1.1. The foregoing data and conclusions are tentative pending a much more thorough investigation of the individual steps of the precipitation-metathesis procedure.

The applicability of a sodium diuranate precipitation-metathesis procedure to unneutralized current waste has received preliminary consideration. Addition of ca. 42 volumes of 20% NaOH to 100 volumes of current waste precipitates $>$ 99.9% of the uranium at a pH of 10. Metathesis and washing yield a product having a U/PO_4 mole ratio of 28 and containing 2.1 moles of uranium per liter of precipitate.

Further investigation of uranium peroxide precipitation from acidified 103-T-Sp at low pH has failed to give the phosphate removal expected. Specifically the 95% removal ($U/PO_4 = 8$) previously reported could not be duplicated at a pH of 0.6 and 25°C. by the simultaneous addition of acidified 103-T-Sp and 50% NaOH to a 30% excess of hydrogen peroxide. Seeding the system with UO_4 prior to precipitation at a pH of 0.5 yielded a product having a U/PO_4 mole ratio of but 1.4. Increasing the excess hydrogen peroxide to 100-700% (equivalent to 0.2-0.6 M H_2O_2 excess) gave precipitates at a pH of 1 having U/PO_4 mole ratios of 1.00 $\pm$ 0.04.

Since a sodium-uranium separation might be desirable for Redox IAF preparation following phosphate removal by sodium diuranate precipitation, peroxide precipitation from acid 0.1 M UNH solution having U/PO_4 mole ratios of 1-10 was investigated. At U/PO_4 ratios of 1 and 2, phosphate removal in the course of peroxide precipitation is small at pH 0.5-2.0. However, with an initial U/PO_4 of 10 an additional phosphate removal of 70% or more is obtained. Thus, the U/PO_4 is raised to 40 at pH 2.0, 60 at pH 0.8, and $>$ 100 at pH 0.5. The uranium losses in such a peroxide precipitation are 1.2% at pH 0.5 and less at higher pH values.

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The solubility of phosphate is being determined as a function of reagent concentrations in the extraction section of the IA Column for the ANL and ORNL flow sheets. The distribution coefficient for uranium will then be investigated as a function of phosphate concentration up to that concentration found tolerable for solubility purposes.

STACK GAS DISPOSAL

Spot check evaluation of the plant sand filters was continued at both plants during the month. Efficiencies, pressure drop, and air flow values remained within the range of normal operation. The reduction in Canyon Building operations at B Plant from April 18 to April 22 was clearly reflected in the drop of the ventilation air activity. A comparison of the total curies of beta activity emitted from the stack per twenty-four hours, for the two weeks prior to the reduction in operations with the values obtained during limited operations, is shown as follows:

Prior to Period of Reduced Operations		During Reduced Operations	
Monitoring Interval	Total Curies from Stack per 24 Hours	Monitoring Interval	Total Curies from Stack per 24 Hours
4/1 to 4/2	0.31	4/20 to 4/21	<0.01
4/13 to 4/14	0.47	4/21 to 4/22	<0.01
4/14 to 4/15	0.15	4/25 to 4/26	0.03*
4/15 to 4/16	0.47		
	0.35 Avg.		

* Value reflects resumption of operations on 4/22.

Routine activity traverses of the plant sand filters with ionization chambers lowered into the vertical monitoring ports continued to show the maxima at the base of the Type G sand layer. Further study of the effect of steam injection upon the contamination removal efficiency of the pilot plant No. 55 Fiberglas filter has been made. Tests were made with a 48-inch bed, packed to a density of six pounds per cubic foot, and 12 and 24-inch bed depths, packed to a density of three pounds per cubic foot. A review of all No. 55 Fiberglas runs has been made. Study of the data tabulations reveals that at flow rates and packing thicknesses where the efficiency without steam addition was 95% or less, an improvement in contamination removal was indicated with steam saturation. In the high efficiency range, the effect is not well defined. Additional runs will be made in an attempt to clarify the effect under conditions where the efficiency is greater than 95% without steam injection.

COMPARISON OF CONTAMINATION REMOVAL WITH AND WITHOUT STEAM INJECTION

Bed Depth: 48 inches
Packing Density: 6 lbs./cu.ft.
Packing Material: No. 55 Fiberglas
Direction of Flow: Downward

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WITHOUT STEAM INJECTION			WITH STEAM INJECTION		
Velocity (ft/min)	Run No.	Efficiency (Lab Beta)	Velocity (ft/min)	Run No.	Efficiency (Lab Beta)
1.8	205	99.98	1.8	211	99.82
5	200	99.96	5	210	99.45
10	202	99.87	10	209	93.25*
25	201	98.79	25	208	99.93
50	203	99.82	50	207	99.86

* Upstream monitor analysis doubtful. Does not check with "Cutie Pie" reading - C.P. Eff. $>$ 98%.

A series of permeability tests was made with a No. 55 Fiberglas packing density of nine pounds per cubic foot. This was done to determine whether the difficulty in attaining packing reproducibility, encountered with the three pounds per cubic foot unit, was a function of the low packing density. The data, when compared with the values obtained in similar tests at packing densities of three and six pounds per cubic foot, showed that the packing reproducibility is definitely related to the packing density, with poorer precision at low densities.

A specific determination was made for ammonia in the off-gas stream during a coating removal. Two cubic feet per minute of the gas, during the course of the coating removal, were passed through a nitric acid scrubbing solution. Calculations, based both upon the basicity of the final solution and upon an ammonia analysis, indicated a total ammonia evolution of approximately one pound mole per dissolver cut. Consequently, the average ammonia concentration of the gas stream was calculated to be about one per cent, the peak rate several per cent, and the lowest concentration well below one per cent. This order of magnitude is well below the detectable concentration for the laboratory gas analyses, which have been previously reported as showing no detectable ammonia.

The filtration efficiency of the wool felt cloth used in the commercial Hersey Filter was tested over a flow range of 5 to 50 feet per minute. The efficiency range of 15 to 60% indicated that this filter cloth, without pre-loading, is inapplicable to the filtration of the Canyon ventilation air.

234-5 PROJECT

Operations Group

Effective April 11, the "S" Division assumed administration control of the 234-5 Building Project. The R.G. Process Line remains under control of the Technical and Operations groups as a joint responsibility. In an agreement with Construction, the Process Bay was taken over by Operations as of April 29. The remainder of the 234-5 Building will be turned over to operations on May 6 with exception of ventilation balancing, refrigerated water system and elevator. Construction will complete the latter items by June 1. Beginning May 2, G. E. Maintenance personnel will complete installation of equipment in the process line.

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A number of preliminary and final inspections were held during the month. Operations personnel moved into the 234-5 Building office section at month-end.

At month-end, percentage completion of essential components of the building were estimated as:

234-5 Building	95.0
234-5 Building, Phase I	98.5
Process Bay	80.0
Waste Area	99.5
Fan House & Stack	98.0

Development Group

The fourth oxalate precipitate has been processed to produce plutonium metal. Average yield for the four runs in the dry chemistry step was 99.7% and for the reduction step was 97.5%. A report is being compiled on the preparation of plutonium from the oxalate on a 10-gram scale in the 231 Building. The production of plutonium on this scale in a reproducible manner permits the carrying out of a program of evaluating the plutonium peroxide process. Peroxide precipitates containing sulphate will be the starting point of this work.

A small drill press was assembled and placed in the hood for sampling the plutonium buttons. Samples of the four buttons were given to the analytical development group for spectrographic analysis. Preliminary sketches have been made for the modification of a second hood in the 231 Building. This hood will be used for work on the recovery problems arising from the 234-5 Building process.

Exploratory work on treating simulated concentrated supernatant indicates that the excess oxalic acid, which forms the bulk of the solids in the solution, can be readily destroyed by nitric acid. This may permit a recycle in the 234 Building, and should certainly not require recycling further back in processing than the 231 Building. Process variables for the reaction are being studied.

Two rubber gloves of the 30-gauge neoprene type have been replaced after being in service approximately seven weeks. Cracks had developed on the inside of the thumb and between the thumb and forefinger. These cracks were discovered by visual inspection; alpha counts were not found until the cracks had been flexed. There has not been any failure of a 15-gauge neoprene glove to date.

234-5 Process

An alternate procedure for the peroxide dissolution step in the Isolation Building has been investigated whereby the peroxide is catalytically decomposed by a platinum black surface. A semi-quantitative study of the decomposition of hydrogen peroxide by platinum indicated that the rate of decomposition has (1) a positive temperature coefficient and (2) an inverse hydrogen ion dependence.

About 75 mg of plutonium as the peroxide was satisfactorily dissolved in two to three minutes at 80°C. in five to six ml of 1 M HNO_3 using the platinum black catalyst, resulting in a solution of plutonium (IV). At room temperature about one hour was required to obtain complete solution, resulting in a solution of plutonium (III). After four experiments the catalyst appeared to be somewhat poisoned but was recovered by cleaning in dichromate cleaning solution.

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In order to recycle the supernatant of the oxalate precipitate to the peroxide precipitation step, a method has been devised to accomplish the destruction of the oxalic acid and iodide by excess iodic acid. The reaction mixture is heated to volatilize the iodine formed. Finally, the excess iodic acid is destroyed with excess hydriodic acid and the excess HI removed by evaporation in the presence of nitric acid. The reactions proceed rapidly and smoothly. The resulting solution contains only nitric acid, plutonium and other impurities which were initially present and which should not interfere in the peroxide precipitation. The method has been tested in the absence of plutonium and tests are now underway on simulated oxalate supernatants.

Schenectady Liaison

Design and procurement work for the R.M. Line is progressing at a greatly reduced rate at the present time. On February 1, there was a total of 110 employees working on Project 432. A total of 55 were working on the project on March 20, according to the last time report received.

The plastic bag assembly in Room 38 of the 231 Building has been used seven times to bring contaminated objects out of a hood. No contamination has been found to date around the bag flange, at the cut edges of the sealed seam, or on the scissors used to cut the bag. Tests indicate that 1-1/4 lbs./sq.in. pressure is required to cause the plastic bag to slip off the flange on which it is fixed for use. This is equivalent to a pressure differential of 42 in. of H_2O. Extended storage tests with three bags used to remove material from the hood will evaluate the stability of the plastic for this use.

Messrs. J. F. Heberer, R. E. L. Stanford, J. M. Musser, and P.E. Collins plan to be in Schenectady May 9 to 13 to review the R.M. Line equipment, in order to estimate the amount of maintenance work required during operation of the equipment and offer assistance in selecting and locating equipment to facilitate maintenance work and hazard control.

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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
1. W. E. Roake, F. W. Albaugh	Use of Porous Vycor Glass as an Agent for the Decontamination of Irradiated Metal.
2. W. H. Reas	A Method Based on the Use of Iodic Acid for the Preparation of Oxalate Supernatants for Recycle to the Peroxide Precipitation Step.

R. H. Beaton

R. H. Beaton, Head
Separations Technology Division

Date: May 1, 1949

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METALLURGY & CONTROL DIVISION

APRIL 1949

VISITORS & BUSINESS TRIPS

J. P. Howe and J. R. Low of the Knolls Atomic Power Laboratory spent April 8-12 and April 11-13, respectively, with the Metallurgy Laboratory Section discussing uranium metallurgical problems.

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

R. J. Schier visited the Reynolds Metals Co., Phoenix, Ariz., on April 6 to explore their suitability for the extrusion of Li-Al alloy billets in connection with the P-10 Project.

E. A. Smith and J. V. McMaster visited the Puget Sound Naval Yard, Bremerton, Wash., on April 24-27 to conduct induction heating tests on uranium slugs.

J. K. Figenshau visited the Leupold & Stevens Instrument Co., Portland, Oreg., on April 5 to discuss the fabrication of special laboratory equipment.

O. P. Amacker visited the Radiation Laboratory at Berkeley, Calif., on April 11-13 to observe special equipment used in radiochemical techniques.

A. M. Ross visited the Argonne National Laboratory at Chicago, Ill., on April 25-27 to discuss analytical apparatus

ORGANIZATION & PERSONNEL

Personnel totals in the several subdivisions are summarized below:

	March 31	April 30
300 Area Plant Assistance Group	12	12
Metallurgy Laboration Section	21	23
Analytical Section	388	343
Statistics Group	11	11
Information Group	53	53
Administrative	3	3
Totals	488	445

The Analytical Section transferred twelve laboratory assistants to the Health Instrument Divisions, one clerk to the Medical Division, two laboratory assistants to the Pile Technology Division, two laboratory assistantsto the

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Metallurgy Laboratory Section, and one laboratory assistant to the Information Group. The latter group also employed two non-exempt Files personnel.

Terminations totaled thirty, all but two being from the weekly roll. The latter personnel, both exempt metallurgists, were from the 300 Area Plant Assistance Group wherein the work load was reduced when responsibility for the technical supervision of uranium rolling was assumed by the fabricators. A total of twenty-five of the weekly personnel, all laboratory assistants in the Analytical Section, were given no work lay-offs. This reduction of force was principally due to the transfer to the Power Division, effective April 4, of the major portion of the analytical control work performed in the 100 Area laboratories for that Division.

300 AREA PLANT ASSISTANCE

Chip Briquetting

A month's operation using stationary water rinses in the chip pickling operation showed this method of processing to be entirely practical. About 3000 pounds of uranium can be processed before it is necessary to discard the rinse water to chemical recovery, and the metal loss is negligible. Melt plant yields using turnings processed in this manner remained consistently high.

Slug Canning

When a nominal canning cycle recently was adopted in Bldg. 313 operations, this longer cycle permitted an increase in the canning component assembly preheat and submerge times of about , respectively, above those used previously on the cycle. Although these increased times were within the process specification, inspection of pieces canned with this extended cycle indicated that the can wall was penetrated to an average of about 0.010", with an appreciable number of slugs having can wall thicknesses of about 0.009". By decreasing the sleeve assembly preheat and submerge times to periods comparable to those used with the cycle, the average residual can wall thickness was increased to about 0.020" with none less than 0.010". These times, therefore, were adopted as standard.

Uranium Metal Reactivity

In metal quality discussions held at Hanford on April 25 and 26, attended by representatives from Electromet, Mallinckrodt, and the AEC from New York, St. Louis, and Hanford, Test Pile reactivity data on canned slugs fabricated from virgin metal (Types J and C) prepared in special melting trials by Electromet and Mallinckrodt were presented. These data indicated that the several pouring and capping procedures tried by Mallinckrodt did not affect over-all slug reactivity significantly. However, in every case reactivity of slugs from the first-pour billets was significantly higher than that of slugs from second-pour billets (about 10 inhours per 105 pile). A significant advantage of about 8 inhours was found for a group of billets prepared by Electromet using

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percent barium has been found to refine the structure when the alloys are water quenched from 800° C. Three samples, 1.0 zirconium - 0.5 silicon, 1.0 zirconium - 0.1 chromium, and 1.0 zirconium - 1.0 silicon - 0.1 chromium, had an acicular or martensitic type of structure after being quenched from 800° C.

X-ray Crystallography

A series of uranium samples fabricated by a duplex process for Production Test 314-55-M were examined for orientation. These samples were taken from rods which had been gamma extruded and then alpha rolled at 650° F so as to provide 15, 22, 27, and 33 percent reduction by rolling. The degree of preferred orientation increased with increased reduction, but none of the samples showed as high a degree of orientation as normal alpha rolled rod.

Work was completed on the study of production alpha rolled uranium rod in the "as received," triple-dipped, and beta quenched conditions. The beta quenched samples were from Production Test 313-108-M. The "as received" metal had a highly preferred orientation, while both triple-dipped and beta quenched material had a nearly random orientation. In the beta quenched and triple-dipped metal, samples taken from the center portion of the slugs showed more preferred orientation than samples taken from the end portion of the slugs, indicating that the rate of heating and cooling may be affecting orientation.

To compare orientation data on uranium obtained by x-ray and dilatometric methods, x-ray analysis was made on a sample from an alpha rolled rod in which the b axis was nearly parallel to the rolling direction as judged by dilatometric data. The x-ray analysis showed a high degree of orientation in the indicated direction.

Radio-Metallurgy

Modification of Bldg. 111-B for use as a radio-metallurgy laboratory has been completed except for balancing the air flow in the building; however, final acceptance has not been made. All equipment from 212-N and the 300 Area available for this laboratory has been collected and transported to 111-B where it will be cleaned, adjusted and placed in the work area.

The vertical safety rod guide and tip, previously obtained from the 105-F unit, has been sectioned into pieces for ultimate examination and testing.

A mirror system and fluorescent lights were installed in the mock-up cell in Bldg. 108-B. In addition, a first arrangement for the Payne manipulators was completed.

In the design work, construction of the Rotobin transfer cask was completed except for the aluminum container and wrenches. An Invention Report covering this cask has been written. Drafting work is proceeding on the cut-off box, Dutch oven transfer cask, and the Rockwell attachment.

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a new-type "green salt" as compared to that formerly used. Mallinckrodt started using this new-type "green salt" early last fall.

Considered broadly, the data show that, since the investigation of uranium metal quality was started last August, there has been a general improvement in the reactivity of virgin uranium so that now Types J and C metal are only about 4 and 9 inhours per 105 pile, respectively, lower in reactivity than Type B (Hanford remelt) metal. This improvement (about 20 and 16 inhours per 105 pile, respectively) appears to have resulted from changes other than in billet casting technique. For example, the change in the uranium ore metal-winning operation which Mallinckrodt made last fall may have been influential.

No additional work on this problem is contemplated until slug reactivity data for the next several months have been obtained and analyzed.

Induction Heating Experiments

It now appears that uniform expansion of uranium slugs can be obtained with 3000-cycle induction heating if the slugs are fed through the heating coil mechanically, at a uniform rate of speed, and in contact with adjacent slugs. Representative samples of gamma extruded and alpha rolled uranium which had been beta-cycled using induction heating have been submitted to the Metallurgy Laboratory for structural evaluation.

Induction heating trials with uranium slugs were made at the Puget Sound Naval Shipyard in Bremerton on April 25, using their 960-cycle equipment. Considerable mechanical difficulty was experienced in making these tests, but data obtained tentatively indicate that 960-cycle heating offers little advantage over the 3000-cycle.

P-10 Alloy

Work on the installation of Li-Al alloy preparation facilities in Bldg. 108-B is progressing. Construction of the lithium melting furnace has been completed by the Maintenance Division Shops, and the vacuum induction melting furnaces should be completed soon.

METALLURGY LABORATORY

Uranium Alloys

Four additional uranium alloys were received from Battelle; one binary barium alloy, two silicon-chromium ternary alloys, and one silicon-zirconium ternary alloy.

The standard program of heat treating being used in the alloy study was completed on samples from all alloys received to date, and most of the metallographic work was finished. Suitable chromium, silicon, and zirconium additions, or combinations thereof, consistently appear to refine the grain structure of uranium. The addition of 1.0 atomic percent gallium or 0.5 atomic

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Dilatometry

In a further comparison of x-ray and dilatometric data, the coefficient of expansion was determined on some alpha rolled uranium which had a slightly higher degree of preferred orientation than the rod previously compared (See Crystallography, above), as judged by the x-ray method. Within experimental error, the value of the coefficient of expansion was the same as that of the previous comparison.

The coefficient of expansion of a nominal 1.0 atomic percent nickel alloy in the as-rolled condition was found to be greater than the coefficient for randomly oriented metal. This is of considerable interest since this is the first sample of uranium or a uranium alloy to show a higher than random coefficient in the alpha rolled condition. A different type of orientation is indicated. The behavior will be investigated further.

The assembly of the dilatometric equipment into a compact unit was completed. A preliminary draft of a report on this dilatometer was written.

Redox Corrosion Testing

Those dynamic corrosion tests with stressed stainless steel specimens and alternate immersion specimens which involved the use of 1AX solution are now being continued as static immersion tests in which the 1AX solution is changed every two weeks, minimum, or whenever periodic checks are made.

Graphitar and Fluorothene A (graphite filled) were tested in 1A Redox solutions and a report, document HW-13111, issued.

Parian and Teflon (glass filled) were exposed in static, total immersion tests to the 1A Redox solutions. No significant changes were noted in the Parian exposed to the 1AF and 1AS tests while a 0.508 percent weight increase was recorded in the 1AX (8 day) test, although no change in appearance or dimensions was recorded. The Teflon showed no significant changes.

A report, document HW-12964, "Carboloy vs. Redox Solutions," was issued.

Miscellaneous

In order to increase the density of the capsules for the beryllium creep experiment, it was decided that lead shims would be inserted inside the container. The shims were prepared from chemically pure lead, and the activity of this lead will be measured after irradiation for comparison with the activity of commercial lead currently being used in the pile. Lead sample casks required for this experiment have been cast, and will subsequently be machined.

All work to be done by Project Engineering and Minor Construction in connection with the revision of the metallurgy laboratory rooms in Bldg. 3706 (Project C-227) has been completed.

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Service Work

Some tungsten wire was received from the S Division to determine if the wire could be made more ductile by annealing. Annealing at 450° C and 800° C in argon did not improve the ductility. The best method of forming appeared to be hot bending.

Two types of rubber cement used for rubber-metal bonds were tested in tension for Project Engineering.

ANALYTICAL LABORATORIES

Work Volume Statistics

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

	March		April	
	Samples	Determinations	Samples	Determinations
Routine Control - 200	3259	5816	2122	3772
Routine Control - 300	569	1787	373	977
Water Control - 100,700	13588	26576	510	2874
Redox Program Analyses	1905	5742	1622	4766
Process Reagents	1653	3139	1003	1839
Essential Materials	141	621	73	258
Special Samples	4616	11160	2837	9225
Stack Gas Filters	137	234	136	162
Totals	25868	55086	8676	23923

100 Areas Process Control

On April 4, the Power Division assumed responsibility for all control analysis in connection with the water treatment processes in the 100 Areas. The Analytical Section will continue to maintain a staff of technologists in these areas to assist the Power Division on technical problems arising from these control activities, and will also continue the analytical control of process water through the Pile Buildings. This change has no effect on the River Water Analytical Program.

200 Areas Process Control

On April 20, Bldg. 222-T, the control laboratory for Bldgs. 221-224 operations in 200-W Area, was vacated. Analytical samples from these T-Plant operations are being transported to Bldg. 222-B, in the 200-E Area, for analysis. The T Plant laboratory is to be used for pressing analytical research studies until production schedules necessitate reoccupancy as a control laboratory (probably

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in April 1950).

Five milliliters of dissolver solution from the B Plant were composited in the 222-B Laboratory for shipment to the University of California Radiation Laboratory.

Cross checking of 6-3-MR samples between 222-B and 222-T was started on April 15 and discontinued on April 20. The purpose of this test was to determine any significant difference between the analytical results from the two laboratories. Results are being forwarded to the Statistics Group for interpretation.

In order to eliminate the possibility of biased errors, two chemists instead of one were assigned to assay each canyon starting solution (6-3-MR), effective April 11. No increase in the number of reruns has resulted from this procedure, even though the same checking limits were retained. The precision remains about the same.

During the month the Health Instrument Division withdrew its request for beta assay of 224 Bldg. waste streams and has requested beta assay of all 17-4-P samples (final canyon solution).

Reanalysis of the AT retain sample has been accurate to ± 5% of the original assay. Since this is not sufficiently accurate to be of value, further investigations will be made in an attempt to increase this accuracy to ± 2%.

A potentiometric titration for the determination of uranium in extraction solutions (6-3-MR, 8-1-MR, etc.) has been set up in the 222-B Laboratory. It is the standard ferrous sulfate method employing chromous sulfate as a reductant. Methods for uranium assay in other process solutions are being investigated.

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

Laboratory	Ave. Geometry (%)	No. Tests
B Plant (222-B)	50.47	114
T Plant (222-T)	50.47	74
Isolation Bldg. (231)	50.47	46

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

	Precision		
Sample	Expected	March Average	April Average
6-3-MR	1.43	1.59	1.19
P-1	2.39	1.97	2.29
AT	1.98	1.77	1.73

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

Month	Laboratory	Ave. Results ($\times 10^6$)	No. Assays	% Recovery
March	222-B	2.078	12	100.1
	222-T	2.065	17	99.4
April	222-B	2.074	5	99.9
	222-T	2.063	15	99.3

The standard iron solution used in the Isolation Bldg. Laboratory to check the chemical titration of plutonium was analyzed a total of 102 times during the month. There were 80, 20 and 2 results inside ± 1%, ± 2%, and outside ± 2% of the assay value, respectively. The average precision of duplicate titrations was ± 1.33% as compared to ± 1.76% for March.

Assay Value	Group Ave.	% Diff.	No. Determinations	Precision (±%) Single	Precision (±%) Duplicate
12.65	12.58	- 0.6	22	1.24	0.88
10.79	10.76	- 0.3	20	1.78	1.26
11.06	11.02	- 0.2	14	1.49	1.06
10.76	10.78	+ 0.2	24	2.01	1.42
11.06	11.03	- 0.3	22	2.91	2.06

300 Area and Essential Material Control

General

Effective April 1, an Area Supervisor was placed in charge of all 300 Area Miscellaneous Services. This group includes the Experimental Shops, the Glass Shop, the Material Control Unit, and the Special Services and Stockroom groups.

Beginning April 4, analytical procedures for the analysis of coal were changed to conform to the Bureau of Mines methods. This change was made so that both the vendor and Hanford Works would use an analytical method considered standard throughout this region.

Redox Process Control

At month end, there were 79 analytical control people assisting the Redox development program, all of whom were assigned to Bldg. 3706. Included in this total are four exempt chemists assigned to special laboratory problems not directly connected to the process; i. e., time studies, sample scheduling, and record routines. One new method, the volumetric determination of aluminum, was established as a control procedure during this period.

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The work load of this laboratory remained stable at approximately 4,500 determinations. However, a larger percentage of these requests originated in the Redox Development Section, and a reduction was noted in the number of standard samples analyzed.

Methods Adaptation

The acidimetric method for the determination of aluminum in Redox streams was revised and adopted as a routine control method. The write-up has been incorporated in the Redox manual under the code RAV-3. The modified method is based upon the direct titration at a pH of 10.8 of the hydroxyl ion released from sodium aluminate when the latter is reacted with fluoride. The original sample is treated with concentrated sodium hydroxide and its pH is accurately adjusted. Potassium fluoride is added to precipitate the aluminum and the solution is back titrated with standard acid to its original pH. No preliminary separations are required because uranium, iron, and chromic chromium are present as the insoluble hydroxides and do not react nor does dichromate act as a buffer in this region. A small empirical factor is required to correct for the dilution effect of the acid used in the titration and for the amount of aluminum hydroxide remaining in solution. A suspension of calcium hydroxide in 2.83 molar calcium chloride proved to be a satisfactory buffer for calibration purposes. Test data indicate that this method has a precision of 1% or better and average recoveries of 99.5 to 100.5 are consistently obtained.

Attempts to reduce the distillation method for the determination of hexone to a micro scale have been moderately successful. Samples as small as 1 ml. can be used providing the hexone concentration exceeds 1 gram per liter. Preliminary results indicate that an accuracy of 10% can be obtained with a precision of 2 to 3%.

The conversion of the Redox process to the acid-deficient flow sheet has necessitated a re-evaluation of the oxalate procedure for the determination of nitric acid. Converting the samples to the normal type by adding a known amount of acid has proven satisfactory for control purposes, but the accuracy of the determination is decreased. Other methods for analyzing these samples are being investigated.

Work on the application of the fluorimetric procedure to the determination of uranium in $BiPO_4$ process solutions continued. Fairly consistent results were obtained on 5-6-W samples but these data have not yet been confirmed by any other method. This method has also been used for the determination of uranium in the AT, P-1, F-10P, and 17-4P process solutions.

Chemical and Counting Standards

Tests continued on the Tracer-Lab mica window tube. The initial instability of the tube disappeared after it had been in operation for some time. Tests indicate that counting rates as high as 145,000 c/m can be tolerated for five minutes without evidence of fatigue. Tests on this and other Tracer-

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Lab tubes are being continued. Hanford tubes coated with Aqua-Dag and a newly designed Hanford tube utilizing a different atmosphere are also being investigated.

A predetermined decade scaler was received and installed during the month. Two stabilized Simpson Alpha Proportional Counters also were received but have not yet been installed.

Miscellaneous Analyses

Samples submitted by the waste disposal group of the Chemical Research Section were analyzed for uranium and phosphate ions. Initially, difficulty was experienced in the determination of phosphate by the colorimetric molybdate method. Investigation demonstrated that the low extraction recoveries of the colored complex were due to excessive acid concentrations. Satisfactory results were obtained when an acidity of about 1N was maintained.

Requests were received for the determination of nitrate in the presence of the nitrite ion. The phenoldisulfonic acid method was selected as being the most practical procedure but it is subject to nitrite interference. Urea was tested for its ability to destroy nitrite in the sample but the results were not promising. Further work showed that a satisfactory removal of nitrite could be effected by reacting the sample with sulfamic acid in a slightly acid medium. This method is subject to a consistent error approaching 10%.

The determination of NO_3^-, NO_2^- and NO in samples of hexone decomposition products was completed. Recoveries of 102% were obtained on standard samples prepared by the Analytical Research Group. As yet, no satisfactory method has been developed for the determination of CO_2 absorbed in hexone.

Fabrication of Special Laboratory Apparatus

Further progress was made towards the utilization to the maximum possible extent, other on-site machine shops and off-site machine shops rather than the Technical Shops machine shop for the fabrication of special laboratory apparatus. Thus the latter shop is being used primarily for the design and construction of small, first models which require constant step-by-step development, and the other shops are being used for producing fully developed items in quantity. On-site shops now being utilized for this work are the 100-F Area Maintenance Division shop, and the 300 Area Instrument Division shop. Off-site shops currently producing equipment items of this type for the Hanford Technical Divisions are the Puget Sound Naval Yard Shop, and a commercially operated shop in Portland, Oreg.

Special Hazard Control

In order to minimize the large volume of contaminated laboratory aspirator water being discharged to the Isolation Bldg. sumps, a substitute has been sought. The building vacuum system could be used if suitable filters could be

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devised to eliminate the possibility of contamination entering the lines. Three hood vacuum lines were supplied with a stainless steel hose-bib assembly in which ten CWS type six filter papers were placed. The resulting reduction in vacuum plus suitable spray entrainment traps allowed the air to be filtered free of detectable activity past the first two or three filter papers. These contaminated papers are removed once per week and replaced. Since this method has proved to be the most satisfactory for the past eight weeks, an order has been placed to install filter hose-bib assemblies in all hoods.

Due to inherent problems in the transfer of radioactive wastes from the 300 Area Laboratories to the 200 Areas, and the possibility of personnel contamination, a proposed standard procedure is being formulated to eliminate this possibility.

Analytical Research and Development

Document HW-R-13051 by W. N. Carson, Jr., entitled "The Hanford Polarograph," was issued on April 14; it discussed the construction and use of the titled instrument as described previously in these reports.

A procedure has been developed for the determination of nitrite ion in Redox solutions in which the ion is reacted with sulfamic acid to yield nitrogen; the latter is collected and measured in a special microazotometer having a maximum capacity of 100 µl. By this means, 200 µl samples of 0.01 M nitrite have been analyzed with a precision of about 7%; the average result was 1.7% high. Analyses for nitrite in hexone decomposition products with the reagents α-naphthylamine and amino-G acids appeared to be satisfactory and free from interference of other compounds present. The interference of nitrite in the determination of nitrate in Redox solutions with phenoldisulfonic acid was eliminated by prior treatment with sulfamic acid.

Continued investigation of the determination of plutonium by the lanthanum fluoride carrying technique has shown that interference from large quantities of uranium can be reduced to the extent of giving 3 to 5 c/m. The ZFA procedure for determination of Pu (IV) has been found to yield satisfactory results; of the compounds present in Redox streams, only sulfamic acid and large quantities of aluminum interfere. Both plutonium procedures are undesirably long and complicated.

The distribution of active Ce on a counting disc and the presence of inactive salts were found to have a marked effect on the counting rate; the presence of 20 to 50 µg. of inactive $Ce_2(C_2O_4)_3 \cdot 10H_2O$ increased the rate 14%. A procedure based on the cerium method in the Fission Product Manual modified in accordance with these observations proved to be satisfactory; in the presence of aluminum, 90% recovery of active cerium was obtained and in the presence of other constituents of Redox solutions, 95% recovery was found. Employment of modified techniques in infrared absorption studies has revealed the existence of addition compounds of water and hexone, and of water and acetone.

Analyses of DC-1 and DC-3 samples from the first 234-5 development scale run were reported. The following preliminary methods for 234-5 process analyses

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have been turned over to the Analytical Control Group: determinations of impurities after extraction of plutonium cupferrate and determinations of witch hazel, silicon, phosphorus, sulfide, sulfate and boron. Inconsistencies in the determination of boron have been traced to contamination in distilled water; elimination of this error and pretreatment of the quartz stills has permitted blanks of the order of 0.05 µg and establishment of satisfactory working curves. Further study of the cupferrate procedure has shown that benzene and xylene are unsatisfactory substitutes for chloroform in the extraction step and that simultaneous addition of chloroform and other-cupferron solution leads to an improved extraction. The carrier-concentration method was found to be applicable to La-containing Pu solutions such as those from the 231 Bldg. process. It was found that La may be determined in such solutions by ultraviolet absorption methods if the Pu content is reduced to less than 1 µg. per sample.

Construction of an alpha energy analyzer has been completed; a chemist from the Redox Methods Group has been assigned to study determinations of plutonium isotopes with the instrument. For the preparation of discs it was found most satisfactory to dry and ignite a mixture of the sample and polyethylene glycol.

STATISTICAL STUDIES

Uranium Metal Quality

Representatives of the Statistics Group attended conferences held here April 25 and 26 on uranium metal quality. At a subsequent meeting with the Statistics Group on April 27, representatives of the AEC and the metal suppliers discussed plans to add statisticians to their staffs for the purpose of improving metal quality still further.

300 Area P Division Data

The P Division, the 300 Area Plant Assistance Group, and the Statistics Group met to discuss the possible causes and the reduction of type #4 frost test rejects. Recent reactivity data from Test Pile indicate that Mallinckrodt material compares favorably with Hanford material. Dimensional measurements for the past month are less erratic than previous measurements of FM slugs. There were three autoclave failures, but no holes or penetrations reported for the month of April. This is the first month that no holes were observed since the canning of FM type slugs was started.

300 Area Plant Assistance Data

A study of reactivity measurements on slugs produced by three different Mallinckrodt pouring procedures was made for this Group (Document HW-13125). Other statistical studies were made to determine (1) penetration of canned slugs under varying canning conditions; (2) the effect of Medart straightening on rod diameters; and (3) whether type #4 frost test rejects occur more frequently on the first three canning trucks than on the other trucks.

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Analytical Data

Work on precision and accuracy of analyses made by the Analytical Section for the P Division has been started. Several accuracy and precision studies on Redox solutions were completed and the results reported. An additional control chart designed to detect accumulation of errors was applied to the accuracy control of the AT analysis. The precision of the X-ray photometer calibration curves prepared by the Analytical Development Group was evaluated.

300 Area Accountability Data

A preliminary investigation of uranium discard losses from Bldgs. 313 and 314 was summarized for the Accountability Group regarding where the losses occur, the extent of the losses, and the statistical recommendations.

