

DECLASSIFIED

DECLASSIFIED
WITH DELETIONS

HW 12937 - DFL

727803

PRIVACY ACT MATERIAL REMOVED

REPOSITORY

POOL

COLLECTION

Atmospheric Releases

IX No.

N/A

OLDER

N/A

- #1 - H. A. Winne
- #2 - Zay Jeffries, Pittsfield
- #3 - C. G. Suits, Schenectady
- #4 - G. R. Prout
- #5 - J. R. Rue
- #6 - C. N. Gross
- #7 - A. B. Greninger
- #8 - F. R. Creedon
- #9 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
- #10 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
- #11 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
- #12 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
- #13 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
- #14 - Hanford Operations Office
Attention: R. W. Richardson, Historian
- #15 - 700 File
- #16 - 700 File
- #17 - 700 File

HAN-24162

CLASSIFICATION REVIEW FOR
DECLASSIFICATION BUT LEFT
UNCHANGED

By J.B. Rued

Date 5-4-77

U.S. AEC Division of Classification HANFORD WORKS

April 19, 1949

MONTHLY REPORT

RCH 1949

THIS DOCUMENT HAS BEEN SCANNED
AND IS STORED ON THE OPTICAL DISK DRIVE

This Document Consists of

275 Pages. No. 1

of 1 Copies. Series 1

DECLASSIFIED

DECLASSIFIED
WITH DELETIONS

By Authority of WA Snyder

1-6-92, RLO CG-4

By DK Hansen 1-20-92

Verified By [Signature]

PRIVACY ACT MATERIAL REMOVED

1219502

TABLE OF CONTENTS

	<u>Starting Page</u>
General Summary.	3
Staff.	10
Force Report.	11
Personnel Distribution	12
Plant Statistics.	20
Manufacturing Divisions.	22
Expansion Problems Section	24
<u>Operations Division</u>	
P Division	26
S Division	35
Power Division.	44
<u>Mechanical Division</u>	
Instrument Division	50
Maintenance Division.	52
Electrical Division	54
Transportation.	58
Project Engineering Division	60
Technical Division.	72
Pile Technology Division	74
Separations Technology Division.	81
Metalurgy and Control Division	93
Medical Division.	109
Health Instrument Division.	119
General Accounting Division.	149
Service Division.	165
Purchasing and Stores Division	166
Plant Security and Services Division	171
Employee and Community Relations Division	199
Community Divisions.	221
Public Works Division.	223
Community Administration	235
Commercial Facilities	236
Community Housing	241
Community Safety	246
Community Fire.	247
Community Patrol	249
Community Activities	261
Community Accounting	266
Design Division.	270
Project and Related Personnel	274

GENERAL SUMMARY

MARCH 1949

Manufacturing Divisions

A total of 47 tons of metal was discharged from the three piles which had an average operating efficiency of 91.4 percent. The nominal power level of 275 M.W. was maintained throughout the month.

Approximately 17 tons of alpha-rolled, triple-dipped metal were discharged at a nominal concentration of 320 MWD/ton without difficulty.

A total of 90 tons of acceptable slugs was canned in March at a yield of 90.6 percent. It was possible to reduce the 300 Area production rate to 60 tons on March 28 in view of the favorable stock of canned slugs.

A total of eighty-two batches was processed through the Isolation phase of the Separations Operation. Eighty-nine batches were started in the Canyon Buildings. These figures indicate the highest production achieved in any one month. The over-all Separation waste losses averaged 2.5 percent.

Cancellation and curtailment of approved projects being handled by the Mechanical Divisions have resulted in approximately a 12 percent reduction of force.

The operation of 101 Shops was transferred to the Mechanical Divisions from the Construction Division effective April 1, 1949.

A recent ruling of the Transcontinental Rail Carriers Board, which becomes effective May 15, 1949, will reduce the freight costs on ferric-sulphate approximately \$30,000 per year.

At the request of the Atomic Energy Commission, we have agreed to perform maintenance work on the Hanford-Taunton 115 KV Transmission Line. This work was previously performed by the Bonneville Power Administration.

The Expansion Problems Section was established effective February 21, 1949 to furnish unified and coordinated guidance for studies and projects involving the operational functions of the Manufacturing Divisions under the direct guidance of the Assistant Manager of the Manufacturing Divisions.

Technical Divisions

The use of helium in place of nitrogen for flushing graphite purification furnaces has resulted in operating economy with no adverse effect on product quality.

Equipment for measuring the electrical resistance of a graphite sample during pile operation is operating satisfactorily in its first test.

DECLASSIFIED

Galvanized nozzles are a much cheaper alternative to aluminum nozzles for the front face of a pile. Recent tests show conclusively that a galvanized coating on inlet nozzles will protect the Van Stone flanges from corrosion during the life of the coating. Tests indicate that the coating should have a service life possibly as high as ten years.

Laboratory tests show that various boric acid esters are easily prepared, resist boiling and pyrolysis at temperatures up to 300°C., and are promising as fluids for a third safety system in the present piles.

First-cycle by-product precipitate washing in the centrifuge instead of in the precipitator has been resumed at both T and B Plants, with a resultant stabilization of previously erratic waste losses. Decontamination factor improvement studies are being continued. Extraction step volumes have been decreased 10% in processing the first batches of enriched metal. Time cycle reductions in the Concentration Building permitted the processing of 50 runs at T Plant during the month. Plant ventilation air sand filter operation has maintained high efficiency activity removal at stable pressure drops. Hydrogen formation and iodine discharge from dissolver operation are under current study. Fiberglass filtration of particulate matter has continued to be the major development study in the stack gas program.

Installation of all Rubber Glove Line hoods in the 234-5 Building has been completed and installation of piping, wiring, equipment, and hoods is approximately 70% completed. Phase I of the 234-5 Project is estimated as 93% completed. Metallic plutonium has been produced in three runs in the 10-gram pilot line, with greater than 99.6% hydrofluorination yields and a minimum of 96.7% yield on reduction. The Remote Mechanical Line design at Schenectady is continuing at a reduced pace with a total of 12 engineers and 12 draftsmen-designers. Overall design and construction of this line is estimated to be approximately 45% completed at Schenectady.

The rehabilitation of the service areas of the 321 Building was completed during the month and the areas re-occupied. Architectural revisions to the Canyon area, to provide for greater isolation and safer operation, are approximately 50% complete. A carbon dioxide blanketing system has been installed on the Scale-Up tank farm. Resumption of Scale-Up operations by the middle of April is anticipated. Reproduction of the January explosion of the hexone drum has been obtained in field sparking tests at a liquid temperature of 60°C and an air pressure of 50 Psi. Solvent-HNO₃ reaction possibilities are under study in test drums duplicating the evaporation of solvent in the original explosion drum. A 16-inch continuous hexone stripper has been completed and has reduced the hexone content of saturated ICU solution from 1.1% to 0.03% in test runs at a 4 g.p.m. processing rate.

Redox laboratory research studies have been continued on HNO₃-hexone reactions. Distribution coefficients for oxidized plutonium in low-uranium and acid-deficient systems have been obtained. Experimental pulse column runs have demonstrated the preliminary feasibility of this type of contactor. Ruthenium ozonization has been carried out with plant dissolver solution and CRNL IBP solution. Decontamination factors of approximately 1000 have been obtained for zirconium adsorption from plant dissolver solution by Standard Filtrol. Studies of methods of preparation of solvent extraction feeds from metal waste solutions have included

DECLASSIFIED

precipitations of both sodium diuranate and uranyl peroxide. Difficulties in reducing the phosphate content of the more desirable peroxide precipitate have been encountered, but promising methods of improvement are under study.

Considerable reduction in force is underway in the analytical Section of the Metallurgy and Control Division, all in the laboratory assistant classification. Twenty-two were laid off during March, as allowed by a 25% reduction in the analytical support required for the Redox development program. Another twenty-five were given two-week notices during the period March 25 - 31, for termination in April when most of the 100 Areas water analysis load is to be assumed by the Power Division. A still further lay-off will accompany the consolidation of T and B Plant control analysis into a single laboratory (222-B), as is planned for late April in line with lower 200 Area run schedules.

Health Instrument Divisions

The force decreased by three. Three Class I special Hazards Incidents were reported; one indicated how errors or relaxation in control can cause spread of dangerous amounts of active materials through public residences, vehicles, etc.

Several hazardous conditions, apparently resulting from poor job analysis, operating errors, or improper personal contamination surveys, were reported by the Operational Division. In general, radioactive particle emission from process stacks approximated the level reported last month.

In the Development Division, normal results were obtained on samples of water, air, and vegetation. The low yield problem in the Bioassay procedure for plutonium analysis was reported solved. Fluorophotometer analysis showed a maximum uranium content of 83 μg in the urine of 300 Area workers.

In the Biology Division, the Botany Experimental Farm was established, and planting was started. The Biochemistry group moved into temporary quarters in the old First Aid Building of 200-W, and the Botany group occupied its new laboratory in 100-F. A shipment of active particles was sent to the University of Rochester.

Service Divisions

There were two Major Injuries this month bringing the total for the year-to-date to five with a frequency rate of 1.13.

There were six fires in the Industrial Areas with no loss involved.

The 700 Area Laundry was reduced from a two to a one-shift operation due to the lower volume of work coming from North Richland.

There was a net reduction of 220 employees during the month; the total being made up of 121 from Patrol and Security, 42 from Safety and Fire Protection, and 57 from Office Services.

Employee and Community Relations Division

One set of questions and answers was distributed to all supervisors, participating in the Nine-Point Job Improvement Program. About 50% of the questionnaires submitted to supervisors, participating in this program, have been returned.

Preliminary plans were made during the latter part of March for Employee Relations to take over all supervisory training at the Hanford Works.

Open requisitions for additional personnel decreased from twenty-nine at the beginning of the month, to five at the end of March. Total plant roll decreased by 706 employees during March, due to the general reduction of force.

Employee Services Counselors made 2,428 contacts during March. Eight employees retired, three of which were on optional retirement basis; and two employee deaths occurred during the month. Twelve suggestion awards, totaling \$145.00, were granted during the month. R. C. Stratton, Supervising Chemical Engineer, for the Insurance Underwriters Association, plans to make a survey at this Works, during the month of April, to determine the necessary adjustments for personal life insurance premium rates.

The efforts of a local daily newspaper to discredit decisions made concerning certain phases of the Hanford Works Improvement and Construction Program, specifically as they pertained to the expenditure of taxpayers' money, has been one of the prime concerns of the Community Relations Division during the month. An effort has been made to maintain a relationship with the newspaper which would result in their coming to the Community Relations Division for factual information prior to publishing the "sensationalized" versions of the facts as they may have obtained them from other sources.

During the month a standard practice was adopted in that each time a release is prepared, the information is obtained for it from the individuals specifically concerned with that particular phase of the Hanford Works Program, the rough draft of the release is written, and the entire story is gone over carefully with both GE and AEC officials at Hanford.

The demand for GE films continued during the month, and a number of films were requested from the Portland Office of the Company for use by local schools and other groups.

Forty photographs with captions and source material were furnished to the New York Office of the Employee Relations Vice President for use in a future issue of "Candid Camera". The photographs depicted the different activities at Hanford Works and Richland. These were requested as a means of publicizing Richland, and the Nucleonics Department, to offset any adverse opinion being formed as a result of criticism being leveled at the Company by union representatives concerning its association with the Atomic Energy Commission.

One hundred eighty women employees are being scheduled for the Women's Training Program to begin in April. It is planned to include an additional session which will consist of an informal discussion in which the girls will have an opportunity to talk about their jobs and supervisors in an effort to improve their job morale.

The activities of the Labor Relations Group relative to labor relations have been directed toward the negotiation of interim arrangements with the Hanford Atomic Metal Trades Council, preparation for negotiation of the formal agreement and negotiation of the formal agreement.

RECEIVED
MAR 21 1950

Throughout the month a number of meetings were held with the union representatives relative to the present reduction of force. On March 7, the stipulation governing the layoff of all personnel with less than six months' service was signed. On March 10, the interim layoff procedure was signed; this procedure designated that employees shall be laid off according to their Hanford Works seniority date, together with other working arrangements.

On March 22, the stipulation governing the interim grievance procedure was signed; such stipulation provided for the handling of grievances and the arrangements for Union shop stewards. Notice was received from the H.A.M.T.C. that the Union had forwarded a Union Shop Petition to the regional office of the National Labor Relations Board, such notice was acknowledged by the Company to the N.L.R.B. and the Union. On March 24, notice was received from the Field Examiner for the N.L.R.B. that case No. 19UA1842 had been assigned to the Union Shop Petition.

On March 31, formal negotiations commenced between the Company and the Union. A copy of the Union proposals was forwarded to the Company on March 15, such proposals contained the contract demands to be made by the Union. The Company submitted counter proposals to the Union during the opening meeting of the formal negotiations.

A number of grievances have been and are being processed as a result of the establishment of an interim grievance procedure.

The principal activity of the Wage Rate Group has been that of conducting studies and developing proposals for the forthcoming contract negotiations.

A complete review of the existing job descriptions was conducted, which resulted in the proposal of the addition and revision of a number of descriptions. An analysis of existing wage rate regulations has been made and in a number of cases alternative regulations have been developed.

A large portion of the activities of the Wage Rate Group during the past month has been directed toward the handling of terminations and transfers resulting from a plant-wide reduction of force. In addition, a number of individual classification reviews have been made in various divisions for the purpose of determining the feasibility of logical classifications within the collective bargaining unit and in response to the day-to-day needs of the various divisions.

Community Divisions

All pumps on the village irrigation system have been overhauled and are ready for use. Spillway gates and fish screens on the outer irrigation ditches have been checked and are ready for operation.

Delivery of oil was discontinued the latter part of the month. Coal deliveries are only being made where tenants actually run out of coal, and then the bins are being only half filled.

Cahoon Motors Company, Studebaker sales and service agency, held its formal opening on March 15, 1949.

Morning Sun Dairy started making milk deliveries from a mobile, refrigerated unit, located north of Cahoon Motors Company, on March 21, 1949.

Effective March 1, 1949, the Drivers Training Course was discontinued.

Fourteen alarms in Richland and eighteen in North Richland were answered. These fires resulted in damage of \$2,700.00 in Richland and none in North Richland to project property and \$175.00 in Richland and \$641.33 in North Richland to personal property.

Three 750 gallon-per-minute pumpers received and placed in service at North Richland.

One 65-foot aerial ladder truck, equipped with 750 gallon-per-minute pump, received and to be placed in service at Richland No. 1 Station.

Medical Division

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

Employee physical examinations increased from 4,971 to 5,612, due primarily to termination examinations. First aid treatments decreased by 4,051 to 12,852.