Project Engineering Division

A study of process control records was made for the Industrial Engineering Section regarding the feasibility of reducing the cap thickness of canned slugs.

Design Division - Redox Section

Data on the relative weight of uranium and aluminum and aluminum-silicon bonding layer were obtained for this Division.

Pile Engineering Data

Charts showing the ratio of the maximum temperature rise in an individual tube to the average temperature rise in the entire pile have been completed and issued (Document HW-13204).

Pile Physics Data

A study was made of the gain in average weight that would be possible by segregating graphite lots into two parts by weighing each bar individually (Document HW-13205).

Instrument Division Data

A rough draft of a report on the sequential testing of Victoreen G.M. tubes was discussed with this Division. A formal report will be issued as soon as suggested revisions are made.

North Richland Realty Division Data

The charts showing cafeteria use trends were completed and returned.

200 Area Plant Assistance Data

Correlations of irradiation data with extraction losses for material from 100-B

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pile were investigated, as part of the efforts to identify the short half-line alpha-emitter previously detected.

200 Area Accountability Data

The information obtained from statistical studies relative to Hanford-Los Alamos product measurement differences was presented at a recent meeting with visiting members of the AEC S.F. Accountability Group.

A statistical investigation of the discrepancies between the F-10-P and P-1 analyses was started, as a step in the evaluation of the F-10-P analysis.

A preliminary estimate of the over-all precision of the 8-1-MR analysis was obtained from 6-3-MR - 8-1-MR differences. Further data are forthcoming.

LIBRARY AND FILES

Plant Library

Daily work on the acquisition, cataloging and circulation of books proceeded routinely. The Library's book collection was augmented by the receipt of substantial runs of two famous French scientific journals, "Annales des Chemie" and "Annales des Physique," and the international statistical journal, "Metron."

An expedited shipment of bound periodicals was received from the book binders which included the major portion of the 1948 volumes of all the important periodicals received by the Library. Single issues for the small remainder of incomplete 1948 volumes have been located and are on order.

Literature searches were undertaken during the month of such varied topics as: The Total U. S. Production for 1948 of Aluminum Nitrate, Ferrous Ammonium Sulfide, Hexone, and Sodium Nitrate; a bibliography of books on the physilogical effects of radiation; a bibliography on the iodine content of various grain and forage crops; a bibliography on the use of x-ray diffraction in analytical chemistry; etc.

The Plant Library staff completed the first book inventory since the inception of the Library. Only 32 books are currently unaccounted for in a total collection of over 9,000 volumes.

Library statistics were as follows:

	March	April
Number of books on order received	221	57
Number of books fully cataloged	373	146
Number of bound periodicals processed but not fully cataloged	278	148
Pamphlets added to pamphlet file	144	47

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Miscellaneous material received, processed, and routed (Included maps, photostats, patents, etc.)	103	136
Books and periodicals circulated	1412	1276
Unclassified reports processed	690	295
Unclassified reports circulated	253	127
Reference services rendered	870	958

	Main Library	W-10 Branch	Total
Number of books	4273	1636	5909
Number of bound periodicals	3354	100	3454

Classified Files

The usual work on the receipt, issuance, and routing of documents proceeded routinely. Continuing review of Files procedures resulted in the preparation of two specialized receipt forms which will simplify and expedite the transmittal of index cards and post-issuance corrections to documents mailed off-site.

Arrangements were made to transmit to Knolls Atomic Power Laboratory, sets of index cards prepared by the Abstracting Unit covering technical reports issued at Hanford. These will materially add to the technical reference resources at KAPL and assist them in keeping abreast of current technical developments at Hanford.

In order to provide the Schenectady office of the Nucleonics Department with another set of basic records of the classified material in the Hanford Files, arrangements have been completed to prepare currently a third copy of file record cards for transmittal to Schenectady, and to photostat and transmit the backlog covering the early reports as rapidly as time permits. In addition, this duplicate file will provide a numerical key to classified reports in the Schenectady Yellow File. In connection with Yellow File copy coverage, Files procedures were changed to provide transmittal to Schenectady on a twice-a-week basis.

The program of the Report Abstracting Unit proceeded smoothly, with a total of 625 reports abstracted during the month; this was an advance of 180 over March. Some slowness in the duplication of the abstract cards resulted from delay in shipment of the 3 x 5 cards used in the preparation of the index.

Work statistics for the Classified Files were as follows:

	March	April
Documents routed	10,055	10,157
Documents issued	5,947	4,945
Reference services rendered	3,978	2,077
Reports abstracted	452	625

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Files Assistance Unit statistics were as follows:

	March	April
Ditto masters run	790	859
Mimeograph stencils run	1,188	1,146
Ditto master copies prepared	34,658	33,048
Mimeographed copies prepared	55,657	52,989
Volume of mail handled	17,917	14,630

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(s)	Item
L. D. Turner C. R. Runke	A device to transport samples of irradiated metal. It is designed to permit access to the irradiated material without the removal of a bulky cap or plug.

Signed _____
T. W. Hauff
Division Head

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MEDICAL DIVISION

APRIL 1949

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General

There was a further decrease of 31 in the Medical Division roll from 508 to 477. This was made possible by the decrease in construction activities.

Dr. Norwood attended the annual meeting of the American Association of Industrial Physicians at Detroit, the Biology, Medicine and Health Physics meeting at Oak Ridge, and spent a day at the Atomic Energy Project at the University of Rochester. At the latter location, the progress of the active speck investigative work was reviewed.

Four recognized consultants in the fields of Hospital Administration, General Medicine, and Industrial Medicine are being asked to work with the Medical Division in formulating a long range medical program for this project.

Industrial

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

Employee physical examinations decreased from 5612 to 3420, while first aid treatments dropped from 12,852 to 11,590 due to decreased construction activity.

Total absenteeism dropped to 2.28% while that due to sickness only was down from 2.06% to 1.50%.

Eighteen major and twenty-three sub-major injuries were treated. One of the major and two of the sub-major injuries were sustained by G. E. employees.

The monthly health topic was "Mosquito Control".

Communities - Hospital & Clinics

The average daily hospital census was 89.6, a decrease of 14% over the previous month, and a 6% decrease over April, 1948.

Clinic visits decreased by 15% to 8075, which was 13% higher than the April, 1948 figure. The in-patient service at North Richland Hospital was discontinued for the present. Dental clinic visits were 3032.

Public Health

Communicable disease incidence increased slightly, with measles, German measles, and chicken pox being the major offenders.

1223849

MEDICAL DIVISION

APRIL 1949

General (Continued)

Costs (March)

Net cost of operation of the Medical Division (before assessments to other divisions) was $128,754., an increase of $5,846., largely due to the decrease in revenue caused by decrease in construction personnel and to seasonal decline in illness.

The net expense of hospitals and clinics was $3,409. as compared to $5,053. for February. This expense was made up of hospital $12,737. while the clinic operated at a profit of $9,328.

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MEDICAL DIVISION

APRIL 1949

Plant Medical Section

General

The industrial physicians' scientific meeting dealt with the subject of "Hernia". The scientific aspects were discussed and correlated with the practical aspects as related to our compensation laws and practices.

Dr. J. H. Gray terminated his employment as of April 30th to return to private practice in New York state. Dr. D. J. Wood will replace Dr. Gray as area physician in the 100-F area. Due to the decrease in the number of construction employees, industrial nurses were decreased by four during the month.

The Health Activities Committee met on April 21st, and the coming month health topic on mosquito control was presented. Material on this subject is to be distributed throughout the plant.

An inspection trip was made to 105-H degreasing operation for follow-up on solvent exposure. The 101 Building was visited with the Industrial Hygiene Engineer in an effort to duplicate and measure solvent (CCl_4) exposure involved in the death of an employee several months ago.

On 4/30, first aid service on the 4-12 shift was discontinued at the White Bluffs first aid station.

The number of examinations decreased from 5612 in March to 3420 in April, due to a reduction in the number of both pre-employment and termination examinations. There was also a decrease in the number of first aid treatments from 12,852 to 11,590. One G. E. major and two sub-major injuries were cared for during April. Sub-contractor major injuries totalled 17, and sub-majors 21.

Physical Examinations	March 1949	April 1949	Year To Date
Pre-employment (G.E.)	11	23	332
Annual	425	542	1919
Food Handlers	42	49	328
Sub-contractors	3285	1639	10106
Rechecks	314	220	1333
Interval Rechecks (Area)	749	526	2229
Terminations & Transfers (G.E.)	768	413	1367
Government	18	8	37
Total	5612	3420	17651

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MEDICAL DIVISION

APRIL 1949

Laboratory Examinations

Clinical Laboratory	March 1949	April 1949	Year To Date
Government	76	53	164
Pre-employment, terminations, transfers	5885	3317	23438
Annual	2592	3289	11734
Rechecks (Area)	3663	2596	11445
First Aid	67	74	256
Clinic	4277	3686	15781
Hospital	3647	3556	15422
Public Health (Inc. food handlers)	463	321	1905
Total	20670	16892	80145
X-Ray			
Government	12	5	29
Pre-employment, terminations, transfers	408	279	3091
Annual	454	550	1984
First Aid	304	242	1256
Clinic	425	344	1634
Hospital	276	196	1195
Public Health (Inc. food handlers)	46	53	314
Total	1925	1669	9503
Electrocardiographs			
Industrial	149	149	684
Clinic	15	13	67
Hospital	30	26	132
Total	194	188	883
Allergy			
Skin Tests	63	31	225
Pathological Slides			
Hospital	210	326	536
First Aid Treatments			
Occupational Treatments	1756	1326	7625
Occupational Retreatments	6297	6003	28451
Non-occupational (Welfare) Treatments	4799	4261	22975
Total	12852	11590	59051
Major Injuries			
General Electric	3	1	7
Sub-contractors	8	17	56
Total	11	18	63

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Sub-major Injuries	March 1949	April 1949	Year To Date
General Electric	3	2	17
Sub-contractors	23	21	155
Total	26	23	172

Absenteeism			
Weekly employees, all causes	2.84%	2.28%	2.78%
Weekly employees, sickness only	2.06%	1.50%	1.92%
Total days lost by males due to sickness	1668	1440	6988
Total days lost by females due to sickness	1183	1019	4676
Total days lost due to sickness	2851	2459	11664
Investigation:			
Total calls requested	17	14	94
Total calls made	17	14	94
No. absent due to illness in family	0	0	0
No. not at home when call was made	1	5	8

Village Medical Section

General

Dr. E. M. McPeak attended pathology conferences at the University of Washington Medical School, and Dr. T. J. Albertowicz took graduate work at the University of Oregon Medical School.

The average daily hospital census was 89.6, a decrease of 14% over the previous month, and a 6% decrease over April, 1948.

Clinic visits decreased from 9260 to 8075. This is 15% lower than March, 1949, and 13% higher than April, 1948. North Richland medical center accounted for 15% of the current total.

The net expense of the Richland community medical program was $3,409., as compared to $5,053. for February. This was made up of Kadlec Hospital expense of $12,737., a $2300. decrease over February, together with the clinic which operated at a profit of $9,328. Clinic profits were $700. greater than the previous month.

The net expense of North Richland clinic was $6.463., an increase of $4,584. over the previous month. This increased loss was due to the sharp decrease in volume of business, thus the lack of revenue to offset the necessary operating expenses.

The in-patient service of North Richland medical center ceased operation on March 28th. This unit will be held in readiness and can be re-opened within a few hours should occasion arise necessitating its operation.

An iron lung was donated to Kadlec Hospital by the American Legion of Richland. There will be no special equipment charge for the use of this lung.

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MEDICAL DIVISION

APRIL 1949

Clinic Visits	March 1949	April 1949	Year To Date
Medical	1901	1437	7487
Pediatrics	780	736	3297
Well Babies	237	245	969
Surgical	1000	890	3647
Gynecological	782	614	2643
Obstetrics (new)	103	85	418
Obstetrics (recheck)	1002	851	3568
Venereal Disease	334	120	1163
Ear, Nose, Throat	576	515	2210
Eye	317	345	1108
Visits handled by nurses	1536	1447	7275
Night clinic visits	692	789	3423
Total	9260	8074	37208
Average clinic visits per day	356	311	358
Home Visits			
Doctors	247	137	1285
Nurses	417	280	2217
Total	664	417	3502
Kadlec Hospital			
Census			
Admissions	551	542	2346
Discharges:			
Surgical	119	136	484
Medical	124	99	55[illegible]
Obstetric & gynecologic	141	123	516
Eye, Ear, Nose & Throat	54	95	268
Pediatrics:			
Children	53	40	243
Newborn	91	64	305
Total discharges	582	557	2375
Patient Days	3163	2688	12972
Average Stay	5.7	4.6	5.4
Average Daily Census	102	89.6	108.4
Discharged against advice	3	3	11
One-day cases	82	116	370
Operations			
Transfusions	49	55	185
E. E. N. T.	38	83	214
Dental	1	0	4
Casts	21	20	91
Minors	77	82	297
Majors	66	81	267

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MEDICAL DIVISION

APRIL 1949

Vital Statistics	March 1949	April 1949	Year To date
Deaths	5	6	27
Deliveries	81	69	307
Stillborn	1	0	2
Physiotherapy Treatments			
Clinic	145	100	498
Hospital	22	95	247
Industrial:			
Plant	310	305	1343
Personal	60	68	237
Total	537	568	2325
Pharmacy			
No. of prescriptions filled	3905	3364	16092
Patient Meals			
Regulars	4337	3109	18349
Lights	216	176	740
Softs	1388	1482	6546
Surgical Liquids	83	89	410
Tonsils & Adenoids	73	221	516
Specials	1394	1386	4871
Liquids	212	236	1033
Total	7703	6699	32465
Cafeteria Meals			
Noon	2644	2354	10199
Night	338	338	1305
Total	2982	2692	11504
Nursing Personnel			
First Aid Nurses	45	41	
Clinic Nurses	18	17	
Public Health Nurses	14	13	
Hospital General Nurses	83	79	
Aides & Orderlies	53	47	
Total	213	197	

Public Health Section

General

Communicable disease control visits remained about the same with German measles and measles as outstanding. Morbidity visits have remained the same.

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MEDICAL DIVISION

APRIL 1949

General (continued)

Final arrangements were completed for the development and operation of the free chest x-ray program in Richland and North Richland.

Initial mosquito larviciding operations were commenced the latter part of this month.

The new Richland sewage disposal plant is completed, and within a week all sewage from North Richland will enter the new plant.

A garbage collection regulation has been submitted to the Community Council.

Administration	March 1949	April 1949	Year To Date
Newspaper Articles	12	40	98
Committee Meetings	15	0	45
Attendance	200	0	600
Staff Meetings	2	1	9
Lectures & Talks	0	20	20
Attendance	0	2529	2529
Conferences	36	90	198
Attendance	150	350	800
Radio Broadcasts	0	3	3
Immunizations			
Cholera	2	0	3
Diphtheria	139	1002	1302
Influenza	0	0	5
Rocky Mt. Spotted Fever	0	4	4
Smallpox	23	622	713
Tetanus	1	7	11
Typhoid	2	7	11
Whooping Cough	0	1	2
Vollmer Patch Test	0	6	6
Total	167	1649	2057
Social Service			
Cases carried over	77	89	322
Cases admitted	32	30	105
Total	109	119	427
Cases closed	17	26	91
Remaining case load	92	93	336
Sources of Referral			
Public Health	7	3	22
Doctors	15	12	47
Interested Person	0	7	8
School	0	2	3
Personnel Office	1	0	1

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MEDICAL DIVISION

APRIL 1949

Sources of Referral (continued)	March 1949	April 1949	Year To Date
Personal Application	4	2	13
Other agency	1	2	3
Miscellaneous	4	2	8
Total	32	30	105
Sanitation			
Inspections made	454	244	1463
Bacteriological Laboratory			
Treated Water Samples	205	186	775
Milk Samples (Inc. cream & ice cream)	185	131	523
Other bacteriological tests	394	233	1349
Total	784	551	2648
Communicable Diseases			
Amoebic Dysentery	1	0	1
Chickenpox	92	65	380
German Measles	35	62	121
Gonorrhea	3	6	23
Impetigo	0	0	2
Influenza	2	0	8
Measles	7	52	67
Meningococcic Meningitis	3	0	3
Mumps	7	7	25
Pediculosis	0	0	2
Pinkeye	4	6	25
Ringworm	2	3	12
Scabies	0	1	8
Scarlet Fever	3	2	10
Syphilis	23	7	70
Tuberculosis	2	3	5
Vincent's Infection	1	0	2
Total	185	214	764
Total number nursing field visits	1501	1111	6019

Dental Section

General

The total number of patients treated in the Dental Section decreased 16% over the previous month, and increased 10% over a year ago. Average for the current month was 117 patients treated daily.

	March 1949	April 1949	Year To Date
Patients treated	3611	3032	13197

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MEDICAL DIVISION PERSONNEL SUMMARY

April 30, 1949

AREAS	Physicians	Dentists	Nurses	Aides & Orderlies - Ambulance Drivers	Technicians	Office Workers	Others
100-H			5			1	
234-5			1				
White Bluffs			2				
241-BY			1				
101			1				
3000	8	2	10	3	5	20	11
100-B			2 1/3		2/5	1/2	
100-D			2 1/3		2/5	1/2	
100-F			2 1/3		2/5	1	
200-E			4		2/5	1/2	
200-W			5		4/5	1/2	
300			2		4/5	1	
Plant General	5		3				
700-1100	26	9	109	48	23 4/5	79	79
Total	39	11	150	51	32	104	90

Grand Total: 477

Number of employees on payroll:

Beginning of month	508
End of month	477
Net decrease	31

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HEALTH INSTRUMENT DIVISIONS

APRIL 1949

Summary

The force decreased by 11. Two Special Hazards Incidents were reported. Contamination of expensive equipment that otherwise could have been offered for sale occurred in one.

The first case of plutonism (judged to have arisen elsewhere) was reported.

Findings of the H.I. Operational Division followed the usual pattern. The occurrence of plutonium contamination in the air in such buildings as the laundry and the Concentration Buildings and their exhausts reflects the risk that hazards in such locations may exceed those in the primary plutonium-handling facilities, where expensive design is used to combat the obvious hazard. The frequency of occurrence of off-standard conditions in the P-10 Operations, compared with pre-operation forecasts, encourages a conservative attitude in the introduction of other new facilities.

In the Development Division, control results also conformed with the established pattern, except that an apparent breakdown of the 5-6 crib and tile field disposal system in the 200-E Area was noted. Satisfactory performance of a pile effluent beta-activity monitor was finally achieved.

The Biology Division has been mainly occupied with planning for the Animal Farm and Biology Laboratory, including pilot experiments for foreseen waste disposal problems. Biological monitoring was continued without incidents of note.

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Health Instrument Divisions

HEALTH INSTRUMENT DIVISIONS

APRIL 1949

Organization

The composition and distribution of the force as of 4/30/49 was as follows:

	100-B	100-D	100-F	200-W	200-E	300	700	F.G.	Total
Supervisors	1	1	3	8	3	16	7	0	39
Engineers	3	4	11	20	11	7	1	0	57
Clerical	0	0	2	1	1	3	5	0	12
Others	9	10	22	61	35	58	7	5	207
Total	13	15	38	90	50	84	20	5	315

Number of Employees on Payroll	April 1949
Beginning of month	326
End of month	315
Net Decrease	11

True additions to the roll were an engineer and a technical graduate for the Biology Division. Four laboratory assistants and eight general clerks from the Technical Division displaced shorter service H.I. personnel. While such transfers are recognized to be necessary, there has been a noticeable disruptive effect on morale in the affected groups, partly due to misunderstandings on maintenance of preferential rates, and partly to the difficulty of equitable assignment of prior commitments on vacations, when the H.I. forces have practically eliminated vacations this quarter to effect increased utilization of the reduced force. In addition to the twelve displacements, one engineer, one technical graduate, one laboratory assistant, two steno-typists, and eight general clerks were removed from the roll.

General

The enviable record of no demonstrable deposition of plutonium in the skeleton of Hanford Works personnel, as estimated by urinalysis, has been lost, by confirmation of positive findings in the urine of one S Division employee. Five samples since December 1948 have all been reported positive. The earlier ones were questioned because this was the period in which difficulties in technique were being encountered. Within expected limits of statistical error, all the samples show a daily elimination of about 2 dis/min. Subsequent investigation has shown that the subject employee has not been engaged in work here that could conceivably lead to plutonism. Prior to September, 1946, he was engaged

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in plutonium work at Los Alamos. The inference that the exposure was not obtained at Hanford is unavoidable. Application of the Los Alamos elimination rate formula

$$\text{Daily elimination (per cent initial exposure)} = \frac{0.358}{(\text{time in days})^{0.943}}$$

shows a present rate of 0.0005% per day for exposure prior to September, 1946. The deposited amount is therefore approximately 3 μg Pu. Comparison of this with the Los Alamos data should afford an interesting check on the reliability of the bioassay procedures at the two sites.

Another noteworthy event this month was the apparently sudden breakdown of the 5-6 crib as an effective waste disposal system. As this occurred late in the month, the severity of contamination has not been fully analyzed. It does emphasize the necessity for the types of control and development programs that have been started in the Health Instrument Divisions.

Two Class I Special Hazards Incidents were investigated. One involved contamination spread over transportation equipment and an area downwind from an industrial burial ground, and the other improper preparation for Danger Zone work.

The following trips were made during the month:

C.C. Gamertsfelder to U.C.R.L., Berkeley, Calif., Conference on Neutron Measurement;
F.E. Adley to Detroit, American Industrial Hygienists Conference;
H.A. Kornberg and R.F. Foster, Oak Ridge, Information Meeting;
H.A. Kornberg, Detroit, Federation Meetings of Biologists;
H.A. Kornberg and W.A. McAdams, Oregon State College, colloquium
H.M. Parker, U. of Washington, two lectures in Medical School, and Los Alamos, Inspection of facilities.

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

	March				April				1949
	B	D	F	Total	B	D	F	Total	To Date
Special Work Permits	577	747	811	2135	600	699	759	2058	8272
Routine & Special Surveys	583	501	538	1622	547	521	574	1642	6741
107 Effluent Surveys	98	95	113	306	136	102	90	328	1169
Air Monitoring Samples	111	93	103	307	124	112	98	334	1307

Retention Basin Effluent

The activity of the water leaving the retention basin was as follows:

	100-B	100-D	100-F
Power level (MW)	275	275	275
Average beta dosage-rate (mrep/hr)	1.3	1.0	1.0
Average gamma dosage-rate (mr/hr)	2.4	2.6	2.3
Average total dosage-rate (mrep/hr)	3.7	3.6	3.3
Average integrated dose in 24 hours (mrep)	89	86	79
Maximum integrated dose in 24 hours (mrep)	108	132	89
Maximum integrated dose in 24 hours (1949) mrep	108	132	106

The high maximum integrated doses at 100-B and 100-D were reached after the "P" Division was advised by the H. I. Operational Division that the tolerance dosage-rate could be raised to 10 mrep/hr

The leaks in the North side of the 100-B retention basin have not been completely sealed. The latest leak test showed a loss of more than 300 gallons per minute.

During work on the retention basin contamination was spread to the pump house roof, the stairs and to the ground around the pump house. The cause of the contamination spread was the improper handling of protective clothing. All traces of the contamination were removed.

100-B Area

Several gas leaks at the base of the pile and one at the bellows of tube #1555 were effectively sealed. New leaks at the base of the pile were evident shortly afterwards, however. Nevertheless. background activity in the work area and corridor was appreciably reduced.

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During a production test to determine if cadmium coated splines could be used in lieu of charging poison, no significant radiation was observed. One spline removed from the discharge face showed a dosage rate of 750 milli rep/hr at surface including 25 mr/hr at two inches.

A transfer cask containing 18 slug buckets was returned from the 200 North Area. Individual buckets were badly contaminated and some alpha contamination was indicated. This contamination was spread to the car platform and to the wash pad during unloading operations. Dosage rates as high as 1200 mrep/hr were observed on the floor Decontamination of the area was successful.

High air-borne contamination was encountered in the machinery room while the exhaust fans were being repaired and serviced The condition was corrected when the fans were returned to normal operation.

Loose paper was blown out of the burial trench during high winds and some escaped the fenced area. This again stresses the importance of packaging all loose materials before burial.

P-10 Operations 108 Building

A leak developed in the sewer line carrying the cooling water used in process fluids and decontamination hood wastes to the crib. The leak was located at the point where the line entered the ground on the east side of the building. No contamination was encountered during its repair.

During the opening of a furnace the air at the edge of the #1 hood exceeded the maximum permissible concentration. The room was evacuated and the room air exhaust Kanne chamber was off scale on the 10^{-13} amps. scale Gaskets were removed from the bottoms of furnaces in hood #2 and replaced. A Zeuto reading of the gaskets was off-scale on the X10* range. These gaskets were stored in the hood and later showed a dosage rate of only 5 mrep/hr.

A furnace boat containing spent LiF pellets showed a surface dosage rate of 135 mr/hr as determined with badge packets.

Metallurgical Operations - 111 Building

Equipment from the 200 North Area was moved into the building. This included sample casks reading up to 400 mr/hr at two inches.

*Maximum permissible air concentration is estimated at 1/2 scale on the X1 range. It is possible that gas from the furnace entered the Zeuto chamber as the survey was made inside the hood.

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Health Instrument Divisions

100-D Area

During the shutdown on the 6th of April, 1949, water used for hydrostatic tests in the third safety system entered eight vertical safety rod thimbles. During removal large amounts of radioactive iron were found suspended in the water and high exposure rates were encountered. The water was collected in drums and filtered through alternate layers of sand and gravel. The filtered water showed a beta dosage rate of 1.4 mrep/hr and was allowed to enter the river by way of the sewer and the retention basin. A maximum dosage-rate of 4.2 roentgens per hour was reported on the filters. All containers and filter media were buried Contamination spread was negligible.

During a shutdown of the pile, process gas was circulated through the 105 DR pile. Surveys on the top and the sides of the pile showed no radiation present.

Cask car #33642 was found contaminated to levels as high as 40,000 c/m. It was returned to 200 North Area for decontamination.

Surveys in the beam at the top far edge of the pile showed no appreciable increase. Stationary chambers mounted in the beam, however, have shown a steady increase for several months.

100-F Area

When the water pressure limit switch was not by-passed prior to shutdown, the vertical safety rods were scrammed while personnel were on top of the pile. A survey of personnel involved revealed no contamination.

Members of the Instrument Division were exposed for a short period to a dosage rate of 4 roentgens/hr when they inadvertently dropped a quadrant monitoring chamber as it was removed from the pile. The chamber was placed in a lead cave by the use of long tongs. A dosage rate of 195 roentgens/hr was observed ½ inch from the chamber.

High level contamination on protective clothing was detected during maintenance repairs to the condenser in the #3 drier room at the gas purification building. Only one case of hand contamination was reported, however. A Zeus type survey meter was destroyed in a fire which occurred after necessary welding on the job. During the fire an operator entered the room without respiratory protection in violation of Special Hazards Bulletin #8. This incident occurred on 3/31/49, and was mentioned in the General section of the March report, but was inadvertently omitted from this section.
The gel tower in the #3 drier room showed a dosage rate of 2.3 roentgens/hour while in operation. Normally gel towers do not show dosage rates above 1 roentgen/hour.

An unusual incident occurred when the #2 filter in the gas purification
7 building was accidentally placed in operation. This resulted in a dosage-

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rate of 1 roentgen per hour in the room. Ordinarily work is done in this room on an extended permit which has an 8-hour time limit. Fortunately no over exposure occurred before the operation of this filter was discovered.

Hand contamination occurred when algae samples were removed from the reten tion basin by two members of the H. I. Biology group. In violation of procedure, no hand counts were taken until the end of the shift at which time the contamination was found and removed.

The maximum intensity of the beam emerging from the biological shield at the top far edge of the pile exceeded 3 roentgens/hr. The dosage-rate on the 50 foot level roof of the pile building was 115 mr/hr. The beam is now discernable all across the 50-foot level roof whereas previous surveys revealed the maximum point only. The slow neutron dosage rate in the beam continued to increase slowly.

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Health Instrument Divisions

200 Areas T and B Plants

General Statistics

	March			April			1949
	T	B	Total	T	B	Total	To Date
Special Work Permits	432	459	891	418	477	895	3407
Routine and Special Surveys	595	574	1169	395	585	980	4311
Air Monitoring Samples	570	636	1206	471	667	1138	4718
Thyroid Checks	192	107	299	162	91	253	928

Canyon Buildings

In the T Plant, gross canyon deck and paper contamination resulted from large scale remote maintenance work which was completed and decontamination of deck surfaces is now in progress. Surface dosage-rates up to 1.2 rep per hour were noted on the unused 9-3 and 10-3 tanks when compression bands were installed on them. Approximately 400 feet of the canyon deck was covered with process tanks and connectors for several days during this maintenance repair work. Constant H.I. monitoring was provided for all canyon entry due to radiation from equipment and rust on the canyon deck and from open cells. Some low-level clothing contamination occurred,,predominantly on cuffs and socks. The need for a more precise line of contamination control at the canyon deck was indicated when general contamination was found in the R-13 stairwell. Contaminated pieces of masking tape and wood were removed from the stairwell during its decontamination. Further surveys on the railroad tunnel cut contamination (reported last month) revealed widespread contamination of areas downwind from the industrial burial ground, presumably as a result of current burial practices of large equipment. It was postulated that removal of grossly contaminated centrifuges tanks, agitator assemblies, and connectors from a large open box on a flatcar, caused contaminated rust to be scattered by the jostling of the equipment during unloading, and also subsequently scattered by the wind. Widespread ground contamination of up to 100,000 c/m at one inch as read with a VGM and several spots with surface dosage-rates up to 500 mrep/hr were reported in an area which encompasses about an acre of ground between the industrial burial ground and the 211-T Area. When the source of this ground contamination was established, the open box on the flatcar was promptly buried. The bulldozer operator who bladed the dirt over the box in the trench had clothing contamination but no skin contamination detectable. An assault mask was worn during the work. Personal clothing contamination occurred when a crane operator boarded a Lima crane which was reported contaminated but not roped off. No skin contamination occurred, and the crane was then placed in a Danger Zone. There were 78 high air samples in the canyon; the maximum concentration was from a continuous air sample of 960 cubic feet obtained during crane work in Section 8R and showed a surface

9 *These practices had been criticized but not corrected after a similar incident in the 200-E Area in October, 1948.

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dosage rate of 65 mrep/hr.

In the B Plant the canyon survey of the special bucket of slugs brought directly from the 100 Areas indicated that present equipment was adequate for Rala (reference Document HW-13087). Gross canyon deck contamination occurred during the exchange of the 9-3 and 13 1 tank with dosage rates up to 35 rep per hour reported at the surface Chemox masks used while welding bands on the 9-3 tank showed contamination up to 2,000 c/m. However no personnel contamination was encountered. Decontamination was done promptly after the work and no contamination was spread to stairwells or other canyon areas. Thirty six significant air samples were taken in the canyon. with a maximum of 10^{-5} μc f.p./liter reported on a sample taken after the 9-3 and 13-1 tank exchange.

Control Laboratories

In the T Plant, 136 items, not regulated with respect to handling, were found contaminated on surveys by Technical and Health Instrument Divisions' personnel. In addition, 31 contaminated floor locations were reported. The Analytical and Control group in the 222-T building was transferred to other areas, and all process samples are again being transported to the 200 East Control Laboratory for analysis. Two cases of product and two cases of fission product hand contamination were successfully cleaned.

In the B Plant, 170 items, not regulated with respect to handling, were found contaminated on surveys by Technical and Health Instrument Divisions' personnel. In addition, 52 contaminated floor locations were reported. One instance of alpha hand contamination was reported and cleaned. Shipments of waste from the 300 Area were received which showed dosage-rates of 580 mrep per hour at the side of the cardboard box and 210 mr/hr through the stainless steel box.

Concentration Buildings

In the T Plant, several spots of product contamination were reported on the floor underneath the D and E cell vent lines while welding pinpoint leaks in these lines. Routine cell surveys showed the following estimated contamination levels.

Cell	Estimated μg Pu	Remarks
A	21.0	All on A-1 tank
B	1.1	
C	3.0	Incomplete survey, C-4 read 1 r/hr at 2 inches and restricted access.
D	15.0	Spots on D-4 up to 300,000 d/m
E	12.5	

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During the month, approximately 30,000 cubic feet of air exhausted from the A cell roof fan was sampled, while the building was in operation. Samples ranged in concentration from 6.5×10^{-11} µg Pu/cc to 2×10^{-9} µg Pu/cc, with an average of 6×10^{-10} µg Pu/cc reported. When the building was not in operation, samples immediately dropped to less than 10^{-11} µg Pu/cc.

In the B Plant, the B-1 dip leg was replaced and the bowl spray inspected. Outer coveralls were contaminated up to 10,000 d/m on this work, but no contamination was found on inner coveralls. The E-2 bowl spray was replaced and readings of above 3.5×10^6 d/m encountered; no spread of contamination was evident. Air samples taken in the D cell roof vent showed approximately 50 micrograms Pu/24 hours exhausted for the first two weeks of the month. The lower number of process runs the following week was evidenced in that approximately 25 micrograms Pu/24 hour period was exhausted, and the final week showed only about 1 µg Pu/24 hours.

Stack Areas

In the B Plant, decontamination of the ground in the vicinity of the fans was completed except for two small areas adjacent to the fan bases. Additional test holes near the 292-B drywell cave-in (previously reported) did not show detectable contamination. A leak was observed at the 3-5 R jet flange and contaminated a ground area of several square feet. The contaminated dirt was removed and the flange regasketted in a maximum exposure rate of 2 rep per hour.

Waste Disposal Areas

In the T Plant, the tie in of the lines from the 155-TX diversion box to the 151 T and 152-T diversion boxes continued. With only one bottom block removed for hydrostatic tests at 151-T, a dosage-rate of 400 mr/hr over the top of the box was reported. No contamination spread has been detected throughout this installation.

Health Instrument Development Laboratory

A total of 2 µg Pu (assumed to be plutonium) was discovered in hood #1 in room 6 on a routine survey, and successfully decontaminated. The airflow dampers on hoods #1 and #2 in room 6 showed about 20,000 d/m of alpha contamination on each.

Riverland Roundhouse

A special survey of the project locomotives showed #3721 to be generally contaminated up to 30 mrep/hr at the surface. All upper outside surfaces, steps, walkways, etc. were contaminated. Engines #3719 and #3726 showed contamination which was isolated as particles. It is postulated that the contamination on engine #3721 occurred during burial operations in the industrial burial ground in 200-West Area. All of the engines were success-

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fully decontaminated for project use. Engine #3721 could not be released for uncontrolled resale, as planned, at least without expensive dismantling and clean up.

Plant Laundry

A total of 59 spot air samples, and 41 continuous air samples, was taken during plant laundry operations. The maximum concentration calculated as product was 7.5×10^{-11} µg Pu/cc during the charging of clothing from 100-B, 100-D and 100-F Areas. Assault masks are worn while charging washers. The air sample reported last month which showed a concentration of 1.6×10^{-4} µg U/cc (assuming it to be uranium) upon analysis proved to be about 80% plutonium and 20% uranium. Calculated as all product, this concentration would be about 8×10^{-10} µg Pu/cc. There appears to be ample justification for improvement in the laundry ventilation.

General

All thyroid checks were below the warning level.

One minor injury in the 200-East Area, due to an acid burn, was contaminated to about 1,000 c/m but was easily washed to less than 100 c/m before release to First Aid. The Industrial Medical Division was notified, and treatment was made per their recommendations.

The Isolation Building

General Statistics

	March	April	1949 to Date
Special Work Permits	41	27	151
Routine and Special Surveys	416	309	1247
Air Monitoring Samples	497	411	1646

Operating Cells

During maintenance and cleaning work in Cell 3, three significant air samples were obtained, the maximum of which was 1.6×10^{-9} µg Pu/cc. In Cell 4, one sample of 3.7×10^{-10} µg Pu/cc occurred during maintenance work. Assault masks are routinely worn on cell maintenance work. A sample of 1.6×10^{-11} µg Pu/cc was obtained during normal operation of Cell 4. All follow-up samples showed no significant air contamination.

A total of 22 items, not regulated with respect to handling, was found contaminated on surveys by H.I. personnel. All were below 20,000 d/m.

An incident of floor contamination of about one milligram Pu occurred in Cell 3 as a result of a gasket failure in the sump line. Contamination spread was confined to the cell. The area was cleaned and the gasket was replaced. A continuous air sample run in Cell 3 during the week preceding the discovery of the spill showed 1.8×10^{-11} µg Pu/cc. The cell was not

in operation during this week, but cleaning waste was jetted to the sump. In addition, there were three other incidents of floor contamination, the maximum of which involved 0.2 μg Pu. All were easily cleaned.

One skin contamination incident occurred. It amounted to 3500 d/m which was successfully removed.

The rock wool filter over the "A" leg of the Cell 3 exhaust and the CWS Type 6 filter over the "E" leg of Cell 3 were replaced without spread of contamination. The CWS Type 6 filter had been in service approximately 16 months.

Fifty-eight special air samples were taken covering filter media breakdown. testing filtered and unfiltered air from the "A" leg of Cell 2, and filtered air from the Cell 4 "A" leg. Of 18 samples of filtered air from Cell 2 "A" leg the average concentration was 2.9×10^{-9} μg Pu/cc, with a maximum value of 6.2×10^{-9} μg Pu/cc. Three samples taken in the Cell 4 "A" leg filtered air test, which was recently initiated, indicated a concentration of less than 10^{-11} μg Pu/cc. The breakdown test of CWS Type 6 filter paper was discontinued, having been run for about 16 months. A separate report covering this test is being written.

Twelve samples of the 903 system exhaust air showed a maximum concentration of 3.1×10^{-11} μg Pu/cc.

Maximum levels of gamma radiation encountered were 40 mr/hr on P.R. Containers, 4 mr/hr at process hoods, and 5.8 mr/hr on S.C. Two P.R. Containers showed dosage-rates of greater than 25 mr/hr at 4 inches and were handled on Special Work Permits.

Control Laboratories

Three significant air samples were obtained near hoods in room 35. The maximum concentration was 6.5×10^{-11} μg Pu/cc. All subsequent follow-up samples at these locations have shown less than 10^{-11} μg Pu/cc. Of 34 continuous air samples run no significant air contamination was found.

A total of 289 items not regulated with respect to handling was found contaminated on surveys by Technical and H.I. personnel. Of these, 17 items were above 20 000 d/m including 6 which were greater than 80,000 d/m. In addition there were 7 incidents of floor contamination. The maximum involved 0.35 μg Pu. All were successfully cleaned.

While running an analysis in room 34, a technical graduate discovered about 0.04 μg Pu on his rubber "skin" gloves and about the same amount on his right wrist. Further survey revealed about 5 μg Pu on the right side and right leg of his coveralls. No other skin contamination was found and the wrist was easily cleaned. The front edge of the hood in which the analysis was run showed 1000 c/m and a syringe in the hood was contaminated to the extent of 3000 d/m. Subsequent surveys showed no further spread of contamination, nor did they establish the source of contamination. One other skin contami-

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nation incident occurred involving 1500 d/m which was removed.

Technical Development Laboratories

A total of 14 items, not regulated with respect to handling, was found contaminated on surveys by H.I. personnel. All were below 20,000 d/m. All air samples were below 10^{-11} µg Pu/cc.

A faulty sink drain in room 44 resulted in about 1.5 µg Pu floor contamination. Another incident of floor contamination occurred in room 44. 2000 c/m was found and was easily cleaned.

Ten special air samples were taken from the filtered air from the room 38 hood exhaust. All were below 2×10^{-12} µg Pu/cc.

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The 300 Area

General Statistics

	March	April	1949 To Date
Special Work Permits	302	219	801
Routine & Special Surveys	222	204	685
Air Monitoring Samples	124	47	383

Metal Fabrication Plant

Four of 34 air samples taken showed a concentration above 5×10^{-5} µg U/cc as follows:

Location	No. Taken	No. above 5×10^{-5} µg U/cc	Maximum Concentration (µg U/cc)	Conditions
Saw Room	3	1	1.2×10^{-4}	8-inches from saw
Burnout Room	2	0	---	Center of room
Furnace Room	2	0	---	Furnaces closed
Machining	10	0	---	Normal operation
Chip Recovery	15	1	5.5×10^{-5}	Between press & E wall
Box Cars	2	2	8.5×10^{-5}	Loading uranium billets

Two operators received exposures of more than 300 mrep in one week as reported on their film badges. Both exposures were believed to have resulted from work near stored uranium rods in the 314 Building.

A survey of records and papers used in the 303 Area and subsequently passed on to the Accountability Section, showed them to be free of contamination.

100 Areas Associated Laboratories

A total of 56 aluminum papooses were machined on the remote control lathe in the 3741 Building by members of the Pile Technology Group. Dosage rates of 600 mr/hr at 2-feet and 25 mr/hr at 18-inches were observed. Burial of high level waste from this building was accomplished without over-exposure to personnel.

Technical Building

One of 12 air samples taken showed a concentration greater than 2×10^{-11} µg Pu/cc. This sample was taken in room 98 while the hood fans were not operating. The concentration was 3.2×10^{-11} ug Pu/cc. Personnel were restricted from the room until the fans were returned to normal operation.

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Health Instrument Divisions

A laboratory technician was continuously monitored, while analyzing a door-stop sample, to estimate the exposure for this analysis. Survey results indicate that the present maximum of 12 samples per day can be handled with no danger of overexposure.

High radiation levels were observed during the removal of contaminated wastes from rooms 19 and 66. Dry wastes showing dosage rates as high as 7 rep per hour and liquid wastes, as high as 320 mrep per hour, were disposed of according to procedure. The high activity of the wastes has necessitated a study of all waste disposal procedures.

Cold Semi-Works Building

A total of about 417 lbs. of uranium has been discharged to the 300 Area pond through 4-28-49, of which about 42 lbs. were added during April. The total uranium waste solution discharged to the 300 North Area crib through 4-28-49 was about 63 lbs. About 1 lb. was added in April.

Plant General

Frame studies completed in the 200 Areas during the month indicated deposition rates of 5.6×10^8 particles per month in 200 East, and 1.0×10^8 particles per month in 200 West. This terminates the frame study program.

Particle inhalation rates estimated by filming Motoair filters showed the following results at certain key locations:

Location	Inhalation Rate Particles Per Month	
	March	April
200-E Area Gatehouse (outside)	0.1	0.1
200-E Area Gatehouse (inside)	0.1	0.2
"B" Plant Exclusion Gatehouse (outside)	0.5	0.3
200-W Area Gatehouse (outside)	0.4	0.2
200-W Area Gatehouse (inside)	0.4	0.4
"T" Plant Exclusion Gatehouse (outside)	0.5	0.2
3' Level Meteorology Tower	0.2	0.2
250' Level Meteorology Tower	0.6	0.2
400' Level Meteorology Tower	0.4	0.1
100-D Area	0.1	0.1
100-B Area	0.1	0.1
Benton City	0.1	None
Richland	0.1	None

Continuous air samples taken inside various 200 Areas buildings showed the following estimated inhalation rates as compared with March results:

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Location	Inhalation Rate Particles Per Month	
	March	April
East Area Maintenance Shop	0.5	0.2
West Area Maintenance Shop	0.8	0.2
222-T Hall	8.0	4.8
222-B Hall	3.0	10.0
B-Plant Oper. Gallery	3.0	0.5
224-T Air Cond. Room	0.4	0.3
2704-E Adm. Building	0.2	0.1

Continuous air samples taken at locations off the project showed the following results for the month:

Location	No. Particles	Cu. Ft. Sampled
Boise, Idaho	1	106,000
Great Falls, Montana	0	--
Klamath Falls, Oregon	1	105,000
Lewiston, Idaho	1	171,000
Meachum, Oregon	0	--
Stampede Pass, Washington	0	--
Walla Walla, Washington	1	136,000
Spokane Washington	0	--

Hand Score Summary

A total of 34,416 alpha and 42,044 beta hand scores was recorded. About 0.1% of the alpha and about 0.06% of the beta scores were high. No attempt at reduction for 5 high alpha and 4 high beta scores, all in the 300 Area, was recorded. Where decontamination was attempted it was successful in all cases.

PERSONNEL METERS

Pencils	100-B	100-D	100-F	E&N 200	200-W	300	Total	1949 To Date
Pencils read	11,085	12,520	12,506	27,179	42,932	40,068	146,290	636,913
Single Readings (100 - 280 mr)	22	31	11	64	73	42	243	1,176
Paired Readings (100 - 280 mr)	0	0	0	1	0	0	0	6
Single Readings (Over 280 mr)	18	24	21	33	69	47	212	1,055
Paired Readings (Over 280 mr)	0	0	0	0	0	0	0	11
Paired Readings Lost	1	1	1	0	2	0	5	27

Investigation of lost readings where required showed no possibility of an overexposure.

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Badge Resume, Construction Areas

	105-DR	241-TX	384	241-BY	Total	1949 To Date
Badges Processed	1,078	4,691	122	1,089	6,980	52,570
No. of Readings (100 to 500 mrep)	0	4	0	22	26	159
No. of Readings (Over 500 mrep)	0	0	0	0	0	19
Lost Readings	0	0	0	1	1	20

The lost reading was due to a light leak, insensitive film read 0-0. Seven of the 22 readings above 100 mrep in the 241-BY Area were above 300 mrep, with a maximum of 440 mrep recorded for one week.

Badges

	100-B	100-D	100-F	200-E	R.R.T. 200-N	200-W	300	Total	1949 To Date
Badges Processed	1,837	2.179	2,113	2,240	464	3,444	7,907	20,184	82,780
Number Readings (100 - 500 mrep)	1	8	5	45	0	31	158	248	1,106
Number Readings (Over 500 mrep)	0	0	0	2	0	0	1	3	5
Lost Readings	2	4	4	0	0	1	5	16	47

Investigation of readings above 500 mrep in the 200 East Area showed the exposures occurred during work in the Stack Fan Area and were due to gamma rays. When a gamma film calibration curve was used no overexposure was found. The badge result (gamma) and total pencil results for the period were in good agreement. The reading above 500 mrep in the 300 Area resulted when the badge was dropped into a highly contaminated crevice in the rod straightener. It was removed with difficulty some time later. Two other employees on identical work for the period showed badge results below 200 mrep. One other badge result above 300 mrep in the 300 Area occurred as a result of measurements of uranium rods. The result was 455 mrep and the procedure was changed to obviate recurrence.

Lost readings were accounted for as follows:

Sensitive film not packaged	6
Badge lost in area	4
Badge dropped in liquid	2
Light struck	3
Packet destroyed in gatehouse	1

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Investigations of lost readings showed no possibility of an overexposure.

Badges processed, 1949	- Operations	82,780
" " "	- Construction	52,570
	Total	135,350

In addition, 2,212 items of non-routine nature were processed. The 1949 total to date is 10,731.

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Health Instrument Divisions

CONTROL AND DEVELOPMENT DIVISION

Water Monitoring

Two hundred and fifty 500 ml. samples and ninety-three 12 liter samples of drinking water were analyzed during the month. The maximum alpha activity (33 dis/min/liter) was found in the Benton City water supply. All sources of water in the Richland, Benton City, and White Bluffs regions continue to show natural uranium in amounts of three to thirty three dis/min/liter. The maximum beta activity of 260 micromicrocuries/liter was in a sample of water from the 100-H sanitary supply. The average of all samples from this source was 75 micromicrocuries/liter, while the Kennewick Standard Station, the only other source that averaged greater than 50 micromicrocuries/liter, was 60 micromicrocuries/liter.

Thirty one 500 ml. samples and eight 12 liter samples were taken from the test wells. The maximum alpha activity was 33 dis/min/liter in 300 Area Well #2. There was no beta activity as great as 50 micromicrocuries/liter.

Forty five routine samples were taken from the Columbia River. All alpha results were less than 6 dis/min/liter. The maximum beta activity was 2200 micromicrocuries/liter in a sample from Hanford. Seventy five samples were taken between the 300 Area and Pasco to continue the dilution and mixing study of last month. The main non-uniformity in distribution of activity appears to occur immediately below the mouth of the Yakima River. Eight samples from the Yakima River averaged less than 6 dis/min/liter of alpha activity, and less than 50 micromicrocuries/liter of beta activity. A reinvestigation of the apparently high mud results for beta activity in the vicinity of the 300 Area indicated no difference from values found elsewhere on the reservation.

Atmospheric Monitoring

Detachable chambers gave results consistent with past values. The highest average reading on an air filter was 2×10^{-9} microcuries/liter in the 200-East Area. Rain sample results are uncertain this month because of the small amount of precipitation.

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The Integrons and C Chambers indicated average dosage-rates as follows:

	INTEGRONS (mrep/24 hrs)		C CHAMBERS (mrep/24 hrs)	
Location	April	March	April	March
100-B Area	0.8	0.6	0.3	0.3
100-D Area	0.2	0.1	0.3	0.4
100-F Area	0.4	0.2	0.4	0.4
200-West Area	0.1	0.2	0.5	0.4
200-East Area	0.1	0.4	0.5	0.5
Riverland	0.5	0.3	--	--
300 Area	< 0.1	< 0.1	0.5	0.5
700 Area	0.1	0.1	--	--
Kennewick	0.7	0.5	--	--
Pasco	< 0.1	1.1	--	--
Benton City	0.1	0.1	--	--
3000 Area	0.1	0.1	--	--

Land and Vegetation Contamination

The average activity measured in vegetation samples during April was:

I^{131} CONTAMINATION IN VEGETATION

	mμc I^{131}/kg		
Location	April Average	April Maximum	March-Average
North of 200 Areas	2	32	3
Near the 200 Areas	5	26	9
Route 3	53	177	96
200-West Gate	225	432	314
Meteorology Tower	27	87	45
South of 200 Areas	3	69	6
Richland	< 2	4	3
Pasco	< 2	4	2
Kennewick	< 2	4	2
Benton City	< 2	2	3
Richland Y	< 2	3	3
Hanford	< 2	5	2
Ringold to Pasco	2	5	-
Wahluke Slope	< 2	6	-

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NON-VOLATILE OTHER BETA ACTIVITY IN VEGETATION

Location	mμc beta/kg April Average	April Maximum	March-Average
North of 200 Areas	11	20	21
Near the 200 Areas	< 10	26	23
Route 3	61	162	65
200-West Gate	173	602	233
Meteorology Tower	17	26	30
South of 200 Areas	10	24	13
Richland	10	23	< 10
Pasco	< 10	16	< 10
Kennewick	< 10	18	< 10
Benton City	< 10	15	< 10
Richland Y	< 10	14	15
Hanford	13	28	10
Ringold to Pasco	11	38	-
Wahluke Slope	< 10	18	-

The results from special surveys in the region for the month of April were:

Location	mμc I^{131}/kg Maximum	Average	mμc Non-Volatile Beta Emitters/kg Maximum	Average
Goose Egg Hill	103	19	115	31
Hanford - 300 Area	12	5	18	9
Benton Gap	4	< 2	15	< 10
Pasco - Eltopia	< 2	< 2	12	< 10

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Waste Monitoring

Results from waste surveys are tabulated below:

Location	Type Sample	Alpha-dis/min/kg Maximum	Alpha-dis/min/kg Average	Beta - μuc/kg Maximum	Beta - μuc/kg Average
300 Area - old pond inlet	Water	13,000	2,700	300	110
300 Area - new pond inlet	Water	830	270	400	200
300 Area - old pond inlet	Mud	1.5×10^7	9.4×10^6	3.1×10^6	1.4×10^6
300 Area - Waste line	Water	2,300	---	600	100
200 Areas - T Swamp	Water	1,200	---	1,700	---
200 Areas - T Swamp	Mud	6.3×10^5	2.5×10^5	1.4×10^5	6×10^4
200 Areas - U Swamp	Water	100	---	1,800	---
200 Areas - Laundry Ditch	Water	270	70	120	< 50
200 Areas - 231 Ditch	Water	48	< 30	110	< 50
200 Areas - 234-5 Ditch	Water	< 30	< 30	< 50	< 50
200 Areas - 234-5 Ditch	Mud	3×10^4	$< 3 \times 10^4$	8×10^3	6×10^3
200 Areas - Retention Ponds	Water	< 30	< 30	180	---
200 Areas - B Ditch	Water	< 50	< 50	360	100
200 Areas - B Ditch	Mud	1.2×10^5	---	3×10^5	1.5×10^5
100-B Area - effluent water	Water	---	---	8.9×10^5	4.3×10^5
100-D Area - effluent water	Water	---	---	6.6×10^5	4.0×10^5
100-F Area - effluent water	Water	---	----	6.7×10^5	3.9×10^5

Geology

On April 29, Well 361-B-13, which is located near the 5-6 crib in the 200-East Area and which is drilled on a slight incline to a point directly beneath the crib, was found to be filled with sediment to a depth of 24 feet. This was due to a break in the casing, presumably caused by the acid used in maintaining operation of the crib after it was partially stopped by sludge. Two of the test holes nearest the crib were reported to be heavily contaminated. Well 361-B-5 was contaminated for the first time. Wells 361-B-1, 3 and 9, some 500 feet laterally from the 5-6 crib have been used to follow the diminishing contamination of the underground water table in that location. The rate of decrease of activity has slowed down. This is suggestive, but not yet definitive, of additional water table contamination from the 5-6 crib. Investigation of the problem has been intensified.

The only other significant activity in water samples was found in the three wells around the 108-B disposal system in the 100-B Area, and in Well 303-2 in the 300 Area.

Ten of the eleven wells scheduled for the 234-5 Area have been completed, six of them during this month, and the last one is now being drilled.

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Six of fifteen water level recorders indicated fluctuation of the water table at the time of the earthquake of April 13. Reasons for only part of the recorders indicating changes are not known. The water level near the river is increasing as expected, and the water level in the mound beneath the 200-West Area is also increasing, due either to drainage from the 200-West discharge swamp or from the Yakima Range.

Meteorology

8-hour Production Forecasts:	Ninety were made. Average accuracy was 86.2%
24-hour General Forecasts:	Sixty were made. Average accuracy was 83.6%
Special Forecasts:	Fifteen were made. Twelve were correct for an average of 80.0%

April 1949 was both warmer and drier than normal. Mean temperature for the month was 55.5, which was 1.7 degrees above the normal. This excess was due to consistently high daytime temperatures following nights in which minimum temperatures averaged practically the same as the normal. The average daily range in temperature was 30.5 degrees - 4 degrees greater than normal.

Although there were traces of rain on 7 different days during the month, the only measurable amount was 0.02 of an inch recorded in a brief shower on the 28th.

Winds were active on several days, but the highest speeds were recorded on the 19th and 23rd. There was blowing dust on both of these days.

The earthquake which was general over the entire Pacific Northwest, on the 13th, was plainly felt by all three men who were on duty at 622 Building during the time that it occurred. The swaying of the building lasted for nearly a full minute, with the greatest activity occurring near 1157.

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Bioassay

Two hundred and forty-six urine samples were analyzed for plutonium during the month. The blank samples average 0.04 d/m, and the overall yields are about 90%. One resample was necessary this month.

One hundred and fifty-seven urine samples were analyzed on the fluorophotometer. The uranium content of these samples was:

Job	Micrograms of Uranium per liter of Urine Maximum	Average
Melt Plant	44	20
Material Handling	173	41
Machining	21	6
Canning and Dipping	28	3
Inspection	28	6
305 Building	10	4
Other Areas on Plant	4	2

Methods Development

Work on radon measurements in water using the vibrating reed electrometer as an alpha counter has continued. A correlation has been obtained between the radon content and the uranium content of the water, although the curve is not a straight line for reasons as yet unexplained. Additional data on the valence state of plutonium for the electroplating study has been obtained. Yields ranging from 50% to 100% have been obtained with electrodeposition, although the results of duplicate analyses show somewhat wider variations than is desirable. An accurate measurement of the ratio between point source geometry and the geometry of a 0.5 inch disk on the beta counters has eliminated the apparent discrepancy between the RaD sources made and calibrated in our laboratories and the sources obtained from the Bureau of Standards. The agreement between these two sets of sources appears to validate the geometry values on the alpha counters and the correction factors applied to the counting rates.

The separation of lanthanum from the contaminating alpha activity by a resin column method appears feasible with further work needed to obtain the most effective conditions. Several methods were tried in an attempt to obtain a better beta emitter analysis for Bioassay. At present, the most promising method appears to be the use of a resin column to remove sodium, potassium, phosphates, sulphates, and possibly calcium and aluminum. The remainder of the materials will be counted. Several self-absorption curves were prepared for some fission products, and a sample of radium solution calibrated for future use in the radon measurements.

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Methods Control

Fourteen special samples or groups of samples were analyzed during the month. Darkening of film at the areas where the sample is held with cellophane tape during exposure of radicautographs has apparently been tracked to one brand of tape used. A slightly positive uranium result was obtained on this brand. Two thousand, eight hundred and forty-eight measurements were made for alpha emitters, and six thousand and ninety-six measurements were made for beta emitters for a total of eight thousand, nine hundred and forty-four measurements. In addition, six hundred and sixty-one points were measured on decay curves, and fifteen hundred and ninety-seven control points were measured. Three hundred and seventy-two analyses were made on the fluorophotometer.

Physics

Five identical aluminum counters have been built for experiments in neutron measurements, and are now being fitted with cathode followers and center wires, Apparatus for filling the counters with various gases has been assembled and is being tested.

Calculations on the data taken to determine the fast neutron sensitivity of a C.P. meter disclosed some inconsistencies which made further experimental work necessary.

Work is continuing on calculations to determine neutron fluxes of various energies which will produce one rep in tissue.

Industrial Hygiene

Air sampling has been started in the 314 Building, 300 Area, for the purpose of particle size analyses. Photomicrographs of the collected samples will be made by the Rochester group until supplementary means can be arranged with Washington State College at Pullman.

Air sampling is continuing at the laboratory in 200-W Area where data is being compiled routinely on the general atmospheric dustiness in this section. This work has been progressing since January, 1949, along with supplementary information on wind velocities and ground surface moisture content for future correlation.

Carbon tetrachloride tests were made in 101 Area for the Medical Division, simulating the conditions involved in the fatal case of carbon tetrachloride poisoning which appeared there several months ago.

Instrument Development

An 8" x 18" proportional counter probe for floor monitoring was judged successful in H.I. Operational Division tests.

26 Mixtures of argon and carbon dioxide in the soft beta counter gave a proper-

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tional beta counting range of about 300 volts, starting at 1560 volts. The best probe design so far is a "closed" system to which gas is added to compensate for leakage, diffusion, and other losses. The experimental field hand counter uses helium as a counter gas, and requires external quenching. Helium quenched with propane gave a 100 volt geiger plateau. Upon evaluation of the performance of each of these systems, a second development model monitor will be built.

An experimental alpha scintillation counter consisting of a 1P21 photomultiplier and silver activated zinc sulfide phosphor without light guides was assembled and tested. About 12% geometry with a background of 0.6 counts per hour was observed under optimum conditions. An RCA C-1732 photomultiplier was obtained for further work. This tube has a $1\frac{1}{2}$ inch diameter end window which will permit operation without a light guide.

A low background alpha counter set up to use an argon atmosphere operates at 500 volts and gives (48 ±)3% geometry with a background of 0.11 c/m. Cleaning and reducing electrical transient sensitivity are being tried to reduce this figure.

An experimental feedback electrometer circuit using the new VX-34 tube was built and is being tested. Its sensitivity is 0.1 volt for 20 microamperes meter current, and response time is about 7 seconds for 95% of final meter deflection with a 10^{12} ohm signal resistor. Improvement in these characteristics is anticipated.

Water counter work showed a necessity for (a) washing down the discharge line continuously, and (b) eliminating gas from the counting volume. In order to collect data in the most useful form, it is advantageous to alternate basin water and tap water through the counter. A strip chart of a run on pile effluent water is illustrated. Although the background (200 counts/min) is still higher than it should be, this is the first time that a permanent record of pile effluent beta activity showing significantly more than a two-fold increase over the background has been obtained. Substantial funds have been spent on this program since 1945, and it is hoped to recover the investment indirectly by promoting the use of this system at other locations.

Some work has been done to correct the faulty field performance of the Neut. The primary reason for unsatisfactory operation is gas leakage from the ion chambers. This has been reduced by more careful assembly. The sensitivity of the instrument to fast neutrons from both PoBe and PoB sources is lower than the calculated value, by a factor of approximately 2, possibly due to wall effect in the chamber which is greater than in the Chang and Eng meters because of the lower gas pressures used. Saturation of the ionization currents was checked and found to be satisfactory. Calculated sensitivity could be restored by doubling the gas pressure, which would be within design safety factors. This would probably jeopardize the saturation characteristics. It is preferable to try first the addition of a chamber wall lining of hydrogenous material.

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Calibrations

The routine calibrations were:

Radium Calibrations	Number of Calibrations March	April
Fixed Instruments		
Gamma	466	392
Portable Instruments:		
Alpha	180	152
Beta	361	327
Gamma (radium)	628	604
X-ray Scanning	30	0
Neutron	23	150
Total	1,222	1,233
Personnel Meters:		
Beta	1,280	503
Gamma (radium)	9,961	6,359
X-ray	7,396	6,879
Neutron	0	0
Total	18,637	13,741
GRAND TOTAL	20,325	15,366

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Health Instrument Divisions

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Biochemistry

1. Collection of Active Particles

Active particle collection by electrostatic precipitation in 200-E was continued during the month. A total of 4 boxes containing 10 liners each have been sent to date to the University of Rochester. A summary of the available analytical data on these particles has been prepared for transmission to Rochester.

2. Exposure of Rabbits to Active Particles

Two dry runs were made to test methods and facilities for the rabbit exposure to stack-gas experiment.

3. Percutaneous Absorption of Plutonium

The development of a technique for extracting very small amounts of plutonium from rat carcasses continues.

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Health Instrument Divisions

Zoology

1. Toxicology of I^{131}

Thyroids of six yearling lambs raised in British Columbia have been received to serve as controls in preliminary histopathological work.

2. Biological Monitoring

Two methods are being pursued in an attempt to raise Canadian geese under semidomesticated conditions for monitoring the river. These will supplement the duck program in progress at 100-F.

Wild goose and heron eggs laid on Locke Island were found to have less than 0.01 beta μc/kg. Other monitoring proceeded without incident.

Botany

1. Agricultural Field Station

Procedures for sampling soil and vegetation from the field station have been established. The average count on 60 soil samples divided equally from control plots and river irrigation plots show a reading of 0.021 beta uc/kg. This is the background reading which will be used for soil at the present time.

The irrigation pumps on both well and river irrigation plots were started on April 15. Early crops--spring wheat, oats, and early potatoes--were planted during the month of April.

2. Separations Area Control

Investigation of the areas in the vicinity of the separations buildings is near completion. The five control areas for natural vegetation have been checked for change since the 1948 check.

Plots in the 200-E Area have been planted to oats, alfalfa, tomatoes, radishes, and wheat. All the plants have germinated.

Investigation of the Russian thistle seed produced in the R-3 danger zone is continuing.

3. Miscellaneous

Corn, beans, wheat, tomatoes, and peas are being grown in the greenhouse for use in toxicology studies.

Studies of methods for utilizing algae in the removal of radio-contamination from effluent water have been initiated.

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Health Instrument Divisions

BIOLOGY DIVISION

Aquatic Biology

1. Effect of Pile Effluent on Aquatic Life

Young chinook salmon held in 10 per cent or less area effluent water are progressing satisfactorily. New lots of fish were established in 20 per cent area effluent, undiluted pile effluent, and pre-pile effluent to replace lots which had entirely died out. Reaction of the new lots to the pile effluent and pre-pile effluent was complicated by the presence of toxic quantities of residual chlorine in the water. Sodium silicate in the amount of 5 p.p.m. continues to adversely affect the fish.

The activity in the young salmon held in the effluent water in the laboratory remains at about 20 times that of the water. Caddis fly larvae held in dilute amounts of effluent water are over 100 times more active than the water.

A new test has been started to determine the effect of 2 p.p.m. of potassium iodide on embryonic trout. This test anticipates the discharge of active and stable isotopes of iodine in a liquid form from the animal farm to be located in the 100-F Area.

2. Biological Chains

The activity of the trout being fed active algae or crayfish remains approximately the same as last month. The activity of the trout eating carp reared in pile effluent increased by a factor of 3, reflecting a two-fold increase in the activity of the carp. Trout taken off a diet of active snails on March 17th are now losing their accumulated activity at a half-life rate of about twelve days.

3. Radiobiological Survey

Progressively higher river levels continue to prevent the collection of quantitative bottom samples, although some algae is still being collected from floating objects at Hanford. The quantity of plankton in the river per unit volume decreased about 40 per cent from last month. The activity of the plankton organisms at Hanford, 1.3 beta uc/kg, is about the same as last month. Activity of the fish in the vicinity of Hanford remained about the same as during March, the most active tissue found, 0.17 beta μc/kg, being the scales of a sucker. A few small chinook salmon are now going through the pumps in the 181 buildings. These fish have accumulated practically no activity thus far.

Insect light traps are now being set nightly at the 100-F area and in Richland. Specimens thus collected will be used for activity and life cycle studies.

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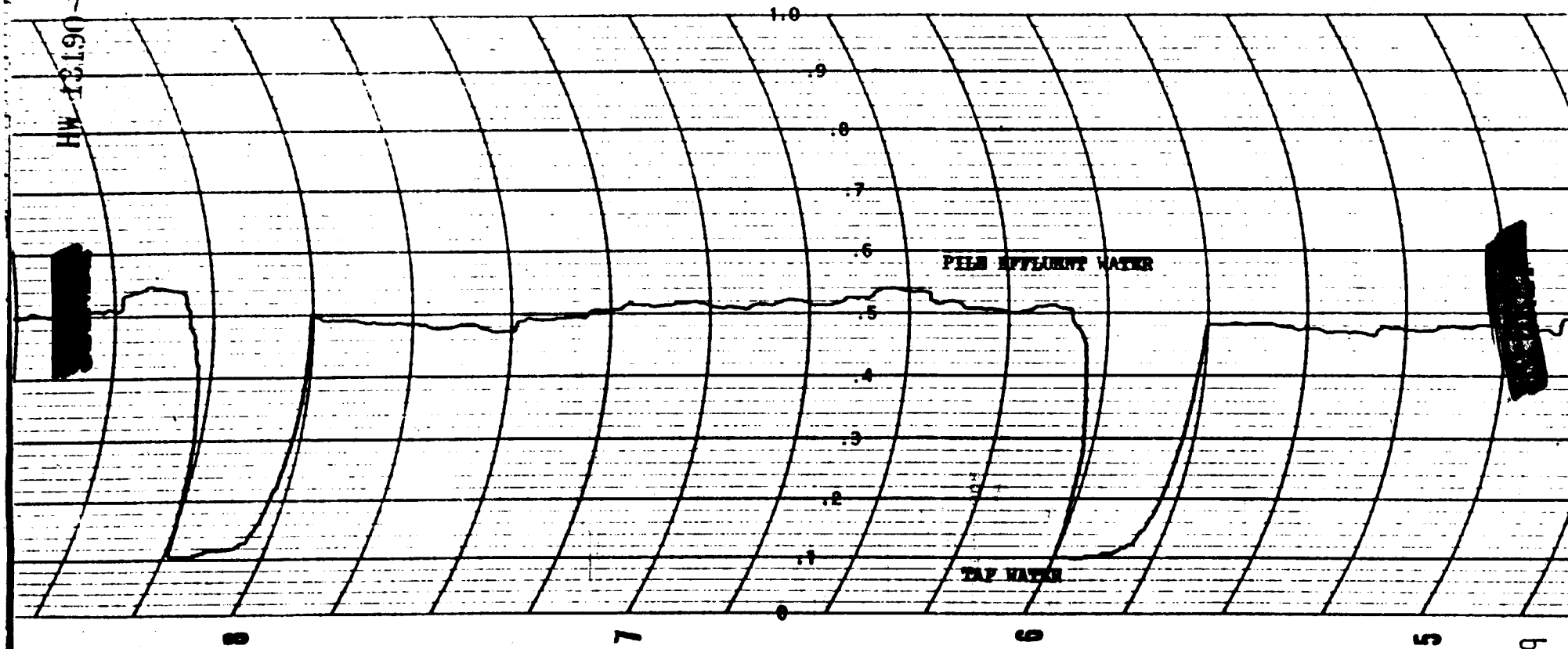
GUS CO., INC. INDIANAPOLIS, IND., U.S.A. CHART NO. 4305-C



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GENERAL ACCOUNTING DIVISIONS

APRIL 1949

GENERAL

Hanford Works Financial Statements for the month of March were issued on April 18 and those for the Nucleonics Department on April 19, 1949. General Divisions' Operating Reports were issued on April 15, 1949.

Due to certain changes in procedures in connection with recording charges to and from other divisions, the date of issuance of General Divisions' Operating Reports has been advanced approximately one week and it is expected that subsequent months' reports will be distributed no later than the 15th of the following month.

The physical inventory of AEC Plant and Equipment was completed in April. The evaluation of inventoried items is progressing satisfactorily and is now approximately 75% complete. Ten employees of the Plant Accounting Section are engaged in this work.

Budget estimates for the 4th Quarter of Fiscal Year 1949, Fiscal Year 1950 and 1951 were started in April. Budget requirements were discussed with representatives from all General Divisions and letters of instructions were distributed regarding budget preparation together with forms showing actual costs for 3 months ended March 31, 1949.

Employees and Payrolls statistics for Weekly and Monthly Payrolls showing number of employees on the payroll, gross amount of payroll, and overtime payments are furnished to Management on a weekly and monthly basis. Similar statistics were prepared in chart form for use of Management. Six charts were also prepared for Management indicating salary distribution of technical college graduates according to number of years since graduation.

Work was started on routines to be followed as a result of new AEC financing procedure to be put into effect as of June 1, 1949 and preliminary discussions were held with representatives of AEC and General Accounting Office.

Total employees in the General Accounting Division decreased by 12 during April and at the end of the month numbered 172.

The following is a comparison of unreimbursed expenditures as of April 30, 1949 as compared with March 31, 1949:

	March 31, 1949	April 30, 1949
Billed on Public Vouchers	$ 8 376 146	$ 7 261 177
Submitted on Pre-Billing Audit Vouchers	2 859 632	2 382 348
Unbilled	3 523 386	3 940 125 *
	$ 14 759 164	$ 13 583 650 *

*Preliminary totals prior to final closing entries.