Total absenteeism decreased to 2.84%; of this, 2.06% was due to sickness only.

Eleven major and twenty-six sub-major injuries were treated; of these, three majors and three sub-majors were sustained by GE employees.

"Mass Chest X-Ray" for all residents 15 years or older was the health topic for discussion at Safety-Health meetings. X-Rays will be made available to all residents during the coming month.

The average daily hospital census was 102. Average daily clinic visits were 356; 20% of this total being treated at North Richland.

Dental clinic visits showed an increase to 3,611.

General Accounting Divisions

Hanford Works Financial Statements for the month of February were issued on March 21, 1949, and those for the Nucleonics Department were issued on March 24, 1949. General Divisions' Operating Reports were issued on March 18, 1949.

Work continued on studies in connection with liquidating costs in order that more equitable rates may ultimately be established. To date, liquidations of Indirect Manufacturing Expenses are within $\frac{1}{2}$ of 1% of total actual expenses. Total Applied Labor and Material Costs, and Within Division Expenses for all General Divisions were well within budgeted amounts.

In connection with reduction of forces, Employees and Payroll statistics and chart were prepared indicating number of employees on Payrolls, number of employees paid, gross amount of payroll, and amount of overtime payments. Statistics covered weeks ended February 20 and 27, March 6, 13, 20, and 27, and in the case of monthly paid employees, the months ended January, February, and March, 1949.

The Payroll Divisions handled 610 removals from payroll for lack of work, including preparation of final checks, payments in lieu of vacation, bond refunds, letters on status under Employee Benefit Plans, deductions for receivables, etc.

The following comparison of unreimbursed expenditures as of March 31, 1949, with those of February 28, 1949, reflects a decrease of \$3 267 868. This difference is primarily comprised of the decrease of \$650 000 in the amount of vouchers in the hands of the AEC Audit Branch awaiting approval and of \$2 650 000 representing a decrease in the amount of unbilled vouchers in the various accounting divisions.

	<u>February 28, 1949</u>	<u>March 31, 1949</u>
Billed on Public Vouchers	\$ 8 348 321	\$ 8 376 146
Submitted on Pre-Billing Audit Vouchers	3 508 956	2 859 632
Unbilled	<u>6 169 755</u>	<u>3 523 386*</u>
Total Unreimbursed Expenditures	<u>\$18 027 032</u>	<u>\$14 759 164*</u>

* Preliminary totals prior to final closing entries.

DISCONTINUED

STAFF

General Manager G. R. Prout

Assistant General Manager. R. S. Neblett

Assistant to the General Manager W. I. Patnode
(Technical and Education Matters)

Assistant to the General Manager J. R. Rue
(Budgets and Expense Control)

Assistant to the General Manager and
Manager of Service Divisions G. G. Lail

Department Comptroller. F. E. Baker

Counsel L. F. Huck

Community Manager E. L. Richmond

Manager, Design and Construction Divisions F. R. Creedon

Manager, Manufacturing Divisions C. N. Gross

Manager, Technical Division A. B. Greninger

Manager, Health Instrument Division H. M. Parker

Manager, Medical Division W. D. Norwood, M.D.

Manager, Employee and Community Relations Division H. E. Callahan

RECEIVED
1951

FORCE REPORT
MARCH-1949

	<u>Non-Exempt</u>		<u>Exempt</u>		<u>Total</u>	
	<u>2-28-49</u>	<u>3-31-49</u>	<u>2-28-49</u>	<u>3-31-49</u>	<u>2-28-49</u>	<u>3-31-49</u>
<u>GENERAL</u>	18	19	10	10	28	29
<u>LAW DIVISION</u>	3	3	4	4	7	7
<u>DESIGN & CONSTRUCTION DIV'S.</u>						
ADMINISTRATIVE	28	24	6	6	34	30
CONSTRUCTION	203	157	163	158	366	315
CONSTRUCTION ACCOUNTING	73	74	7	7	80	81
DESIGN	140	131	113	111	253	242
PROCUREMENT	25	16	54	53	79	69
NO. RICHLAND REALTY	279	236	28	27	307	263
<u>MANUFACTURING DIVISIONS</u>						
GENERAL	3	3	8	8	11	11
PROJECT ENGINEERING	78	70	54	55	132	125
MANUFACTURING ACCOUNTING	45	44	7	7	52	51
<u>OPERATIONS DIVISIONS</u>						
"P" DIVISION	302	265	71	71	373	336
"S" DIVISION	272	269	71	71	343	340
POWER	386	377	82	82	468	459
<u>MECHANICAL DIVISIONS</u>						
MAINTENANCE	524	469	72	72	596	541
ELECTRICAL	238	231	48	48	286	279
INSTRUMENT	184	170	45	45	229	215
TRANSPORTATION	689	621	69	70	758	691
<u>TECHNICAL DIVISIONS</u>						
TECHNICAL GENERAL	2	2	5	5	7	7
PILE TECHNOLOGY	18	21	55	56	73	77
SEPARATIONS TECHNOLOGY	62	62	94	96	156	158
METALLURGY & CONTROL	409	374	115	114	524	488
<u>MEDICAL DIVISION</u>	424	412	96	96	520	508
<u>H. I. DIVISION</u>	238	231	94	96	332	327
<u>ACCOUNTING DIVISIONS</u>						
ACCOUNTING-PAYROLL	75	75	14	14	89	89
ACCOUNTING-ALL OTHERS	84	89	7	7	91	96
<u>EMPLOYEE & COMM. REL. DIV.</u>	64	49	24	24	88	73
<u>SERVICE DIVISIONS</u>						
<u>PLANT SECURITY & SERV. DIV'S.</u>						
PATROL & SECURITY	640	529	69	59	709	588
SAFETY & FIRE	150	108	40	40	190	148
GENERAL & OFF. SERVICES	295	241	23	21	318	262
<u>PURCHASING & STORES</u>	180	166	25	26	205	192
<u>COMMUNITY DIVISIONS</u>	795	703	169	162	964	865
GRAND TOTAL	6,926	6,241	1,742	1,721	8,668	7,962

PERSONNEL DISTRIBUTION - MARCH -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	-	-	-	-	-	-	-	-	10	10
Clerical	-	-	-	-	-	-	-	-	19	19
Total	-	-	-	-	-	-	-	-	29	29

LAW DIVISION	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	3	3
Total	-	-	-	-	-	-	-	-	7	7

DESIGN & CONSTRUCTION DIVISIONS

ADMINISTRATIVE	-	-	-	-	-	-	-	-	5	5
Supervisors	-	-	-	-	-	-	-	-	1	1
Engineers	-	-	-	-	-	-	-	-	18	18
Clerical	-	-	-	-	-	-	-	-	6	6
Others	-	-	-	-	-	-	-	-	30	30
Total	-	-	-	-	-	-	-	-	54	54

CONSTRUCTION	-	1	-	-	-	-	13	30	-	44
Supervisors	-	24	-	-	9	1	13	21	14	82
Engineers	-	12	-	-	1	1	13	71	6	104
Clerical	-	20	-	-	2	-	47	7	10	85
Others	-	57	-	-	11	2	86	129	30	315
Total	-	104	-	-	22	4	169	238	60	597

CONSTRUCTION ACCOUNTING

Supervisors	-	-	-	-	-	-	-	7	-	7
Clerical	-	-	-	-	-	-	-	73	-	73
Others	-	-	-	-	-	-	-	1	-	1
Total	-	-	-	-	-	-	-	81	-	81

100-B	100-D	100-F	200-E	200-W	300	Plant	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	General	Area	Area	

DESIGN & CONSTRUCTION DIVISION

DESIGN

Supervisors
Engineers
Clerical
Others
Total

-	-	-	-	-	-	-	-	13	13
-	-	-	-	-	-	-	-	98	98
-	-	-	-	-	-	-	-	63	63
-	-	-	-	-	-	-	-	68	68
-	-	-	-	-	-	-	-	242	242

PROCUREMENT

Supervisors
Engineers
Clerical
Others
Total

-	-	-	-	-	-	-	-	10	10
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	11	-	23	23
-	-	-	-	-	-	11	-	25	36
-	-	-	-	-	-	-	-	58	69

NORTH RICHLAND REALTY

Supervisors
Engineers
Clerical
Others
Total

-	-	-	-	-	-	-	26	-	26
-	-	-	-	-	-	-	4	-	4
-	-	-	-	-	-	-	34	-	34
-	-	-	-	-	-	-	199	-	199
-	-	-	-	-	-	-	263	-	263

MANUFACTURING DIVISIONS

GENERAL

Supervisors
Clerical
Total

-	-	-	-	-	-	-	-	8	8
-	-	-	-	-	-	-	-	3	3
-	-	-	-	-	-	-	-	11	11

1219010

MANUFACTURING DIVISIONS
PROJECT ENGINEERING

	100-B	100-D	100-F	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	General	Area	Area	
Supervisors	-	-	-	-	1	-	-	-	14	15
Engineers	-	-	-	-	3	1	-	-	36	40
Drafting Personnel	-	-	2	-	5	1	-	-	29	37
Clerical	-	-	1	-	-	-	-	-	16	17
Others	-	-	1	-	2	-	-	-	13	16
Total	-	-	4	-	11	2	-	-	108	123

MANUFACTURING ACCOUNTING

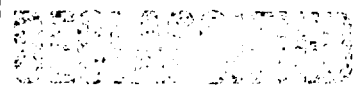
Supervisors	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	44	44
Total	-	-	-	-	-	-	-	-	51	51

OPERATING DIVISIONS
"M" DIVISION

Supervisors	15	18	17	-	-	14	-	-	7	71
Operators	50	54	50	-	-	97	-	-	-	251
Clerical	2	2	2	-	-	4	-	-	4	14
Total	67	74	69	-	-	115	-	-	11	336

"S" DIVISION

Supervisors	-	-	-	26	36	-	-	-	11	73
Operators	-	-	-	114	137	-	-	-	-	251
Clerical	-	-	-	4	8	-	-	-	4	16
Total	-	-	-	144	181	-	-	-	15	340



OPERATING DIVISIONS

	100-B	100-D	100-F	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	General	Area	Area	
Supervisors	15	14	14	5	7	1	4	-	-	60
Engineers	4	4	6	-	-	-	6	-	-	20
Operators	92	86	87	25	36	11	-	-	-	337
Clerical	1	1	1	-	1	-	4	-	-	8
Others	7	7	7	4	5	4	-	-	-	34
Total	119	112	115	34	49	16	14	-	-	459

MECHANICAL DIVISIONS

	100-B	100-D	100-F	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	General	Area	Area	
Supervisors	2	8	7	5	17	8	15	-	2	64
Engineers	-	1	2	1	1	1	4	-	6	16
Mechanics	22	51	33	40	79	49	101	-	-	375
Clerical	-	2	2	2	2	2	5	-	1	16
Others	3	2	5	4	15	11	30	-	-	70
Total	27	64	49	52	114	71	155	-	9	541

ELECTRICAL

	100-B	100-D	100-F	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	General	Area	Area	
Supervisors	2	2	5	2	4	2	2	-	23	42
Electricians	14	12	13	11	14	19	-	-	97	180
Clerical	1	-	1	1	1	1	2	-	6	13
Others	1	1	3	2	3	2	2	-	30	44
Total	18	15	22	16	22	24	6	-	156	279

INSTRUMENT

	100-B	100-D	100-F	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	General	Area	Area	
Supervisors	3	4	2	2	4	6	-	-	5	26
Engineers	3	-	-	-	1	8	-	-	7	19
Mechanics	7	5	7	7	14	25	-	-	8	73
Clerical	1	1	1	1	1	4	-	-	5	14
Others	8	9	8	8	9	36	-	-	5	83
Total	22	19	18	18	29	79	-	-	30	215

64

	100-B	100-D	100-F	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	General	Area	Area	
Supervisors	7	3	2	4	4	1	-	-	50	71
Drivers (Based on areas served)	30	25	31	32	35	9	-	-	88	250
Mechanics	11	5	3	6	5	1	-	-	73	104
Trainmen	9	4	4	4	4	3	-	-	3	31
Laborers	7	11	8	13	15	11	-	-	16	81
Clerical	-	-	-	1	-	1	-	-	25	27
Others	9	7	10	9	27	5	-	-	60	127
Total	73	55	58	69	90	31	-	-	315	691

MECHANICAL DIVISIONS

TRANSPORTATION

Supervisors
Drivers (Based on areas served)
Mechanics
Trainmen
Laborers
Clerical
Others
Total

TECHNICAL DIVISIONS

TECHNICAL GENERAL

Supervisors
Clerical
Total

Supervisors	-	-	-	-	-	-	-	-	5	5
Clerical	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	7	7

PILE TECHNOLOGY

Supervisors
Chemists-Engineers-Physicists
Laboratory Assistants
Clerical
Total

Supervisors	-	1	-	-	-	11	-	-	-	12
Chemists-Engineers-Physicists	7	6	3	-	-	30	-	-	-	46
Laboratory Assistants	3	3	1	-	-	9	-	-	-	16
Clerical	-	1	-	-	-	2	-	-	-	3
Total	10	11	4	-	-	52	-	-	-	77

SEPARATIONS TECHNOLOGY

Supervisors
Chemists-Engineers-Technical Grads.
Laboratory Assistants
Clerical
Others
Total

Supervisors	-	-	-	1	5	18	-	-	1	25
Chemists-Engineers-Technical Grads.	-	-	-	4	14	58	-	-	1	77
Laboratory Assistants	-	-	-	-	-	8	-	-	-	8
Clerical	-	-	-	-	2	7	-	-	1	10
Others	-	-	-	-	1	37	-	-	-	38
Total	-	-	-	5	22	128	-	-	3	158

12-20-17

10

METALLURGY & CONTROL

Chemists-Engineers-Metallurgists &
Technologists-Technical Graduates
Laboratory Assistants
Clerical
Others
Total

Physicians

Physicians	
Dentists	
Technicians	
Clerical	
Others	
Total	

Supervisors

	Supervisors
	Engineers
	Clerical
	Others
	<u>Total</u>

ACCOUNTING-PAYROLL

Supervisors	
Clerical	
Total	

Supervisors

Supervisors	Clerical	Total
1	1	2
2	2	4
3	3	6
4	4	8
5	5	10
6	6	12
7	7	14
8	8	16
9	9	18
10	10	20
11	11	22
12	12	24
13	13	26
14	14	28
15	15	30
16	16	32
17	17	34
18	18	36
19	19	38
20	20	40
21	21	42
22	22	44
23	23	46
24	24	48
25	25	50
26	26	52
27	27	54
28	28	56
29	29	58
30	30	60
31	31	62
32	32	64
33	33	66
34	34	68
35	35	70
36	36	72
37	37	74
38	38	76
39	39	78
40	40	80
41	41	82
42	42	84
43	43	86
44	44	88
45	45	90
46	46	92
47	47	94
48	48	96
49	49	98
50	50	100

Total

EMPLOYEE & COMMUNITY RELATIONS DIV.

	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
Supervisors	-	-	-	-	-	-	-	-	20	20
Employee Relations Counselors	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	41	41
Others	-	-	-	-	-	-	-	-	8	8
Total	-	-	-	-	-	-	-	-	73	73

12-19-19

SERVICE DIVISIONS
PLANT SECURITY & SERVICE DIVISIONS

PATROL & SECURITY

Supervisors	5	6	11	6	9	7	14	-	4	62
Patrolmen	37	61	113	67	118	66	9	-	37	508
Clerical	-	-	-	-	-	-	13	-	2	15
Seamstress	-	-	-	-	-	-	3	-	-	3
Total	42	67	124	73	127	73	39	-	43	588

SAFETY & FIRE

Supervisors	9	-	-	-	4	5	9	-	9	36
Firemen	38	-	4	-	14	14	-	-	15	85
Inspectors	5	4	4	4	1	1	3	-	1	23
Clerical	-	-	-	-	-	-	2	-	2	4
Total	52	4	8	4	19	20	14	-	27	148

GENERAL & OFFICE SERVICES

Supervisors	-	-	1	2	2	-	-	-	16	21
Laundry Operators	-	-	-	-	8	-	-	-	1	9
Janitors	5	4	6	6	12	15	-	-	31	79
Office Machine Operators	-	-	-	-	-	-	-	-	47	47
Clerical	-	-	-	-	-	-	-	-	32	32
Others	-	-	1	1	29	1	-	-	42	74
Total	5	4	8	9	51	16	-	-	169	262

RECEIVED
FEB 19 1960

1219520

SERVICE DIVISIONS

PURCHASING & STORES

Supervisors
Clerical
Others
Total

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
-	-	-	-	-	-	-	5	21	26
1	-	-	-	1	-	-	13	151	166
-	-	-	-	-	-	-	-	-	-
1	-	-	-	1	-	-	18	172	192
-	-	-	-	-	-	-	-	162	162
-	-	-	-	-	-	-	-	703	703
-	-	-	-	-	-	-	-	865	865

COMMUNITY DIVISIONS

Supervisors
Others
Total

GRAND TOTAL

474	525	525	533	904	997	347	560	3097	7962
-----	-----	-----	-----	-----	-----	-----	-----	------	------

468 m 8

[REDACTED]

HW-12937-DEL

DECLASSIFIED
DECLASSIFIED
WITH DELETIONS

[REDACTED]

1219521

SECRET

HW 12937-DEL

SECRET

DECLASSIFIED
WITH DELETIONS

[REDACTED]

MANUFACTURING DIVISIONS

MARCH 1949

SUMMARY

Operations Divisions

A total of 47 tons of metal was discharged from the three piles which had an average operating efficiency of 91.4 percent. The nominal power level of 275 M.W. was maintained throughout the month.

Approximately 17 tons of alpha-rolled, triple-dipped metal were discharged at a nominal concentration of 320 MWD/ton without difficulty.

A total of 90 tons of acceptable slugs was canned in March at a yield of 90.6 percent. It was possible to reduce the 300 Area production rate to 60 tons on March 28 in view of the favorable stock of canned slugs.

A total of eighty-two batches was processed through the Isolation phase of the Separations operation. Eighty-nine batches were started in the Canyon Buildings. These figures indicate the highest production achieved in any one month. The over-all Separation waste losses averaged 2.5 percent.

Mechanical Divisions

Cancellation and curtailment of approved projects being handled by the Mechanical Divisions have resulted in approximately a 12 percent reduction of force.

The operation of 101 Shops was transferred to the Mechanical Divisions from the Construction Division effective April 1, 1949.

A recent ruling of the Transcontinental Rail Carriers Board, which becomes effective May 15, 1949, will reduce the freight costs on ferric-sulphate approximately \$30,000 per year.

At the request of the Atomic Energy Commission, we have agreed to perform maintenance work on the Hanford-Taunton 115 KV Transmission Line. This work was previously performed by the Bonneville Power Administration.

Expansion Problems Section

This section was established effective February 21, 1949 to furnish unified and coordinated guidance for studies and projects involving the operational functions of the Manufacturing Divisions under the direct guidance of the Assistant Manager of the Manufacturing Divisions.

[REDACTED]

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

MANUFACTURING DIVISIONS

PATENT REPORT SUMMARY
FOR
MONTH OF MARCH, 1949

Richland, Washington
April 11, 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

J. R. Young
(P Division)

Slide Rule for Predicting
Exposure Times and Product
Concentrations of Irradiated
Materials.

(Document HW-12479)

C. N. Gross by (C. N. Gross)
C. N. GROSS
MANAGER, MANUFACTURING DIVISIONS

[REDACTED]

MANUFACTURING EXPANSION PROBLEMS SECTION

MARCH 1949

GENERAL

The Section was occupied with the 100-H Area Program, the Redox Program, and the Rala Program. There were no additional problems assigned to the Section, nor were there any studies or activities carried on by the Section which were completed during the month.

ORGANIZATION

The Section was established effective February 21, 1949, to furnish unified and coordinated guidance for studies and projects involving the operational functions of the Manufacturing Divisions. Because of the broad scope of these objectives, the Section operates under the direct guidance of the Assistant Manager of the Manufacturing Divisions.

All personnel engaged in the activities of the Section actually have normal divisional affiliations with assignment either part or full time, depending upon the need, to the Manufacturing Expansion Problems Section. This arrangement is in accordance with the intention of utilizing this special sectional organization only to the extent required to permit coordinated attention to Expansion Problems during the period of their existence. In the brief period of operation thus far the system appears to be entirely adequate and satisfactory.

ACTIVITIES

1. Redox

The Redox group was primarily concerned throughout the month with problems and discussions arising from the review of comment drawings on the Test Plant. Some general discussion with the Redox Section, Design Division, and the Technical Divisions was carried on with the objective of arranging for the establishment of firm and well defined scope and limitations for the Main Plant. At month end word had not yet been received concerning the General Electric Company's suggestion to the Commission that the Test Plant be cancelled if an incremental start up of the Main Plant was considered acceptable.

2. Rala

The Rala program, during the major portion of the month, was concerned with studies and specifications intended to lead to the selection of a site and the preparation of a project proposal. On the basis of a letter from the Commission dated March 17, 1949, the program was redirected the latter part of the month. Broadly speaking, the redirection is guided by the following:

[REDACTED]

Manufacturing Expansion Problems Section

- a. The appropriation available for Hanford Works' Rala facilities for the fiscal year 1950 is \$750,000; therefore, this sum is all that may be spent for such facilities if construction is to be completed by July 1950.
- b. With this reduced appropriation the only possible location for Hanford Rala facilities will be the head end of 221-T Building.
- c. The possibility of transferring the laboratory scale operations which make up the latter portions of the present Rala process to some other site, presumably Los Alamos, becomes exceedingly important.

With these three considerations in mind, program effort has been redirected, and a meeting at Los Alamos has been arranged tentatively for April 14, 1949 so that the questions which largely affect the extent, complexity, and cost of a Hanford Rala facility may be more firmly decided. Until this meeting the group effort will be based on the assumption that a head end adaptation is possible until the study encounters safety or process considerations which show this basis to be impractical.

3. 100-DR and H Areas (Production)

The month end saw construction work for DR approaching completion; however, some small items remained for completion and there was still the need for major repairs to the 107 basin. The construction work for 105-H Area is progressing satisfactorily and is on schedule. The month was not marked by any unusual items concerned with either H Area design or construction.

4. 100-DR and H Areas (Power)

Construction work in DR was essentially completed during the month; still remaining were completion of the spillway, some reinforcement of sewer lines, and a few large valve installations. In 100-H Area, construction progress was generally satisfactory. Very considerable attention was given to the H Area sewer system. Tests were made and several proposed methods of reinforcement were discussed and evaluated. At month end the Design Division had formulated a program of reinforcement consisting primarily of the installation of precast concrete support beams to be placed inside the sewer pipe. The Manufacturing Divisions, while not disagreeing with the engineering decisions made, have indicated a belief that long term considerations involving the cost of operating down time and repairs at a later date under operating conditions will establish the desirability of installing the more expensive but more completely reliable encasement which they had suggested earlier.

[REDACTED]

P DIVISION

MARCH - 1949

I. GENERAL

All piles operated at 275 M. W. throughout the month except for the outages listed under Area Activities in this report. The average "time operating efficiency" was 91.4%.

A total of 47 tons of metal was discharged from the piles during the month.

During the month, 16.6 tons of alpha-rolled, triple-dipped metal were discharged without difficulty at a nominal concentration of 320 MWD per ton. Inspection of selected tubes of this material indicated that exposures at this level are satisfactory. In view of these results the program of stepwise increases in concentration will be continued, with the next test tonnages being discharged at a nominal concentration of 360 MWD per ton.

The nominal monthly production rate of acceptable canned pieces was reduced from 90 tons to 60 tons on March 28. This curtailment of production was possible in view of the favorable inventory of slugs available for charging DR and H piles. All 300 Area operations are now on a one shift, five-day week.

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - March 1949

Beginning of Month	372
End of Month	335
Net Decrease	37

Thirty-five operators were terminated under a planned reduction of force and two operators terminated voluntarily. One steno-typist C was transferred to the Design and Construction Division and one steno-typist A was added to the roll, transferring from the Service Divisions.

III. AREA ACTIVITIES

<u>PILE SUMMARY</u>	<u>PILE B</u>	<u>PILE D</u>	<u>PILE F</u>
Time Operated (%)	95.1	88.2	90.9
Operating Efficiency (%)	94.5	86.9	89.5

[REDACTED]

DECLASSIFIED

PILE SUMMARY (Continued)

	<u>PILE B</u>	<u>PILE D</u>	<u>PILE F</u>
*Power Level (M.W.)	275	275	275
*Inlet Water Temperature (°C)	6.6	6.4	6.1
*Outlet Water Temperature (Maximum °C., 10 tubes, 0.240" zone)	48.5	44.9	51.2
Number of Scrams	0	1	1
Number of Purges	2	1	2
Helium Consumption (cu. ft.)	49,883	147,060***	64,300
Metal Discharged (tons)	16.56	19.83	10.52
**Inhours Gained (this month)	31	8	20
*Inhours Poisoned	379	484	435
*Inhours in Rods	85	75	61

* Month end figures.

** Does not include increased reactivity due to CO₂ in gas system.

*** See explanation under Gas Processing Building.

PILE BUILDINGOutage Breakdown

<u>Date of Outage</u>	<u>Scheduled</u>	<u>Length of</u>
	<u>Metal Discharged</u> <u>Maintenance</u>	<u>Outage (Hours)</u>
3-1-49	B	17.5
3-2-49	D	21.1
3-2-49	F	23.1
3-8-49	D	20.2
**3-12-49		0.3
3-15-49	F	23.9
3-21-49	B	18.6
*3-22 & 3-23	D	46.6
***3-24-49		0.2
3-29-49	F	20.3

* Includes 3.3 hours on the 24th to discharge poison.

** Scram due to unexplained surge on #2 Beckman.

*** Scram due to failure of #1 Beckman.

Operating Experience

Production Tests having operational significance are reported below:

105-81-P (Probe Tests of Top Central Tubes)

The tubes listed below successfully passed the probes indicated:

1.485"

4670-B 4674-D
4677-B 4674-F

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

The minimum thickness of 8 rear Van Stone flanges was measured on March 23. The minimum thickness measured was 0.037", and no immediate repairs are planned.

DECLASSIFIED

105-168-P (Replacement of Pile Helium Atmosphere with CO₂)
CO₂ concentrations were held at the following levels throughout the month with no significant changes in operating conditions observed:

B Area - 25%
D Area - 40%
F Area - 40%

105-237-P (Total Stored Energy of Processed Tube Blocks)
Tube No. 3169-F, which was removed during February in order to mine graphite under this production test, was replaced on March 15. Tube No. 1884-F was removed during this same shutdown and graphite samples taken from the channel. At month end the channel is plugged with grooved steel dummies shielded with lead and paraffin front and rear. Additional samples will be taken from this channel during April.

Tube No. 2794-F, which contained gamma-extruded, eight-inch metal at 200 MTD/ton, was discharged with difficulty during the shutdown of March 29. Forces of 6500 pounds per square inch were required to discharge the metal. Inspection of the slugs from this tube revealed one badly distorted "dog-leg" piece and several other blistered pieces.

Mechanical Experience

Vertical Safety Rod #33 at B Area failed to operate satisfactorily when tested on March 21 during the regular shutdown, because of rust accumulation between the tip and guide. This condition will be corrected during the next scheduled outage.

Vertical Safety Rod #14 at D Area, which was found to be binding in the rod guide during the start-up of March 23, was tied out pending corrective action at the next outage.

Other work of an unusual nature on safety rods during the month included:

1. An additional 15 new stainless steel vertical safety rods were installed in the piles during the month. There are now 56 of these rods installed in the three piles as follows: B Area - 19; D Area - 20; F Area - 17. The completion of this project will await delivery of 30 additional stainless steel rod guides.
2. A specially fabricated stainless steel "knuckle-jointed" vertical safety rod was installed in #27 position at F Area on March 15 in an effort to compensate for the extreme bowing of this thimble. The rod was fabricated with seventeen 22-inch joints which give the rod approximately three times its original flexibility. This rod is now operating satisfactorily.
3. A cadmium plated tip with a thermocouple installed was substituted for the regular tip on #18 V.S.R. at F Area during the March 29

P Division

outage. Temperature readings will be taken during operation to supply information needed in connection with the third safety flashing tests now under way. This rod will be out of service until the first outage in April.

4. The operation of #4 Horizontal Safety Rod at F Area was improved by cutting down the inner end of the kick plate to relieve binding on the rod.

Surges on No. 2 Beckman at D Area on March 12 and on No. 1 Beckman at F Area on March 24 resulted in scrams. Both instruments were overhauled and are operating satisfactorily at month end.

Tests on the north 107-B retention basin revealed a leakage rate of 850 gallons per minute. Close inspection of this basin has revealed several leaks and many minor cracks in the gunnite. Tapping tests also indicate the possibility of an undermined fill at several points under the floor. Repairs are in progress at month end.

Tube No. 3762-D, reported out of service last month, was satisfactorily replaced after honing the gun barrel smooth and removing the aluminum shavings in the channel. The tube was recharged with regular metal.

A total of 68 orifices and panellite gauges was changed to the next larger size at D Area during the month to relieve high exit water temperatures during start-up periods.