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General Accounting Division

STATISTICS

Employees and Payroll	Total	Monthly Payroll	Weekly Payroll
Employees on Payroll at beginning of month	7 972	1 739	6 233
Additions and transfers in	26	6	20
Removals and transfers out	(487)	(46)	(441)
Transfers from Weekly to Monthly Payroll	--	5	(5)
Transfers from Monthly to Weekly Payroll	--	(35)	35
Employees on Payroll at end of month	7 511	1 669	5 842

Employees on Payroll at end of month	March	April
Manufacturing	3 054	2 925
Design and Construction	1 006	886
Community	861	767
Other	3 051	2 933
Total	7 972	7 511

Overtime Payments		
Weekly Paid Employees	$40 305	$22 134
Monthly Paid Employees	8 185	2 417
Total	$48 490	$24 551

Number of changes in Salary Rates and Job Classifications	792	694

Gross Amount of Payroll		
Manufacturing	$1 291 979	$1 010 345
Design and Construction	400 159	314 997
Community	329 653	245 093
Other	1 131 968	905 689
Total	$3 153 759*	$2 476 124**

Annual Going Rate of Payroll		
Manufacturing	$13 538 101	$12 701 017
Design and Construction	4 180 379	3 773 498
Community	3 395 088	2 971 046
Other	11 753 824	11 264 866
Total	$32 867 392	$30 710 427

Average Salary Rate Per Hour	March			April		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	$1.960	$2.578	$2.065	$1.949	$2.587	$2.059
Design and Construction	1.490	2.596	1.885	1.506	2.610	1.916
Community	1.718	2.267	1.818	1.709	2.235	1.811
Other	1.568	2.499	1.767	1.585	2.491	1.788
Total	$1.735	$2.522	$1.901	$1.739	$2.522	$1.910

* Includes five weeks in case of weekly paid employees.
** Includes four weeks in case of weekly paid employees.

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General Accounting Division

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Employee Plans

Pension Plan

	March	April
Number participating at beginning of month	6 245	6 329
New participants and transfers in	127	125
Removals and transfers out	(43)	(85)
Number participating at end of month	6 329	6 369
% of eligible employees participating	93.8%	93.0%

Employees Retired	April	Total to Date
Number	9	65
Aggregate Annual Pensions including Supplemental Payments	$3 155	$13 473*
Amounts contributed by employees retired	$ 756	$ 4 887

*Amount before commutation of pensions in those cases of employees who received lump sum settlement

Group Life Insurance

	March	April
Number participating at beginning of month	6 528	6 312
New participants and transfers in	72	51
Cancellations	(20)	(19)
Removals and transfers out	(268)	(185)
Number participating at end of month	6 312	6 159
% of eligible employees participating	78.1%	79.2%

Insurance Claims	April	Total to Date
Number of deaths	3	27
Amount of insurance	$15 435	$135 843
Premiums paid by employees who died	$ 318	$ 1 678

Group Disability Insurance Personal

	March	April
Number participating at beginning of month	7 367	7 117
New participants and transfers in	78	61
Cancellations	(8)	(11)
Removals and transfers out	(320)	(423)
Number participating at end of month	7 117	6 744
% of eligible employees participating	91.2%	90.9%

Group Disability Insurance - Dependent

Number participating at beginning of month	4 389	4 253
Additions and transfers in	31	23
Cancellations	(5)	(7)
Removals and transfers out	(162)	(196)
Number participating at end of month	4 253	4 073

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General Accounting Division

Employee Plans (continued)

Group Disability Claims	March	April
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	122	82
Daily Hospital Expense Benefits	122	94
Special Hospital Services	112	93
Surgical Operations Benefits	82	63
Dependent Benefits Paid		
Daily Hospital Expense Benefits	115	112
Special Hospital Services	118	116
Amount of claims paid by insurance company:		
Employee Benefits	$12 149	$10 268
Dependent Benefits	4 449	3 924
Total	$16 598	$14 192

Group Disability Insurance - Premiums		
Personal - Employee Portion	$12 628	$12 009
- Company Portion	7 658	7 592
- Total	$20 286	$19 601
Dependent- Employee Portion	$ 3 994	$ 3 789
- Company Portion	411	479
- Total	$ 4 405	$ 4 268
Grand Total	$24 691	$23 869

Annuity Certificates (For du Pont Service)	April	Total to Date
Number issued	1	58

U. S. Savings Bonds	Mfg.	D&C	Comm'y	Other	Total
Number participating at beginning of month	1 965	451	420	1 611	4 447
New Authorizations	7	2	4	26	39
Voluntary Cancellations	(41)	(17)	(14)	(31)	(103)
Removals and transfers out	(27)	(39)	(29)	(48)	(143)
Transfers in	14	1	8	6	29
Number participating at month end	1 918	398	389	1 564	4 269
% participating	65.6%	45.6%	50.7%	53.3%	56.9%
Bonds issued					
Maturity Value	$154 475	$28 625	$26 275	$106 875	$316 250
Number	2 551	464	446	1 785	5 246
Refunds issued	59	39	26	36	160
Revisions in authorizations	26	2	4	7	39
Annual going rate of deductions					
New Plan	$ 826 647	$171 391	$148 846	$628 829	$1 775 713
Old Plan	244 454	43 248	36 331	151 047	475 080
Total	$1 071 101	$214 639	$185 177	$779 876	$2 250 793

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General Accounting Division

Employee Plans (continued)

Suggestion Awards	April	Total to Date
Number of Awards	17	327
Total Amount of Awards	$200	$3 425

Employee Sales Plan

	April		
	Total	Major Appliances	Traffic Appliances
Certificates Issued	291	48	243
Certificates Voided	12	1	11

Salary Checks Deposited	March	April
Monthly	890	877
Weekly	1 006	988
Total	1 896	1 865

Special Absence Allowances Requests		
Number submitted to Pension Board	20	8

Absenteeism (Weekly Paid Employees)	1948	1949
January 1 to April 24	2.61%	2.74%

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING	March	April
Number of Employees		
On payroll at beginning of month	182	184
Removals and transfers out	(7)	(12)
Additions and transfers in	9	--
Number at end of month	184	172
Net increase (or decrease) during month	2	(12)
% of terminations and transfers out	3.8%	6.6%
% of absenteeism	3.3%	3.4%

Changes by division in number of Accounting Division employees during April were as follows:

General Accounting - General: No Change

Accounts Payable: No Change

Cost: Decrease of one employee

One termination

General Accounts: No Change

Plant Accounting: Decrease of four employees

Four removals due to lack of work

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General Accounting Division

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING (continued)

Weekly Payroll: Decrease of seven employees

One removal due to illness
One removal due to lack of work
Five terminations

Monthly Payroll: No Change

Special Assignments: No Change

Injuries	March	April
Major	0	0
Sub-major	0	0
Minor	0	1

Number of Accounting Division employees as of April 30, 1949, were as follows:

	Number of Employees		
	Non-Exempt	Exempt	Total
General Accounting - General	2	3	5
Accounts Payable	26	1	27
Cost	9	0	9
General Accounts	16	1	17
Plant Accounting	22	3	25
Weekly Payroll	66	5	71
Monthly Payroll	13	1	14
Special Assignments	0	4	4
Total	154	18	172

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General Accounting Divisions

	March	April
Accounts Payable*		
Balance at Beginning of Month	$ 40 739	$ 59 334
Vouchers Entered	1 287 164	7 646 522
Cash Disbursements	1 382 951 Dr.	7 770 185 Dr.
Cash Receipts	12 847	14 194
Miscellaneous Credits	101 535	73 034
Balance at End of Month	$ 59 334	$ 22 899
Number of Vouchers Entered	2 478	1 850
Number of Checks Issued	1 805	1 431
Number of Freight Bills Paid	391	254
Amount of Freight Bills Paid	$ 12 490	$ 8 118
Number of Purchase Orders Received	924	673
Value of Purchase Orders Received	$ 166 120	$ 61 787
Public Vouchers (1034) Submitted to AEC		
Not Reimbursed at Beginning of Month	$ 8 348 321	$ 8 376 146
Submitted During the Month	15 064 559	10 112 201
Sub Total	23 412 880	18 488 347
Reimbursements During the Month	15 036 734	11 227 169
Not Reimbursed at End of Month	$ 8 376 146	$ 7 261 177
Public Vouchers (1034) Submitted to AEC		
Not Reimbursed at Beginning of Month	209	228
Submitted During the Month	530	392
Sub Total	739	620
Reimbursements During the Month	511	344
Not Reimbursed at End of Month	228	276

* General Divisions Only.

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General Accounting Divisions	March	April
Pre-Audit Vouchers (1035) Submitted to AEC		
Not Yet Approved		
Community	$ 41 531	$ 13 981
Design and Construction	1 339 087	1 388 396
General	1 456 061	979 473
Manufacturing	22 953	498
Sub Total	$ 2 859 632	$ 2 382 348
Not Submitted to AEC on Pre-Audit Vouchers		
Community	$ 60 910 Cr.*	$ 91 088 Cr.*
Design and Construction	2 635 015*	2 984 810*
General	602 263	709 441
Manufacturing	347 018	336 962
Sub Total	$ 3 523 386*	$ 3 940 125*
Total Unbilled Items	$ 6 383 018*	$ 6 322 473*
Bank Balances at End of Month		
Chemical Bank & Trust Company, Contract Account	$ 5 770 210	$ 7 757 206
Seattle First National Bank -Richland		
Contract Account	3 135 254	1 992 390
Salary Account No. 1	19 986	20 000
Salary Account No. 2	30 000	30 000
U. S. Savings Bonds Account	40 848	216 851
Seattle First National Bank -Seattle		
Salary Account No. 3	5 000	5 000
Escrow Account	59 806	59 806
	$ 9 061 104	$10 081 253
Cash Disbursements		
Community	$ 157 733	$ 77 487
Design and Construction	7 876 144	6 663 846
General	3 277 001	9 843 166**
Manufacturing	701 084	408 213
Total	$12 011 962	$16 992 712**
Accounts Payable	$ 9 748 457	$ 8 413 352
Payrolls (Net)	1 894 050	2 072 980
U. S. Savings Bonds	369 455	6 380
Liquidation of Advance	-0-	6 500 000
Total	$12 011 962	$16 992 712

* Preliminary totals prior to final closing entries

** Includes liquidation of $6 500 000 advance

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General Accounting Divisions

	March	April
Number of Checks Written		
Community	370	285
Design and Construction	1 245	763
General	1 805	1 431
Manufacturing	763	475
Total	4 183	2 954
Cash Receipts		
Community	$ 99 293	$ 99 410
Design and Construction	539 732	75 010
General	15 158 410	17 819 981*
Manufacturing	17 412	18 459
	$15 814 847	$18 012 860*

*Includes liquidation of $6 500 000 Advance

	March	April
Detail of Cash Receipts*		
U. S. Government	$15 036 734	$11 227 170
Hospital	101 571	73 034
Scrap Sales	9 447	12 248
Miscellaneous Accounts Receivable	1 157	516
Educational Program	654	245
Employee Sales	988	1 312
Refunds from Vendors	1 646	210
All Other	6 213	5 246
Advances to G. E.	-0-	6 500 000
	$15 158 410	$17 819 981

	March	April
Travel Advances and Expense Accounts		
Cash advance balance at end of month	$ 10 840**	$ 7 459
Cash advance balance outstanding over one month	161**	-0-
Traveling and Living Expenses:		
Paid Employees	11 362	15 058
Billed to Government	11 616	14 059
Balance in Variation Account at end of month	3 033 Cr.	2 465 Cr.

	March	April
Hospital Accounting		
Balance at Beginning of Month	$ 103 309	$ 101 425
Invoices Issued	118 418	108 283
Refunds	4 350	433
Cash Receipts	(101 571)	(73 034)
Payroll Deductions	(22 665)	(24 782)
Miscellaneous Journal Entries	(416)	-0-
Balance at End of Month	$ 101 425	$ 112 325

** General Divisions Only

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General Accounting Divisions

	March	April
PLANT ACCOUNTING		
Number of Transfer Notices Received	580	389
Number of Items Affected	1 381	1 002
Number of Receiving Reports Classified	8 824	3 766
Number of Items Tagged at beginning of month	91 658	90 188
Number of Items Tagged this Month--Metal	941	1 034
Number of Tagged Items dropped from record	(2 411)	(417)
Total Tagged Items Recorded	90 188	90 805
Number of Items Recorded in quantity only at beginning of month	13 533	13 531
Items added to record during month	4	-0-
Dropped from record during month	(6)	(2)
Total Items Recorded in Quantity	13 531	13 529
Total Items on Record	103 719	104 334

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ACCOUNTS PAYABLE

The number of accounts payable vouchers entered during April was 1,850 and amounted to $7 646 522. This is a considerable decrease in number from the 2,478 entered in March. The amount of April vouchers is unusually high due to one voucher in the amount of $6 500 000, which was drawn to liquidate an old advance from A.E.C. (This voucher was offset by an additional advance from A.E.C. received this month.) Discounting this one voucher, the amount of vouchers entered was $1 146 522 as compared to $1 287 164 in March.

Total vouchers on hand the end of April requiring additional supporting data before they could be billed to A.E.C. was 523 and amounted to $124 070 as compared with 592 in March amounting to $179 857. Of the 523 vouchers on hand, 198 were paid and 325 were unpaid.

During April, 254 freight bills were paid amounting to $8 118 as compared to 391 in March amounting to $12 490. The balance in the general ledger freight account the end of April was $203, representing paid freight bills not yet distributed to other ledger accounts.

The number of unbilled vouchers outstanding more than 60 days again decreased during the month. There were 135 on hand April 30 amounting to $123 891 as compared to 157 on March 31 amounting to $154 351. Of the 135, 60 were on 1035's as of April 30.

New purchase orders received during April numbered 673 amounting to $61 787 compared to 924 in March amounting to $166 120. This continues the steady decrease which began February 1.

COST

March Operating Reports were completed and distributed on April 15, 1949. This earlier issuing date was made possible due to changing the procedure for recording assessments from the Manufacturing Division and to the Government. Under the new procedure, assessments are accrued, basing the accrual on previous month's charges, then making adjustments when the current months charges have been determined. Adjustment is included in the following monthly report.

A comprehensive study of the liquidation of several divisions' costs was made in order that the distribution of costs as a result of the reduction of plant personnel could be revised.

In addition to routine work, much time and assistance was given in the preparation of budget estimates for the fiscal years 1950 and 1951. This included supplying divisional cost representatives with estimated amounts to be assessed from the General Divisions and the actual preparation of some budget estimates for several General Divisions.

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GENERAL ACCOUNTS (Cont.)

Final closing entries for March were received on Friday, April 15. Hanford Works Financial Statements for the month of March were completed on April 18 and Consolidated Financial Statements were completed on April 19.

A great deal of time was spent on reconciliation of the Advance Account. This reconciliation is expected to be completed early in May.

Unbilled expenditures as of April 30, 1949 on the General Accounting Divisions books as compared with those of March 31, 1949 may be summarized as follows:

	March	April	Difference
Salaries	$ 906 030	$ 1 495 085	$ 589 055cr.
Continuity-of-Service	1 004 572*	311 736	692 836
Accounts Payable	296 451	190 809	105 642
Accounts Receivable	198 023cr.	285 609cr.	87 586
Freight	23 780	15 856	7 924
Payroll Deductions	23 745	37 547cr.	61 292
All Other	1 769	1 416	3 185
	$ 2 058 324	$ 1 688 914	$ 369 410

* Includes Payment to Pension Trust.

Average daily cash receipts amounted to $548 275 as against $687 633 during February and average daily disbursements were $508 078 as against $733 276 the previous month. Average bank balances decreased in the Richland Bank from $3 278 010 in March to $2 247 671 during April. However, the average New York Bank balance increased from $5 048 184 during March to $9 074 604 during April.

At the request of the Atomic Energy Commission, we requested an additional advance of $6 500 000 which, when received, was used to liquidate previous advances.

MEDICAL ACCOUNTING SECTION

Operating reports for the month of March were completed and issued on April 15, 1949 April operating report will be completed about May 15. A decrease in Industrial Medical Costs is expected in both Operations and Construction due to the change in salary distribution of Clinic personnel. No portion of Clinical personnel will be charged to Industrial Medical.

The salary plus commission plan for doctors went into effect on April first. No major problems have been encountered to date in handling the accounting for the plan.

A considerable amount of time was spent during the latter part of April in preparing budget estimates for the Medical Division for the fiscal years 1950 and 1951.

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SPECIAL ASSIGNMENTS

Special assignments during the month of April consisted of:

1. Draft of methods used in distributing construction overhead and distributive accounts to project costs for Design and Construction Divisions.

2. Report regarding proposed installation of IBM tabulating equipment for use by CPFF subcontractors in preparation of payrolls and labor cost and hours distribution.

3. Investigation and reply of two suggestions.

4. Investigating changes in routines, forms, etc., that may be required when new Accounting and Finance procedure becomes effective June 1. Completion of this investigation, reports thereof, and suggested new routines will be made and submitted during the month of May.

5. Revision of cost code books for General and Manufacturing Divisions. (Incomplete at end of month.)

6. Continued assistance to Design and Construction Accounting Division in determining costs in connection with graphite procurement.

7. Special audit of costs of CPFF subcontractor in Los Angeles.

PLANT ACCOUNTING

In the absence of any definite information or instructions from A.E.C. regarding new procedures, the plant accounting group continued to function in the same manner as heretofore. A number of the personnel of the group were assisting with the plant appraisal program. This work consisted of inventory field work and the pricing of Service Equipment.

At month's end, four people from the group were also assisting with the pricing of process buildings and equipment. This was accomplished by associating inventory units with dollar values shown on the final du Pont check estimate. Four men were terminated during the month because of lack of work. Present personnel consists of 25 people, including supervision.

1223903

General Accounting Division

PAYROLLS

During the month of April there wer 487 Removals from Payroll, of which 302 were removals due to lack of work.

Weekly Payrolls have been billed to the Government on Form 1035-A through the week ended April 17, 1949 and Monthly Payrolls have been billed on Form 1035-A through the month of March, 1949.

Payrolls have been reimbursed by the Government as follows:

1. Weekly Salary Payrolls to and including the week ended April 3, 1949.
2. Weekly Vacation Payrolls to and including the week ended March 27, 1949.
3. Monthly Salary Payrolls to and including the month ended March 31, 1949.

Labor Cost Distribution and Journalization of Payrolls for the week ended April 24, 1949 and the month ended April 30, 1949 were completed on May 2, 1949.

Report of Taxable Earnings under the Federal Social Security Act for the first quarter of 1949 was completed on April 19.

Calculation of overtime payments and deductions for unexcused tardiness which were formerly computed on the basis of fifths of an hour are now calculated on the basis of tenths of an hour. This change in practice was made effective on April 11, 1949.

There was a sharp increase in the amount of time cards received late in Payroll during the month of April. A total of 175 time cards were received after 10:00 A.M. on Monday morning, as follows:

Week Ending	Number
April 3, 1949	43
April 10, 1949	11
April 17, 1949	75
April 24, 1949	46
Total	175

U. S. Savings Bonds and Custody Receipts for U. S. Savings Bonds purchased by employees through Payroll Deductions in March 1949 were delivered to employees on April 15, 1949. There were 772 bonds and 3 364 Custody Receipts delivered.

Under the G. E. Employees Savings and Stock Bonus Plan 181 employees withdrew 753 U. S. Savings Bonds from the Plan during the month of April. The total maturity value of bonds withdrawn was $26,925.

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General Accounting Division

PAYROLLS (CONT.)

Various statistics were furnished during the month to the Labor Relations and Wage Rate Division for use in Connection with Negotiations which are in progress with the Hanford Atomic Metal Trades Council.

All weekly salary rates as shown on addressograph plates for use in preparation of payrolls were checked with the rates as shown on employment record cards in the Records and Benefit Plans Section of the Weekly Payroll Division. No discrepancies were revealed.

An internal payroll audit was made of salary checks issued to employees of the Power Division for the payroll week ended January 16, 1949.

In addition to regular payroll addressograph work in April, approximately 30,250 items were addressographed for the Plant Security and Services Divisions and the Employee and Community Relations Division.

Six charts showing data with respect to salary distribution of technical college graduates were prepared during the month of April and submitted to Management.

Management was also furnished Employees and Payrolls statistics for the Weekly and Monthly Payrolls for the month of April showing number of employees on the Payroll, number of employees paid, gross amount of payrolls, and overtime payments. A copy of these statistics was also furnished to the Chief, Organization and Personnel, Atomic Energy Commission.

Attendance Report for the monthly paid employees was revised and put into use effective April 15, 1949. The revised form provides a space for recording the distribution of time worked for cost purposes. Cost information was formerly furnished to the Payroll Division on a separate form.

In connection with preparation by the Employee and Community Relations Division of a manual for supervisors, approximately 80 man hours were spent in reviewing and revising material for use in this manual.

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SERVICE DIVISIONS

SUMMARY APRIL - 1949

Plant Security and Services Division

One Major Injury occurred during the month bringing the total to six for the year-to-date with a Frequency Rate of 1.06.

There were eight fires in Industrial Areas and four in Construction Areas with losses of $1300 and $2260 respectively.

Volume in services required from 700 Area Laundry, Printing, Telephone, Mail, and Office Machine Repair dropped noticably during the month.

122390b

PURCHASING AND STORES DIVISION
APRIL, 1949

GENERAL

Purchasing

The work load during the month was at a lower level than the preceding month. 913 purchase orders were placed as compared to 1,197 placed in March. 1,367 purchase requisitions were received as compared to 1,551 received during March. Requisitions on hand at month end totaled 298 as compared with 294 at the end of the previous month.

Evidences of a continued trend toward a buyers' market were apparent from many diversified sources. Scrap prices are considered by many to be a good business barometer. The price of No. 1 Heavy Melting steel scrap at Pittsburgh dropped to a new low of $24.00 per ton during April. Copper scrap at Chicago and St. Louis also declined to around 12 to 12½ cents per pound.

During the month twenty-six additional orders were placed for Project P-10-A. Deliveries of materials required for this Project are being maintained according to schedule.

Negotiations were completed for the commercial printing of the Richland Telephone Directory which will contain a yellow classified section and will conform closely with the size and style of those used in Pasco and Kennewick. Deliveries will be made just prior to the cut-over of the new dial exchanges. There will be no charge for the directories and there is a good possibility that revenues will accrue to the Project, provided sufficient advertising contracts are sold.

Contracts were awarded covering our requirements of the following materials:

Nitric Acid	5-1-49 to 4-30-50 incl.	- E.I. du Pont de Nemours & Co.
Potassium Hydroxide	6-1-49 to 5-31-50 incl.	- Niagara Alkali Co.
Rock Salt	6-1-49 to 5-31-50 incl.	- Leslie Salt Co.

Bids have been received and tabulated covering our requirements of steam coal. Based on the facts known there was some question as to whether the two lowest bidders were in a position to supply our requirements and also if the coal would meet the analysis submitted in their quotation. We have determined one company no longer controls the mine on whose coal they were quoting nor were they financially stable. The second lowest bidder modified the analysis of their coal; however, it is deemed advisable to purchase some 1,500 tons to determine if the coal will be suitable for our use. Until such time as the suitability can be determined, we will withhold negotiating a contract with them. This company is only quoting on half of our requirements; therefore, contracts will be issued within the next week or ten days covering the remainder of our requirements.

Stores

Disbursing activity in Stores for the month of April reflected a substantial increase over the preceding month. Sales of $263,640.99 were almost normal, even though store orders handled were still somewhat on the low side.

Some ninety days ago, various Division heads were asked to review store order authorizations as applying to their respective Divisions. As a result, during the

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GENERAL (cont.)

Stores

past sixty days, there have been 104 deletions from the authorization list, leaving at this time a total of 870 employees who are approved to withdraw materials from one or more captions.

During this month the Transportation Division assumed full responsibility for the operation of Stores delivery system to the areas. With minor exceptions, the plan is functioning very satisfactorily.

Surplus, Salvage & Scrap

Excess Lists No's. 60, 75, 81, 81-A, 82, 84, 85, 86, 86-A, 87, 90, 91, 94, 96 and 97, a total of fifteen, were transmitted to the Atomic Energy Commission during the month. Fourteen Field Lists were circulated throughout the Project. Nine lists were approved as excess and five lists are pending. Thirty representatives of government agencies and private businesses were escorted through our warehouses and scrap yards for the purpose of negotiating purchase of scrap and transfer of excess property.

Three hundred twenty-seven truck loads of material and/or equipment were received and warehoused at the Pasco General Depot during the month, or an average of approximately sixteen trucks unloaded per day.

The Atomic Energy Commission has requested that all tires in "R" condition (used in need of repairs) be sold as scrap. This is the result of revised price schedules on new tires available to the government which makes the repair of used tires impractical.

The sale of scrap houses will start during the month of May. It was necessary to draft new Bid forms, Invitation to Bid forms and Notification of Award forms, and to have them approved by the legal representative of our Division.

PERSONNEL

Administrative Supervision	1
Purchasing	
Employees Exempt	9
Employees Non-Exempt	17
Stores	
Employees Exempt	8
Employees Non-Exempt	105
Surplus, Salvage & Scrap	
Employees Exempt	8
Employees Non-Exempt	45
TOTAL	193

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PURCHASING AND STORES DIVISION

SAFETY AND SECURITY

Purchasing

Safety and Security Meetings Scheduled	1
Number of Employees attending	23
Minor Injuries	1

Stores

Safety and Security Meetings Scheduled	11
Number of Employees attending	107

Surplus, Salvage & Scrap

Safety and Security Meetings Scheduled	11
Number of Employees attending	53
Minor Injuries	5

STATISTICS

Purchasing

Requisitions on hand 4-1-49 (includes 15 assigned to Govt.)	294
Requisitions received during April	1,367
Requisitions placed during April	1,363
Requisitions on hand 4-30-49 (includes 18 assigned to Govt.)	298
HW Orders placed	913
TS Orders placed	81
M.O.'s placed	0
O.R.'s placed	8
Alterations issued	123
Orders Expedited	99

Stores

Number of items added to Stores stock	70
Number of items deleted from Stores stock	342
Items in Stores stock at month end	49,916
Receiving Reports issued	2,442
Store Orders filled	16,028
Emergency Store Orders filled	5
Returnable containers on hand at month end	5,299
Returnable containers on hand over six months	1,004
Shipments processed (containers and material) during the month	157
Inventory valuation (903 - all captions, 906 and 912) Stores at month end	$2,928,457.86
Inventory valuation (Spare Parts) at month end	1,558,304.62
Total value inventories at month end, including Spare Parts	4,486,762.48
Value of disbursements, not including cash sale items	263,640.99*
Value of transfers from Surplus, Salvage & Scrap to Stores	11,039.51
Value of materials declared excess and removed from Stores stock	5,509.72

*Includes $16,799.48 disbursed to Construction and CPFF subcontractors

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PURCHASING AND STORES DIVISION

STATISTICS (Cont.)

Surplus, Salvage & Scrap

Excess Account #10.10 Balance 3-25-49		$3,969,377.69
Receipts 3-26-49 to 4-25-49		
Lumber	$11,984.48	
Process Equipment	104,218.00	
Automotive Equipment	243,376.44	
Machine Tools and Equipment	5,627.19	
Office Furniture, Machines	6,941.99	
Household Furniture, etc.	2,402.22	
Material and Supplies	146,967.81	
Miscellaneous Equipment	6,026.40	
	$527,544.53	527,544.53
		$4,496,922.22
Disbursements 3-26-49 to 4-25-49		
On Project:		
Automotive equipment	62.50	
Office furniture, machines	226.15	
Household furniture, etc.	1.45	
Material and Supplies	38,155.83	
Miscellaneous equipment	605.64	
Off Project:		
Automotive equipment	132,930.82	
Machine tools and equipment	1,250.00	
Office furniture, machines	1,720.30	
Household furniture, etc.	1,163.50	
Material and Supplies	21,878.53	
Miscellaneous equipment	4,163.75	
	$202,158.47	202,158.47
Balance of Account #10.10 as of 4-25-49 (See attached list for breakdown of materials in this account by classification)		$4,294,763.75
Total Receipts to date		$ 5,149,994.23
Total Disbursements to date		$ 855,230.48
Scrap and Salvage Disbursed		
Scrap sales completed	9	
Scrap sales in process	7	
Scrap sale revenue for the month		$12,426.69
Total Scrap sale revenue to date		$42,488.61

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PURCHASING AND STORES DIVISION

RECAPITULATION BY CLASSIFICATION OF ACCOUNT 10.10

Class	Description	Monetary Value
1	Guns and Gunmounts	1.25
2	Small Arms	784.52
3	Underwater Ordnance	10.00
4	Ammunition	1,032.98
5	Flags, bunting, pennants, etc.	201.71
7	Fuel	10.34
8	Motor vehicles: Electric trucks, tires, tubes	187,099.73
10	Outboard motors and all accessories	298.00
11	Pumps and pump parts	74,470.08
12	Marine Hardware	174.72
13	Engine and fireroom fittings	33.20
14	Lubricants	858.84
15	Electric cable and insulated wire	7,452.74
16	Radio and sound signal apparatus	8,180.14
17	Electric apparatus	712,158.27
18	Instruments of precision & photographic equipment	18,402.12
19	Blocks	4,291.08
21	Cordage: Hemp, Jute, Oakum, Twine, etc.	82.59
22	Wire rope, bare wire, etc.	937.23
24	Canvas, duck, tentage, etc.	173.90
26	Furniture	110,757.04
27	Textiles: Thread, findings, floor coverings	23,425.74
29	Toilet articles	24.38
30	Bathroom and toilet fixtures	4,124.50
31	Non-Electric lighting apparatus	2.40
32	Fire-surfacing and heat insulating materials	5,356.45
33	Gaskets, hose, packing, sheet and strip rubber, hose fittings, flexible tubing, etc.	529.50
34	Leather	200.60
36	Music and musical instruments	8,50
37	Special wearing apparel and athletic equipment	13,117.84
38	Brooms and brushes	3.00
39	Lumber	1,900,358.33
40	Machine tools	66,$13.59
41	Hand tools	14,717.59
42	Builders and general hardware	16,450.38
43	Bolts, nuts, rivets, screws, washers, etc.	9,211.43
44	Pipe and non-flexible tubes and tubing	76,308.27
45	Pipe fittings	164,356.01
46	Metal in bars: including flat, hexagon, octagon, round and square shapes, etc.	2,504.45
47	Metal in plates and sheets	151.15
48	Metal shapes and structural	111.84
51	Acids, chemicals, etc.	7,750.00
52	Paints and paint ingredients	58,728.72
53	Pens, pencils, paper, drafting room and printers' supplies	18,411.00
54	Office equipment	20,077.12
55	Clothing	1,729.67
57	Laboratory equipment	29,621.31

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PURCHASING AND STORES DIVISION

RECAPITULATION BY CLASSIFICATION OF ACCOUNT 10.10 (Cont.)

Class	Description	Monetary Value
58	Fire fighting apparatus: Railway equipment, prefabricating buildings, etc.	$ 96,235.30
59	Building materials: Asphalt, brick, etc.	17,248.14
60	Boilers and power plants	763.95
63	Tableware	11,314.61
64	Kitchen utensils and apparatus	30,841.30
65	Ovens, ranges, stoves, etc.	30,133.93
66	Machinery: Pneumatic tools, etc.	38,439.07
69	Animal and hand-drawn vehicles	3,922.53
70	Agricultural implements	2,029.07
73	Caps, hats, gloves, etc.	354.64
74	Infantry and landing force equipment	512.62
78	Motorized equipment & heavy construction equipment	501,711.14
83	Airplane accessories, equipment and parts	55.00
	Total Account 10.10	$4,294,763.75

1223912

PLANT SECURITY AND SERVICES DIVISION

MONTHLY REPORT - APRIL 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	3	3		
Patrol and Security	592	590		2 (a)
Safety & Fire Protection	148	147		1 (b)
Office Services (General & Clerical)	260	247		13 (c)
TOTAL	1003	987		16

NET DECREASE - 16

(a) - 1 - Returned from Leave of Absence (Patrol)
10 - Transferred from Community Patrol
6 - Terminated (5 Patrolmen - 1 Clerical)
7 - Terminated due to Reduction of Force

(b) - 1 - Termination (Fireman)

(c) - 8 - Terminations due to Reduction of Force (7 General - 1 Clerical)
2 - Optional Retirement
4 - Terminations (1 General - 3 Clerical)
2 - Transferred to other Divisions (Clerical)
2 - New Hires (Clerical)
1 - Transferred from Employee & Community Relations (Clerical)

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Service Divisions
Plant Security and Services

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100 Areas Activities

Acceptance inspection was made of the 111-B, 1704-H, and 1701-H Buildings. All exceptions noted have been corrected in 111-B Building.

It has been recommended that the manually-operated hoist used jointly by the 105-B group and the P-10 group be replaced with electrically operated hoist mechanism. This was deemed necessary due to the strain hazard which exists.

As a result of a recent possible injury, further efforts are being made to improve the handling of large casks. Additional handling equipment has been designed and will be fabricated in the near future. With this piece of equipment and services of experienced riggers, the hazards involved will be greatly reduced.

Additional facilities for storing and handling gas cylinders at the 115 buildings are being given consideration. Present method of handling and storing empty cylinders is not very satisfactory.

A number of various defects in design or construction at 105-DR Building have been brought to the attention of the "P" Division and work is now in progress to correct some of the faults. Efforts are also being made to eliminate discrepancies in the new 105-H Building.

The personnel of the 100-F Area have reduced their minor-injury rate more than half during the month of April. Although there have been some decreases in personnel, it would not effect so great a reduction.

Nurse coverage for the 101 Area as of April 25 was reduced to two hours daily from 2:00 p.m. to 4:00 p.m. This nurse is assigned to 100-H Area except for this period. In case an ambulance is needed, 100-F Area will respond.

200 Areas Activities

A special meeting to review lock and tag procedure was held.

Six inspections were made in the 234-5 Building.

300 Area Activities

An article covering the 300 Area Minor Frequency-Rate for March was written for the Works News.

A procedure for the safe handling of Chlorates in the bulk form was written.

The 300 Area No-Injury Contest was postponed until it could be discussed further in the Area Council.

Arrangements were made for the construction of a cylinder unloading dock for the 321 building.

Arrangements were made to enlarge the 3706 Experimental Shop's metal stock storage yard behind the 3706 Building.

The 384 Power House was made a Hard Hat Area because of the overhead construction now being done.

1223915

Service Divisions
Plant Security and Services

A special investigation was made of a minor injury--back condition-- to A. H. Thress, W-9536-MX; a report was made.

Decision was made not to static test the large Propane tank this spring as it was tested at the time of moving last spring. A routine of checking every three years was established.

700-1100 Areas Activities

Inspections were made on transportation equipment of various types to check for safe operation. Recommendations were made for guarding and hand rails on equipment.

A committee meeting was held to establish a standard on trailer hitches for automotive equipment.

The 700 Area has reached an approximate 5,000,000 exposure hours and will have reached 500 no-lost-time days on June 2, 1949. An effort is being made to create sufficient interest to reach this goal.