File Development

The 115 Building drying and regeneration cycles at 100-F Area have been modified to make better use of the drier capacity. It is anticipated that there will be a resultant reduction in steam and helium consumption. These changes involve an extension and adjustment of the cycles to reduce gas pressures and, consequently gas losses.

Auxiliary bleed lines were installed from the make-up system in 115-D to both the D and DR Piles. This makes it possible to maintain a positive pressure on either pile while circulating gas to the other, thereby avoiding the necessity of using large amounts of helium to purge the piles whenever the circulating system is put into service.

GAS PROCESSING BUILDING

During the extended outage of March 22 and 23, the gas tie lines between 115-D and the DR Pile were completed and cleaned. The DR Pile was purged with 60,000 cubic feet of helium, and normal gas circulation was maintained through the pile for ten hours using 97% helium. Circulation to the D Pile was resumed when the pile was started up. There was no indication of excessive moisture in the DR Pile and condensate collection in the dryers was normal during this period.

Adjustments to the dryer cycles at F Area (described under File Developments) have reduced the gas loss from an average of 3,000 cubic feet per day to an average of approximately 1,500 cubic feet per day.

P Division

SPECIAL HAZARDS

All three piles experienced high effluent water readings during the month. At month end all areas are operating with one-half of the retention basin empty and compensating for high readings by diluting the effluent water at the 1904 Buildings.

The gamma dosage rate from the beam at the top far edge of the F Pile continued to increase. The reading at month end was 2800 mr/hr compared to 2280 mr/hr for February.

300 AREA - METAL FABRICATION

Production Statistics

Production for the month of March was as follows:

Billets Produced	39 Tons
Rods Machined	190 Tons
Bare Pieces Machined	131 Tons
Acceptable Pieces Canned	90 Tons

Melt Plant

The casting yields were as follows:

	<u>February</u>	<u>March</u>	<u>To Date</u> <u>1949</u>
Billet	71.9	65.8	67.2
Solid Metal	89.1	86.9	86.2

The lower casting yields for March resulted from a decrease in the amount of pickled TXB available for melting (see Chip Recovery). Only 25 percent of the TXB used this month was processed from pickled chips, as compared with 68 percent last month.

The casting of approximately 5,000 pounds of briquettes containing magnesium was completed in March. This work was started in October, 1948, and consisted of adding one briquette per crucible charge to prevent excessive amounts of magnesium from collecting on the inside of the melt plant furnaces or being carried into the vacuum system.

Several backfires occurred in the Stokes vacuum pump exhaust line on March 23. The finishing pump was found to have a broken valve spring. After the spring was replaced, no further backfires were experienced.

Machining

Machining yields were as follows:

P Division

% Yield		To Date
<u>February</u>	<u>March</u>	<u>1949</u>
69.3	68.9	68.1

A close inspection of rods machined during the month indicated that those rolled at Vulcan from Hanford billets and at Simonds from Mallinckrodt billets were generally of good quality. Rods rolled at both Vulcan and Simonds from Electro-Met billets were of poorer quality, with a number of rods having voids, folds, and badly checked surfaces.

Chip Recovery

The Chip Recovery yield was as follows:

% Yield		To Date
<u>February</u>	<u>March</u>	<u>1949</u>
91.0	89.5	90.3

The entire Chip Recovery Process was operated eight shifts and the press was operated an additional seventeen shifts. A total of 66,716 pounds of TXB was produced.

Chip pickling was temporarily discontinued on March 3 when it was found that an excessive amount of uranium, in solution, was being lost via the rinse tanks.. The necessary piping was installed to provide for the use of two static rinses (instead of flowing) and pumping the spent rinse water to Recovery. Chip pickling was resumed on March 18. A maximum throughput of 2,000 pounds was established, by analysis, as the frequency for changing the rinse water. Twenty-seven percent of the chips briquetted during the month were pickled.

The material burned in the Oxide Burner was as follows:

Weight Out - Lbs.		To Date
<u>February</u>	<u>March</u>	<u>1949</u>
18,605	10,760	45,247

On March 8 a minor explosion occurred in the duct work on the discharge side of the exhaust fan while the operator was attempting to light the propane burners. The duct and the discharge section of the fan housing were ruptured. The exhaust system was repaired and operation resumed on March 14.

Canning Operation

The canning yield was as follows:

% Yield		To Date
<u>February</u>	<u>March</u>	<u>1949</u>
92.2	90.6	90.9

P Division

Canning rejects, by cause, were:

	% Total Canned - 4"		
	February	March	To Date 1949
Non Seating	0.8	0.8	1.0
Marred Surface	2.6	2.9	2.8
AlSi on Outside of Can	0.9	0.9	0.9
Frost Test	1.5	2.3	1.9
Bad Welds	0.6	0.6	0.7
Miscellaneous	1.4	1.9	1.8
	7.8	9.4	9.1

The drop in yield is attributed in part to the large scale movement of men in the area due to the planned reduction of force.

Fourteen slugs were canned in sleeve assemblies that had been preheated an additional thirty seconds in an AlSi bath. This is a continuation of Production Test No. 313-107-M, Supplement A, (Effect of Canning Conditions on Slug Yield and Quality). None of the pieces canned showed penetration within less than 0.020" of the outer can wall.

The following special request pieces were canned:

<u>Request No.</u>	<u>Contents</u>	<u>Number of Pieces</u>
65	Lithium Aluminum Alloy	478

In addition 4748 bismuth slugs and 608 lead slugs were canned.

Slug Recovery Operation

	% Recovered		Average Wt.-Lbs.	
	March	To Date 1949	March	To Date 1949
Z Slugs	91.7	86.3	3.914	3.911
X Slugs	6.6	11.1	3.857	3.858
Rejects	1.7	2.6	---	---
	100.0	100.0	---	---

A total of 100 canned gamma extruded slugs was recovered for use in transformation tests by induction heating.

Inspection and Testing

Autoclave rejects were as follows:

February	March	To Date 1949
.02/L	.06/M	.03/M

P Division

Three autoclave failures occurred during March.

Forty-six canned pieces were checked for penetration; no penetration was found within 0.010" of the outer can wall but seven were found penetrated at 0.015".

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

	% Usable - 4"		To Date
	February	March	1949
Aluminum Cans	96.0	94.6	95.6
Aluminum Caps	93.9	94.7	93.6
Steel Sleeves	None Inspected	77.3	84.0

The initial shipment of 1980 aluminum cans, received in February from the Victor Manufacturing Company, was inspected and 97.3% met specifications. A second shipment of 5184 cans was received on March 23 and 95% was acceptable for use.

Material Handling

A total of 76.6 tons of rods was received from the Vulcan Crucible Steel Company and 110 tons were received from Simonds Saw and Steel Company.

Sixteen tons of MD-4 (graphite scrap) were shipped to the Vitro Manufacturing Company and 40.5 tons of billets were shipped to the Vulcan Crucible Steel Company.

305 Test Pile

The test pile was operated on a one-shift, five-day week schedule. A total of 128 tests was run on canned slugs, 64 on billet eggs, 336 on graphite, and the following on special work requests:

Request No.		No. of Tests
63	To determine the reactivity of special quartz tube for use in graphite experiments.	3
64	To determine the cross-section of magnesium.	4
65	To determine the reactivity of ash from fifty pounds of graphite.	9
66	To irradiate three indium foils to be used in counter tests.	1
67	To determine the induced activity of magnesium.	1
68	To irradiate samples of chipped paint.	6

P Division

<u>Request No.</u>		<u>No. of Tests</u>
69	To obtain reactivity of a quartz dish prior to ashing graphite in it.	4
70	To determine the degree of "blackness" of ORNL-111.	5
71	To test the cross-section of a silver coated glass counter tube, two magnesium foil holders, and indium foil.	4
72	Indium beta self absorption test.	1
73	To test the reactivity of two lubricants (Molykote and Ucon) which are to be used in 105-H.	6
74	To test the cross-section of the components of a coaxial electric cable.	6
75	To determine reactivity of residue from graphite.	11

In addition, 14 tests were run on canned slugs in conformance with Production Test No. 314-60-M, (Fabrication of Slugs from Uranium Rolled at Different Finishing Temperatures).

Special Hazards

No unusual conditions developed during the month.

Development

A Meehanite mold was fabricated and used successfully for casting four billets in the Melt Plant. Evaluation of this mold will be continued to determine the feasibility of substituting molds of this type for graphite molds.

Thirty-one chamfered billets, fabricated in the Melt Plant in January, were returned as rods from the rolling mill and machined this month. It appears that some machining yield improvements, perhaps as much as 1.5%, can be realized from this type of billet. Plans are being made to establish it as standard.

[REDACTED]

S DIVISION

MARCH, 1949

OPERATING SECTION

I. GENERAL

Eighty-nine batches were started in the Canyon Buildings and eighty-two batches were processed through the Concentration Buildings and the Isolation Building. The average purity for the complete batches was 98.6 percent.

The over-all material balance for the T and B Plants (including the Isolation Plant) averaged 96.4 and 101.0 percent, respectively, for a combined average of 98.2 percent. Waste losses for the two plants averaged 2.5 percent.

The production of eighty-nine batches started in the Canyon Buildings with eighty-two batches completed at the Isolation Plant during the month is the highest production achieved in any one month since start-up. The previous high production record was accomplished in October, 1945 when seventy-nine batches were started in the Canyon Buildings and seventy-seven batches were completed at the Isolation Plant.

Canyon and Concentration Building Production Performance Data
(3-1-49 - 3-31-49, inclusive)

	<u>B Plant</u>	<u>T Plant</u>	<u>Combined</u>
Number of charges started	39	50	89
Number of charges completed	32	50	82

For completed charges:

Percentage of starting product in waste:

This month	2.7(a)	2.4(a)	2.5
Last month	2.7(b)	2.4(b)	2.6
Cumulative to date	4.6(c)	4.4(c)	4.5

Percentage of starting product recovered:

This month	98.3	94.0	95.7
Last month	96.2	99.4	98.2
Cumulative to date	97.2	95.3	96.3

S Division

	<u>B Plant</u>	<u>T Plant</u>	<u>Combined</u>
Percentage of starting product accounted for:			
This month	101.0	96.4	98.2
Last month	98.9	101.8	100.8
Cumulative to date	101.8	99.7	100.8

Gamma decontamination factor (Log.)			
This month	7.73	7.53	7.59
Last month	7.74	7.63	7.66
Cumulative to date	7.35	7.33	7.34

(a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.012%-T Plant; 0.015%-B Plant. (b) 0.022%-T Plant; 0.011%-B Plant. (c) 0.115%-T Plant; 0.0083%-B Plant.

Isolation Building Performance Data (3-1-49 - 3-31-49, inclusive)

	<u>% of Incoming Product</u>				
	<u>Prepared for Shipment</u>	<u>Recycle</u>	<u>Waste</u>	<u>Retained Samples</u>	<u>Material Balance</u>
Average for this month	95.4	4.93	0.01	0.005	100.3
Average for last month	94.7	5.41	-0.04	-	100.0
Average to date	96.0	4.63	0.06	0.02	100.7

II. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	344
End of month	342
Net decrease	2

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

6 transfers from other divisions (all weekly roll)
8 terminations (all weekly roll)

Changes in supervisory organization:

None

S Division

Five-Day Work Week - North Area

Effective March 28, 1949 the 200 North Area Buildings are being placed on a five-day per week basis rather than a six-day per week basis as has previously been done. This change is made possible by the reduction in production requirements resulting from the metal enrichment program and will permit the Transportation Division to eliminate one train crew and releases one S Division A Operator to the 221-B Canyon Building. In addition, present plans involve the placing of the 212-N Building in stand-by condition as soon as current material can be removed from the Building.

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 in both plants 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 sections during the month in accordance with standard procedures. Extraction waste loss experience for the month is tabulated below:

	<u>T Plant</u>	<u>B Plant</u>
Average original waste loss	0.68%	0.57%
Number of runs reworked	30	8
Average throw-away loss	0.45	0.52
Number runs 100-B material	19	3
Average original waste (February)	0.88%	0.60%

Material previously used from the 100-B pile has previously given an original extraction loss greater than 1.00 percent; however, the original extraction analysis from 100-B material this month averaged approximately 0.80 percent. No definite information has been developed as to the cause of these high losses.

DECLASSIFIED

S Division

First Decontamination By-Product Cycle

At T Plant the wash water recycling from the effluent tank in Sect. 13 was discontinued in an attempt to decrease the first cycle by-product waste losses. This resulted in an average waste loss for the month of 1.05 percent as compared to 1.00 percent in February and a log decontamination factor through the Canyon Building of 4.33 as compared to 4.65 in February. At month end the recycling of the wash water was resumed.

At B Plant the practice of settling the first cycle by-product cake slurry in the precipitator during centrifugation was abandoned during the month following a series of erratic and high waste losses. The addition of cerium and zirconium scavengers was increased from 50 to 100 percent of that amount originally used. The average first cycle by-product waste loss for the runs processed during March was 1.03 percent. The log decontamination factor through the Canyon Building was 4.45. While the waste loss is essentially normal, improvement in decontamination factor is desirable. Efforts will be directed to this end.

Decrease in Extraction Volumes - T and B Plants

Due to the metal enrichment program and the resulting increased product content per ton of metal it was possible to decrease the process volume in the extraction step by reducing the amount of dilution water and chemicals used in order to maintain uniform and standard concentrations of uranyl hexanetrate. This change has resulted in a reduction in waste volumes to be stored of approximately 600 gallons per batch as well as a small savings in chemical consumption.

Lanthanum Fluoride Product Cake Removal

Since it has been demonstrated in the past that the quantity of product returned in the material recycled from the Isolation Building (filtrate from the peroxide precipitators) to the Concentration Buildings is directly effected by the efficiency of the lanthanum fluoride product cake removal operation at the Concentration Building, it was decided to use hot water (70° to 80° C) in the cake removal procedure. Following is a tabulation showing the reduction in product recycle using hot water at T Plant:

	<u>Low</u>	<u>High</u>	<u>Average</u>
Cold water method (20 runs) (T-9-01 series)	3.7%	12.3%	6.1%
Hot water method (41 runs) (T-9-02 & 03 series)	2.5%	7.4%	4.4%
Cold water method (10 runs)	3.0%	11.1%	5.0%

S Division

The use of the hot water method will be adopted as standard at both T and B Plants commencing in April.

WASTE DISPOSAL

241-TX Tank Farm - Project C-163

Work on the General Electric phase (Parts I and III) proceeded satisfactorily during the month. The anticipated completion date for this project with the exception of the proposed Part IV which involves tying in the 224-U Concentration Building waste system is May 1, 1949.

241-BY Tank Farm - Project C-271

Construction progress by the sub-contractor is progressing satisfactorily. Status at month end is as follows:

- (a) Tank bottoms on all twelve tanks have been completed.
- (b) The steel liners on tanks 101 through 110 have been completed and tested.
- (c) The water proof membrane on tanks 101 through 108 is complete.
- (d) Gunnite has been applied to the sides of tanks 101 through 107.
- (e) Concrete sides on tanks 101 through 104 have been poured.
- (f) Dome forms on tanks 101 and 102 are under construction.
- (g) Balance off lines to tanks 109 and 111 have been completed and backfilled.

Metal Waste Sampling

The fabrication of two special 100 gallon containers and one 4 gallon container for metal waste supernate samples was completed during the month. The containers were filled with metal waste supernate from the X-103-U tank without incident. The two 100 gallon containers were shipped to site K-25, returned, refilled with metal waste supernate from tank X-103-T and at month end are again ready for shipment to site K-25. The four gallon container was delivered to the Separations Technology Division for use in the development of methods for metal waste feed preparation.

Second Cycle Samples

At the request of the Atomic Energy Commission, four special 15 gallon samples of second cycle waste supernate were obtained from tank X-112-T for shipment to Mounds Laboratory. These samples were obtained without incident while cribbing of the supernate from the X-112-T tank was in progress.

S Division

Cribbing of Second Cycle Waste Supernate - T Plant

The cribbing of second cycle waste supernate from X-112-T tank was started on March 17, 1949. At month end 151,250 gallons of this material has been jetted to the crib. The average age of the material being cribbed is estimated to be nine months. Analysis of a sample of the waste being cribbed is as follows:

AT c/m/ml	B's c/m/ml	G's c/m/ml	pH	Suspended Solids	Uranium
100	1730	10	7.1	0.10%	nil

Waste Status

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

B Plant

Bldg. 241 Tanks	Waste	Percentage Full			Reserve Capacity in Batches to Process			
		B	C	EX	B	C	EX	Total
x101,2,3	Metal	100	100	100	0	0	0	
x104,5,6	Metal	-	100	32.6	-	0	181	181
x201,2,3,4	Metal	0	100	-	-	0	-	
x112	Metal	-	-	0	-	-	90	90
x107,8,9	Metal	-	-	-	-	-	-	
x107,8,9	1st Cycle	100	100	42.0	0	0	256	256
x110,11,12	1st Cycle	-	100	-	-	0	-	
x104,5,6	1st Cycle	-	-	-	-	-	-	
x104,5,6	2nd Cycle	34.5	-	-	416	-	-	416
x110,11,12	2nd Cycle	100	-	-	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	-	76.1	-	-	70	-	70
x107,8	Metal	-	-	0	-	-	281	281

S Division

Bldg. 241 Tanks	Waste	Percentage Full			Reserve Capacity in Batches to Process			
		T	U	TX	T	U	TX	Total
x107,8,9	1st Cycle	100	-	-	0	-	-	
x110,11,12	1st Cycle	-	100	-	-	0	-	
x104,5,6	1st Cycle	100	-	-	0	-	-	
x109,10,11,12	1st Cycle	-	-	11.3	-	-	728	728
x115,18	1st Cycle	-	-	0	-	-	410	410
x104,5,6	2nd Cycle	-	-	-	-	-	-	
x110,11,12	2nd Cycle	87.2	-	-	75	-	-	75
x110,11	2nd Cycle	-	-	-	-	-	-	
x113,14,16,17	2nd Cycle	-	-	0	-	-	1123	1123

MECHANICAL PERFORMANCE

Canyon Equipment Failures - T Plant

- a) The 7-1 extraction precipitator agitator assembly failed and was replaced with a reconditioned agitator assembly. The reconditioned machine failed after being operated for one week. Excessive radiation levels do not permit determination of the cause of the failures.
- b) The 16-2 second cycle by-product centrifuge failed on 3-31-49 and was replaced. Subsequent inspection indicated that the machine contains a defective skimmer stop and bent dip tube. An attempt will be made to decontaminate and repair this machine.

Canyon Equipment Failures - B Plant

- a) The 16-4 second Cycle by-product cake solution tank agitator assembly which had been in service since start-up failed and was replaced.
- b) The 13-1 first cycle by-product precipitator agitator failed and was replaced. This machine was a part of the original installation. Radiation levels prohibit repair or inspection to determine the cause of the failure.
- c) A gasket failure necessitated the replacement of the 7-1 to 7-2 extraction precipitator to centrifuge delivery line. The teflon gasket appeared to have been damaged during installation. No significant loss of product was suffered.
- d) The 13-1 to 13-2 first cycle by-product precipitator to centrifuge jet assembly developed a gasket leak at the jet discharge flange and was replaced. No significant product loss was incurred.

S Division

- e) Final conclusive testing of the suspected coil leak on the 4-5L dissolver, removed from service in December, was completed during the month. Plans for disposal of the vessel are being formulated. It is expected that it will be possible to salvage the reflux column. The pot will be replaced with a spare which is now on hand.

6-3 Agitator Installation - T Plant

An agitator assembly and the necessary auxiliary equipment were installed on the 6-3 extraction batch make-up tank. This installation which has already been made at B Plant will insure thorough mixing and permit more accurate batch size adjustment permitting increased batch size (1 to 2%) without danger of exceeding the batch size limit during the extraction step.

Process Vent Line Failures - Concentration Building - T Plant

Small leaks were discovered during the month to have developed in seven of the fourteen tank vent lines of the Concentration Building. The failures were all caused by corrosion at the welded joints, the tubing itself being quite sound. All of the leaks except two which were found at month end have been repaired by rewelding.

Fence Replacement - 200 North Area - Project C

Replacement of the 200 North Area fences with the all steel cyclone type fence was started during the month. Work is now approximately 40 percent complete.

SPECIAL HAZARDS

Stack Gas Contamination

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

Final design for the proposed dissolver off-gas filter units was completed. The project proposal is expected to be submitted for approval early in April.

The use of respiratory protection was discontinued to the T and B Plant exclusion areas on 3-18-49, when it was recommended by the Hanford Works Special Hazards Steering Committee that they were no longer necessary.

[REDACTED]

S Division

Personnel Contamination - T Plant

During the replacement of the F-10 final product tank sampler in the Concentration Building an operator who was assisting the Maintenance mechanic had the knee of his coveralls come in contact with a moist flange of the assembly while preparing it for disposal. The contamination penetrated his protective clothing and contaminated his knee with approximately 4,000,000 d/m product. This reading was promptly reduced to less than 500 d/m by the use of soap and permanganate bisulfite solutions. There was no skin defect.

[REDACTED]

POWER DIVISION
MARCH 1949

GENERAL

Plans to reduce the essential material storage requirements from a 6 months consumption to a 3 months consumption basis were placed in effect at the first of the month. Some deviation from the latter figure is in effect for critical items.

All preventive maintenance schedules were reviewed and revised downward in consideration of our experience record. This program has heretofore been reviewed annually and in each instance has enabled a reduction in maintenance expenditures.

All boilers in the production areas have now been internally inspected by the Traveler's Insurance inspector. This first time inspection by an outside authority has been obtained for verification of the annual inspections made by our divisional inspector. All boilers were found to be in excellent condition.

PERSONNEL AND ORGANIZATION

Number of employees on payroll	March
Beginning of month	469
End of month	<u>459</u>
Net Decrease	10

The indicated decrease is the result of voluntary termination of two operators, retirement of one, and lay-off of seven coal handlers for lack of work.

100 AREAS

A program was started early in the month in which the testing of all routine Power Division water samples heretofore performed by the Technical Division would be done by Power operators. The entire month was used in training the employees for these additional responsibilities and at month's end the major transfer of the work was effected. Monetary saving of major significance is accruing to the Manufacturing Divisions by this move.

The Chemical Mixing Building (Building 108) in the F Area has been made available to the H. I. Division in its entirety. On March 21.

[REDACTED]

Power Division

work was started in transferring needed storage facilities and chemical equipment from this location to the 185 Deaeration Building and in the excessing of equipment no longer used. Refreigeration units Nos. 1 and 2 in the Refrigeration Plant, Building 189, are also being removed in conjunction with this project.

Power operators have been trained on all shifts as bus operators and have been assigned responsibility for the operation of evacuation busses. Training is now in progress to furnish four Power operators on each shift as auxiliary firemen.

The bridge spanning the export water line on the outside patrol road, east of 100-B Area, failed March 1. No damage resulted to the line. Repairs to road were not completed at months end.

A coal burning rate test was conducted in the F Area boilers from March 8 to March 11 for the purpose of determining the evaporation rate for stockpile coal.

Boiler inspections were made by a Traveler's Insurance Company inspector on Nos. 1 and 2 boilers in B Area, Nos. 3 and 4 boilers in D Area, and Nos. 2 and 4 in F Area, March 9 and March 23. No unusual conditions were reported.

A 4-inch supply connection from the export water line to the White Bluffs water system was placed in service on March 21.

200 AREAS

On March 2 a planned steam service outage was effected in the East Area for approximately three hours to replace a leaking valve.

Replacement of all Simplex air traps which were damaged by freezing was completed March 3.

The Traveler's Insurance Company inspector completed inspection of No. 2 boiler in the East Area and No. 1 boiler in the West Area on March 1. On March 24 the No. 2 boiler in the West Area was inspected, completing all annual boiler inspections. All boilers were in good condition.

The conversion of the Permutit water softeners in the West Area from Zeo-Dur to Zeo-Karb as mentioned in the previous report, has progressed, with No. 1 and No. 2 units now completed.

The remaining construction work on the new West Area filter plant addition was completed during the month and the building is now ready for final acceptance inspection.

Power Division

All construction work on the new sanitary sewerage tile field in the East Area has been postponed until after July 1, 1949.

300 AREA

Construction work was resumed on March 15 for the completion of the power house addition.

No. 3 boiler was inspected by the Traveler's Insurance Company inspector on March 24. It was reported to be in good condition.

Tests were made on No. 3 and No. 4 deep well pumps to determine capacities of pumps, and motor loads. Test results were satisfactory.

Final acceptance inspections were made on the new elevated water tank, steam line insulation, and chlorinator unit on March 30.

WHITE BLUFFS

Final acceptance inspection of the new 6-inch water supply line from the export water line to White Bluffs, and the new pressure filter unit in the ice plant was made on March 31.

On March 31 ice in storage was 4,080,900 pounds.


DECLASSIFIED

POWER DIVISION STATISTICS

From March 1, 1949

Through March 31, 1949

A R E A S

		100-B	100-D	100-F
<u>RIVER PUMP HOUSE (Building 181)</u>				
River stage	Feet above sea level (max)	386.9	379.3	365.7
	(min)	385.1	378.1	364.5
	(avg)	385.9	378.6	365.0
River temperature	avg. °F.	39.9	40.2	40.7
Water pumped to Reservoir	gpm avg. rate	39179	39767	38719
Water pumped to Refg. Condensers	gpm avg. rate		0	0

RESERVOIR (Building 182)

Water pumped to Filter Plant	gpm avg. rate	34204	34650	34439
Water pumped to Condenser System	gpm avg. rate	3164	3208	3552
Water pumped to Export System	gpm avg. rate	1811	1909	728
	gpm normal rate	4448	4448	4448
Chlorine added at #1 inlet	pounds	11585	13020	10080

FILTER PLANT (Building 183)

Filtered water to Power House	gpm avg. rate	258	283	277
Filtered water to Process	gpm avg. rate	31702	29504	30198
Filtered water to Fire & Sanitary	gpm avg. rate	99	197	118
Chlorine used in Water Treatment	pounds	6273	6180	6920
	ppm avg.	1.3	1.36	1.24
Lime used in Water Treatment	pounds	42110	24340	31800
	ppm avg.	3.4	1.8	2.5
Coagulant used in Water Treatment	pounds	186901	160590	189860
	ppm avg.	14.7	12.5	14.9
Raw Water pH	pH avg.	7.96	8.0	8.0
Finished Water pH	pH avg.	7.55	7.47	7.40
Alkalinity, M. O. - Raw	ppm avg.	73	69	71
	Finished	68	64	63
Residual Chlorine - Settled	ppm avg.	.19	.24	.20
	Finished	.08	.12	.15
Iron - Raw	ppm avg.	.51	.58	.52
North Clearwell	ppm avg.	.02	.02	.02
South Clearwell	ppm avg.	.02	.02	.02
Hardness - Finished	ppm avg.	86	68	70
Turbidity - Raw	ppm avg.	26.0	26.0	24.0
Filtered	ppm avg.	0	0	0

REFRIGERATION (Building 189)

Refrigeration produced	Tons per day	-	-
Temperature, Process Water In	avg. °F.	-	-
Temperature, Process Water Out	avg. °F.	-	-

RECEIVED
MAY 1 1949

Power Division

From March 1, 1949

Through March 31, 1949

POWER HOUSE (Building 184)

Steam generated - Total	M pounds	102615	101653	99973
Average rate	lbs./hr.	137923	136630	134372
225 psi Steam to plant (est.)	M pounds	86115	85299	84190
15 psi Steam to plant (est.)	M pounds	903	903	587
Coal consumed	Tons	7776	9370	8504
Coal in storage (est.)	Tons	29912	35191	34230

DEAERATOR PLANT (Building 185)

Water flow	gpm avg. rate	31452	29254	29948
Chemicals consumed:				
Dichromate	pounds	25015	22000	21700
Sodium Silicate	pounds	107764	196245	212800
Chemical Analysis:				
pH	pH avg.	7.62	7.70	7.60
Dichromate	ppm avg.	1.9	1.9	1.9
Silica	ppm avg.	2.5	5.4	5.3
Dissolved Iron	ppm avg.	.02	.02	.02
Free Chlorine	ppm avg.	.09	.18	.20

PROCESS PUMP ROOM (Building 190)

Total water pumped	gpm avg. rate	31277	29079	29773
	gpm normal rate	31883	31280	31094
Water temperature	avg. °F.	43.4	43.8	42.5

VALVE PIT (Building 105)

Chemicals consumed:					
Solids	pounds	1800	4000	3800	
Chemical analysis:					
A, B, C & D Headers					
Standard limits					
pH	7.5-7.8	pH (max)	7.65	7.70	7.65
		(min)	7.55	7.60	7.60
		(avg)	7.60	7.65	7.61
SiO ₂		ppm (max)	3.0	5.5	5.5
		(min)	2.0	5.0	5.0
		(avg)	2.5	5.4	5.2
Na ₂ Cr ₂ O ₇	1.8-2.2	ppm (max)	2.0	2.0	2.0
		(min)	1.8	1.9	1.9
		(avg)	1.9	1.9	1.9
Iron		ppm (max)	.03	.03	.03
		(min)	.01	.02	.01
		(avg)	.02	.02	.02
Chlorides		ppm avg.	2.0	1.6	1.7

Power Division

From March 1, 1949

To March 31, 1949

200 A R E A S

		<u>200-E</u>	<u>200-W</u>
<u>RESERVOIR (Building 282)</u>			
Raw Water Pumped	gpm avg. rate	2132	2315
<u>FILTER PLANT (Building 283)</u>			
Filtered Water Pumped	gpm avg. rate	280	361
Chlorine Consumed	lb.	153	205
Alum Consumed	lb.	2795	2742
Chlorine Residual - Sanitary Water ppm		.6	.7
<u>POWER HOUSE (Building 284)</u>			
Steam Generated - Total	M lb	24094	40383
Steam Generated - Ave. Rate	lb./hr.	32384	54278
Coal Consumed (Est.)	tons	2112	2940
Coal in Storage (Est.)	tons	12866	11470

300 A R E A

POWER HOUSE (Building 384)

Steam Generated - Total	M lb.	12,647
Steam Generated - Avg. Rate	lb./hr.	14,998
Coal Consumed - Total (Est.)	tons	922
Coal in Storage (Est.)	tons	1,933

SANITARY AND FIRE SYSTEM (300)

Received from 3000 Area -		
Well Water - Total	gal.	23,806,700
Well Water Per Day	gal/day	767,958
Well Water	gpm avg. rate	533
Chlorine Residual	ppm	.45

[REDACTED]

INSTRUMENT DIVISION

MONTHLY REPORT

MARCH, 1949

GENERAL

During the period from March 1st to March 31st, thirteen people were terminated from the Instrument Division. These terminations are part of a planwide force reduction.