The Transportation Division has installed exhaust stacks at 716 Garage to produce a positive elimination of automotive exhaust. This installation is very satisfactory and keeps the garage free of smoke, fumes, and gases.

Meetings were held with major crafts and handling groups in an effort to encourage the reporting of minor injuries. Much use has been made of the sound slide "Open For Infection".

A study is being made of equipment provided with lids, such as the centrifuges used in laboratories, to determine a safe and effective stop that will avert injury from falling lids.

An investigation is being made of the manner of usage of fork lift trucks and other equipment designed for yard and warehouse handling.

General

Fifteen safety slogans were composed and chosen from the 100-B Area contest assortment and submitted for use in the new telephone book to be issued.

Safety articles have been written for publication in the Works News.

The popular safety bulletin on the west side of the M. S. Warehouse on Goethals Drive has been repainted as it is the same as the jumbo poster for May.

Safety and Fire hazards in the 703, 760, 720, 761, and 762 Buildings were noted and recommendations submitted for their correction.

FIRE PROTECTION

	Number of Fires		Estimated Damage	
	March	April	March	April
Industrial	6	8	$ 0.00	$ 1300.00
Construction	6	4	1600.00	2260.00
Community	3	11	1700.00	40.00
A.E.C.		0	0.00	0.00

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MONTHLY INJURY ANALYSIS

Month of April 1, 1949 through April 30, 1949

Minor Injuries

	Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Blisters	Unclassified	TOTAL APRIL	TOTAL LAST MONTH
GENERAL	0	0	0	1	0	0	0	0	0	0	1	0
"P" DIVISION	5	1	4	1	0	0	0	1	0	0	12	29
"S" DIVISION	1	6	0	3	2	1	0	0	0	1	14	12
POWER	3	0	0	0	2	2	0	2	0	0	9	9
MAINTENANCE	11	18	11	20	8	3	1	5	2	5	84	113
PROJECT ENGINEERING	0	0	0	0	0	0	0	0	0	0	0	0
ELECTRICAL	5	4	4	12	1	1	0	3	0	1	31	22
INSTRUMENT	3	3	1	3	2	1	0	0	1	1	15	22
TRANSPORTATION	1	3	7	5	0	1	5	2	1	1	26	36
COMMUNITY	2	6	7	5	1	4	4	4	2	3	38	34
ACCOUNTING	0	0	0	1	0	0	0	0	0	0	1	0
TECHNICAL	11	14	0	13	0	1	1	0	0	0	40	40
MEDICAL	1	0	0	5	1	0	0	0	0	1	8	24
HEALTH INSTRUMENT	0	4	2	3	0	1	1	0	1	0	12	27
SERVICE	2	11	4	7	3	2	3	2	0	2	36	37
EMPLOYEE AND COMMUNITY RELATIONS	0	0	0	0	0	0	0	0	0	0	0	0
DESIGN AND CONSTRUCTION	0	2	1	4	0	0	2	1	0	0	10	22
TOTAL	45	72	41	83	20	17	17	20	7	15	337	
LAST MONTH	42	84	49	118	27	21	22	27	13	24		427

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HW-13190-DEL

Service Divisions
Plant Security and Services

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WITH DELETIONS

SAFETY AND FIRE PROTECTION

Injury Statistics

Days since last Major Injury	6
Accumulated Exposure Hours since last Major Injury	248,566
Major Injury Frequency Rate (start-up to date)	0.853

	March	April	Year to Date
Major Injuries	2	1	6
Sub-Major Injuries	0	2	10
Minor Injuries	410	337	1610
Exposure Hours	1,488,380	1,242,833	5,661,436
Major Injury Frequency Rate	1.34	0.80	1.06
Major Injury Severity Rate	0.103	0.06	0.047
Minor Injury Frequency Rate	2.75	2.71	2.84

Major Injury No. 64

April 24, 1949 at 4:45 p.m., an employee of the "P" Division, 300 Area, assigned to the coverage job suffered an amputation of the tip of left index finger. While removing filled tin molds from a metal skid, injured allowed a mold from the adjacent pile to fall on his finger.

Sub-Major Injury No. 140

April 1, 1949 at 2:20 p.m., , Electrical Division in the 200 East Area, incurred a tuft fracture to the right ring finger, distal phalanx when caught between the case of an electric motor used on a centrifuge and a 40 lb. mushroom shaped cover that was being bolted to the case. Injured and fellow workman rested the cover precariously about four inches from the studs which were to hold it in place. While attempting to line up the holes and studs, cover slipped catching finger resulting in injury.

Sub-Major Injury No. 141

April 20, 1949 at approximately 2:30 p.m., , an employee of the Plant Security and Services Division, incurred a fracture of the 5th metacarpal, right hand while closing a gate valve on a fire truck. Injured attempted to make an emergency shut off as he thought one of the men at the nozzles was losing control. The valve stuck, injured's hand slipped striking truck bed reinforcement bar causing the injury.

Safety Meetings

There were 627 safety meetings held during the period of April 1 through April 30, 1949, with a total attendance of 7,329.

Safety Spectacles

There were 50 pairs of prescription safety spectacles ordered during the period of April 1 through April 30, 1949; 37 pairs of prescription safety spectacles checked, received, and fitted; and 177 adjustments and repairs made to all types of safety spectacles.

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SAFETY DIVISION - INJURY AND ACTIVITY STATISTICS

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	700 - 1100 Areas		3000 Area	Pasco Area	101 Area	Misc. Area	TOTAL
Minor Injuries	28	17	21	36	64	67	34	35	10	2	8	15	337
Sub-Major Injuries	0	0	0	1	0	1	0	0	0	0	0	0	2
Major Injuries	0	0	0	0	0	1	0	0	0	0	0	0	1
Days since last Tabulatable Major Injury	339	107	131	534	267	6	467	73	229	639	30	58	
Days since last Sub-Major Injury	302	88	69	29	87	10	138	112	184	107	30	205	
Days without a Minor Injury	13	19	15	7	6	7	11	12	21	28	21	21	
Safety Meetings Conducted	55	60	49	87	88	67	152		19	21	4	25	627
Number in Attendance	446	485	442	1187	1063	745	2294		245	133	101	188	7329
Safety Spectacles Delivered	2	3	2	3	8	6	13		0	0	0	0	37
Safety Spectacles Serviced	22	27	26	25	37	11	20		0	0	0	9	177

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Services Divisions
Plant Security and Services

DECLASSIFIED

Routine Duties

Fire Extinguishers

Inspected	2,884
Installed and Relocated	250
Refilled	129
Resealed and Repaired	348
Summerized	0
Salvage	1

Gas Masks

Inspected	104
Serviced	8

Fire Drills and Lectures

Outside	101
Inside	70
Auxiliary Brigade	4
Safety Meetings	35

All fire alarm boxes in the Industrial Areas were tested.

All fire hose houses, hydrants, and lines in Plant Areas were inspected.

OFFICE SERVICES DIVISION

General Services

Laundering volumes were as follows:

	March	April
Plant Laundry (Building 2723)		
Coveralls - Pieces	33,466	31,723
Towels - Pieces	7,554	7,534
Miscellaneous - Pieces	65,191	62,714
Total Pieces	106,211	101,971
Total Dry Weight - Lbs.	156,425	149,567
Richland Laundry (Building 723)		
Flatwork - Pieces	140,222	83,824
Rough Dry - Pieces	36,306	28,814
Finished - Pieces	5,500	4,671
Total Pieces	182,028	117,309
Total Dry Weight - Lbs.	118,318	76,251
Monitoring Section (Building 2723-W)		
Poppy Check - Pieces	80,903	66,923
Scaler Check - Pieces	114,082	103,375
Total Pieces	194,985	170,298

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Service Divisions
Plant Security and Services

723 Laundry

A 44" x 96" American Washer and a 36" American Dryer was transferred from the 101 Building to this laundry during the past month. This move was made in order to keep this laundry from going back to a two shift operation.

Clerical Services

Telephone

All operators were trained in the proper operation of dial between Richland and Pasco as the Pasco exchange was converted to dial on April 30, 1949. All official calls are now dialed by our operators rather than by Pasco.

Traffic during the month of April has dropped and counts were as follows: 27,789 calls, 28,415 calls and 30,542 calls.

	March		April	
Lines working as 1 - O Lines	633		629	
Lines working as 2 - O Lines	55		55	
Lines working as O - PBX Lines	31		31	
Lines working as 1 - N L nes	25		26	
Lines working as 2 - N Lines	2		4	
Lines working as 2-O-R Combination	1		1	
Total Official Lines		747		746
Lines working as 1 - F Lines	99		100	
Lines working as 2 - F Lines	24		24	
Lines working as F - PBX Lines	4		7	
Lines working as 1 - R Lines	8		8	
Lines working as 2 - R Lines	1179		1187	
Lines working as 2 - RF Lines	87		85	
Lines working as 3 - RF Lines	2		2	
Total Non-official Lines		1403		1413
Vacant Lines		50		41
Total Lines in Multiple Bank		2200		2200

Mail Room

The new personnel directory for the 703 Building was issued during April.

Distribution lists for Supervisory letters, Instructions Letters, etc. were reviewed and brought up to date.

	March	April
Pieces of First Class mail received	29,037	25,463
Pieces of Registered mail received	433	422
Pieces of Insured mail received	138	---
Pieces of Special Delivery mail received	182	166
	29,790	26,051

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Service Divisions
Plant Security and Services

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	March	April
Pieces of mail sent out	27,924	12,980
Amount of postage used in Postage Meter	$ 1,476.49	$ 1,133.80
Teletypes sent out	430	296
Teletypes received	549	342
Total Teletypes	979	638

Office Equipment

An office machine survey was started during the month and will be completed during the first week in May. To date, approximately 85 office machines have been picked up and returned to the shop.

	March	April
Office Machines repaired in shop	232	206
Office Machine service calls	199	193
Total machines serviced	431	399

Printing

	March	April
Multilith Orders received	180	124
Multilith Orders completed	168	132
Multilith Orders on hand at month end	38	22
Mimeograph Orders received	2070	2346
Mimeograph Orders completed	2070	2228
Mimeograph Orders on hand at month end	0	118
Ditto Orders received	3185	2161
Ditto Orders completed	3185	2161
Ditto Orders on hand at month end	0	0

Records Service Center

	March	April
Cartons of records received for storage	160	215
Cartons of records processed	160	55
Cartons of records shipped (DuPont)	516	0
Persons viewing files	130	85

PATROL AND SECURITY

General

Revised procedures have been set up to assure that our Classified Files in "Limited" areas are checked immediately following the regular work day.

Effective April 1, 1949, the 101 Construction Area is to be designated as an Operations "Exclusion" Area and will be known as the 101 Shops.

On April 1, 1949, the old type Atomic Energy Commission Pass, issued to personnel servicing the Atomic Energy Commission at this installation, the Federal Bureau of Investigation, Bonneville Power Administration, etc. was superseded by a new type pass authorized by F. C. Schlemmer.

Service Divisions
Plant Security and Services

Beginning April 4, 1949, the 100-F Area Patrol will make all ambulance runs from the 101 Area utilizing the 100-F Area ambulance.

On April 4, 1949, a procedure for the "Destruction of Classified Scrap" was issued whereby Patrol in the 100 and 200 Areas will be responsible for the destruction of classified scrap accumulated in its respective areas.

A Kardex file was established April 11, 1949, at White Bluffs Tub Shop to control entrance to the building.

On April 11, 1949, at 5:00 p.m., the operation of the 105-DR Badge House and Vehicle Gate was discontinued. All entry of personnel and equipment was transferred to the 105-D Operations Area Badge House and Vehicle Gate.

Effective 12:01 a.m., April 12, 1949, the 200-W Area will patrol the Riverland Classification Yards on the No. 1 Shift Monday through Friday and 24 hours on Saturdays, Sundays and holidays. This assignment will require one patrolman.

One patrolman from the 100-H Area will be assigned to the White Bluffs Tube Shop from 7:40 a.m. to 4:45 p.m. Monday through Fridays beginning April 12.

On April 15, 1949, one additional patrolman was assigned to the 234-5 Building making a total of five men assigned to this post.

Effective April 18, 1949, the Industrial Patrol Division will be known as the Security Patrol Division.

Beginning April 18, 1949, all lanes at the Richland Barricade except the two outside lanes (No. 1 and 8) will be closed between shift-change hours. One man is to be assigned to each lane during this period.

The No. 1 and No. 3 Shifts in the 100-H Area will make a Security Patrol between the 100-Area and Riverland Yards Monday through Friday and on all shifts Saturdays, Sundays, and holidays, effective April 25, 1949. Riverland Yards will be checked twice on each of these shifts.

H. W. Instructions Letter No. 117 entitled "Removal from Payroll - Cancellation of Area Clearance, Surrender of Photo Identification Passes" was issued to all Operations personnel on April 25, 1949.

Effective April 25, 1949, a Minor Injury Report Procedure and Weekly Manhour Exposure Report was inaugurated within the Security Patrol Division in the attempt to eliminate minor injuries.

On April 29, 1949, the 231 Badge House was moved back to its original location, the south side of the 231 Area.

On April 29, 1949, the Mechanical Division assumed the responsibility for issuance of the Red Tag Passes for emergency access into the 101 Shops Area by personnel not regularly assigned to the area.

There were 315 Industrial Patrol members who expressed their desire to attend the Federal Bureau of Investigation Training School. This school will be attended on the individual's own time and will start during the month of May.

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Service Division
Plant Security and Services

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PATROL

The 200 Areas handled 316 process escorts between the areas.

Requests handled totaled 622 which mainly consisted of opening doors and gates, and escorting employees of other departments.

A total of 30 Construction employees was escorted into areas for First Aid treatment.

One hundred Unusual Incident Reports were received which consisted mainly of lost badges and pencils, contrabands picked up at barricades, traffic accidents, and emergency first aid cases.

Twenty-nine classified escorts were handled during the month.

Practice evacuations were held as follows:

100-D and 105-DR	4/13/49	10:04 a.m.
100-B	4/18/49	11:35 a.m.
100-F	4/19/49	10:07 a.m.

Arrest Summary

	March	April
Citation tickets issued	2	2
Number of violations	2	2
Continued from March	0	0
Cases cleared	2	2
Cases pending	0	0
Fined	1	2
Jailed	0	0
Dismissed	1	0
Total amount of fines	$17.50	$100.00
Operators License revoked	0	0

Accident Summary	March	April
Total accidents	7	12
Government permits revoked	1	1
Warning tickets issued	0	0
Verbal warning given	25	15
Citation tickets issued (traffic only)	2	2

Training

The advanced training courses covering the M-8 Light Armored Car and its equipment and nomenclature of the .30 and .50 Caliber Machine Guns and 37 m.m. Gun is being continued consisting of tactical maneuvers involving positions, camouflage, and the strategic placement of ground mounts directed at hypothetical target areas.

The Safety, Security, and Health Topics were continued throughout this training period.

Service Divisions
Plant Security and Services

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SECURITY

Operations Section

The following G. E. Security Bulletins were issued to all Operations personnel during this period:

Bulletin No. 35 "Unlocked File Cabinet Violations", April 13, 1949
Bulletin No. 36 "Distinction between 'Restricted' and 'Restricted Data'", April 14, 1949

There were 360 Security Meetings held and attended by 5,413 General Electric employees.

Employee Clearance

Class "Q" clearances received on old employees this month	9
Class "Q" clearances received on old employees to date	4,436
Class "Q" clearances received on new employees this month	40
Class "Q" clearances received on new employees to date	5,847
Class "Q" clearances received on both old and new employees since February 17, 1947	10,283
Formal "P" clearances awaiting change to "Q"	9
Authorization Clearances issued this month	44

Statistical Summary of Outstanding Area Badges

March

	A	B	C	Total
100-B	669	1549	550	2768
100-D	724	1565	597	2886
100-F	693	1563	547	2803
200-E	1032	1628	441	3101*
200-W	1370	1601	450	3421
200-N	51	860	157	1068
300	1398	1588	325	3311
234-5	3197	289		3486
241-BY	336	116		452

*Includes 42 "A" badges at Riverland Yards

April

	A	B	C	Total
100-B	630	1515	518	2663
100-D	669	1536	569	2774
100-F	659	1533	510	2702
200-E	975	1613	406	2994*
200-W	1322	1557	416	3295
200-N	47	854	140	1041
300	1353	1583	280	3216
234-5	3044	269		3313
241-BY	327	104		431

*Includes 42 "A" badges at Riverland Yards

Visitors or Temporary Badges

Area	March	April
100-B	315	338
100-D	490	556
100-F	561	587
200-E	452	484
200-W	778	833
200-N	245	271
300	937	1012
234-5	113	145
241-BY	70	93
Total	3,961	4,319

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Service Divisions
Plant Security and Services

Special Clearance Section

Following is a statistical summary of clearance status of vendor and consultant vendor companies:

Total companies forwarded to AEC this month:	9	Personnel:	38
Total companies forwarded to AEC to date:	193		2,035
Total companies cleared for restriced data this month:	25		78
Total companies cleared for restricted data last month:	19		66

No new companies were forwarded to the Atomic Energy Commission this month.

Number and type of clearance granted by the AEC this month to vendors and consultants:

Formal "Q"	42
Formal "P"	36

One emergency clearance was requested this month.

One "QR" clearance was requested this month for General Electric Personnel.

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HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING APRIL 30, 1949

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
MEDICAL DIVISION						
I. Visitors to this Works						
S. T. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Medical consultation	W. D. Norwood, M.D. P. A. Fuqua	4-25-49	4-26-49	X	
CONSTRUCTION DIVISION						
I. Visitors to this Works						
S. D. Peterson Johnson Service Company Seattle, Washington	Check difficulty in ventilating system furnished by his Company	G. E. Hotaling	4-22-49	4-23-49	X	
II. Visits to other Installations						
H. A. Hauser to: Waldrip Engineering Corp. Hollydale, California	Expedite purchase order HWC-5168	W. S. Sprague	4-11-49	4-15-49		X
T. M. Pettey, Jr. to: Puget Sound Sheet Metal Works Seattle, Washington	Inspect material on purchase order HWC-7063	G. T. Dexter	4-7-49	4-8-49	X	
T. M. Pettey, Jr. to: Western Gear Seattle, Washington	Inspect material on purchase order HWC-5481	Mr. Fowler	4-7-49	4-8-49		X

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
T. M. Pettey, Jr. to: Puget Sound Navy Shipyard Bremerton, Washington	Inspect material on purchase order HS-24 and HS-25	S. F. Allison	4-11-49	4-15-49	X	
L. G Jones to: Valley Iron Works Yakima, Washington	Approval on panel board dimensions	Mr. Whittaker	4-21-49	4-21-49		X
DESIGN DIVISION						
I. Visitors to this Works						
O. C. Nugent Washington Iron Works Seattle, Washington	Discuss fabrication of equipment	G. H. Syrovy	4-5-49	4-6-49	X	
S. Dunning Sheldon Dunning Company Seattle, Washington	Discussion of protective coatings for concrete and steel and pipe liner materials	M. J. Rutherford	4-6-49	4-6-49		X
H. M. Perry General Electric Company Portland, Oregon	Discuss turbine characteristics	A. E. Rhodes	4-19-49	4-19-49		X
K. D. Greenhalgh General Electric Company Schenectady, New York	Design discussions	D. L. Peterson	4-22-49	5-21-49	X	
S. D. Peterson Johnson Service Company Seattle, Washington	Discuss 234-5 vent control system	W. W. McIntosh	4-27-49	4-28-49	X	
II. Visits to other Installations						
W. B. Webster to: Consolidated Western Steel Co. Los Angeles, California	Research work	L. A. Pruden	4-10-49	4-16-49		X

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
J. M. Frame to; Argonne National Laboratory Chicago, Illinois	Expedite design information	S. Lawroski	4-16-49	4-29-49	X	
J. M. Frame to: Oak Ridge National Lab. Oak Ridge, Tennessee	Expedite design information	D. G. Reid	4-16-49	4-29-49	X	
J. M. Frame to: Kellex Corporation New York, New York	Expedite design information	H. H. Willis	4-16-49	4-29-49	X	
J. M. Frame to: Gen. Engrg. & Consulting Lab. Schenectady, New York	Expedite design information	J. Marsden	4-16-49	4-29-49	X	
C. O. Clemetson to; Argonne National Laboratory Chicago, Illinois	Expedite design information	S. Lawroski	4-16-49	4-28-49	X	
C. O. Clemetson to: Oak Ridge National Lab. Oak Ridge, Tennessee	Expedite design information	D. G. Reid	4-16-49	4-28-49	X	
C. O. Clemetson to: Kellex Corporation New York, New York	Expedite design information	H. H. Willis	4-16-49	4-28-49	X	
C. O. Clemetson to: Gen. Engrg, & Consulting Lab. Schenectady, New York	Expedite design information	J. Marsden	4-16-49	4-28-49	X	
J. W. Conroy to: Giffels & Vallet Detroit, Michigan	Design conference	-	4-22-49	Still gone	X	
W. J. Dowis to: General Electric Company, Pittsfield, Mass.	Attend Power System Committee Meeting	D. L. Beeman	4-23-49	5-3-49		X

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
W. E. Johnson to: Oak Ridge National Lab. Oak Ridge, Tennessee	Materials Testing Reactor Meeting	M. Mann	4-23-49	4-27-49	X	
J. B. Medlin to: Puget Sound Navy Shipyard Bremerton, Washington	Contact vendor on aluminum process tube machining	S. F. Allison	4-28-49	5-3-49	X	
HEALTH INSTRUMENT DIVISION						
I. Visitors to this Works						
O. N. Biddulph Washington State College Pullman, Washington	Health Instrument consultation	A. A. Selders	4-11-49	4-12-49	X	
P. E. Church University of Washington Seattle, Washington	Meteorological consultation	D. E. Jenne	4-22-49	4-24-49	X	
II. Visits to other Installations						
C. C. Gamertsfelder to: Radiation Laboratory Berkeley, California	Conference on instrumentation for neutron detection and measurement	R. H. Ball	4-19-49	4-20-49	X	
F. E. Adley to: American Industrial Hygiene Conference Detroit, Michigan	Hygiene conference	-	4-1-49	4-11-49		X
H. A. Kornberg to: Oak Ridge National Laboratory Oak Ridge, Tennessee	Information meeting	A. Hollaender	4-11-49	4-12-49	X	
R. F. Foster to: Oak Ridge National Laboratory Oak Ridge, Tennessee	Information meeting	A. Hollaender	4-11-49	4-12-49	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
H. A. Kornberg to: Federation Meeting of Biologists Detroit, Michigan	Biologists meeting	-	4-18-49	4-21-49		X
H. A. Kornberg to: Oregon State College Colloquium Corvallis, Oregon	Biologists meeting	-	4-23-49	4-23-49		X
W. A. McAdams to: Oregon State College Colloquium Corvallis, Oregon	Biologists meeting	-	4-23-49	4-23-49		X
H. M. Parker to: University of Washington Seattle, Washington	Deliver 2 lectures to students in Medical School	-	4-8-49 4-15-49	4-8-49 4-15-49		X X
H. M. Parker to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Technical consultation and inspection	M. Roy J. Manley	4-11-49	4-13-49	X	

EMPLOYEE RELATIONS DIVISION

I. Visitors to this Works

R. C. Stratton Travellers Insurance Company New York, New York	Insurance survey at our request	W. D. Smythe	4-18-49	4-21-49	X	

INSTRUMENT DIVISION

I. Visits to other Installations

J. G. Haines to: General Electric Company Schenectady, New York	Discuss radiation problems	G. W. Dunlap J. E Nelson	4-11-49	4-18-49	X	
I. M. Jacobs to: U. S. Atomic Energy Commission Berkeley Area Office, Berkeley, Cal.	Conference on instrumentation for neutron detection [redacted]	R. Thornton	4-19-49	4-20-49	X	

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Name- Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Classified	Restricted Unclassified
MANUFACTURING DIVISION MANAGEMENT						
I. Visits to other Installations						
C. N. Gross to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Inspection and discussion of problems relating to DP-West and auxiliary facilities	M. Roy J. Manley	4-11-49	4-15-49	X	
C. N. Gross to: Oak Ridge National Lab. Oak Ridge, Tennessee	Materials Testing Reactor Meeting	M. Mann	4-25-49	4-26-49	X	
C. N. Gross to: General Electric Company Schenectady, New York	Inspection and consultation on Project 432 and other facilities pertaining to Hanford Works	R. S. Neblett	4-27-49	4-29-49	X	
POWER DIVISION						
I. Visitors to this Works						
T. H. Mayes General Electric Company Oakland, California	Water inspection	H. F. Measley J. Conley	4-15-49	4-15-49		X
II. Visits to other Installations						
H. A. Kramer to: Flood Forecaster's Meeting Portland, Oregon	Flood forecaster's meeting	-	4-12-49	4-13-49		X
"S" DIVISION						
I. Visits to other Installations						
O. C. Schroeder to: Argonne National Laboratory Chicago, Illinois	Conference on Redox development	S. Lawroski	4-16-49	4-20-49	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
O. C. Schroeder to: Oak Ridge National Lab. Oak Ridge, Tennessee	Conference on Redox development	L. B. Emlet M. D. Peterson	4-16-49	4-30-49	X	
O. C. Schroeder to: General Electric Company Schenectady, New York	Redox development conferences	J. Marsden	4-25-49	4-30-49	X	
O. C. Schroeder to: Kellex Corporation New York, New York	Redox development conferences	H. H. Willis	4-24-49	4-30-49	X	
F. A. Hollenbach to: Argonne National Laboratory Chicago, Illinois	Conference on Redox development	S. Lawroski	4-16-49	4-20-49	X	
F. A. Hollenbach to: Oak Ridge National Lab. Oak Ridge, Tennessee	Conference on Redox development	L. B. Emlet M. D. Peterson	4-16-49	4-30-49	X	
F. A. Hollenbach to: General Electric Company Schenectady, New York	Redox development conferences	J. Marsden	4-25-49	4-30-49	X	
F. A. Hollenbach to: Kellex Corporation New York, New York	Redox development conferences	H. H. Willis	4-24-49	4-30-49	X	
O. V. Smiset to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Inspection and discussion of problems relating to DP-West and auxiliary facilities	M. Roy J. Manley	4-11-49	4-16-49	X	
MAINTENANCE DIVISION						
I. Visits to other Installations						
H. C. Savage to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Discuss machine shop practices in Technical Areas and DP-West	M.Roy G. Schultz	4-11-49	4-15-49	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
TECHNICAL DIVISIONS						
I. Visits to other Installations						
D. M. Knott to: Research Laboratory Schenectady, New York	Technical consultations on Laboratory Design	H. H. Race B. R. Prentice	4-18-49	4-22-49	X	
J. T. Carleton to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Rala consultation	N. E. Bradbury	4-13-49	4-15-49	X	
U. M. Staebler to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Rala consultation	N. E. Bradbury	4-13-49	4-15-49	X	
R. L. Dickman to: Radiation Laboratory Berkeley, California	Attend neutron detection and measurement conference	R. H. Ball	4-19-49	4-20-49	X	
P. R. Gillette to: Radiation Laboratory Berkeley, California	Attend neutron detection and measurement conference	R. H. Ball	4-19-49	4-20-49	X	
C. W. J. Wende to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend conference on Testing Reactor materials	M. Mann	4-25-49	4-26-49	X	
R. J. Schier to: Reynolds Metals Company Phoenix, Arizona	Discuss P-10A extrusion	G. Bakken	4-2-49	4-10-49		X
E. A. Smith to: Puget Sound Navy Shipyard Bremerton, Washington	Conduct induction heating trials	S. L. Allison	4-24-49	4-27-49		X
J. K. Figenshau to: Leupold Stephens Instrument Co. Portland, Oregon	Discuss fabrication of special laboratory equipment	N. H. Leupold	4-5-49	4-5-49		X

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
J. V. McMaster to: Puget Spund Navy Shipyard Bromerton, Washington	Conduct induction heating trials	S. L. Allison	4-24-49	4-27-49		X
O. P. Amacker to: Radiation Laboratory Berkeley, California	Discussion of radiochemical techniques	N. Garden	4-11-49	4-13-49	X	
A. M. Ross to: Argonne National Lab. Chicago, Illinois	Discussion of analytical apparatus	G. R. Hennig	4-25-49	4-27-49	X	
G. W. Pomeroy to: Oak Ridge National Lab. Oak Ridge, Tennessee	Assist Redox Pilot Plant operations	D. G. Reid	4-1-49	5-1-49	X	
F. W. Woodfield, Jr. to: Knolls Atomic Power Lab. Schenectady, New York	Redox consultation	J. Marsden L. B. Bragg	4-5-49	4-9-49	X	
B. Weidenbaum to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Technical consultation	R. D. Baker E. R. Jette M. Roy	4-11-49	4-15-49	X	
W. M. Harty to: Los Alamos scientific Lab. Los Alamos, New Mexico	Rala consultation	N. E. Bradbury	4-13-49	4-15-49	X	
R. B. Richards to: Argonne National Lab. Oak Ridge, Tennessee	Redox consultation	S. Lawroski	4-18-49	4-19-49	X	
R. B. Richards to: Oak Ridge National Lab. Oak Ridge, Tennessee	Redox consultation	D. G. Reid	4-20-49	4-22-49	X	
R. B. Richards to: Knolls Atomic Power Lab. Schenectady, New York	Redox consultation	J. Marsden L. B. Bragg	4-25-49	4-27-49	X	

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Name - Organization	Purpose of Visit	[redacted] Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
R. B. Richards to: Kellex Corporation New York, New York	Redox consultation	K. C. Vint	4-25-49	4-27-49	X	
J. G. Bradley to: Argonne National Lab. Chicago, Illinois	Redox consultation	S. Lawroski	4-18-49	4-19-49	X	
J. G. Bradley to: Oak Ridge National Lab. Oak Ridge, Tennessee	Redox consultation	D. G. Reid	4-20-49	4-22-49	X	
J. G. Bradley Knolls Atomic Power Lab. Schenectady, New York	Redox consultation	J. Marsden L. B. Bragg	4-25-49	4-27-49	X	
J. G. Bradley to: Kellex Corporation New York, New York	Redox consultation	K. C. Vint	4-25-49	4-27-49	X	
II. Visitors to this Works						
J. P. Howe Knolls Atomic Power Laboratory Schenectady, New York	Discuss metallurgical problems	R. Ward	4-8-49	4-12-49	X	
J. R. Low Knolls Atomic Power Laboratory Schenectady, New York	Discuss metallurgical problems	R. Ward	4-11-49	4-13-49	X	
MEDICAL DIVISION -						
II. Visits to other Installations						
W. D. Norwood, M. D. to: University of Rochester Rochester, New York	Information and discussion of medical problems	H. A. Blair H. E. Stokinger [redacted]	4-8-49	4-8-49	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
W. D. Norwood, M. D. to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend information meeting in biology, medicine and health physics	C. N. Rucker A. H. Holland, Jr.	4-11-49	4-14-49	X	

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EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

SUMMARY - APRIL, 1949

The final report on the 9-Point Job Improvement Program is presently being prepared.

Open requisitions for additional personnel increased from 5 at the beginning of April, to 22 at the end of April. Total plant roll decreased by 444 employees during April due to the general reduction of force.

Employee Services Counselors made 1,663 contacts during April. Eight employees retired during the month of April, six of which were on optional retirement basis; and three employee deaths occurred during the month. Seventeen Suggestion Awards, totaling $200.00, were granted. A resurvey of the job classifications and job conditions at this Works was made during the third week of April by R. C. Stratton, Supervising Chemical Engineer for the Insurance Underwriters Association.

The Training and Program Development Section was established in the Employee and Community Relations Divisions on April 18, 1949. The purpose of this Group is to develop, prepare, and disseminate training material for all employees at the Hanford Works.

Community Relations continued to receive questions from the TRI-CITY HERALD during the month concerning various phases of the current expansion of the town of Richland, to which answers were prepared and released.

The visit to Richland by a member of the staff of the General Electric Vice President in charge of Public Relations resulted in a much better understanding on the part of all Community Relations personnel of the Company's philosophy concerning newspapers.

Informative news releases were sent to the local newspapers and radio stations, as well as to 41 of the leading daily newspapers in the Pacific Northwest during the month.

The major portion of the Special Programs effort during April was directed toward the planning and execution of publicity for the current community-wide free chest X-ray campaign, and for the forthcoming second annual Open House at Kadlec Hospital.

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Employee and Community Relations Divisions

Summary

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The Special Programs group supplied information to Reuel C. Stratton, Chemical Engineer representing life insurance companies throughout the United States who made a study to determine life insurance rates for area workers in various job classifications. This information will be used in an article on atomic power workers which will be published in "The Beacon", the Travelers Insurance Company's house organ.

Five issues of the WORKS NEWS were published in April.

The Women's Activities group has received numerous requests for information about trips to Alaska, Canada, California, Oregon, the Olympia Peninsula, and various cruises.

During April, the Women's Activities group received 217 calls for rides or riders to various destinations over the country.

The activities of the Labor Relations and Wage Rate Division during the month of April have been primarily directed toward the handling of negotiations with the Hanford Atomic Metal Trades Council and conducting research for the purpose of gaining information in order to establish the feasibility of proposals and decisions. Together with the above, a number of Reimbursement Authorizations have been requested from the A.E.C. governing working arrangements and classifications. Notification of request for bargaining rights for Hanford Guards Union, Local #21, was received from the N. L. R. B. Notification was received from the N. L. R. B. regarding a withdrawal of the Union Shop Election petition by the H.A.M.T.C.

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EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

APRIL, 1949

ORGANIZATION AND PERSONNEL

Employee Relations

Employment:

Effective April 1, 1949, R. E. Donnell, Assistant Division Supervisor, was transferred to the Labor Relations and Wage Rates Division as a Staff Assistant.

Effective April 4, 1949, a Messenger, assigned to the Investigation and Files Section, was reclassified and transferred to the Plant Security and Services Division.

Effective April 6, 1949, a Stenographer-Typist "D" was transferred from the Procurement Group to the Accounting Division of the Manufacturing Divisions.

Effective April 8, 1949, and April 22, 1949, a General Clerk "E" and a General Clerk "D", assigned to the Investigation and Files Section, terminated voluntarily.

Effective April 18, 1949, an Employment Interviewer and Investigator "B", assigned to the Procurement Group, was reclassified and transferred to the Training and Program Development Section.

Employee Services:

Effective April 18, 1949, a Section Supervisor in charge of the Suggestion System was transferred to the Training and Program Development Section, and the Suggestion System was consolidated with the Insurance and Compensation Section.

Training and Program Development:

Effective April 18, 1949, the Training and Program Development Section was established with the transfer of J. A. Wood, as Supervisor of Training, from the Manufacturing Divisions.

Effective April 18, 1949, one Stenographer-Typist "A", one Field Clerk "A", and two Staff Assistants were added to the Training and Program Development Group.

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Employee and Community Relations Division

Community Relations

No organization changes were made during the month of April.

Labor Relations and Wage Rates

Effective April 1, 1949, R. E. Donnell, Assistant Division Supervisor in the Employee Relations Division, was transferred to this division as a Staff Assistant.

Number of Employees on Payroll	April, 1949
Beginning of Month	73
End of Month	72
Net decrease	1

This decrease was due to the curtailment of activities in the procurement of personnel.