100 AREAS (Reference Report HW-12930)

Instrumentation was completed on No. 2 system to the P-10 project. New project No. P-10A will be written to cover completion of systems No. 3 and 4.

The pneumatic-electric bowing indicator at 100-B was placed in operation March 21, 1949. Reference readings have been established.

To eliminate cycling of the 190-B Building process water pressure, the No. 1 master controller was completely overhauled, and a new air pressure relief valve was installed in series with the old unit in the supply air line. Results are very satisfactory.

The 115D - 105-DR gas system tie-in was performed during the shutdown of March 22nd and 23rd. The unit was purged and gas was circulated through the new pile.

As requested by the Technical Division, a test galvanometer has been installed in the F Area control room and connected to the chambers under risers 4 and 8. This is to substitute for the unit employing "A" hole chamber.

On March 24, 1949, the 105-F unit scrambled. The annunciator tab indicated No. 1 RXG was the cause of the trouble. A thorough check of this instrument during a down period failed to reveal any cause for instrument failure.

200 AREAS (Reference Report HW-12931)

The General Electric photo-electric recorder for the titrometer in Cell 2, 231-W, has been received and installed. This completes instrumentation necessary to place this cell in service.

The battery operated alpha standard counter in 271-T has been replaced by a line operated alpha standard counter.

DECLASSIFIED

[REDACTED]

Instrument Division

200 AREAS (Cont.)

The major portion of acceptance tests have been completed for boiler addition to 284-W and filter addition to 283-W. Minor corrections are necessary by construction to complete acceptance tests.

Preliminary repair and calibration of air conditioning control equipment in 200-E Area necessary to put it on a routine servicing basis has been completed. Most of this equipment will be serviced at six month intervals unless improper functioning occurs in the meantime.

300 AREA (Reference Report HW-12932)

Current D&C shop work orders for 100 Area construction have been completed.

The prototype of the probe type CP meter was accepted. Shop work in progress in the remaining 11 units has been suspended pending further revisions.

The 180 2" x 9" probes have been completed and shop tested. 78 units have been delivered per a Health Instrument Divisions' request.

Work on the 180 bent pencil probes was cancelled March 8, 1949, by C.M. Patterson, Health Instrument Divisions.

As requested by the "P" Division, the fly-eye lenses were removed in 100-B and D Areas.

The horizontal rod room periscopes were installed at 100-DR Area.

Conversion of 12 Juno survey meters received from Technical Associates is complete.

700-1100 AREA (Reference Report HW-12933)

It has been recommended that 75 unlocated instruments be dropped from the plant inventory.

Two additional buildings in the 3000 Area were added to the four now being serviced by the Instrument Division. Additional instruments requiring servicing include 2 VI units, four L&N micromaxes, and 2 Islip CRMs.

DESIGN AND CONSTRUCTION (Reference Report HW-12934)

Jurisdictional disputes among construction forces have prevented the installation of the ventilation control panel at the 234-5 Building.

When water was run through the 100-DR unit, many of the graphite thermocouples showed erratic readings. Investigation is being conducted to determine the cause.

51

MAINTENANCE DIVISION
MARCH, 1949

During the month a considerable amount of project work was cancelled and the work on other projects was postponed until after July 1, 1949. Due to the curtailment of work it was necessary to reduce the Maintenance and Minor Construction forces by 76 employees.

The responsibility for the rigging work on the project was assumed by the Transportation Division. This involved the transfer of 14 personnel from the Maintenance Division to the Transportation Division.

As of March 31 the total Maintenance Division backlog was 11,487 mandays of which 5,014 mandays was Minor Construction work. This represents a decrease of 46% from the February backlog.

100 AREAS:

Process tube #3672 in the "B" Area pile was replaced with a 72-S tube, after a pinch point caused by misalignment of the graphite had been relieved with an expanding reamer developed in the maintenance shop.

Replacement of corroded vertical safety rods and guides continued during the month. The replacements were made as follows:

	"B" Pile	"D" Pile	"F" Pile
Stainless steel rods	#17	22 29	#22
Chrome plated guides	#19	23 30	
		24 32	
	#25	25 34	
		28 35	
Chrome plated rods	#16		
Chrome plated guides			

The #14 vertical safety rod which had been replaced with a chrome plated rod during the month of February was removed from 105-D pile because the chrome plating stripped loose from the rod. This rod was replaced with a stainless steel rod.

A specially constructed knuckle jointed vertical safety rod was installed in the #27 position of the "F" pile. The knuckle jointed feature permits flexing of the rod sufficiently to follow the curvature of the thimble and thus preventing binding of the rod when it is moved in the thimble.

Construction was started this month on P-10 alloy project in the 108-B Building and on the Biology Laboratory project in the 108-F Building.

Construction of the Radio Botany Laboratory project was completed during the month.

200 AREAS:

The #1 and 3 water softeners in the West Area boiler house were converted from "Zeo-dur" to "Zeo-carb" media to increase their capacity sufficiently to accommodate increased boiler capacity. Parts for this change were provided for us by the Construction Division.

RECEIVED
MAR 31 1949

2 Maintenance Division

The East Area shops completed three 15 HP agitator units, one 5 HP agitator unit, one 40" centrifuge and 14 cell connector assemblies. These are all for replacement purposes in the Canyon and Concentration Buildings.

Scale tank 4-7 was re-installed in its original position in the T Canyon Building. The lower half was replaced and a lead lining installed to increase the life in acid service.

Construction was completed on the Meteorological station water supply project and the stack decontamination project.

300 AREA:

In the 313 Building the dust and blower housing to the oxide burner was replaced with stainless steel. A gutter of concrete was placed around the oxide burn-out room to prevent the spread of contamination.

Construction was started on a temporary melting and fabrication building for the Technical Division plant assistance group.

DECLASSIFIED

1219554

50

[REDACTED]

ELECTRICAL DIVISION

MARCH, 1949

GENERAL

The backlog of unfinished work as of March 31 was 10,781 mandays, a decrease of 455 mandays during the month. This decrease is due to month end reduction in pole replacement authorizations and reduction in Village line maintenance work due to budget limitations. Slight reductions were also noted in the plant areas. Construction work on the 300 Area distribution system was released and partially off-setting the decrease noted above.

The attached load chart for the peak day of the month, March 14, shows a peak of 66,200 KW for the entire project with coincidental demand for the combined 66 KV and 115 KV systems (Richland, 300 Area and vicinity) of 28,500 KW. The decrease of the latter peak from previous month is in line with seasonal expectations.

The total personnel of the Division at the month end was 279, a net decrease of seven.

AREA ACTIVITIES

Arrangements have been made to assume responsibility for maintenance of the 101 Building as of April 1, requiring an estimated 50 mandays per month.

Seven of the eight 2000 HP synchronous motors in the 100 Areas remained in service throughout the month as synchronous condensers. The one motor (No. 3 in 100-F Area) was out of service from March 6 to March 21, inclusive, because of failure of a main cable splice.

Project P-10, conversion of Building 108-B, is now 83 percent electrically complete. Project P-10A, additional conversion of Building 108-B, is awaiting completion of engineering.

The substation and lines used for construction service were removed from 105-DR, and final adjustment and testing of electrical equipment is essentially complete.

Cathodic protection of stainless steel pipe lines from 222-B Laboratory (200 East) to the new waste crib was provided.

An Electrical Foreman plus four Electricians have been assigned to follow acceptance tests of the new 234-5 Building.

The electrical portion of the restoration work in the 321 Building (Semi-Works) is complete.

TRANSMISSION AND DISTRIBUTION

Construction work continues at a high level with a heavy backlog of uncompleted work in work areas and in the Village, as required by the expansion program. This work requires deferment of preventive maintenance on lines and substations.

Electrical Division

Work of assembling dead-end towers for 100-H tap from the 230 KV system has been started, and arrangements are being made for erection under critical power conditions.

During the next few months, during which time the 300 Area will be changed over to the new 115 KV power source from the 66 KV system, it has been agreed with the Technical Division that the 321 and the 3706 Buildings will not require consideration of additional emergency generation for back-up service at this time. Future operating experience may indicate a review at a later date.

At the 251 Substation, temporary terminal structure for the new feeder, 4W, has been constructed, and arrangements are being made to take over now feeders, 3W and 4W, for temporary feed to the West Area and the 234-5 Building, and to release old feeders No. 1 and No. 2 to the Subcontractor for restringing conductor of a larger size.

It has been agreed with the Atomic Energy Commission to assume the maintenance of approximately six miles of the Taunton-Hanford line to the project perimeter; however, this work will be done only on work order issued by the Atomic Energy Commission. This work was previously subcontracted to the Bonneville Power Administration.

A preliminary study has been completed for a system of remote control of incoming oil circuit breakers and including provision for telemetering all load on the 220 KV and 115 KV incoming stations.

The new 115 KV station in Richland (BB1-S1) at Lee and Thayer was energized and approximately 50 percent of final load tied in. The new station (BB1-S2) at Stevens and Van Gieson is essentially complete. The old station (66 KV) B1-S2 is completely unloaded and de-energized. The old 66 KV station, B1-S3, remains with one active feeder, and B1-S1 with approximately 50 percent of former load.

There were no power interruptions of consequence during the month.

TELEPHONE SYSTEM

All electrical work on services and auxiliaries for Project C-138 (Richland Dial Exchange) is complete. Approximately 65 percent of automatic telephone equipment has been delivered and is being installed.

Installation of similar equipment in all new area exchanges as well as of trunk telephone cable is proceeding with approximately 40 percent of equipment at hand.

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

ITEM	ENERGY - MW HRS.		MAX. DEMAND - KW		LOAD FACTOR - %	
	Feb.	March	Feb.	March	Feb.	March
230 KV SYSTEM						
A-2 Out (100-B)	6,500	7,490	11,200	11,200	86.4	89.9
A-4 Out (100-D)	6,990	7,750	12,500	13,100	83.2	79.5
A-6 Out (100-F)	6,330	7,310	11,400	11,800	82.6	83.3
A-8 Out (200 Areas)	2,590	2,860	4,500	4,900	85.6	78.4
TOTAL OUT	22,410	25,410	39,600**	41,000**	84.2	83.3
MIDWAY IN	22,857	25,763	38,000*	38,000*	89.5	91.1
Transm. Loss	447	353	-	-	-	-
Percent Loss	2.0	1.4	-	-	-	-
66 KV SYSTEM						
B1-S1 Out (Richland)	4,561	3,852	10,200	3,500	66.5	14.8
B1-S3 Out "	2,072	1,127	5,600	1,200	55.1	12.6
B1-S2 Out "	1,066	653	3,584	2,254	44.3	38.9
B3-S4 Out (300 Area)	206	231	492	492	62.3	63.1
B3-S5 Out "	504	516	1,200	1,160	62.5	59.8
B1-S4 Out (N. Richland)	2,962	2,592	5,587	5,069	78.9	68.7
B7-S10 Out (W.B.)	474	408	1,373	1,305	51.4	42.0
B9-S11 Out (100-H)	451	562	1,320	1,480	50.8	51.0
Hanford Out	304	281	500	500	90.5	75.5
TOTAL OUT	12,600	10,222	29,856**	16,940**	62.8	81.1
Hanford In	8,217	6,617	21,200*	19,500*	57.7	45.6
Pasco In	4,429	3,731	14,800*	9,600*	44.5	52.2
TOTAL IN	12,646	10,348	36,000**	29,100**	52.3	47.8
Transm. Loss	46	126	-	-	-	-
Percent Loss	.04	1.2	-	-	-	-
115 KV SYSTEM						
BB1-S1 Out	0	454	-	3,960	0	15.4
BB1-S2 Out	1,830	3,100	7,560*	7,500*	37.2	55.6
TOTAL OUT	1,890	3,554	7,560	11,460	37.2	41.7
Benton In	2,664	3,480	8,560*	8,460*	46.3	55.3
S. Richland In	0	528	0	4,320	0	16.4
TOTAL IN	2,664	4,008	8,560	12,780	46.3	28.0
Transm. Loss	774	454	-	-	-	-
Percent Loss	29.0	11.3	-	-	-	-
PROJECT TOTAL						
230 KV	22,410	25,410	39,600**	41,000**	84.2	83.3
66 KV	12,600	10,222	29,856**	16,940**	62.8	81.1
115 KV	1,890	3,554	7,560*	11,460*	37.2	41.7
TOTAL OUT	36,900	39,186	77,016**	69,400**	72.2	75.9
230 KV	22,857	25,763	38,000*	38,000*	89.5	91.1
66 KV	12,646	10,348	36,000**	29,100**	52.3	47.8
115 KV	2,664	4,008	8,560*	12,780*	46.3	42.1
TOTAL IN	38,167	40,119	70,460*	66,200*	80.6	81.5
Transm. Loss	1,267	933	-	-	-	-
Percent Loss	3.3	2.3	-	-	-	-