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Employee and Community Relations Divisions

ACTIVITIES

Employee Relations

General:

The 9-Point Job Improvement Program was completed in all Divisions during the month of April. The questionnaires received from the various groups are presently being analyzed, and a complete report on this Program is being prepared.

Employment:

	March, 1949	April, 1949
Applicants interviewed	294	284

Open requisitions	March, 1949	April, 1949
Exempt	0	2
Non-exempt	5	22
Total	5	24

Of the 5 non-exempt open requisitions at the beginning of the month, 2 were covered by interim commitments. At the end of the month, of the 22 non-exempt open requisitions, 14 were covered by interim commitments. Of the two exempt open requisitions at the end of the month, both were covered by interim commitments.

	March, 1949	April, 1949
Employees added to the rolls	16	27
Employees removed from the rolls	722	471
Net Gain or Loss	- 706	- 444

During the month of April, 4 new requests for interdivisional transfers were received and reviewed by the Employment Office. As a result of these requests, 1 transfer was effected.

During the month of April, of the employees who received notice of termination due to lack of work, 21 were transferred to other jobs.

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Employee and Community Relations Divisions

Employee Services:

During the month of April, there were a total of 1,663 contacts made by the Employee Services Counselors. These contacts resulted in 1,953 inquiries. 882 of these contacts were made by exempt employees, and 781 were made by non-exempt employees.

Of the 17 new employees given orientation, 23% elected to participate in the Group Life Insurance Plan, and 61% elected to participate in the Group Disability Insurance Plan.

Employee Services Counselors attended three Area Council Meetings during the month, with a total of 42 supervisors in attendance, at which time Area problems and other items of general interest were discussed. Seven meetings were also conducted by Employee Services Counselors on Employee Benefit Plans at which there were a total of 110 employees attending.

The following employees retired during the month of April:

W. H. Dickinson, Maintenance Division, (Optional);
Ella L. Anderson, Plant Security and Services Division, (Optional);
Delbert M. Ellsworth, Construction Division, (Optional);
Claude L. Barrett, Plant Security and Services Division, (Optional);
E. F. Ainsworth, Manufacturing Accounting Division;
Adam Fredericks, Construction Division, (Optional);
Daniel L. Hardy, Construction Division, (Optional); and
Helen C. Huebner, Health Instrument 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.

Three employee deaths occurred during April, namely:

Transportation Division;
Community Divisions--Village Maintenance; and
Power Division.

In each of these cases, the employees' families were contacted, and arrangements relative to insurance benefits, social security forms, and pension refunds, were furnished at that time. In addition salary checks for these employees were delivered to their families.

Seven salary checks were delivered to employees absent during the month of April because of illness.

Sometime was spent during April in preparing a new Group Disability and Hospitalization Insurance Plan, which would give increased benefits at a slight increase in cost to employees. This proposed Plan was discussed in some detail with a sub-committee of the Hanford Atomic Metal Trades Council.

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Employee and Community Relations Divisions

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Suggestion System

A General Company Instruction was received during April advising that a new Suggestion Committee had been appointed for the entire General Electric Company for the purpose of further developing this System throughout all Departments.

At the end of April, the volume of work in the Office of the Secretary of the Suggestion System was as follows:

	March, 1949	April, 1949	Total since July 15, 1947
Suggestions received and acknowledged	100	82	3,468
Investigation reports completed	101	174	3,267
Awards granted by Suggestion Committee	12	17	330
Cash awards	$ 145	$ 200	$ 3,435

Insurance and Compensation

Insurance Coverage -- Public Liability

v.s. -- The Superior Court, Prosser, Washington, denied the motion for judgment not withstanding the verdict, and also the motion for a new trial, in this case. In view of this ruling, it is contemplated that this case will be appealed to the Supreme Court.

v.s. Sub-contractor for -- The offer of settlement of $ 5,200.00 in this case was accepted, and the case was dismissed with prejudice and without costs on April 28, 1949. This settlement brings this matter to a close.

v.s. -- During the past month a letter was received from the attorney for the above named complainant, who was an employee of the Branch Post Office at North Richland, alleging injuries to her ankle due to a fall, when she slipped on an oily floor in the North Richland Branch Post Office. Inasmuch as the maintenance of the Post Office was the responsibility of the General Electric Company upon a agreement between the Postmaster and the Company, this claim has been referred to the Travelers Insurance Company.

Life Insurance

Code information for use by the insurance companies in issuing insurance to employees of this Works, was furnished to 33 insurance companies and investigation agencies during the month of April.

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Employee and Community Relations Divisions

Mr. Reuel C. Stratton, Supervising Chemical Engineer, Travelers Insurance Company, representing the Home Office Life Underwriters Association, conducted a resurvey of job classifications and job conditions for personal life insurance applications from April 18 to 21, inclusive. A tour of all Areas was made by Mr. Stratton, accompanied by a representative of the Insurance and Compensation Section, a representative of the Technical Divisions, and a representative of the Health Instrument Division. Upon completion of the resurvey of the various jobs in the Areas, Mr. Stratton returned to Hartford, where he is preparing a job classification schedule, copies of which will be forwarded to this Works for review and recommendations. Upon return of this schedule code information will then be designated to each job classification. The purpose of this resurvey and rescheduling was due to the change in job conditions, as well as the reclassification of jobs at this Works, and it is anticipated that as a result of this resurvey, insurance premiums for employees working in some Areas will be reduced. This rescheduling and recoding will also provide for easier administration of code information.

Compensation

deceased, -- The Joint Board hearing was conducted with the Department of Labor and Industries in Seattle at the Company's request, in order that testimony of Dr. Eric Chew, Seattle cardiologist, might be presented to the Board. Dr. Chew, in his testimony, stated it was the opinion of most cardiologists that there was no relationship between effort and death due to coronary occlusion. It will be recalled that this employee died of a heart attack after descending via a ladder from a scaffold on which he was working. Dr. Chew further stated that it was the opinion of many experts that death, as a result of coronary occlusion, occurs more often while the person is at rest or asleep, than while at work.

Training and Program Development:

The Training and Program Development Group was officially established in the Employee and Community Relations Divisions on April 18, 1949. The original personnel in this Group, as established, was Supervisor in Training, one Stenographer-Typist "A", one Field Clerk "A", and two Staff Assistants. The purpose of this Group is, briefly, to develop, prepare, and disseminate all training material for both supervisors and employees at the Hanford Works. No Training meetings have been held up to the present time, however, several Programs are being developed to give to the supervisors of the various Divisions. Schedules and outlines of material in these various Training Programs, will be submitted to each Division with the request that they designate the supervisors, whom they desire to participate. Training Programs are being prepared concerning the present Union negotiations, that are in progress; a follow up Program on the actual Union Contract will also be given. A Training Program for newly appointed supervisors has already been prepared and will be forwarded to the Divisions during the month of May. The objectives of this Training and Program Development Group are:

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Employee and Community Relations Divisions

1. To help create confidence in the supervisors through their better understanding of Human Relations.

2. To keep our supervisors currently informed on the uniform interpretation and administration of Company policies and procedures.

3. To give our supervisors a better understanding of the over-all Works organization, and our relationship with each other.

4. To provide a broader understanding of the principles of efficient business management, including the fundamentals of Business Economics and Human Engineering.

Distribution of the Supervisor's Handbook, which is presently being prepared, will be handled through the Training and Program Development Group. This Handbook will be composed of eleven sections, the following of which have been completed:

1. Introduction

2. Labor Legislation and Labor Relations

3. Payroll Routine

4. Personnel Services and Employees

5. Plant Services

Three sections of this Handbook are in proof form, namely:

1. Safety

2. Employee Activities

3. Personnel Practices and Policies

The 1,500 binders for the Handbook, and the Section Indexes, have been received, and are ready for use. It is contemplated that the first distribution of this Handbook will be made during the latter part of May.

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Employee and Community Relations Divisions

STATISTICS

Number of Employees on Rolls	3-31-1949	4-30-1949
Exempt	1, 721	1, 654
Non-Exempt	6, 241	5, 864
Totals	7, 962	7, 518

ADDITIONS

	Exempt	Non-Exempt	Total
New Hires	7	2	9
Re-engaged	0	8	8
Re-activations	1	9	10
Transfers from other plants	0	0	0
Actual Additions	8	19	27
Payroll Exchanges	5*	34**	39
Gross Additions	13	53	66

TERMINATIONS

Actual terminations	45	391	436
Removals from roll	1	34	35
Payroll exchanges	34***	5****	39
Gross Terminations	80	430	510

Approximately 26% of all terminations were on a voluntary basis, and most of these were for the following reasons: (a) Another job, (b) Personal reasons, (c) To return or remain home.

GENERAL

	March, 1949	April, 1949
Applicants interviewed	294	284
Photographs processed	3, 122	2, 612
Fingerprint impressions taken (in duplicate)	203	214
Procurement letters written	719	296

* Transferred from Weekly Salary Roll
** Transferred from Monthly Salary Roll
*** Transferred to the Weekly Salary Roll
**** Transferred to the Monthly Salary Roll

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Employee and Community Relations Divisions

ABSENTEEISM STATISTICS
(Weekly Salary Roll)*

	March, 1949	April, 1949
Male	2. 04 %	1. 97 %
Female	3. 11 %	3. 49 %
Total Plant Average	2. 33 %	2. 37 %

INVESTIGATION STATISTICS

Cases pending at beginning of month	1, 206	846
Cases received during the month	150	101
Cases closed	510	199
Cases pending at end of month	846	748
Number found satisfactory for employment	13	65
Number found unsatisfactory for employment	1	1
Cases closed before investigation completed	26	6
Special investigations conducted	0	8

Compensation and Insurance

CLAIMS

	Reported in April, 1949	Reported in March, 1949	Total since 9-1-1946
Workmen's Compensation	171**	191	2, 542
Liability	10	7	307

COMPENSATION PAYMENTS APPROVED - Department of Labor and Industries

	March		February		Total since 9-1-1946
	No. of Claims	Amount	No. of Claims	Amount	Amount
Medical Aid	32	$ 979 .34	58	$ 1, 503 .81	$ 21,693.60
Accident Fund	107	10,526 .83***	119	8, 022 .12	145,646.41
Pension	30	1,640 .32	30	2, 340 .32	44,099.33

* Statistics furnished by Weekly Payroll Division

** This total includes 51 broken glass claims which were forwarded direct to the Department of Labor and Industries by the optometrist.

*** This amount includes $ 1, 030. 00 for Administrative Expenses.

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Employee and Community Relations Divisions

LIABILITY PAYMENTS APPROVED - Travelers Insurance Company

	March, 1949	Total amount paid out since Sept. 1, 1946
Bodily Injury - excluding auto	$ 227. 61	$ 70, 254. 04
Bodily Injury - auto	- 12. 11	
Property Damage - excluding auto	847. 48	
Property Damage - auto	1,217. 11	

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Community Relations

Community Relations continued to receive questions from the TRI-CITY HERALD during the month concerning various phases of the current expansion of the town of Richland, to which answers were prepared and released. Although no articles resulted from these exchanges of questions and answers, the possibility that they may be used at some future date further demonstrates the necessity of maintaining the best possible relations with all news media.

The visit to Richland by a member of the staff of the General Electric Vice President in charge of Public Relations resulted in a much better understanding on the part of all Community Relations personnel of the Company's philosophy concerning newspapers. Although no changes in procedure with regard to the handling of news releases were thought necessary, it was decided that our efforts should be increased to advise all newspapers of steps we take to assure fairness in the distribution of news stories in order that all would feel quite certain that they were receiving the proper break on any story.

A meeting with one representative of the TRI-CITY HERALD during the month resulted in several suggestions and clarification of several points on which misunderstandings have existed. As a further result, it is intended to alternate release dates on stories between Wednesdays and Thursdays, especially when the story is one on which thorough local coverage is desired.

The excellent relationship existing between Community Relations and the Seattle Bureau of the Associated Press was further strengthened during the month when that organization received an incorrect impression of remarks made during a meeting of the Richland Community Council by the Community Manager. In the process of clarifying the matter, we were assured by AP that they will continue to check with us before transmitting stories about the Hanford Works operation which are supplied to them from other than G.E. Public Information or A.E.C. Information Control sources.

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Employee and Community Relations Divisions

"Public Information"—Community

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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, radio stations KPKW, KIT, and 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).

4/2 It was announced that the in-patient section of the North Richland Medical Center would be closed because of the decreased number of respiratory ailments.

4/7 Residents of this area were urged in an informative release to take all possible precautions against grass fires.

4/7 It was announced that three electrical outages would occur in Richland during the coming week.

4/7 A news story was sent to local media describing Richland's new fire truck. Photographs of the truck in action were given to the VILLAGER and TRI-CITY HERALD.

4/14 A Malt Shop is to be located on Richland's greenway next to the Diamond 10 cent store will be constructed as part of the program to increase Richland's commercial facilities. The awarding of the ground lease to the new facility was announced through local media.

4/14 Two outages to occur during the next week were announced.

4/15 It was announced that a mobile X-ray unit will visit Richland to make free chest X-rays available to residents. On the same date photographs of Dr. Sachs and Mrs. Schlemmer conferring about the unit were released to local media to publicize the coming of the mobile unit.

4/17 An electrical interruption to occur on April 19 was announced.

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Employee and Community Relations Divisions

4/19 Fire Marshall B. G. Pigg announced that a fire hazard was being created in ranch type homes because of combustible materials placed on heat ducts in the attics.

4/19 An informative release stated that the Village Players would present a 15 minute skit over KWIE in conjunction with the chest X-ray Drive.

4/19 An article quoting the Director of Public Health to the effect that tuberculosis could be extinct in 15 years was sent to local papers and radio stations.

4/19 A Community Safety Division spokesman requested in this story that residents of Richland fill out and send in explanatory cards after visiting Kadlec Hospital because of non-occupatinnal accidental injury.

4/24 A coming electrical outage was announced.

4/26 It was announced that the swimming pool in John Dam Park would be operated by the Community Activities Division during the summer of 1949.

4/27 A spokesman from Public Works Division requested through an informative release that residents help water inner-block lawn areas and street trees in Richland.

4/28 A power outage was announced for the coming week.

4/28 A spokesman for Public Works Division urged that persons in Richland refrain from molesting devises that regulate the flow of water through the various parts of the canal that supplies irrigation water to Richland.

4/28 The coming Kadlec Hospital Open House was announced through an informative release.

4/28 The Communities Activities Division announced through an informative release that an organized recreational program for children of Richland would be sponsored during the summer months by the Richland Schools and the Community Activities Division.

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"Public Information"—General

Informative newspaper releases were sent to 41 of the leading daily newspapers in the Pacific Northwest during the month. The release date is given for each story, and they are as follows:

4/2 An informative release was distributed which stated that the Columbia River intake pump was expected to be in operation within two weeks.

4/6 General release was made of a story stating that the Columbia intake pump was functioning properly. A local daily newspaper claimed on the preceding Sunday that the pump could not work because it "defied the laws of physics".

4/7 Nine photographs of an architect's conception of a new service station previously announced as scheduled to be built in Richland were released to selected daily papers in the Northwest.

4/15 A general news release announced that the Chevron station in Richland would be enlarged in the near future.

"Public Information"—Villager Only

4/7 A spokesman for Richland Schools warned in an informative release that Richland dog-owners were liable for damages if children were bitten by dogs.

4/14 In an answer to a request from the VILLAGER, an obituary was prepared concerning the death of _____ Power Division employee.

4/28 A story regarding the mobile X-ray unit quoting Mrs. E. L. Richmond and Mrs. H. M. Parker was released to the VILLAGER for its Social Page.

"Public Information"—Tri-City Herald Only

4/17 A series of questions was submitted to this office by a representative of the TRI-CITY HERALD regarding the cafeterias at North Richland with emphasis on unfinished Cafeteria Number 3. The questions were answered in the form of a chronological history of the cafeterias in North Richland.

4/21 In response to an inquiry from the TRI-CITY HERALD, it was announced that

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a five foot fence would be placed along a 2,000 foot section of the irrigation canal in the ranch house district. Representatives of this Division influenced the decision to erect the fence.

4/23 Questions regarding the parking lots west of 700 Area that are not now being used were received from the above source. Information was accumulated and presented to the paper. At the present time, a story concerning the parking lots has not appeared.

4/29 A series of questions regarding the lumber stock pile south of North Richland was received and answered. An article on this subject has not appeared.

Other "Public Information"

4/11 The number of lay-offs due to lack of work among General Electric employees at Hanford Works was supplied to a representative of the Spokane CHRONICLE on this date.

4/14 The Richland Studebaker Dealer was supplied with background information about North Richland, Richland, and Hanford Works. This information will be used for an article about the Richland Studebaker agency in a coming issue of the STUDEBAKER NEWS.

4/28 A news release announcing that 31 tract houses and other buildings will be sold for scrap and inviting bids from interested parties were sent to a selected group of papers, most of which are located within a 100 mile radius of Richland. Fifteen photographs were sent with the informative releases to selected papers in the above group.

During AEC Chairman Lilienthal's visit to Hanford Works several representatives of daily newspapers in the Northwest were present. Fred White, Assistant City Editor of the Oregonian, and a photographer from that paper were taken for a tour of Richland and North Richland by a member of this office. Later in the month a story and one page layout of pictures appeared in the

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OREGONIAN as a result of the trip. Members of this office also helped AEC representatives to entertain the newspapermen during a social hour at the Desert Inn.

During the month G.E. films were supplied twice for Triple Teen Club Meetings. Films were also supplied for use at Columbia High School and for Plant Safety Meetings during April.

A story based on the North Richland Trailer Camp and written by a free lance writer located in Yakima was sent to this office for clearance, The story received proper approvals here and was returned to the writer who submitted it to TRAIL-R-NEWS.

"Employee Information"—Special Programs

The major portion of the Special Programs effort during April was directed toward the planning and execution of publicity for the current community wide free chest X-ray campaign, and for the forthcoming second annual Open House at Kadlec Hospital. Inasmuch as the two projects will not be completed until near the middle of May, a final report will be made at a later date. Publicity for the projects which has been completed is included in this report.

To obtain background material for the free chest X-ray campaign, a meeting was attended in North Richland. Those present included Mrs. F. C. Schlemmer, general chairman for the campaign; Dr. R. R. Sachs, public health officer for Richland and North Richland; and members of the North Richland Committee. Material obtained at this meeting was utilized in the preparation of a five minute, interview type radio script which was broadcast over radio station KWIE during the Farm and Home Hour. It featured Dr. R. R. Sachs an radio station announcer. Assistance was given to the chest X-ray program publicity chairman in conducting certain portions of the publicity campaign, The Special Programs handling of newspaper publicity included news releases and photographs with captions. To help eliminate a rumor that persons having

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chest X-rays taken are subject to harmful radiation, a news release was prepared which contained statements from prominent Richland women lauding the chest X-ray campaign. Among these were wives of Hanford Works authorities on radiation. Included in the X-ray program publicity was a display for the display case near the municipal building which was prepared by the commercial artist in this division.

Special Programs supplied information to Reuel C. Stratton, chemical engineer representing life insurance companies throughout the United States who made a study to determine life insurance rates for area workers in various job classifications. The information will be used in an article on atomic power workers which will be published in "The Beacon", the Travelers Insurance Company's house organ. He was supplied with a photograph of one of the Hanford Works production areas, and with copies of "Nuclear Power" and "Eight Hours a Day with the Atom" by C. P. Cabell, "Adventures Inside the Atom" comic book, a reprint of the Seattle First National Bank pamphlet on Richland and Hanford Works, and a copy of "David and the Atomic Slingshot".

Preliminary Special Programs planning and effort to publicize the second annual Kadlec Hospital Open House which will be held on Thursday, May 12, included taking hospital publicity pictures, preparation of advance news releases, arranging for the designing and production of publicity posters. The posters were designed by the division commercial artist, and were distributed to commercial facilities, badge houses and 700 area buildings.

In line with Special Programs' responsibility for hospital publicity, news releases were prepared which informed residents of the closing of the in-patient section of the North Richland Medical Center. It was explained that the in-patient section was being closed temporarily due to the seasonal decline of respiratory diseases.

Assistance was rendered by Special Programs in the preparation of background

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material on the TRI-CITY HERALD, and the selection of the operator of the Richland Jewelry Store. This material was included in a report which was sent to Robert Parham in New York.

Four-inch display advertisements announcing sales of scrap lumber at Hanford Works were prepared and placed in the following local newspapers on the dates indicated through Special Programs:

TRI-CITY HERALD, WALLA WALLA UNION-BULLETIN, and YAKIMA HERALD REPUBLIC daily issues of May 3 through May 5.

GRANDVIEW HERALD, PROSSER RECORD-BULLETIN, SUNNYSIDE SUN, and KENNEWICK COURIER-REPORTER —weekly issue of May 7.

"Employee Information"—Works NEWS

During the month of April the circulation of the WORKS NEWS was cut from 8700 copies to 8000. In addition to the 200 copies that were cut before this time, this makes a total reduction of 900 copies since the beginning of the recent reduction of force at Hanford Works.

Five issues of the WORKS NEWS were published in April, and "Candid Camera" was inserted in the April 29 issue.

The April 1 issue contained story in which the United States Treasury Department congratulated the General Electric Company for their Employee Payroll Savings record set for the year 1948. Another story in the same issue contained an appeal to all Hanford Works people to donate their blood to the National Blood Program of the American Red Cross.

In connection with some adverse comments by a local paper, on the Columbia River intake pump that wouldn't work, a story was run in the April 8 issue stating that it was now operating successfully. In the same issue an announcement was made in the form of a proclamation of the start of the spring clean-up week in Richland, with an appropriate editorial cartoon to supplement the announcement. Publicity was also given to a dance to be held with all the proceeds going to the Richland Swimming Pool Fund. A new column for

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the WORKS NEWS sports page was introduced in this issue, entitled "Any Luck", which is intended to give Hanford Works people good fishing information, and increase their interest in the paper.

The anticipated visit of United States Atomic Energy Chairman D. E. Lilienthal and Congressman H. M. Jackson at Hanford Works was announced in the April 15 issue. Included in this issue was a full page devoted to G.E. Vice President H. A. Winne's article on the understanding of atomic energy.

The April 22 issue contained a brief resume of some of the most significant statements by Commission Chairman D. E. Lilienthal on the present and future status of Hanford Works, and an announcement of the winner of the third annual Maintenance Division Safety Derby. Information was also given as to the arrival of a Mobile Chest X-ray Unit in Richland, and that free chest X-rays were to be provided for residents of Richland and North Richland. Publicity was given that G-E people participating in the Employee Savings and Stock Bonus Plan are now able to withdraw some of the bonds purchased during a current year.

Announcement of the second annual open house to be held at the Kadlec Hospital on May 12 was made in the April 29 issue, and included a story on arrangements presently being made to hold the third annual Safety derby picnic for members of the Maintenance Division and their families on May 21. A full page ad was run on Page 6 describing where the $414,000,000 made by General Electric Company during the first quarter was spent. This was supplemented by a first page story giving details of the annual G.E. stockholders meeting.

The weekly articles on the testimony of President C. E. Wilson and Vice President L. R. Boulware before the Senate Committee on Labor and Public Welfare were completed during April.

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Employee and Community Relations Divisions

"Employee Information"—Women's Activities"

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Women's Page of the Works NEWS - Three women's pages appeared in five issues of the plant paper during the month of April. For the other two issues, a full page article by Harry Winne on Atomic Energy was run, and a mat from Schenectady entitled "Where the Money Goes".

Through publicity appearing on the women's page, a number of free knitting and crochet patterns were requested from this office. One of the pages featured a G. E. woman supervisor who has completed 25 years combined service with duPont and G. E.

Vocatinnal Conference Speaker- This office was contacted to secure a speaker on "Secretarial Training and Jobs" for the vocational conference sponsored by the high school for senior students. Mrs. NancyGardner was asked to speak to the group on May 2.

Women's Training Program - The courses in the women's training program has been planned in detail. The women are scheduled, and an attitude survey which will be the basis for discussion, is outlined under the following headings: You and you job, You and your boss, You and G.E. Supervision and speakers will be notified of the schedule in the near future.

Vacation Information - Calls for vacation information have been numerous. The requests have been for information about trips to Alaska, Canada, California, Oregon, the Olympia Peninsula, and various cruises.

Share A Ride - Every week a column appears in the Works NEWS listing drivers and riders seeking transportation to various week-end and vacation spots. Two-hundred and seventeen calls were received for rides or riders to the following destinations: Oklahoma, California, Kansas, Wyoming, Nebraska, Denver, Texas, Minnesota, Wisconsin, Tennessee, Salt Lake, Illinois, Seattle, Wenatchee, Bonners Ferry, Centralia, Spokane, Portland, Lewiston, Yakima, and Moscow.

1223958

Labor Relations and Wage Rates

Labor Relations

The activities of this Division relative to Labor Relations have been primarily concerned with negotiations of the formal agreement with the Hanford Atomic Metal Trades Council and preparation of material to be used in these negotiations.

During the month negotiating meetings have been held almost daily. In addition, caucuses between members of this group and the Negotiating Committee and/or special management interest groups have been held from time to time as required to substantiate facts and gain information relative to determining the feasibility of proposals and other decisions involved in negotiations.

On April 1, 1949, a meeting was held between officials of the National Labor Relations Board and the Company for the purpose of making arrangements for a Union Shop Election which was requested by the Union during the latter part of March. Another meeting was held during the following week in which it was agreed by the various people interested that such an election was not in order at this time. The Regional N.L.R.B. notified the Company on April 12, 1949 that the Union Shop petition, Case No. 12-UA-1842, had been withdrawn without prejudice by the H.A.M.T.C.

On April 20, 1949 official notification was received from the Regional Director of the N.L.R.B. of the filing of a petition for recognition of the Hanford Guards Union, Local #21.

Instructions governing the payment of employees who are representing the Union as members of the Union Negotiating Committee in negotiations meetings were issued to various division managers and accounting personnel concerned. Such instructions covered accounting for time and coding.

Reimbursement Authorization was requested from the Atomic Energy Commission covering the extension of residential lease termination dates from the present plan to 30 days subsequent to the employees removal from the payroll due to reduction of force.

In addition to the above, this Division continues to handle the day-to-day Labor Relations problems including discharges, grievances, etc. In regard to grievances, routine investigations have been made and those grievances which are not contingent upon Union contractual relationships have been processed in accordance with the interim grievance procedure.

Wage Rates

The principal activity of this D vision relative to Wage Rates continues to be that of conducting studies and developing proposals for contract negotiations with the Union.

On April 4, 1949 Reimbursement Authorization was requested from the A.E.C. governing the establishment of the additional classifications of Electrical Estimator and Take-off Man to cover certain types of work performed by employees of the Hanford Works Project Engineering Division. On April 19, 1949 approval was received for this request which was to be made effective April 8, 1949.

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On April 15, 1949 Reimbursement Authorization was requested from the A.E.C. governing a change of working arrangements covering Firemen which would change the hours of work from the present shift schedule to the so-called two-platoon system.

On April 12, 1949 Reimbursement Authorization was requested from the A.E.C. governing the payment of five cents ($.05) per hour to certain employees of Hanford Works when such employees were engaged as Auxiliary Firemen.

On April 25, 1949 Reimbursement Authorization was requested from the A.E.C. governing the establishment of the classification of Recreation Leader covering certain employees of the Community Recreation Division who will be engaged in recreation work in the Richland community on a temporary basis during summer months. A survey was conducted to ascertain a feasible rate of pay for the above type of recreation work.

Together with the above, a considerable portion of the activities of the Wage Rate group continues to be directed toward the handling of terminations and transfers resulting from the plant-wide reduction of force and the day-to-day handling of classification reviews and Wage Rate routine.

Statistics

Transfers from Weekly to Monthly Payroll	6
Transfers Approved	90
Job Reclassifications Approved	163
Automatic Increases	306
Merit Increases	85

1.223960

COMMUNITY DIVISIONS

SUMMARY - APRIL, 1949

ORGANIZATION AND PERSONNEL

Number of employees on roll:	Beg. of Month	End of Month
Community Administration	6	6
Community Accounting	28	27
Community Public Works	490	436
Community Safety	2	2
Community Commercial Facilities	19	17
Community Housing	38	37
Community Fire	151	144
Community Patrol	102	85
Community Activities	12	11
	848	765

Force reductions were effected in the Community Divisions during the month of April as follows:

	Reduced	Increased
Community Administration	-	-
Community Accounting	1	
Community Public Works	54	
Community Safety	-	-
Community Commercial Facilities	2	
Community Housing	1	
Community Fire	7	
Community Patrol	17	
Community Activities	1	
	83	

TOTAL REDUCTION, APRIL, 1949 - 83

COMMUNITY HOUSING

Leases were executed on two hundred eighty-one residences and the census of Richland for the month, as determined by information available is 21,394.

COMMUNITY PATROL

During the month sixty-three prisoners were processed through the Richland jail.

COMMUNITY PUBLIC WORKS

All Community Maintenance forces are now located in the 722 Combined Shops building. A total of seventy-one renovations were completed.

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COMMUNITY DIVISIONS SUMMARY - APRIL, 1949 (Continued)

COMMUNITY ACTIVITIES

The Community of Richland officially adopted Daylight Saving Time at 2:00 AM, Sunday, April 24, 1949.

COMMUNITY ACCOUNTING

Outstanding rent accounts have been reduced to minimum.

Rental revenue shows a $17,000.00 increase over March.

COMMERCIAL FACILITIES

Construction was started on four new business establishments.

Sales of basic items indicate a decrease over March.

COMMUNITY FIRE

A total of thirty-six fire alarms were answered. One thousand twenty-one individual inspections were made in the interest of fire prevention.

MTBinns/jak
5/10/49

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COMMUNITY DIVISIONS
PUBLIC WORKS DIVISION
APRIL 1949

ORGANIZATION & PERSONNEL

Number of employees on payroll:	Exempt	Non-Exempt	Total
March 31, 1949	66	424	490
April 30, 1949	60	376	436
	- 6	- 48	- 54

Personnel changes made during the month:

New Employees		2
Transfers:		
From Transportation Divn.		15
" Maintenance Divn.		4
" Power Divn.		1
" Electrical Divn.		1
To Power Division		5
" Transportation Divn.		3
" Maintenance Divn.		13
" Electrical Divn.	1	3
" Medical Division		2
Terminations:	1	46
Leaves of Absence:		
Sick leave		2
Personal		1

Transferred Exempt to Non-exempt roll - 4

GENERAL

Substantial reductions were made in the number of both exempt and non-exempt personnel of the Maintenance Section. These reductions were primarily a result of the decrease in the amount of work requested from various Community Divisions, as well as a result of reorganization of the groups.

The move of all 700 area maintenance groups into the 722 combined shops building has been completed and several large shop buildings will be made available for other purposes within the next few weeks. This will result in a reduction in building rental for the Community Divisions of approximately $900.00 per month.

The responsibilities of the Community Coordinating Committee have been reviewed by a sub-committee and their recommendation will be brought before the committee for consideration. The final recommendation of this group will go to management for approval.

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Community Public Works Division

PROJECTS

C-134 - RICHLAND VILLAGE DUST CONTROL AND LANDSCAPING. All work was stopped on this project and it is being closed out.

C-146 - IRRIGATION EXTENSIONS. Connection between existing irrigation water supply and distribution system at Kadlec hospital was completed and put into operation. Preliminary plans are being prepared for replacing risers in play areas with a snap on valve arrangement.

C-282 - Revised, DUST AND POLLEN CONTROL PROGRAM. This project was approved and directive received from the Commission approving $43,000, which includes monies remaining to be paid against the Puyallup Gardens subcontract G-216. Part I is to be completed June 30, 1949. Work on various parts of this project is progressing as rapidly as available manpower will permit.

C-311 - WATER LINES TO TRACT HOUSES. This project was completed and passed final inspection by A. E. C.

ENGINEERING SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-Exempt	Total
March 31, 1949	17	12	29
April 30, 1949	17	12	29

General

The following routine items were processed during the month:

Requisitions	28
Store Stock Requests	5
Store Stock Adjustments	12
Purchase Orders Expedited	11

Leased area plot plans were completed for the following:

Plot #17, Rec. #1 - Blocks Shoe Store
" #25, - National Bank of Commerce
" # 1, Rev. #1 - Studebaker -- Cahoon Motors
" #26 - Union Oil Station
" #28, & Rev. - Hanson Barber Shop
" #29, - House Dry Cleaners
" #30, - Combination Fountain Lunch & Smoke Shop
" #31 - Barr's Womens Apparel

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Community Public Works Division

ENGINEERING SECTION (Continued)

Inspection and acceptance was made for the following:

1. Water and sewer line installations.
2. Hains Avenue - curbs, sidewalk, and storm sewer.
3. Studebaker Garage - Street improvements
4. Cahoon Motors - Storm sewer and ditch
5. Wright & Swift - Neighborhood Shopping - Site Grading.
6. The gymnasium, auditorium and cafeteria at Carmichael Junior high school. All exceptions noted on the official inspection report dated Jan. 4, 1949, for Lewis & Clark grade school have been cleared.
7. The finished grading in Area F, 1000 house area, blocks 33, 34, 39, 40, 41, 43, 44, 45, 46, 47, 48, 49, 50, 51, 55, 56 57, 58, 59, and block 15 from Elm to Van Giesen Street.
8. Regular field inspections were made in compliance with Building permit requirements.

The following is a report on continuous engineering service requests completed during April, 1949:

E.S.R. #97-CH	Elect. & Struct. Inspection	6
E.S.R. #98-CH	Alter. Inspection	136
E.S.R. #100-CH	Back Charge Estimates	6
E.S.R. #115-CF	Back charge Estimates	5
E.S.R. #118-CF	Apprvd. Alteration Permints	1
E.S.R. #134-CA	Back Charge Estimates	1

The following Engineering Service Requests were completed:

Job No.	Description	Completion date or Remarks
70-CA	Fire Alarm Systems - Jefferson & Sacajawea	
71-CA	Painting all School Exteriors	Recommendation report submitted 4-29-49
80-CA	Relocation of Masonic Temple	4-26-49
108-AD	Cashier's Office, Administration Bldg.	4-20-49
110-CA	Stairway Softball Field	4- 1-49
128-TR	Air Cooling Facilities for Transportation Equipment Control Office	4-29-49
136-PW	North Storage Reservoir Fence Location and New Chlorine Injection	C-253, Part II completed and sent to ES Baker for A&B processing
139-CA	Renovation & Improvements, Park Swimming Pool	4-14-49
168-CH	Rent Charts	Revised 4-27-49

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Community Public Works Division

ENGINEERING SECTION (Continued)

Job. No.	Description	Remarks
170-PW	Sketch for Trash Wagon	4- 6-49
188-CF	Relocation of Western Union	4-15-49
194-CA	Monthly Charts	4-19-49

The status of facility sponsored construction is as follows:

FACILITY	PRELIMINARY PLAN REVIEW	DET. SPECS & PLANS REVIEWED	BLDG. PERMITS ISSUED	CONST. STARTED
Block's Shoe Store ESR 124-CF	Approved 3-15-49	Approved 4-21-49	4-21-49	4-21-49
Carlston & Hansen ESR 164-CF 3- 8-	Approved 3- 8-49	(Detailed Plans & Specs being reviewed)		
Morning Sun Dairy ESR 145-CF	Approved 3- 9-49	(Awaiting Det. plans and specifications.)		
Densow's Drug ESR 163-CF	Approved 3-15-49	(Det. plans and specs. being reviewed.)		
Payne Food Store ESR 162-CF	Approved 3-18-49	(Withdrew plans)		
Theater ESR 160-CF		(Awaiting preliminary plans)		
Angerman - Women's Apparel ESR 152-CF		(Awaiting preliminary plans.)		
House Dry Cleaners ESR 157-CF	Approved 3- 9-49	(Det. plans & Specs being reviewed)		
Anderson Motors ESR 119-CF	Approved 11-22-48	Approved 4- 1-49	(Awaiting award of contract)	
Barr's Apparel ESR 153-CF	Approved 2- 9-49	(Det. plans to be resubmitted)		
Shell Serv. Station ESR 123-CF	Approved 2-17-49	Approved 3-23-49	4-13-49	4-13-49
Sowell's Fountain ESR 135-CF	Approved 3-21-49	Approved 4- 5-49	4-19-49	4-20-49
Yakima Tent & Awning ESR 122-CF	Approved	Approved	3-8-49	3-9-49 (75% complete)

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Community Public Works Division

ENGINEERING SECTION (Continued)

FACILITY	PRELIMINARY PLAN REVIEW	DET. SPECS & PLANS REVIEWED	BLDG. PERMITS ISSUED	CONST. STARTED
Dawson & Richards	Approved 1-28-49	Approved 3-7-49	3- 8-49 3- 8-49	3-9-49 3-9-49 (75% Complete)
Mobiloil Serv. Stn. ESR 121-CF	Approved 2-23-49	Approved 4-12-49	(Awaiting award of contract)	
Davis Furniture ESR 156-CF	Approved 3-2-49	(Awaiting resubmittal of detailed plans)		
Cahoon Motors No ESR	Approved 11-16-48	Approved 11-26-48	11-29-48 (100% comp. Accepted 4-6-49)	11-30-48
Curtis Sand & Gravel ESR 126-CF		(Complete 3-24-49)		
Morgan's Whse. ESR 155-CF	Approved 3-25-49	Approved 3-30-49	3-30-49 (20% complete)	3-31-49
Diamond 5 & 10 Addition ESR 169-CF	Disapproved 3-29-49	(Awaiting resubmittal of prel. plans)		
Washington Invest. Bldg. ESR 167-CF	Approved 4-21-49	(Awaiting Det. plans and specs.)		
National Bank of Comm. ESR 165-CF	Approved 4- 5-49	(Awaiting Det. plans and specs.)		
Standard Serv. Stn. ESR 171-CF	Approved 1-25-49	Approved 2-9-49	3-31-49 (40% complete)	4-1-49
Deymonaz, Fountain Lunch & Smoke Shop, ESR 192-CF		(Awaiting preliminary plans.)		
EJ Hanson Barber Shop, ESR 172-CF	Approved 4-27-49	(Awaiting det. plans & specs.)		
Union Oil Serv. Stn. ESR 101-CF	Approved 3-9-492	Approved 4-28-49	4-28-49	
L.D.S. Church ESR 180-CA	Approved 1-20-49	Approved 1-28-49	1-28-49 (12% Complete)	2-5-49
S.S. U.P. ESR 177-CA	Approved 10-28-48	Approved 11-2-48	11-2-48 (90% Complete)	11-5-48
Richland Baptist ESR 183-CA	Approved 11-10-48	Approved 11-18-48	11-22-48 (90% Complete)	11-27-48

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Community Public Works Division

ENGINEERING SECTION (Continued)

FACILITY	PRELIMINARY PLAN REVIEW	DET. SPECS & PLANS REVIEWED	BLDG. PERMITS ISSUED	CONST STARTED
Assembly of God ESR 181-CA	Approved 11-9-48	(Awaiting resubmittal of det. plans.)		
Church of Nazarene ESR 179-CA	Approved 3- 2-49	Approved 4- 5-49	4-12-49	4-12-49
Church of Christ ESR 184-CA	Approved 2-18-49	(New preliminary site plan submitted 4-18-49 now being reviewed for ground space.)		
Richland Lutheran ESR 175-CA		Approved 4- 8-49	4-8-49	4-8-49
Junior High School #2 ESR 190-CA		(Awaiting preliminary plans.)		
New Elementary School ESR 191-CA		(Awaiting preliminary plans.)		

FACILITY	DESCRIPTION	PERMIT APPROVED	REMARKS
Robley Johnson Studio ESR 118-CF	Extend front porch	3-23-49	Const. 98% comp.
Campbell's Food Mkt. ESR 118-CF	Install self-service meat case	4-26-49	Const. Complete Insp. pending arrival of as builts.
Village Pharmacy ESR 118-CF	Cut opening for refrigerator	3- 9-40	Const. 75% comp.
Safeway Store ESR 118-CF	Add'l floor space	3-11-49	Const. 90% comp.
Richland Laundry ESR 118-CF	Construct small box	3-15-49	Waiting on Contractor
Elite Shop ESR 118-CF	Removal of show windows box & elect. alterations	3-21-49	Constn. & Insp. complete
Desert Inn ESR 118-CF	Install banquet room	3-23-49	Const. 70% comp.

Much time was spent during the month assisting the grounds maintenance crews (Labor Section) with their problem of operation of existing irrigation equipment. Studies and tests were made of actual pressures at outlets in order that proper equipment could be placed at these outlets.

1223968

Community Public Works Division

MAINTENANCE SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-Exempt	Total
March 31, 1949	23	223	245
April 30, 1949	19	175	194
	- 4	-48	- 52

Transfers:		
From Maintenance Section		4
" Electrical Divn		1
To Transportation Divn.		2
" Maintenance Divn.		13
" Electrical Divn.	1	3
" Power Divn.		2
" Labor Section		1
Terminations		32
Leave of Absence		
Sick leave		2
Personal		1

Transferred from exempt to non-exempt roll - 3

General

During the month 71 renovations were completed of which 44 were permanent type houses and 27 were prefabs. Five of the permanent type houses were complete paint jobs, 26 were partially painted, and 13 were cleaned only. 12 of the prefab renovations were complete renovations, 9 were partially painted, and 6 were cleaned only. There were on hand, at the end of the month, 16 orders for renovations not completed.

On the interior and exterior paint program 62 interiors were completed during the month and 22 exteriors were completed. An additional 30 bath rooms were recaulked and either spot painted or completely painted.

Laundry trays were replaced in 4 conventional type houses, water heaters in 4, bath tubs in 7, wash basins in 3, toilets in 6; and hot water heaters were repaired in 15 homes. 6 refrigerated drinking fountains were repaired and replaced.

During the month there were more water stoppages caused by oakum, including 30 ranch type homes and 10 prefabs and old conventional homes. Water stoppages at two ranch homes were caused from defective pipe (plugged at factory.)

Work on tract house M-960 was completed April 28, and acceptance inspection made on April 29th.

1223969 DECLASSIFIED

Community Public Works Division

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MAINTENANCE SECTION (Continued)

The Castle Club is now tied in to water service mains from the Ranch Area and a sewer service connection will be made the first of the month so that the old septic tank can be removed.

All irrigation systems are now in service and current minor repairs are being made.

Number 12 well pump is still out of service waiting for repair parts.

Overhauling of No. 4 boiler at the 784 building is 90% complete. Overhaul on No. 1 boiler is in progress. It is intended to have both boilers ready for inspection at the same time.

There were 1,708 electrical patrol order calls completed during the past month. 129 of these calls were household refrigerator calls, 237 on hot hot water heaters; 123 calls were made where the tenant was not at home when the first call was made. Nine A & B ranges were rebuilt.

A summary of work performed in the furniture and upholstery shop and the carpenter shop is as follows: 258 screen doors and 124 window screens were repaired; 2 roofs were repaired; 11 mattresses, 2 davenos and 72 chairs were recovered; 2 desks were repaired and linoleum was repaired around 47 sinks.

One million board feet of lumber was handled and made ready for shipment at North Richland.

The reinforcing of the roof trusses at Richland Lutheran Church was completed, and the South Side of the roof was reshingled with asbestos shingles.

The setting of street marker sign posts in the Ranch Type house area was completed.

Laying of asphalt tile in Campbell's grocery, and inthe lobby and rest rooms of the Village Theatre has been completed.

UTILITIES SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
March 31, 1949	9	65	74
April 30, 1949	9	64	73
		- 1	- 1

Transfers:	
From Power Division	1
To Power Division	1
Terminations	1

1223970

Community Public Works Division

UTILITIES SECTION (Continued)

General

Operations were normal at 784 boiler house throughout the month. On April 4 #4 boiler was taken out of service as the steam load had dropped sufficiently to carry peak loads with two boilers. Overhauling of this boiler has been completed during the month and it is being left open pending a boiler inspection. Overhaul work is progressing on #1 boiler. Minor repairs to steam distribution lines were made during the month. The boiler house at 1131 garage has been operated on night shifts only most of the month, as no heat was required on day shifts.

Multiple apartment boiler operations were normal throughout the month. Plans were made to discontinue operating these units May 1, 1949, if heat requirements will permit.

Operations of Domestic Water System were normal throughout the month. At the beginning of the month it was necessary to cut back on well pumps in the 1100 and 3000 areas because of insufficient underground water. The well percolation ponds in these areas were flooded shortly after the first of the month and underground water supplies have increased considerably.

The river intake pump, 1182-B area, was inspected for acceptance and put in operation on April 5th, 1949. The booster pump station was inspected for acceptance on April 7 and was complete except for meter installation and completion of chlorination equipment. On April 14 chlorination equipment installation was completed and well pumps "A", "B" and "C" were put in operation.

Because of rising waters in the Columbia river it was necessary to move the river intake pump from the lower to the upper pump base. Reinstallation of the pump was completed and pump was put into operation April 28, 1949.

Operations at the sewage system were normal throughout the month. Construction forces started making preliminary tests on all new plant equipment. Some difficulty was encountered due to excessive leakage in new digestors. Construction forces are in the process of correcting this condition. It is expected that the new plant will be ready for operation by the end of May.

All six irrigation systems were put in operation during the month. Maintenance work on the distribution systems was excessive because of some lines being broken by frost during the past winter.

Operations at the Pasco Warehouse Area were normal throughout the month. Four operators were re-assigned from Pasco area to 700-1100 area.

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MONTHLY REPORT OF UTILITY OPERATIONS
700, 1100 AREAS & NORTH RICHLAND

Period From April 1, 1949 To April 30, 1949.

STEAM

784 Building	Total M. Gal.	Total M. Lbs.	Rate	Unit
Water Softened	2760.9	23,026.	63.91	G.P.M.
Steam to Auxiliaries		3,289.	4568.	lbs/hr
Boiler Feedwater		26,315.	36549.	"
Steam Generated		19,534.	27131	"
Blowdown		6.781	25769.	Percent
Steam Leaving Plant		16,245.	22563	Lbs/Hr.
Coal Consumed		3,098.	4303	"
Coal Received		2,695		
Coal in Storage		7,297.5		
B.T.U./Lb. Dry Coal		11,618		
Evaporation/Lb. Coal		6.31		
Average CO_2 - %		7.6		
Salt Used, Lbs.		5,250.		
Sulphuric Acid Used, Lbs.		9,145.		
Phosphate Used, Lbs.		152.		
Sulphite Used, Lbs.		40.		

WATER ANALYSIS - PPM	Raw Avg.	Soft Avg.	Boiler Maximum	Boiler Minimum
Phenolphthalein Alkalinity			220	120
Methyl Orange Alkalinity	210	22	250	160
Chlorides	27	21	220	130
Hardness	141	--	--	--
Phosphate	--	--	37	0
Sulphite	--	--	90	0

RICHLAND AND NORTH RICHLAND DOMESTIC WATER (PRODUCTION)

	Richland	North Richland	Combined
Total Pumpage, Million Gals.	11.8508	142.9428	260.0483
Avg. Daily Flow, Million G.P.D.	3.728	4.765	8.668
Rate of Flow, G.P.M.	2589	3309.	6020
Water to 300 Area	24.163	Million Gallons	
Chlorine Used, Lbs.	678	8000	
Avg. Chlorine Residual, PPM	0.25	0.5	

SEWAGE DISPOSAL PLANT

Sewage Flow: 90.200 Million Gals. Total 3.007 Million G.P.D. Avg.
Sewage Flow: 2099 G.P.M. Average
Chlorine Used 8000 Lbs. Lime Used 1250 Lbs
Average B.O.D.: 189 Raw Sewage. 59 Final Effluent.
Average Suspended Solids: 152 RawSewage. 45 Final Effluent.

/s/ Harold N. Petty, Supervisor.

1223972

Community Public Works Division

LABOR SECTION

Organization & Personnel

Number of Employees on Payroll:	Exempt	Non-Exempt	Total
March 31, 1949	14	122	136
April 30, 1949	12	123	135
	- 2	- 1	- 1

During the month the following personnel changes were made:

New Employees		2
Transfers:		
From Transportation Divn.		15
" Maintenance Section		1
To Medical Division		2
" Power Division		2
" Transportation Divn.		1
Terminations	1	13

Transferred from Exempt to Non-exempt roll - 1

General

Garbage and refuse collection continued as usual with the exception of clean-up week, April 10 to 16, inclusive, at which time collection was exceedingly heavy.

Orchard maintenance during the month consisted of some spraying and ditching for irrigation.

Mowing and watering of public areas was started during this period, and will continue at an increased rate as weather demands.

Six lots of personal furniture were packed and shipped in April. The crew was utilized on ground work when not needed for furniture moves.

Approximately 1,000 cubic yards of fill was placed in the abondoned irrigation ditch running through the soft ball park. Some 70 excavations were completed for the maintenance section. The swimming pool in the John Dam park is being readied for the coming season. Test drilling proved that several voids under the floor of the pool created possible hazards and a mud jack is now in the process of filling the voids.

The major repair work of seal coating village streets has been completed. Other necessary patching of streets and walks was accomplished as necessary.

It was necessary to shut the canal down Saturday, April 23, because of high winds. It was felt the crew was not of sufficient size to control the flow due to weeds and trash blowing into the canal and stopping the flow through the screens. The canal was reactivated Monday, April 25. A weed control program has been started and it is expected this will greatly reduce our cleaning problem in the future.

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Community Public Works Division

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LABOR SECTION (Continued)

FUEL INVENTORY

COAL

Beginning Inventory	2,536,000	
Receipts	7,156,500	
Consumed in village houses		468,000
3000 Area		6,474,900
White Bluffs		681,600
Lewis & Clark		28,000
Spalding		36,000
Pennywise		8,000
Campbell		6,000
Garmos		8,000
Groceteria		6,000
U. P. Church		6,000
Catholic Church		8,000
700 Area		38,000
Columbia Camp		400,000
1131 Garage		56,000
Hanford Hot Plant		42,000
#2 Fire Station		4,000
Pasco T-131		20,000
	9,692,500	8,290,000
AMOUNT ON HAND 4/30/49		1,402,000 Lbs.

OIL

Beginning Inventory	12,201	
Receipts	-- ---	
Consumed in village houses		1,568
Apartment Boiler House		4,992
AEC Airport		139.
Jefferson School		665
	12,201	7,354
AMOUNT ON HAND 4/30/49		4,847 Gals.

1223974

COMMUNITY DIVISIONS

COMMUNITY ADMINISTRATION

April, 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	April
Beginning of month	6
End of month	6

GENERAL

Appropriation requests approved during the month included:

No. 27, Rev., Grading and Re-surfacing Van Giesen Road. Project C-292, Rev., covering this work was approved by AEC Directive HW-126, dated April 18, 1949.

No. 43, Rev., North Storage Reservoir Roof Replacement. Project Proposal C-253, Part II, returned for revision.

No. 48, Rehabilitation of Irrigation Canal, approved by Appropriations and Budget Committee and Letter of Request forwarded to AEC.

No. 49, Additions to Lewis & Clark Elementary School. Project C-235, Part II, was also approved by the Appropriations and Budget Committee.

No. 50, Additions to Marcus Whitman Elementary School. Project C-234, Part II, also approved.

No. 51, Replacement Houses for Existing Sites; Project C-181, Part II was also approved.

No. 52, Five Duplex Houses; Project C-246, Part II, was also approved.

No. 56, Bailey Bridge Across Yakima River; Project C-335 was also approved and authorized by AEC Directive HW-134, dated April 15, 1949.

The Community Appropriation Sub-Committee approved a work order for relocation of the Carpenter Shop, now located in the 722-C Building, to the 722 Hangar, in order to effect considerable operating economies.

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COMMUNITY COMMERCIAL FACILITIES DIVISION

April, 1949

ORGANIZATION AND PERSONNEL	APRIL
Number of employees on payroll:	
Beginning of month	19
End of month	17
Net decrease	2

COMMERCIAL FACILITIES

The following figures indicate trends in commercial activities as related to various basic items:

	MARCH	APRIL
Cafeteria meal customers	74,284	63,020
Percent of room-day occupancy - Desert Inn	75%	71%
Gallons of ice cream sold	6,271	6,675
Carnation milk and cream deliveries	101,013	91,648
Darigold milk & cream deliveries	6,375	4,050
Morning Sun Dairy milk & cream deliveries (Units)		22,793
Theater customer count	50,691	c50,292
Gallons of gasoline sold	163,729	152,537

Total number of Commercial Facility Operators' employees, full and part-time as of April 30, 1949 - 1,025.

Seattle-First National Bank was issued an Alteration Permit to repaint building interior and exterior, install decorative plywood on front of teller cages, remodel safety deposit boxes, install seven new fluorescent light fixtures and install an outside neon sign. This is all at operator's expense, except for project-furnished paint.

Richland Motor Company was authorized to lay approximately 11,340 square feet of black top in front of the facility to provide additional parking and display space for new cars, at operator's expense.

Johnson's Photo Studio completed minor construction to building at operator's expense.

Final Inventories were taken of equipment in the following facilities: C. C. Anderson Co., Pennywise Drug, Thrifty Drug, Village Pharmacy, Campbell's Food Store, Diamond Variety, Randall & Doyle Groceteria, Greyhound Post House, Inc., preparatory to purchase of this equipment by the operators.

Desert Inn Service Bar opened for business Friday, April 29.

CONTRACTS AND NEGOTIATIONS

An Operating Agreement dated May 20, 1948, was entered into between General Electric and Western Union Telegraph Company, covering billing and collecting arrangement for North Richland branch office.

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COMMUNITY COMMERCIAL FACILITIES DIVISION

CONTRACTS AND NEGOTIATIONS (CONTINUED)

Supplemental Agreement #1, dated March 7, 1949, was entered into between General Electric and Standard Oil Company of California, covering enlargement and improvement to Automotive Service Station #2.

Operating Agreement between Richland Electric Company and General Electric, covering the operation of an electric repair and appliance shop in the old Patrol Headquarters on George Washington Way, was terminated April 21, 1949.

Commercial Facility Leases were entered into between General Electric and the following firms for the construction of buildings and operation of businesses as outlined below:

Curtis Gravel Company - Ready-Mix Concrete Plant. Lease dated March 1, 1949.

Densow and Drumheller Company - Drug Store, with fountain lunch providing fountain dinners and meal service. Lease dated February 2, 1949.

National Bank of Commerce of Seattle - Bank in the New Central Commercial Area. Lease dated April 15, 1949.

Angerman Company, Inc. - Feminine Apparel and Accessories Store. Lease dated March 11, 1949.

Block's Shoe Stores, Inc. - Family Shoe Store. Lease dated March 15, 1949.

Sowell and Ethington, Inc. - Fountain Lunch. Lease dated April 15, 1949.

An auto supply location was awarded to Messrs. Jack H. Davis and C. J. Walker, 1700 Main Street, Vancouver, Washington, in the Light Industrial Area. They will construct their own facilities.

Construction was started April 13, 1949 on Parcell's Shell Service Station at Swift and Wright Streets.

Construction was started April 18, 1949 on Sowell's Fountain Lunch in the existing business district.

Construction was started April 21, 1949 on Block's Shoe Store in the North Central Commercial Area.

Construction of new lubrication building and remodeling of existing Chevron service station by Standard Oil, is now in process.

Construction was started April 4 on warehouse located between trackage and Wellsian Way, for Pennywise and Thrifty Drugs.

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COMMUNITY COMMERCIAL FACILITIES DIVISION DECLASSIFIED

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:

Auto Accessories
Auto Service
Bakery
Beauty Shop
Beverage Store
Billiard Hall
Confectionery
Drug Store
Electrical Appliances
Fire Works
Food Store
Fountain Lunch
Fuel Dealership
General Business
Golf Driving Range
Hardware Store
Ice Cream Vending
Insurance Agency
Jewelry Store
Laundry & Dry Cleaning
Malt Shop
Multiple Business Bldg.
Newspaper
Paint Shop
Photographic Studio
Restaurant
Roller Skating Rink
Service Station
Shoe Repair
Sporting Goods
Theater
Travel Agency
Variety Store
Water Softener Plant

Requests for facility operators to establish businesses in Richland were made throughout the United States in the Wall Street Journal and New York Times in February, 1949. During the months of February, March and April, 1949, a number of individuals inquired regarding businesses in Richland after having read the advertisement in the Wall Street Journal and the New York Times. Inquiries were made concerning the following listed businesses, but interest subsided after ground lease terms were explained and/or literature furnished. No definite results have been obtained from this advertising to date.

Auto Accessories
Auto Agency
Auto Service
Beauty Shop
Beverage Shop
Book Store
Bowling Alley
Business School
Butane Gas
Confectionery
Delicatessen
Doctor's Office
Drug Store
Electric Appliance
Finance-Insurance-Real Estate
Food Store
Fountain Lunch
Fur Store
Furniture Store
Garage-Service-Repair
General Business
General Merchandise
Gift Shop
Glass Store
Hardware
Hosiery Store
Hotel
Infants' & Children's Store
Jewelry Store
Laundry & Dry Cleaning
Law Offices
Lumber
Machine Shop
Men's Store
Metal Products
Multiple Business Bldg.
Newspaper
Photographic Studio
Plumbing
Printing Press
Public Accountant's Office
Radio Shop
Service Station
Sporting Goods
Tea Room & Pastry Shop
Theater
Variety Store
Women's Wear

Written permission was granted to ten (10) Richland residents to conduct the following part-time businesses in their homes:

Delivery of Fertilizer for Lawns and Gardens
Cleaning of Rugs
Sale of Insurance
Sale of Adults' Shoes
(2) Sale of Aluminum Ware Kitchen Utensils
Sale of Plastic Ware (table covers, etc.)
(2) Sale of service of vacuum cleaners
Auction of Personal Property

1223978

COMMUNITY COMMERCIAL FACILITIES DIVISION

REQUESTS FOR ESTABLISHMENT OF BUSINESSES IN RICHLAND (CONTINUED)

Written permission was granted fifteen (15) individuals living outside of Richland to contact residents, on an appointment basis only, on the following business matters:

(3) Pick Up and Delivery of Dry Cleaning and Fur Storage
(2) Sale of Maisonette Dresses
(2) Sale of Encyclopoedias
Sale of Aluminum Ware Kitchen Utensils
(3) Sale of Vacuum Cleaners
Sale of Air-Way Sanitizor "66"
(2) Sale of Horse Meat for Dog and Cat Food
Sale of Waterless Cooking Equipment

Responsibility for granting part time business permits is being transferred to M. T. Binns, Administrative Assistant, effective May 1, 1949.

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COMMUNITY DIVISIONS

COMMUNITY HOUSING DIVISION

April, 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	April
Beginning of month	38
End of month	37
Net Decrease	1

RICHLAND HOUSING

Housing Utilization as of Month End

Houses Occupied by Family Groups	Conventional	Block	T	Pre-Cut	Ranch	Pre-fab	Apt.	Tract	Total
Operations	2188	260		376	861	1095	62	40	4882
Facilities	146	4		19	49	122	2	9	351
Government	101	31		14	20	31	4	6	207
Kellex Corporation		8		7	1	3	1		20
Morrison-Knudsen	4			1	1		1		7
Atkinson-Jones	22	22		17	23	16	2		102
J. Gordon Turnbull	1	2		3	4	15			25
Giffels & Vallet	3			1	8	11			23
J. A. Terteling & Sons	1		10	2		2			15
McNeil Construction Co.	2			2		4			8
Newberry Neon Electric	1	2		2	1	1			7
Urban, Smythe & Warren	2	2		1	2	2	1		10
Robert's Filter	1								1
Graysport Construction				1				8	9
Newport-Kern Kibbe								1	1
Vernita Orchards								4	4
TOTAL HOUSES OCCUPIED	2472	331	10	446	970	1302	73	68	5672
Houses utilized for special purp.								1	1
Houses assigned (leases written)	6			1	3	1			11
Houses assigned - awaiting tenants	22	2		3	27	29	1		84
Government houses - unassigned								**37	37
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.

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COMMUNITY HOUSING DIVISION

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2462	72	62	2472	Plus 10
Block Type	330	4	3	331	Plus 1
T Type	10	1	1	10	None
Precut Type	440	22	16	446	Plus 6
Ranch Type	926	98	54	970	Plus 44
Prefab Type	1297	80	75	1302	Plus 5
Apartment Type	74	3	4	73	Minus 1
Tract	67	1	0	68	Plus 1
Total	5606	281	215	5672	Plus 66

Dormitory Statistics

Dormitories		Occupants	Vacancies	Total Beds
Men - Occupied	14	497	59	556
Men - Unoccupied				
Women - Occupied	14	551	41	592
Women - Unoccupied				

Women's Dormitories Occupied by:

G. E. Office	1
Education	1
Apartment	1
	31

* This includes space of 6 beds in W-9 being used for Supply rooms and Dormitory Offices.

GENERAL

One employee terminated voluntarily during the month. She was not replaced.

Allocation Section Statistics

Houses sent to Renovation	54
Houses assigned "As Is"	91
Moves (within the Village)	22
Exchanged houses	45
Terminations	125
Turnovers	11
Total houses to be released at end of school term	50
Total new leases signed	281
Total cancellations	215
Total houses allocated to new tenants	158

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TENANT RELATIONS

The processing of Patrol Orders and Work Orders during the month is as follows:

	Incomplete 3-31-49	Issued Dur. April	Incomplete 4-29-49	Issued Prev. Month
Patrol Orders - Days	974	2852	618	3273
Patrol Orders - Off Shift-Elect.	0	509	0	472
Patrol Orders-Off Shift-Maint.	0	489	0	510
Regular Work Orders	461	206	343	239
Backcharges	47	89	28	95

62 Conventional Type houses were painted by Project Forces as compared to 110 the previous month (interiors). 4 Tract Houses were also painted on the interior.

422 Home Fire Inspections were reported and processed. 718 homes were visited. 289 Home Fire Inspections in March and 464 homes were visited.

15,405 Pounds of grass seed were issued during the month of April. 12,722 pounds were issued during March.

ITEMS OF INTEREST

	Total Outstanding	Outstanding In April	Outstanding Prev. Month
Window Glass Replacements	159	132	140 (+19)
Sink Linoleum Replacements	82	37	58 (+24)
Bathroom Painting	47	25	22 (+25)
Faucets	61	48	157 (-96)
Miscellaneous	316	275	425 (-109)

Alteration permits issued during the month of April, 1949 totaled 169 as compared to 192 during the month of March.

Fences	52	Window Shelves	1
Automatic Washers	14	Interchange Doors	1
Sanding Floors	8	Tile Board in Bathroom	1
Air Conditioners	55	Tool Shed	1
Driveways	11	Garden House	1
Basement Excavation	5	Clothes Poles	2
Basement Partition	2	Water Softener	1
Sidewalks	5	Antenna	2
Patios	5	Trellis & Awnings	2
Playhouses	4	Change position of clothes poles	1
Install 1 Window	1		

1223982

TENANT RELATIONS

1100 Inspections were made during the month of April. A breakdown of the inspections shows the following distribution:

Grass Seed	335
Lot Lines	358
Top Soil	60
Recaulk Bathroom-Paint	36
Floor Boards	20
Sidewalks	30
Leaking Basements	5
Linoleum	60
Walls	21
Shades	50
Miscellaneous	125
	1100

In addition to the above the Inspectors also covered calls on interior painting, contacted tenants in regard to watering of inner block areas and notified tenants on the street resurfacing project.

M. S. Warehouse Monthly Report for April, 1949.

Orders handled for April, 1949.

		Items
Recall Orders	7	31
Delivery Orders	18	112
Range & Refrigerator Orders to new houses	1	2
Dormitory Exchange Orders	8	34
Total Orders	34	179

Received from Maintenance	85
Sent to Maintenance	66
Three-burner ranges exchanged in Village	8
Refrigerators exchanged in Village	11

Trips to Pasco 3

Tenant Relations Store:

Orders Disbursed	1030
Items Disbursed	2993
Value	$27,936.69
Items Received	113
Value	$16,503.55
TOTAL M. S. WAREHOUSE INVENTORY	$80,084.67

Note:	Dormitory Supplies Used	468.51
	Linen Replaced	209.95

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TENANT RELATIONS

M. S. Warehouse Progress Report for April, 1949.

DISTRIBUTION - GRASS SEED:

Ranch houses - Fifty per cent of the grass seed has been sacked and distributed to tenants living in this new area.

DORMITORIES:

All usage supplies for the past month have been disbursed to the Dormitories and an accurate system of accounting has been installed covering this and all future distribution.

To comply with reduction in cost program, renovation of dormitory furniture has practically been curtailed.

DORMITORY PROGRESS REPORT FOR APRIL, 1949.

REDUCTION IN ALTERATION COSTS:

Dormitories M-9 to M-14 inclusive--All articled stored in space beneath staircases on lower floors were removed and doors leading into these apertures sealed and made part of the wall. This will eliminate the cost of lining walls if this space should be used for storage purposes.

Work is going foreward throughout the dormitories to eliminate fire hazards as per the recommendation of the Community Fire Marshall.

Lawns have generally improved as a result of the watering program started during the recent critical period.

Certain requests for maintenance to walkways, guard posts, etc. have not yet been undertaken. However, this work is being given consideration by Community Works and will be included in their program.

Space in the 1125 Warehouse, formerly used by the Dormitories for storage was turned over to the Public Works Division on April 26, 1949 with the approval of the Housing Division.

Thirty-four items of furniture were exchanged.

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COMMUNITY SAFETY DIVISION
APRIL, 1949

ORGANIZATION AND PERSONNEL

Number of employees on Payroll:	April
Beginning of month	2
End of month	2

GENERAL

Considerable emphasis was placed on driver education, through traffic safety lectures, films, newspaper articles, etc., which have produced favorable results. The accident rate in Richland declined from twenty-two accidents during March, to nineteen during April. North Richland accidents declined from fifteen in March, to four in April. There were no major injuries, no fatalities and four minor injuries, in the two communities.

Nineteen traffic safety lectures were given to civic and plant groups during April. A traffic safety film "X Marks the Spot" was shown to the majority of the audiences. Five traffic safety articles appeared in local newspapers and 1,500 traffic safety booklets, "The Human Race", were distributed.

A "Scotch-Lite" Safety Program was started April 30th, to afford a degree of safety to night bicycle riders. The Scotch-Lite tape is reflectorized and stands out sharply when automobile lights shine on it at night. Several strips were wrapped on different parts of the bicycle. Of the estimated 3,600 bicycles in Richland and North Richland, 439 were taped on the opening date. The program will continue, until the majority of the bicycles are taped.

Reporting of school accidents by Principals has increased and a reasonable coverage is indicated.

A Home Safety Check List has been prepared and presented to the Public Works Division to be distributed to their employees for checking hazards in the homes. This was requested by the Public Works employees.

Plans and specifications were reviewed for six new industrial buildings and one church, from a Fire Prevention and Safety standpoint.

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COMMUNITY FIRE DIVISION

April 1949

Organization and Personnel

Number of employees on payroll	April
Beginning of the month	151
End of the month	144

	Richland	North Richland
Response to alarms	25	11
Fire Loss (estimate)		
Hanford Works	$40.00	$41.78
Personal	45.15	62.77
Investigation of minor fires and incidents	6	8
Safety meetings held	16	8
Inside Drills	85	31
Outside Drills	78	83
Alarm Boxes Tested	139	72

Fire Department Activities

Seventy Columbia High School students taken on a conducted tour through Richland No. 1 Fire Station.

Forty-five Boy Scouts visited Richland Station No. 1 for a conducted tour.

One obsolete 500 gallon-per-minute trailer pump excessed to Transportation Division for disposition.

Seventy men of Community Fire Division attended the 10 hour Bureau of Mines School conducted in Richland April 25 - 29 inclusive.

RICHLAND FIRE PREVENTION ACTIVITIES

1. Fire Inspections

700 Area Buildings	172
1100 Area Buildings	193
Government Airport	5
Commercial Facility Bldgs.	158
Schools, Churches, Clubs	41
Homes	422
Dormitories	30
Total	1021

2. Fire Extinguishers

Inspected	1570
Installed	18
Recharged	16

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3. Miscellaneous

Desert Inn alarm system tested twice during the month with satisfactory results.

Sprinkler systems in Kadlec Hospital, Public Health and 703 Buildings were inspected weekly.

Committee inspections were conducted in all schools, clubs and churches during the month.
Reports of fire hazards encountered were sent to the Community Activities Division.

On April 6th a fire extinguisher demonstration was conducted for 38 employees of Building 722-D.

Considerable trouble was experienced with the alarm system in 770 Building. Several changes by the alarm electrician were necessary.

Inspection revealed that tenants of ranch style homes were doing considerable damage to insulationon attic heat ducts by carelessly storing material on the ducts. Publicity was given this hazard in newspapers and on the Pasco radio.

Inspection also revealed that many hydraulic cylinders, which control furnace drafts in ranch style houses, had burned out because they were energized with no fire in the furnaces.

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COMMUNITY DIVISIONS

COMMUNITY PATROL

APRIL 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	April
Beginning of Month	102
End of Month	85
Net Decrease for Month	17

Reason: 10 R. O. F. Transfers
7 V. T. Personal

GENERAL

On April 7, 1949, Capt. C. H. Overdahl escorted a group of Boy Scouts through the North Richland Patrol Headquarters and explained the functions of the different departments to the group.

On April 11, 1949, two men and equipment were loaned to the Benton County Sheriff's office for the purpose of dragging the Columbia River between Richland and Pasco for a body which was later found floating near The Dalles.

Effective April 15, 1949, the North Richland Crime Prevention Section and the Richland Crime Prevention Section was combined into one section to be known as the Crime Prevention Section. This section is now composed of one captain and three sergeants with headquarters in Richland.

On April 19, 1949, two International pickups were returned to the Transportation Department Pool. This action was in line with efforts to reduce our automotive needs to an absolute minimum.

According to an agreement reached between the Community Patrol Division and the Transportation Division, the Community Patrol Division is assisting in calling to their attention violations as outlined in Instructions Letter No. 82, Revision No. 2, "Use and Control of Government Owned General Purpose Vehicles."

During the month of April, 63 prisoners were processed through the Richland Jail.

During the month of April, 36 gun registrations were taken by Richland Patrol.

During the month of April, a total of 82 Unusual Incident Reports were received, which consisted mainly of Public Intoxication, Vagrancy, Public Nuisance, and Disturbance. Regular Traffic Violation and Offense Statistics are presented in separate tables attached to this report.