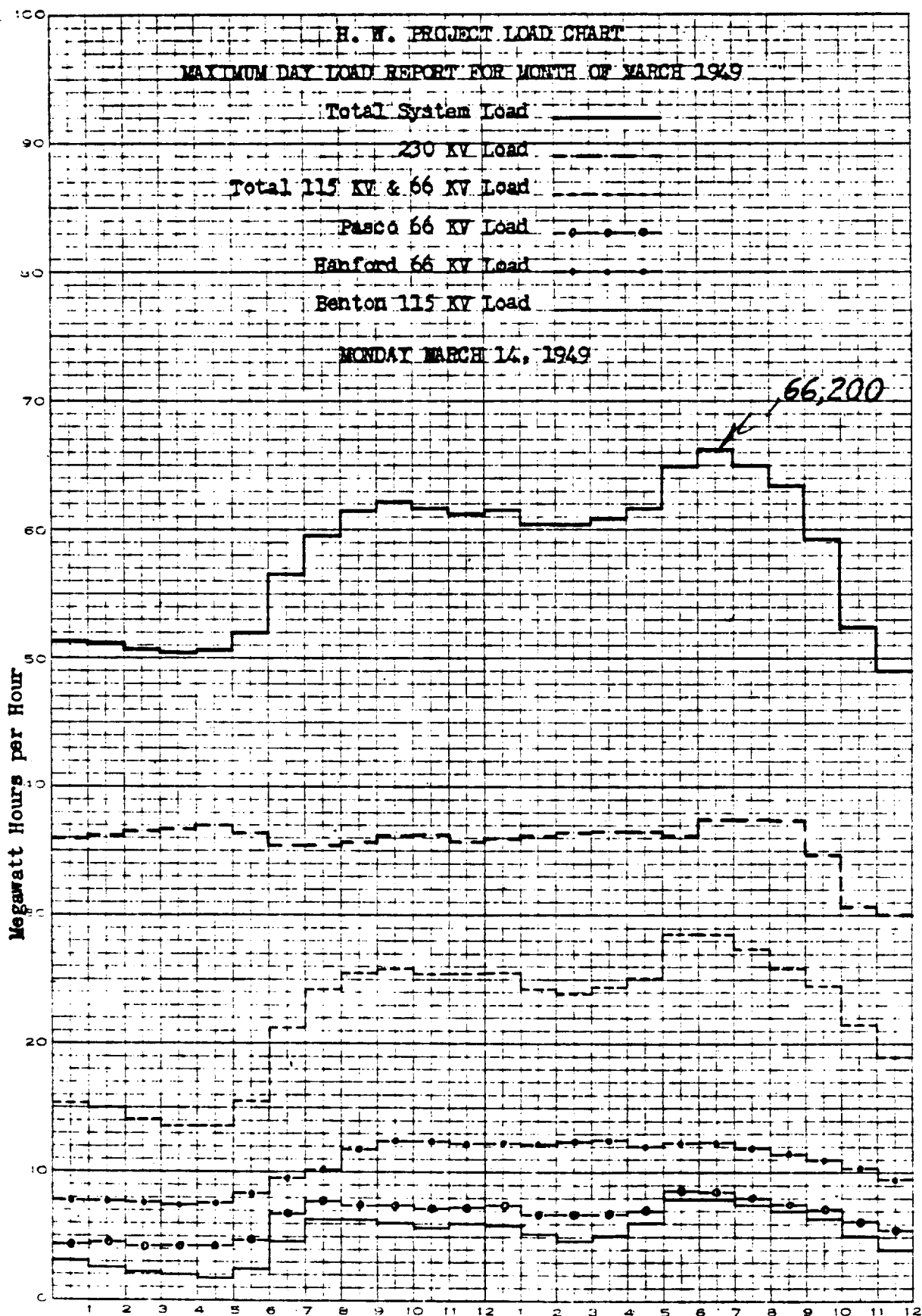
* Coincidental Demand

** Non-Coincidental Demand

Average Power Factor - 230 KV System--100.0

Average Power Factor - 115 KV System---95.6

Average Power Factor - 66 KV System---99.4



[REDACTED]

TRANSPORTATION DIVISION
MONTHLY REPORT
March 1949

Classification ~~Cancelled or Changed to~~
~~RESTRICTED~~
By Authority of ~~BOARD OPERATIONS~~
~~NON-TECHNICAL DOCUMENT RE-~~
~~VIEW BOARD~~ H. J. ~~Senior~~, Chairman
Date: ~~12-18-57~~

General

Transfer of responsibility for Rigging Operations to the Transportation Division from the Public Works and Maintenance Divisions was effected March 7, 1949. Existing facilities, equipment, and personnel were included.

Transfer of responsibility for the maintenance of Village Streets and Walks, and operation of the 1100 Area Coal Yard to the Public Works Division from the Transportation Division was effected March 7, 1949. Personnel and equipment were included.

Transportation Division personnel forces were decreased during the month from 759 to 693 in the following manner: Twenty-seven transfers in, eight transfers out, one removal from roll - illness, 78 reductions in force terminations, and six terminations for other reasons. In addition, reduction in force notices have been given to 24 more employees and 15 others are being transferred to the Public Works Division.

Railroad Activities

Commercial inbound tonnage decreased approximately 28% over February as a result of the current reduction in forces. Process service continued at a normal level.

Effective March 28, the Railroad Operations Section curtailed switching service from a six to a five day work week, Monday through Friday. Two train crews were eliminated during the month.

All locomotives are now radio equipped and operative.

Baldwin Locomotive 39-3721 was returned to service after being out of operation for a major overhaul since December 21, 1948.

Effective March 11, Morrison-Knudsen, Track Maintenance Subcontractor, reduced their operation to a five day work week except for a bare minimum of Columbia Camp personnel. Satisfactory progress was maintained on the Plant Railroad Rehabilitation Program. Their total force as of March 31 was 231 which is an increase of 33 over February.

Automotive Activities

Area and Village Bus System registered a combined increase of 3,384 passengers over February.

Effective March 8, 1949 the Village Bus System increased service to provide a half-hour schedule compared to the previous hourly schedule. Bus fare was raised to ten cents. The purpose of these revisions was to provide the community with a public bus system comparable to those being operated in communities of this size and with the view to increase revenue.

Transportation Division

Classification: ~~Secret~~ changed to
RESTRICTED
By: ~~_____~~
Project: ~~_____~~ DOCUMENT RE.
VIEW BOARD: ~~_____~~ Chairman

Date: 12-18-57

Automotive Activities - continued

Installation of newly purchased fare boxes on Village buses was completed March 7.

New testing and analyzing shop equipment was received and placed in service during the month. Mr. E. B. Maxwell of the Sun Electric Corporation conducted instruction and demonstration classes for mechanical personnel at the 716 Garage.

The Transportation Division Equipment Control Section prepared H.W. Instructions Letter No. 82, Revision No. 1, Subject: Use and Control of Government Owned General Purpose Vehicles.

Construction and Labor Activities

Labor and transportation facilities were supplied for Projects C-163, C-177, C-214, C-227, C-238, C-268, C-269, C-273, C-276, C-279, C-283, C-291, C-294, C-308, C-313, C-316, C-320, C-481, C-482, and Well Drilling operations.

Traffic

Effective March 5, 1949 Empire Airlines extended their service to include Pasco, Kennewick and Richland, which will afford direct connections with major airlines at Spokane, Walla Walla and Pendleton on Air Mail, Air Express and Passenger Service. Limousine service will be available between Richland and the Pasco airport.

Northwest Airlines published new sky-coach rates and schedules effective March 25, 1949. This new service will be handled with 55-passenger DC-4 planes making one eastbound and one westbound flight per day, with one stewardess per plane. No meals will be served aloft. There will be no discount on round trip tickets at these new low rates, and family rates will not apply; however, one-half fare rates apply to children over two and under twelve. Cash must be paid at the time reservation is requested.

Truck lines were granted a 4% increase effective March 30, 1949 on shipments between Oregon and Washington points, and April 1, 1949 between California and Washington points.

The transcontinental rail carriers approved our proposal of September 1, 1948 to include shipments of bulk Ferric Sulphate in rates named in Item 1502, TCFB Tariff No. 4-W, from Lockland, Ohio to Hanford, Washington, effective May 15, 1949. This will result in a savings of 65.1¢ per cwt., or approximately \$781.20 per car on shipments in hopper cars from Lockland.

As a result of rate reductions secured from the carriers, there was a total savings in freight charges for the month of March amounting to \$ 54,866.70.

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

2)

1219560

[REDACTED]

PROJECT ENGINEERING DIVISION

MONTHLY REPORT
March 1949

PRESENT STATUS OF WORK

Projects and Suspense Codes Authorized and Under Construction

<u>Project Number</u>	<u>100 Areas</u>	<u>% Phys. Complete</u>	<u>Date Auth.</u>	<u>Est. Cost</u>
C-172	Dismantling of Equipment in Demineralization & Deaerating Plants (Remaining work Deferred)	15	8-19-47	\$ 486,000
C-184	Experimental Animal Farm	0	10-27-47	288,000
C-192	Biology Lab. Bldg. 108-F, (Dir- ective received covering scope of revised project to be sub- mitted.)	0	3-10-49	101,000
C-222	Dismantling Unoperated Equipment in 105 Valve Pits	100	2-10-48	4,000
C-238	Effluent Sewer Line 105-F to 107- F (Letter issued requesting IME)	100	3-26-48	207,000
C-269	Temporary Radio - Botany Lab. 100-F Area	100	7-28-48	29,600
C-290	Fabricate & Install Spectromet- er (Letter issued requesting IME)	11	9-29-48	9,000
C-294	Mock-Up Facilities for Metal- lurgical Studies	93	10-22-48	47,700
C-306	Revised Pile Shielding - Front Face Shield Nozzle Caps (Post- poned)	0	11-30-48	88,000
C-316	Special Tech. Lab. (P-10)	100	1-17-49	228,000
C-323	Vertical Rod Replacement - 105 B, D, F	65	3-10-49	280,600
C-332	Reel & Spline Discharge Machine (Project submitted to cover work done on SC10239 & balance of work cancelled)	100	9-1-48	44,000
SC10243	Lithium-Aluminum Alloy Prep. (P-10-A) Proj. awaiting Approv.	15	1-28-49	<u>242,000</u>
TOTAL Estimated Cost Active 100 Area Projects				\$1,542,300

1219561

Project Engineering Division

PRESENT STATUS OF WORK

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

200 Areas

<u>Project Number</u>		<u>% Phys. Complete</u>	<u>Date Auth.</u>	<u>Est. Cost</u>
C-133	Special Test Wells 200-E & W	100	1-30-47	\$180,600
C-163	Additional Waste Storage and Tie Lines 200-W (G.E. Portion Only - Subcontract not Incl.)	86	7-25-47	600,000
C-273	Water Supply & Plumbing - Bldg. 622-A (Letter issued requesting IME)	100	8-4-48	25,600
C-298	Decontamination Stations for Small Equipment - 221-T,B	45	11-15-48	33,000
C-313	Stack Filtration Facilities	100	1-17-49	864,000
<u>TOTAL Estimated Cost Active 200 Area Projects</u>				<u>\$633,000</u>

300 Area

C-189	Bldg. 3745-A X-Ray Facility	92	8-20-47	\$ 33,000
C-219	Construction of Additional H.I. Instruments	72	1-27-48	97,200
C-220	Optical Instrument Bldg. & Elec. Shop 3708,300 Area (Letter issued requesting IME)	100	1-30-48	82,000
C-227	Conversion of Offices to Labs Bldg. 3706 & Construction of 3707-C Change House (Letter issued requesting IME)	90	3-15-48	429,000
C-287	Experimental Metallurgy Lab. Bldg. 3730 (Postponed)	0	12-2-48	140,000
C-308	Process Development Lab Bldg 3732	5	1-17-49	50,000
C-330	(SC10241) Increased Ventilation 313 & 314 Bldgs. (Proj. awaiting authorization)	0	9-24-48	540,000
C-331	(SC482000) Rehabilitation of Bldg. 321 (Proj. awaiting auth.)	43		<u>227,000</u>
<u>TOTAL Estimated Cost Active 300 Area Projects</u>				<u>\$1,516,200</u>

Project Engineering Division

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

GENERAL PLANT AREAS

<u>Project Number</u>		<u>% Phys. Complete</u>	<u>Date Auth.</u>	<u>Est. Cost</u>
C-138	Richland Telephone Exchange - Building 702	69	5-12-47	\$ 470,500
C-144	Additional Tel. Cables - Richland	33	5-12-47	45,000
C-177	115 KV Power Transmission Line	69	8-14-47	1,364,000
C-195	Radio Communications for Railroad & Electrical Division	100	10-15-47	34,000
C-196	Electrical Distribution Headquarters Bldg. & Conversion of 2713E to Garage (Cancelled)	(1)	(10-10-47)	(162,400)
C-214	Rehabilitation of Plant Railroad	80	2-18-48	3,214,000
C-265	Additional Telephone Cable - Richland to Kennewick	55	7-29-48	30,000
C-276	Overall Plant Telephone Project	70	10-6-48	1,232,000
C-279	Improvements to Area Administration Buildings (Letter issued requesting IME)	100	8-20-48	98,200
C-291	Security Fences - All Areas (Postponed)	1	10-18-48	246,800
C-322	Osmose Treatment of Plant Elec. Poles & Replacements where necessary (Postponed)	56	2-1-49	<u>154,000</u>
<u>TOTAL Estimated Cost Active Plant General Projects</u>				\$6,756,300
<u>GRAND TOTAL Est. Cost Authorized Work - ALL AREAS</u>				<u>\$10,447,800</u>

Projects Being Routed For Authorization

E.R. No. Project No.