Resignations during the month included four supervisors: two lieutenants and two sergeants, who resigned to accept employment with the Bendix Aviation Corporation in Kansas City, Missouri.

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TRAFFIC

A "Scotch-Lite" safety program was started on April 30, 1949, to afford a degree of safety to night bike riders. The Scotch-Lite tape is reflectorized and stands out sharply under the headlights of a car at night. Of the estimated 3,600 bikes in Richland and North Richland, 439 were taped on the opening day. The program will continue until the majority of the bikes are taped.

The stop signs at the intersection of Lee Boulevard and Thayer Drive were reversed after studies and surveys showed the volume of traffic using Lee Boulevard. By reversing the signs, motorists living in the Ranch-type housing area have an arterial to and from the Richland business district.

Stop signs were erected at all feeder streets into Symons Street on April 30, 1949. Symons Street carries a heavy volume of traffic and some of the intersections have reduced visibility, through high embankments, houses, etc., near the corners.

TRAINING

Subjects covered in the lieutenant's training classes for the month of April were as follows:

Law of Arrest
Criminal and Civil Liability
Accident Investigation
Complaint Writing and Processing
Public Relations
Use of Wire Recorder

Capt. W. A. Ziegler has been appointed training officer for the Community Patrol Division, in addition to his other duties. He is responsible for planning and coordinating all training programs and activities.

Advance training for Community Patrol members at the Small Arms Range for the period March 11, 1949, to April 29, 1949, inclusive, was divided into field instruction as follows:

Pistol	1 ½ hour
Riot Gun	1 hour
Machine Gun	1 hour

Progress of scores and qualifications on the Army-L Course:

	February		March		April	
	No.	Percent	No.	Percent	No.	Percent
Unqualified	6	6%	6	7%	3	4%
Marksman	26	25%	26	32%	13	18%
Sharpshooter	22	22%	12	14%	11	16%
Expert	48	47%	39	47%	44	62%

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.

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ACTIVITIES AND SERVICES (RICHLAND)

	February	March	April
Check on absentees	9	1	5
*Persons assisted	236	196	290
Doors & windows found open in commercial facilities	83	34	33
Lost children found	9	8	27
Ambulance runs	43	40	50
Lost dogs reported	1	3	5
Dog & cat complaints	39	46	55
Persons injured by dogs	3	6	6
Bank escorts & details	43	33	41
Fires investigated	17	10	34
Miscellaneous escorts	50	54	34
Complaints investigated	66	84	126
Missing persons reported	1	4	3
Totals	600	519	709

* Includes: Persons admitted to residence; delivery of messages to residents who have no telephones; relay of messages; handling requests of out of town police; miscellaneous aids to private parties; and opening trailer parking lot for individuals.

ACTIVITIES AND SERVICES (NORTH RICHLAND)

	February	March	April
Check on absentees	3	5	3
*Persons assisted	478	329	219
Doors & windows found open in commercial facilities	69	45	70
Lost children found	1	4	5
Ambulance runs	26	12	2
Lost dogs reported	1	0	0
Persons injured by dogs	2	1	0
Dog & cat complaints	25	11	16
Bank escorts & details	48	48	40
Fires investigated	21	17	14
Miscellaneous escorts	23	43	52
Complaints investigated	108	72	27
Missing persons reported	0	4	0
Totals	805	591	448

* 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.

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COMMUNITY PATROL DIVISION

FORCE REPORT

APRIL 1949

Patrol		Entire Patrol 3-31-49	Entire Patrol 4-30-49
Patrol Supervisor		1	1
Captains		5	5
Lieutenants		10	8
Sergeants		13	11
Patrolmen		69	56
	Total	98	81
Clerical			
Steno-Typists	Total	4	4
	Grand Total	102	85

Decrease

10 Transfers to Security Patrol R. O. F. 4-4-49
1 V. T. Personal 4-8-49
2 V. T. Personal 4-11-49
1 V. T. Personal 4-15-49
1 V. T. Personal 4-18-49
1 V. T. Personal 4-21-49
1 V. T. Personal 4-22-49

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COMMUNITY PATROL DIVISION
RICHLAND JUSTICE COURT CASES
APRIL 1949

VIOLATION	NO. OF CASES	NO. OF CONVICTIONS	TOTAL FINES	TOTAL SUSP.	SENTENCED TO JAIL	SENTENCE SUSPENDED	LICENSE REVOKED	AVERAGE FINE PAID	CASES DISMISSED	WARRANTS ISSUED
Drunken Driving.....	2*	2	$155.50	0	0	0	2	$77.50	0	0
Reckless Driving.....	3**	2	$100.00	0	0	0	2	$50.00	1	0
Negligent Driving.....	9***	9	$142.50	$50.00	0	0	0	$15.83	0	0
Speeding.....	34****	34	$155.00	$37.50	0	0	0	$11.40	0	1
Stop Sign.....	20*****	20	$ 86.00	0	0	0	0	$ 4.30	0	6
F.T.Y.R.O.W.....	10******	10	$115.00	$25.00	0	0	0	$11.50	0	0
Improper Parking.....	5	5	$ 17.50	$ 7.00	0	0	0	$ 3.70	0	0
No Drivers License.....	8	8	$44.50	$ 5.50	0	0	0	$ 5.56	0	1
No Vehicle License.....	1	1	$ 2.50	$10.00	0	0	0	$ 2.50	0	0
F.T. Dim Headlights.....	1	1	$ 5.50	0	0	0	0	$ 5.50	0	0
Improper Passing.....	1	1	$ 7.50	0	0	0	0	$ 7.50	0	0
Resisting an Officer.....	1	1	$27.50	$27.50	0	0	0	$27.50	0	0
Public Intoxication.....	28	28	$417.50	0	2	2	0	$14.91	0	0
Public Nuisance.....	7	7	$137.50	0	0	0	0	$19.64	0	0
Vagrancy.....	5	5	$ 17.50	0	4	3	0	$17.50	0	0
Drunk & Dis. Conduct.....	5	5	$ 87.50	0	0	0	0	$17.50	0	0
Third Degree Assault.....	1	1	$ 10.00	0	0	0	0	$10.00	0	0
Bootlegging.....	1	1	$107.50	0	0	0	0	$107.50	0	0
Sex Offense.....	1**	1	0	0	1	0	0	0	0	0
Con. to the Del. of Minor..	1**	1	0	0	1	0	0	0	0	0
Gambling.....	2	2	$ 35.00	$17.50	0	0	0	0	0	0
	146	145	$1,671.50	$185.00	8	5	4	$409,84	1	8

Total Fines.....$1,671.50
Less Supensions..... $185.00

Total Fines Received $1,486.50

"Note" One Reckless Dr., case dismissed Driver charged with Negligent Homicide convicted; fined $1000.00; 2 year sentence suspended. License revoked for 1 year.

*1 - Case reduced to Reckless Driving.
**1 - Case reduced to Negligent Driving.
***2 - Cases included with other violations.
****5 - Cases included with other violations.
*****5 - Cases included with other violations.
******2 - Cases included with other violations.
**3 - Cases taken to Prosser to await trial in Superior Court.

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PATROL DIVISION - TRAFFIC CONTROL STATISTICS
April - 1949

MOTOR VEHICLE DIVISION

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	March	April	March	Apr.	March	April	March	April
Richland	22	19	0	0	0	0	6	4
North Richland	15	4	0	0	0	0	6	0
Totals	37	23	0	0	0	0	12	4

ACCIDENT CAUSES

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Causes	
	March	April	March	April	March	April	March	April
Richland	10	12	4	3	0	0	9	4
North Richland	8	3	4	1	0	0	4	0
Totals	18	15	8	4	0	0	13	4

PLANT WARNING TRAFFIC TICKETS ISSUED

	Speeding		"Stop" Sign		Parking		Imp. License		Def. Equip.		Other Violations		Totals	
	Mar.	Apr.	Mar.	Apr.	Mar.	Apr.	March	April	Mar.	April	March	April	Mar.	Apr.
Richland	2	1	1	0	122	56	1	2	14	7	1	3	141	69
N. Rich.	1	4	0	1	98	81	1	1	5	27	1	0	106	114
Totals	3	5	1	1	220	137	2	3	19	34	2	3	247	183

COURT CITATION TRAFFIC TICKETS ISSUED

	Speeding		"Stop" Sign		Drunken Dr.		Reckless Dr.		Right of Way V.		Neg. Dr.		Parking V.		Other V.		Totals	
	Mar.	Apr.	Mar.	April	Mar.	April	March	April	March	April	Mar.	Apr.	Mar.	Apr.	Mar.	Apr.	Mar.	Apr.
Richland	26	36	12	9	1	2	2	2	4	5	8	6	17	3	19	9	89	72
N. Rich.	14	3	5	9	3	1	0	2	0	1	14	7	1	0	11	5	48	28
Totals	40	39	17	18	4	3	2	4	4	6	22	13	18	3	30	14	137	100

TRAFFIC VOLUME: Average 24-hour Traffic Volume Count for week ending on April 23, 1949, Intersection of Lee Boulevard and Thayer Drive - 9,287 Cars.

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CRIME PREVENTION SECTION
MONTHLY REPORT
APRIL, 1949

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Offenses March	Actual Offenses April	Offenses Cleared By Arrest	Offenses Cleared By Other Action	Perpetrators Involved	
Assault	2	0	0	2	1	0	1	
Breaking and Entering	1	0	3	1	0	1	1	Age 15
Larceny (Except Auto & Bike)								
Over $50.00	3	0	14	3	1	0	1	
Under $50.00	12	0	40	12	0	3	3	(a)
Auto Theft	1	0	5	1	0	0	u	
Bike Theft	19	0	27	19	0	17	u	
Destruction of Gov't.Property	5	0	4	5	0	2	2	
Destruction of Personal Property	4	0	0	4	0	1	3	(b)
Loss or Theft of Gov't. Property	1	0	0	1	0	1	1	
Disorderly Conduct	4	0	4	4	0	4	4	(c)
Drunkenness	28	0	29	28	28	0	28	
Forgery	0	0	3	0	0	0	0	
Gambling and Or Possessing	2	0	0	2	2	0	2	
Missing Persons	3	0	1	3	0	3	3	(d)
Offense Against Family & Children	1	0	3	1	0	1	1	
Pickup for Outside Agency	1	0	3	1	1	0	1	
Prowlers	2	1	1	1	0	0	u	
Public Nuisance	8	0	15	8	7	1	8	
Rape	0	0	1	0	0	0	0	
Sex Offense	2	0	3	2	1	1	3	(e)
Indecent Exposure	1	0	0	1	0	0	u	
Vagrancy	6	0	30	6	6	0	0	
Miscellaneous	12	1	9	11	0	4	4	(f)
Juveniles (Other than Above)	5	0	11	5	0	2	9	(g)
	123	2	206	121	47	40	80 x	

(a) 2 Cases Perp. by 3 Juv. Ages 7,8,9.
(b) 1 Case Perp. by 1 Juv. Age 8
(c) 2 Cases Perp. by 4 Juv., Ages 13,16,16 & 6.
(d) 1 Case Perp. by 1 Juv. Age 16.
(e) 1 Case Perp. by 1 Juv. Age 13
(f) 1 Case Perp. by 2 Juv. Ages 9 & 13.
(g) 4 Cases Perp. by 9 Juv. Ages 6,7,7,16,6,11,& 13, 6 & 6.

x—20 of the Perpetrators Involved are Colored.
u—Represents Unknown.
Property Recovered for the Month—$962.46 (13 bikes)

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Number of offenses known to police per 10,000 inhabitants, in cities between 10,000 and 25,000 inhabitants:

	Wash. Oregon & Calif.		Richland and North Richland		
Classification	Six Months (Jan-June 1948)	One Month Average	Six Months (Jan-June 1948)	March 1949	April 1949
Murder	181	.031	0	0	0
Robbery	3.47	.58	1.00	0	0
Aggravated Assault	1.75	.29	6.66	2.66	1.33
Burglary	35.69	5.95	4.63	2.00	.66
Larceny	127.06	21.18	47.16	55.30	22.66
Auto Theft	15.56	2.59	3.10	3.33	.66

Number of offenses known to police per 10,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

	State of Washington		Richland and North Richland		
Classification	Six Months (Jan-June 1948)	One Month Average	Six Months (Jan-June 1948)	March 1949	April 1949
Murder	.140	.023	0	0	0
Robbery	4.90	.82	0	0	0
Aggravated Assault	.78	.13	6.66	2.66	1.33
Burglary	36.91	6.15	4.63	2.00	.66
Larceny	92.22	15.37	47.16	55.30	22.66
Auto Theft	18.15	3.03	3.10	3.33	.66

The portion of offenses committed by persons under the age of 25 years, is shown by the following figures:

	National Average	Richland and North Richland		
Classification	Six Months (Jan-June 1948)	Six Months (Jan-June 1948)	1949 March	1949 April
Robbery	55.5	0	0	0
Burglary	59.9	8%	0	100%
Larceny	45.2	13%	48%	17%
Auto Theft	71.6	0	20%	0

Note: Statistics of juvenile offenses throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation, which states: "It should be remembered that the number of arrest records is doubtless incomplete in the lower age groups because of the practice of some jurisdictions not to fingerprint youthful offenders."

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COMMUNITY DIVISIONS

COMMUNITY-ACTIVITIES DIVISION

April, 1949

ORGANIZATION AND PERSONNEL

Number of employees on roll

Beginning of month		12
Additions	0	
Terminations	1	
End of Month		11

SCHOOLS

Representatives of the Community - Activities and Safety Divisions made a special inspection on April 5 of the new hall doors being installed at the Junior High School. Violations of existing safety codes in the hanging of two sets of doors were noted and steps taken to have discrepancies corrected.

Representatives of the Community - Activities, Public Health, Safety, and Fire Protection Division on April 11 conducted the regular monthly inspections of the Lewis and Clark, Marcus Whitman, Jefferson, Sacajawea, and Nursery Schools. On April 12, Columbia High and Spalding Grade School were inspected.

On April 12, representatives of McNeil Construction, Turnbull Associates, the Atomic Energy Commission, and the Community - Activities Division made a final inspection of Lewis and Clark Grade School. On April 13, inspections were made of the Carmichael Junior High School with particular attention to the new gymnasium. An exception list was compiled and scheduled for correction. On April 14, these representatives made an inspection of Marcus Whitman Grade School and compiled a final exception list for correction prior to acceptance.

On April 18, as a result of reports that coal in the Lewis and Clark bins was heating to a danger point, inspections were made by representatives of the Fire Protection and Activities Divisions. The existence of a hazard was verified and arrangements were made to remove all coal on April 19. A watch was maintained in the meantime as a preventive measure. Procedures were set up to check periodically all other school bins containing coal.

On April 22, arrangements were completed to transfer one 3-door refrigerator from the Co-Ordinate Club to the Marcus Whitman Grade School.

On April 25, the Activities Division in collaboration with the School District conducted a study to determine which areas around the existing school properties would be maintained by the School District and which by General Electric as part of the Park and Recreation Program.

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Community - Activities Division

On April 27, representatives of McNeil Construction Company, Turnbull Associates, the Atomic Energy Commission, and Community-Activities Division conducted inspections of the Junior High School buildings to ascertain whether or not the exceptions noted in previous inspections had been corrected.

On April 25, the School District announced a change in policy regarding age requirements for entrance into kindergarten and first grade classes. Youngsters who are five years old on or before November 1, will be eligible for kindergarten classes next year. The change from the present December 1, deadline is in line with the State Department of Education views.

Three new school cafeterias were opened during the Month of April. The Carmichael cafeteria which opened April 21, is serving 370 lunches on two shifts and accommodating 200 pupils who bring sack lunches. Its total capacity is 360 students. The Spalding cafeteria opened April 20, with a capacity of 350 students and is presently serving 225 pupils plus 200 sack lunches in two shifts. The Marcus Whitman cafeteria was opened April 13, with a capacity of 350. It is presently serving 410 in two shifts. The director of the school cafeterias reported that 2,100 students are now getting meals served in the seven Richland schools.

The Richland School Board announced on April 28, that a decision had been reached regarding the location of the new junior high school. It will be situated slightly north of Wilson at the northern terminal of Johnston, Judson, and Jadwin Avenues.

On April 29, music students of Columbia High School were hosts to visiting choral groups from the Benton-Franklin County Schools. The event was a choral clinic festival sponsored by music educators in the Richland area.

First grade pupils of the Marcus Whitman Grade School were taken on a visit to a sheep ranch near Prosser in connection with their study of the farm unit. Transportation was provided by two school busses.

A survey of parent opinion regarding the showing of "Human Growth" indicated that 94.9% of the parents were in favor of this form of education.

There is a total enrollment increase since September 7, 1948, of 207 pupils, with 246 additional pupils at the grade schools and a decrease of 39 pupils at the high school. During the month there was a decrease of 143 pupils in the grade schools and a decrease of 19 at the high school.

CHURCHES

The United Protestant Council, composed of representatives of the five United Protestant Churches of Richland, met April 25, for the election of their 1949-50 officers.

All Richland churches held special Easter services with several sunrise services opening the day's worship which was climaxed with the presentation of the Messiah at the Central United Protestant Church.

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Community - Activities Division

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The Church of the Nazarene conducted special ground-breaking ceremonies on April 9, at Wright Avenue and Humphries Street, the site of their proposed church building.

The following is a tabulation of full time paid personnel, as of April 30, 1949:

	Ministers	Staff	Total
Assembly of God	1	0	1
Catholic	2	2	4
Central United Protestant	2	1	3
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	6	24

COMMUNITY

Villagers, Inc. conducted its annual membership drive throughout the Month of April with 20 boys and girls competing for prizes based upon the number of memberships sold by each contestant.

On April 30, the Richland Orthopedic Guild launched its annual "Penny Drive" for the benefit of the Children's Orthopedic Hospital of Seattle. The drive was scheduled for two weeks. Containers were placed in public places and envelopes were distributed to all residences.

The Richland Kennel Club, under the sponsorship of the Greater Richland Chamber of Commerce, staged the second annual American Kennel Club licensed all-breed show at Columbia High School April 30. More than 440 dogs, representing 48 different breeds, were entered in the competition. A total of 134 trophies were awarded with the best dog in the show taking the Challenge Trophy valued at $250.

The Community of Richland officially adopted Daylight Saving Time at 2:00 AM on Sunday, April 24.

The newly organized Columbia River Chapter of the Daughters of the American Revolution held its initial business and organizational meeting April 28.

1223998

Community - Activities Division

The Junior Chamber of Commerce in collaboration with the Community - Patrol Division sponsored a bicycle safety program during the Month of April. Bicycles were treated with Scotch-lite reflectors without charge to the owners of the bicycles. The National Traffic Safety Council highly endorsed the Scotch-lite program as a saver of lives and reducer of accidents.

It was announced on April 27, that the Greater Richland Chamber of Commerce had received its charter as a non-profit corporation.

The Richland String Quartet made its debut in concert on April 28, at Columbia High School. Proceeds from the event were donated to the Children's Orthopedic Hospital in Seattle.

The Richland Junior Chamber of Commerce sent eight representatives to the annual convention of the Washington Junior Chambers held in Tacoma April 23.

The Dormitory Club announced on April 28, that it would assume sponsorship of Girl Scout Troop No. 20. This troop was originally organized in 1947 and was reorganized in 1948.

The Community-Activities Division completed arrangements for the opening and operation of the Richland Park Swimming Pool. Opening day was set for June 11 with swimming continuing until September 5. The pool is to be operated on a no charge basis six days each week from 12:45 to 6:45 PM.

Preliminary machine work on the new Richland Community Swimming Pool was started April 18. A $15,000 contract for concrete pouring was let. Estimated cost of the completed pool was stated to be $105,000 and pool officials announced that every effort would be made to complete the pool this year.

On April 22, the Business and Professional Women's Club of Richland voted to increase its scholarship award this year to $200.00 with the selection of a recipient to be made by the Club's Education and Vocation Committee.

The American Legion Auxiliary sponsored an Easter egg hunt in Richland Park on April 16.

On April 23, the Treble Clef presented its annual Spring Concert at Columbia High School auditorium.

The Regional Camp Fire Supervisor for the Camp Fire Girls, Inc. arrived in Richland on April 25, and conferred with local representatives with regard to projected programs for the coming year.

The Richland Players presented a 15 minute Radio Play over radio station KWIE on April 25. The play which traced the history of scientific research in the detection of tuberculosis was presented in connection with the local appearance of the mobile X-Ray unit.

The Junior Chamber of Commerce sponsored an Easter Egg Hunt in Richland Park on Sunday afternoon, April 17.

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The Richland Golf and Country Club has submitted an application for the assignment of a tract of land comprising in excess of 180 acres for its 18-hole golf course. The area, part of the Government reservation, lies due west of the riding stables and north of Van Giesen Road toward the Yakima River.

Richland community organizations combined to sponsor a "Parade of Bands" at the Playland Ballroom on April 19. Eight Tri-city bands and orchestras donated their services and the proceeds were donated to the Richland Community Swimming Pool Fund.

The Hi-Spot Club sponsored a Monte Carlo Carnival at the Recreation Hall on April 9. More than 3,000 persons attended and the net proceeds of $150.00 was placed in a fund to further the work of this teen age group.

The Triple Teen Club was the recipient of $76.00, the net proceeds from a benefit dance sponsored by members of the Richland Patrol at the Castle Club on April 12.

As a result of the Kiwanis Club's campaign, 32 barrels of clothing were shipped to Tiel, Holland. The United Truck Lines hauled the barrels gratis.

The regular monthly meeting of the Recreation Advisory Committee was held on April 26, 1949. The Committee recommended for approval, subject to proper security clearances, the Benton-Franklin Squadron of the Air Force and the Richland Research and Development Group of U. S. Army Reserves. The minutes of the March 15, 1949, meeting were approved April 20, 1949, by the Atomic Energy Commission. Organizations receiving formal approval include the Foursquare Gospel Church, Figureine Painting School, Richland Junior Riding Club, and Enterprise Citizens Committee.

MAJOR ACTIVITIES DURING THE MONTH

April 1	Gonzaga Glee Club	Columbia High School
2	College of Puget Sound Choir	"
4 - 5	Elks Minstrel Show	"
13 - 14	High School Juniors' Variety Review	"
23	Treble Clef Spring Concert	"
27	Magic of Fire Demonstration	"
28	Richland String Quartet	"
29	School Clinic Music Festival	"
30	Richland Kennel Club Dog Show	"
16	American Legion Aux. Easter Egg Hunt	Village Park
17	Jr. Chamber of Commerce Annual Easter Egg Hunt	"

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Community - Activities Division

RICHLAND PUBLIC SCHOOLS PERSONNEL AND ENROLLMENT REPORT

The following is a tabulation of full-time school district paid personnel, as of April 29, 1949:

Administration	3
Clerical	16
Principals & Supervisors	17
Teachers	236
Building Custodians	44
Cooks	20
Nursery Sch. Ex. Day Care	17
Bus Drivers	2
Total	355

On April 29, 1949, there were 62 children enrolled in the Richland Nursery School with an average attendance of 53. There was an increase in enrollment during the month of 1. On this day there were 18 children enrolled in the Extended Day Care program of the Nursery with an average attendance for the month of 16. There was no increase or decrease in enrollment during the month.

COLUMBIA HIGH SCHOOL

	Boys	Girls	Total
Freshman (9th grade)	162	174	336
Sophomore (10th grade)	152	160	312
Junior (11th grade)	112	93	205
Senior (12th grade)	98	93	191
	524	520	1044

GRADE SCHOOLS

	Carmicheal Jr. Hi.	Jefferson	John Ball	Lewis and Clark	Marcus Whitman	Sacajawea	Spalding
Kindg.		*(3) 83	*(4) 93	*(4) 110	*(4) 89	*(2) 67	*(4) 128
1st		(3) 98	(5) 109	(5) 133	(4) 117	(4) 115	(4) 123
2nd		(3) 86	(4) 95	(4) 113	(3) 93	(4) 104	(3) 96
3rd		(2) 70	(4) 98	(4) 110	(3) 85	(3) 106	(3) 92
4th		(3) 87	(3) 88	(3) 99	(3) 99	(4) 101	(3) 87
5th		(2) 64	(3) 65	(3) 93	(3) 79	(3) 99	(3) 109
6th		(2) 60	(3) 77	(3) 79	(2) 76	(3) 89	(2) 53
7th	(8) 254			(3) 91	(3) 96		
8th	(12) 367						
	621	547	625	828	734	681	688

Totals by grades	
Kindergarten	570
First grade	695
Second grade	586
Third grade	561
Fourth grade	561
Fifth grade	509
Sixth grade	434
Seventh grade	441
Eighth grade	367
	4724

*Half days
() Number of classes

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GENERAL ELECTRIC COMPANY
HANFORD WORKS
COMMUNITY ACCOUNTING DIVISION

MONTHLY REPORT FOR APRIL, 1949

ORGANIZATION

Employees - Beginning of Month	28	Exempt	5	Male	10
Terminations	1	Non-exempt	22	Female	17
Employees End of Month	27	Total	27	Total	27

One employee was terminated because of a reduction of force in the Accounts Receivable Section on April 29, 1949 as a result of a rearrangement of the work.

ACCOUNTS RECEIVABLE

RENTS

	APRIL	MARCH
House leases processed:		
New	308	139
Modifications	1	None
Cancellations	236	124
Active total house leases	5682	5610
Dormitory:		
Assignments	117	125
Removals	148	196

Rental revenue was as follows:

	APRIL	MARCH
Equipment	$ 90.34	$ 80.26
Houses	242,017.43	240,043.39
Dormitories	14,482.32	15,389.75
Facilities	50,585.25	34,703.71
	$307,175.34	$290,217.11
Rental value of unoccupied houses was:	$ 1,422.02	$ 1,749.55

There are still 22 facilities who have Government equipment on a rental basis.

There is but one unpaid rent account past 30 days old which is in the amount of $6.84.

TELEPHONE

	APRIL	MARCH
Number of Work Orders processed	175	193
Number of resident and facility phones in service	2519	2535
Revenue including services	$5017	$4979

By effecting a redistribution of work, we were able to reduce our personnel by one employee who was terminated for lack of work.

Community Accounting Division

MISCELLANEOUS

There were 109 miscellaneous invoices issued in April accounting for $2,876.78 in revenue.

Revenue from dog licenses amounted to $29.00.

The following building permits were issued:

LESSEE	AMOUNT
M.S. Morgan	$ 69.10
Church of Nazarene	81.10
James R. Parcell	95.30
Harry Ethington	93.05
Block's Shoe Store	130.05
Johnny's Minute Man Service	103.95
Total April fees	$ 572.55
Previously Reported	1,155.66
Total fees to date	$1 728.21

Government owned equipment located in the respective facilities was sold during April to the following at an agreed-upon price:

Dr. J.L. Fredrickson	$ 996.32
Binyon Optometrist	112.59
Total Sales this Month	$ 1,108.91
Previous Sales	46,387.65
Total sales to date	$47,496.56

Ten collection letters were written resulting in the payment of four accounts totaling $59.67.

ACCOUNTS PAYABLE

STATISTICS

	APRIL	MARCH
Accounts Payable Vouchers Processed	345	457
Freight Bills Processed	127	353
Purchase Orders Received	44	54
Net Amount of Purchase Orders	$ 6,708	$ 12,320
Receiving Reports Received	134	418
Total Net Amount Disbursed	$77,506.36	$157,733.35

The volume of work decreased during April as the result of a generally tightening up of expenditures, but it is expected to gradually pick up during the next month or so.

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Community Accounting Division

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GENERAL

The Accounts Payable balance involves 20 open vouchers which reflects a net credit of $18.37. Nine of these vouchers are awaiting vender refunds for freight payments and letters have been written on these accounts.

No new subcontracts or modifications were received during April. An estimate of work performed was received from Puyallup Gardens on subcontract number G-216 and the payment for services was made.

The status of the contracts for which the Community Division is responsible is as follows:

Subcontractor	Subcontract Number	Amount Awarded	Amount Paid	Amount Retained
Vance Properties, Inc.	None Applied	$ 91,832.97	$ 91,832.97	$ -0-
Graysport Constr.Co.	G 187	20,500.00	18,450.00	2,050.00
Touche, Niven, Bailey & Smart	G-213	* 14,022.04	14,022.04	-0-
Puyallup Gardens	G-216	* 117,848.13	71,541.38	7,827.44
Touche Niven, Bailey & Smart	G-218	* 18,691.01	18,691.01	-0-
West Coast Painters	G-219	46,449.19	18,640.97	2,071.22
McAtee & Heathe	G-223	44,803.70	44,803.70	-0-
Lone Pine Roofing Co.	G-227	7,500.00	6,750.00	** 750.00
Graysport Constr.Co.	G-231	* 43,270.00	28,273.84	2,163.50
		$404,917.04	$313,005.91	$14,862.16

* Total amount of contract will be the total of the estimates as submitted. Contract is based on a unit price award.

** Work is completed but contract terms provide for final payment on July 1, 1949.

COST

REPORTS

The March Cost Report was completed and distributed on April 15 which is the earliest date we have been able to release our operating report. It is expected that the fifteenth of each month will be the approximate issuance date for all future operating cost reports.

The Community budget for Fiscal Year 1950 and 1951 is now being drafted. Detail work sheets were prepared and forwarded to all of the Community Divisions to assist the Divisions in preparing the within-division estimated expenses. Assessments from other Divisions have been secured and distributed, and we are now awaiting the return from the respective Divisions of their work sheets before proceeding with the accumulation of total figures.

A form letter was prepared and is being forwarded to Superintendents when their Division exceeds its authorization on work orders. This procedure has proven effective and all Superintendents are very cooperative.

1224004

Community Accounting Division

The Community Utilities report for March was issued on April 21, 1949.

The Comptroller's Appropriation and Project Report for March was issued on April 20, 1949.

Active work orders decreased about 28 per cent from 1640 in January to 1188 in April.

GENERAL LEDGER

The March trial balance and supporting financial statements were forwarded to the General Division for consolidation on April 8, 1949. This is the best release date we have been able to meet since operating as a Division.

STATISTICS

	NO.	AMOUNT
Second class invoices received	100	$18,377,176.75
Second class invoices issued	56	357,255.03
Public vouchers forwarded for Government billing	17	29,122.76 Cr.

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[redacted]

DESIGN DIVISION

APRIL, 1949

GENERAL

This report is limited to those projects or phases of projects which require a narrative type of reporting to adequately portray important design considerations and developments. It is not the intent to enumerate all active projects or to cover the full activities of the Design Division. Projects having a more or less routine nature have been purposely omitted but are included in the regular statistical reports prepared by this Division.

DESIGN AND DEVELOPMENT OF PILE AREA "G"

Selection of Design Power Level

Studies are being made of the parameters affecting the power level of the "G" reactor. Increasing the water annulus is under consideration as a means of increasing water flow and specific power.

Charts have been prepared which illustrate power-reactivity relationships as a function of water temperature rise and cold-clean reactivity. These were prepared for the cases of the power coefficient being equal to 0.0, 0.2, and 0.6. Further analysis will evaluate, from a technical viewpoint, the optimum relationship between flattening water annulus cross-section, and total power. The relative value of the excess reactivity; that is, the product of power and flattening, for the radionuclide production capacity, has been plotted for the cases of the different power coefficients.

Process Tube Heat Transfer Studies

The location and availability of suitable equipment for the experimental program are being investigated. In conjunction with the full-scale design of an electrical heating element, design details are being formulated for a small-scale electrical heat test. Design requirements for the two-phase pressure drop test utilizing the mixture flow of steam and water have been advanced. There has been active participation in the formation of rupture tests and creep tests for the aluminum tubes.

Control System

Materials and items of equipment are being procured for the experimental testing of the "sheet-type" control rod. A displacement time recorder has been completed and tested in the shop with satisfactory results.

An extensive study is being made of the feasibility of cooling shim and regulating rods with helium gas. An air-oil shock strut has been designed to act as a decelerating device for the vertical control rods. A packing gland or gas seal for the sheet control rods is in the process of design.

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Shielding

Work is in progress on complete alternate designs for front and rear face shield. Work has been renewed on adjustable sheet rod entries. A total transverse motion of 4" has been established as a goal.

Process Tube Assembly

Preliminary designs of gun-barrel assemblies have been started which will permit maximum gun-barrel movement. These include a labyrinth sleeve arrangement, and a semi-fluid and fluid surrounded gun-barrel, and one surrounded with balls or shot. The nozzle assembly is being studied with a view towards simplifying fabrication and installation.

Metal Handling

Preliminary design for a continuous charging scheme (method 1) has been completed. One of the features determining the practicality of this discharging equipment is the radiation stability of synthetic rubber compounds. Radiation tests are being made in the 105 F piles to determine the effect on various synthetic rubbers.

A second type of continuous charging equipment (method 2) is continuing in development. Mechanical tests will be required in the near future.

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PROJECT AND RELATED PERSONNEL - APRIL 1949

GOVERNMENT EMPLOYEES	3-31-49		4-29-49	
Civilian Personnel - Atomic Energy Commission	344		334	
Civilian Personnel - G. A. O.	8		8	
Total		352		342
RICHLAND VILLAGE PERSONNEL				
Commercial Facilities (Includes No. Richland)	1,468		1,387	
Organizations, Clubs, Etc.,	104		98	
Schools	353		355	
Churches	25		24	
Total		1,950		1,864
MORRISON-KNUDSEN PERSONNEL (Columbia Camp)		231		196
CONSTRUCTION SUB-CONTRACTORS				
Atkinson-Jones	5,426		4,488	
Newport, Kern & Kibbe	13		5	
Newberry Neon	621		558	
Urban, Smyth, Warren Co.,	1,687		1,509	
J. P. Head Co.,	11		3	
Kellex Corp.	669		638	
J. Gordon Turnbull	128		127	
Giffels & Vallet, Inc.,	185		184	
Morrison-Knudsen Co.,	317		310	
C. C. Moore	37		45	
V. S. Jenkins Insulating Co.,	3		-	
Curtis Sand & Gravel	26		33	
National Carbon Co.,	330		283	
Trowbridge & Flynn Elect. Co.,	9		7	
J. A. Terteling & Son	358		307	
Graysport Construction Co.,	236		95	
Nettleton-Sound	3		-	
Holert Electrical Co.,	4		2	
McNeil Construction Co.,	120		87	
Rust Engineering Co.,	4		-	
Arnold & Jeffers Co.,	10		4	
Fox Metal Products	4		2	
West Coast Painters	13		3	

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CONSTRUCTION SUB-CONTRACTORS	3-31-49	4-29-49
Haughton Elevator Co.,	6	6
E. J. Bartells Co.,	31	31
Howard P. Foley Co.,	31	17
E. F. Sherrill	3	-
Combustion Eng. Co.,	1	1
Indust. Eng. & Contractors	22	18
Hanley & Co.,	4	4
Johnson Service	1	-
X-Ray Products	13	-
Anning-Johnson	19	11
National Blower & Sheetmetal	12	19
United Refractory & Const.	14	12
Link-Belt	10	-
Warsaw Elevator	3	3
Philadelphia Iron	8	-
Swanson & Lyle	62	13
Jaggar-Sroufe Co.,	-	7
Total	10,454	8,832
GENERAL ELECTRIC PERSONNEL	7,962	7,518
GRAND TOTAL	20,949	18,752

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