A-1044	(C-332)	"Reel & Spline" Segmental Discharge Machine	44,000
A-3061	(C-330)	Improvement of 313 & 314 Buildings Ventilation for Control of Air-Borne Contamination	540,000

Project Engineering Division

Projects Being Routed for Authorization (Continued)

E. R. No. Project No.

A-1077		Facilities for Manufacture of Lithium-Aluminum Alloy Slugs (P-10-A)	242,000
A-532	C-192 Rev.Pt.I	Biology Laboratory Bldg. 108-F	101,000
A-530	C-331	Rehabilitation, Remodeling and increased Ventilation - Bldg. 321	<u>227,000</u>
<u>TOTAL Est. Cost of Projects Awaiting Authorization</u>			<u>\$1,154,000</u>

Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
A-1001	As-Built Drawings	0
A-1002	G.E.C. Study	10
A-1004	Downcomer Design 105-F (Cancelled)	
A-1034	Alterations to Bldgs. 186 & 185	38
A-1059	Prepare Project for Steel Sewer Line at 100-B Area (Design Postponed)	63
A-1060	Increased Shielding of Front Nozzle Caps (Designs for Proj. C-306) (Postponed)	87
A-1062	Prepare Project for Segmental Discharge Devices	100
A-1063	Special Metal Splines (Informal Approval Received - Field Follow up to continue)	100
A-1064	Equipment Designs for Oxygen in Pile Atmosphere (Postponed)	0
A-1066	Mock-Up Facilities for Metallurgical Studies (Designs for Proj. C-294)	97
A-1067	Special Technical Laboratory (P-10)	100

[REDACTED]

Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
A-1068	Prepare Informal Request for Developing a Flexible Vertical Rod	5
A-1069	Prepare Project for Dismantling and Crating of York Refrigeration Units - 151, 181, & 189-D & F Buildings (Cancelled)	5
A-1070	Prepare Project for Changes to Unit Motion Instruments	80
A-1071	Prepare Project "B" Hole Type Sample Loading Facilities (Postponed)	90
A-1072	Design Cask Storage Pad - 100F Area (Cancelled)	
A-1074	Design Moisture Extraction System for Gas System - 105 Building	2
A-1075	Recommend Adequate Warehousing for 100 Areas, 200 & 300 Areas	4
A-1076	Prepare Project to Replace V.S.R. and Guides in 105-B,D,F (Designs for Project C-323)	75
A-1077	Prepare a Project for P-10 Alloy Facilities	40
A-1080	Thermocouple for 105 Process Tube	50
A-1081	Check Vertical Alignment of 184-H Stacks (Cancelled)	5
A-1083	Hot Thimble Mock-Up	65
A-1085	Prepare Project for Pile Operation with 100% CO ₂ Atmosphere, 100F Area	15
A-1086	High Tank Control Valves - 105 Area	10
A-1087	Eliminate Oil Leak in Can Opening Reduction Gear	100
A-1088	Review Design of P-10 Shipping Tubes	100
A-1089	Design Draft Free Glass Blowing Table P-10	5

[REDACTED]

[REDACTED]

Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
A-1090	Eliminate Oil Leak Around Ram of Can Slitting Arbor Press	100
A-1091	Design C Elevator Catwalk to Top of 105-D	100
A-1092	Revise P-10 Collection Bulb Drawings	100
A-1093	Prepare "CM" Project	0
A-1094	Prepare Informal Request for Algae Removal	0

200 AREAS

2266	As-Built Drawings	10
2279	Prepare Project for Regasketing Facilities - 221 T & B	85
2285	"B" Jet Assembly	100
2287	Study Rail Alignment of 200-N Cranes	100
2288	Special Test Wells - 200 E & W 73 Wells Complete	100
2337R	Design Water Seal for Agitator Shaft	100
2355	TX Waste Storage (Field Engr. for Project C-163)	85
2403	Revision of 222 T & B Control Labs (Postponed)	60
2421	Procure & Install Lab. Equip. in 271 T-U-B Central Labs	100
2450	Design Disposal Sumps for 224-B Waste (Postponed)	25
2451	Check Crane Wheel Alignment - Building 221-B	100

[REDACTED]

[REDACTED]

Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
2456	Prepare New Map of Underground Water and Sewer Lines - 200 E & W	90
2457	Revise Piping Drawings for Cell #2, Building 231	100
2459	Design Facilities for Diluting Caustic Solution 221 Areas	75
2460	Design Filter for Dissolver Off Gas	75
2461	Survey Sanitary Tile Field Addition 200 EW (Postponed)	0
2465	Design Jet Assembly for Cell 32 Bldg.221	100
2467	Engineering Contact on New Processes	2
2469	24 Special Test Wells (Postponed)	75
2471	Design & Estimate Optical Block Bldg.221	95
2472	Design Equipment for Radioactive Source, Building 234-5	60
2473	Design Precipitator Tank Including Expansion Joints	75
2474	Design & Est. Railing & Mirrors for Diversion Boxes	50
2478	Design Hangers for Bldg. 231-234-5 Cask Truck	0
2479	Design Temp. Device for #1 Tank Spray Building 221-B	0

300 AREA

A-3002	As-Built Drawings	25
A-3059	Evaluate Construction of "P" Division Change House in 303 Area (Cancelled)	75

DECLASSIFIED

[REDACTED]

Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
A-3060	Temporary Melting & Fabrication Bldg. (Designs for Proj. 287)	70
A-3061	Increased Ventilation - 313 & 314 Bldgs. (Designs for Proj. C-330)	26
A-3062	Design & Estimate Cost of Installing 300 Area Rolling Mill (Study in Progress to Install in 314 Bldg.)	3
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	30
A-3068	Automatic CO ₂ Fire Extinguishers - Bldg. 3706 (Cancelled)	
A-3069	Solvents Storage - 3706 Building	2
A-3070	Study 3706 Ventilation Requirements to Provide 40% Humidity (Postponed)	20
A-3071	Design C.W.S. Filters and Hoods for Room 55, Bldg. 3706, Exhaust System (Postponed)	5
A-3075	Design for Nine Tube Mock-Up for 105 B-D-F Design	25
A-3076	Design Facilities for Chip and Bar Pickling and Metal Fines and Oxide Recovery (Postponed)	5
A-3077	Design Installation for Three Automatic Screw Machines 313 Building	27
A-3079	Prepare Project for Hot and Cold Exponential Experiments (Cancelled)	15
A-3080	Design and Estimate Loading Platform & Acid Storage Area, Bldg. 3706	0
A-3081	313 Building Cut-Off Saw	100

[REDACTED]

Project Engineering Division - Area Reports

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

GENERAL PLANT AREAS

<u>E. R. No.</u>		<u>% Engineering Complete</u>
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	10
E-408	Prepare Project - Village Street Lighting (Postponed)	0
E-411	Study Design & Est. Cost of Dual Feed to Sewage Lift Station	0
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-463	Electrical Drawings for Charging Device (Cancelled)	45
A-464	Metering of Power - All Process Areas	70
A-492	Preparation of Project Additional Telephone Cable - Richland to Kennewick Design Work Only	100
E-505	Electrical Standards	15
A-507	Design Work for Workshop Addition to 313 Building (Project C-308)	100
A-509	Drafting for 300 Area Planning Committee	60
A-511	Prepare Project for Butt Treatment of Power Line Poles	100
E-514	Prepare Project for Improvement to Area Fence Lighting	15

[REDACTED]

Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
A-518	Partitioning of Manufacturing Div. Offices - 703 Building (Held Pending Decision) (Cancelled)	90
A-519	Centerline Area Roads (Cancelled)	20
A-526	Field Information for 300 Area As-Builts	30
A-528	Design Work for Instrument Division Building Project - 300 Area (Cancelled)	10
A-529	Recommendation for Dikes along Yakima River	100
A-530	Design Work for Rehabilitation of Bldg. 321, Proj., C-331, SC482000	75
A-532	Design Work for Project to Construct Biology Lab. - Bldg. 108-F, Pts. 1 & 2	4
A-533	Hutment for H.I. Division near Bldg. 222-U	100
A-534	Remodel Refrigeration Cooling System - Kadlec Hospital	30
A-535	Survey for Railroad Spur to Curtis Sand & Gravel Plant - Richland	100
A-536	Design for Emergency Power for Sewage Lift Pumps - Richland	0
883-R	Coal Pile Survey - 300 Area	100
887-R	Coal Pile Survey - 100B, D & F Areas	90
941	Designs for Experimental Animal Farm - Project C-184	86
E-962	Designs for 115 KV Power Line Through Richland	86
973	Designs & Engr. for Elec. Dist. Hdqts. Bldg. near 251 Substation & Conversion of Bldg. 2713-E to Garage. Proj. C-196 (Cancelled)	80

[REDACTED]

Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
990-R	Fencing All Areas (Postponed)	95

ENGINEERING STUDIES GROUP REPORT

Studies Completed This Month:

No work was completed during the period between February 18, 1949 and March 25, 1949.

Studies Added This Month:

<u>E. R. No.</u>		<u>Date</u>
4360	Ingersoll Rand Backwash Pump Inspection	2-17-49
4361	Chip Recovery Method Study	2-7-49
4362	Manufacturing Divisions' Personnel Analysis	3-21-49
4363	P.E.D. Personnel Analysis	3-24-49

Active Studies

<u>E. R. No.</u>		<u>% Complete</u>
4326	Use of Inhibited Oil in Turbines	95
4327	Maintenance of Pitched Roofs	60
4336	Review Oil Coding System	25
4346	Welding Line Analysis - 313 Building	Postponed
4347	Improved Frost Test Line - 313 Building	"
4348	Soft Water System - Kadlec Hospital	98
4354	Bronze Furnace Heating - 313 Building	Postponed
4356	Project Engineering Division Procedure	Cancelled
4357	Lubrication Survey - Building 234-5	95

[REDACTED]

DECLASSIFIED

Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Complete</u>
4359	Concrete Placing Procedure	95
4360	Ingersoll Rand Backwash Pump Inspection	95
4361	Chip Recovery Method Study	26

BACKLOG SUMMARY

	<u>Work on Hand 2-28</u> <u>Estimated Man Days</u>	<u>Work on Hand 3-31</u> <u>Estimated Man Days</u>
Studies	141	204
Project & Design	9,690	8,412
	9,831	8,616

RECEIVED
MAR 28 1952

[REDACTED]

TECHNICAL DIVISIONS

March 1949

SUMMARY

Pile Technology Division

The use of helium in place of nitrogen for flushing graphite purification furnaces has resulted in operating economy with no adverse effect on product quality.

Equipment for measuring the electrical resistance of a graphite sample during pile operation is operating satisfactorily in its first test.

Galvanized nozzles are a much cheaper alternative to aluminum nozzles for the front face of a pile. Recent tests show conclusively that a galvanized coating on inlet nozzles will protect the Van Stone flanges from corrosion during the life of the coating. Tests indicate that the coating should have a service life possibly as high as ten years.

Laboratory tests show that various boric acid esters are easily prepared, resist boiling and pyrolysis at temperatures up to 300°C., and are promising as fluids for a third safety system in the present piles.

Separations Technology Division

First-cycle by-product precipitate washing in the centrifuge instead of in the precipitator has been resumed at both T and B Plants, with a resultant stabilization of previously erratic waste losses. Decontamination factor improvement studies are being continued. Extraction step volumes have been decreased 10% in processing the first batches of enriched metal. Time cycle reductions in the Concentration Building permitted the processing of 50 runs at T Plant during the month. Plant ventilation air sand filter operation has maintained high efficiency activity removal at stable pressure drops. Hydrogen formation and iodine discharge from dissolver operation are under current study. Fiberglass filtration of particulate matter has continued to be the major development study in the stack gas program.

Installation of all Rubber Glove Line hoods in the 234-5 Building has been completed and installation of piping, wiring, equipment, and hoods is approximately 70% completed. Phase I of the 234-5 Project is estimated as 93% completed. Metallic plutonium has been produced in three runs in the 10-gram pilot line, with greater than 99.6% hydrofluorination yields and a minimum of 96.7% yield on reduction. The Remote Mechanical Line design at Schenectady is continuing at a reduced pace with a total of 12 engineers and 12 draftsmen-designers. Over-all design and construction of this line is estimated to be approximately 45% completed at Schenectady.

The rehabilitation of the service areas of the 321 Building was completed during the month and the areas re-occupied. Architectural revisions to the Canyon area, to provide for greater isolation and safer operation, are approximately 50% complete. A carbon dioxide blanketing system has been installed on the Scale-Up tank farm. Resumption of Scale-Up operations by the middle of April is anticipated. Reproduction of the January explosion of the hexone drum has been obtained in field sparking tests at a liquid temperature of 60°C. and an air pressure of

Technical Divisions

50 Psi. Solvent-HNO₃ reaction possibilities are under study in test drums duplicating the evaporation of solvent in the original explosion drum. A 16-inch continuous hexone stripper has been completed and has reduced the hexone content of saturated ICU solution from 1.1% to 0.03% in test runs at a 4 g.p.m. processing rate.

Redox laboratory research studies have been continued on HNO₃-hexone reactions. Distribution coefficients for oxidized plutonium in low-uranium and acid-deficient systems have been obtained. Experimental pulse column runs have demonstrated the preliminary feasibility of this type of contactor. Ruthenium ozonization has been carried out with plant dissolver solution and ORNL IBP solution. Decontamination factors of approximately 1000 have been obtained for zirconium adsorption from plant dissolver solution by Standard Filtrol. Studies of methods of preparation of solvent extraction feeds from metal waste solutions have included precipitations of both sodium diuranate and uranyl peroxide. Difficulties in reducing the phosphate content of the more desirable peroxide precipitate have been encountered, but promising methods of improvement are under study.

Metallurgy and Control Division

Considerable reduction in force is underway in the Analytical Section of the Metallurgy and Control Division, all in the laboratory assistant classification. Twenty-two were laid off during March, as allowed by a 25% reduction in the analytical support required for the Redox development program. Another twenty-five were given 2-week notices during the period March 25-31, for termination in April when most of the 100 Areas water analysis load is to be assumed by the Power Division. A still further lay-off will accompany the consolidation of T and B Plant control analysis into a single laboratory (222-B), as is planned for late April in line with lowered 200 Area run schedules.

ABG:dg

ABG

PILE TECHNOLOGY DIVISION

MARCH, 1949

April 6, 1949

VISITORS AND BUSINESS TRIPS

K. N. Mathes, General Engineering and Consulting Laboratory, General Electric Company, Schenectady, was here from March 3-9 for consultation on the Special Irradiation Program.

W. E. Johnson, Oak Ridge National Laboratory, Oak Ridge, Tennessee, was here March 11, 1949, to discuss a test of fuel elements for the Materials Testing Reactor.

J. L. Klein, Massachusetts Institute of Technology, Cambridge, Massachusetts, visited here March 14-16 to obtain irradiated process tubing for metallurgical investigations.

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

P. F. Gast attended an Atomic Energy Commission meeting in Chicago, Illinois, regarding critical mass problems. He was there March 1-4, 1949.

A. A. Johnson visited Argonne National Laboratory, Chicago, Illinois, March 2-4, 1949, for consultation on the P-10 project.

Messrs. P. F. Gast, J. M. West, and F. E. Kruesi visited K-25 and Oak Ridge National Laboratory, Oak Ridge, Tennessee, on March 23-25, 1949, to inspect experimental facilities for critical mass work.

ORGANIZATION AND PERSONNEL

	<u>February</u>	<u>March</u>
File Physics Section	43	44
File Engineering	22	24
P-10 Project	5	6
Administration	5	3
	<u>75</u>	<u>77</u>

During the month four Lab. Assts. D terminated; one Lab. Asst. D, two Lab. Assts. C, two Lab. Assts. B, and one Lab. Asst. A, transferred into the Division from

Pile Technology Division

Metallurgy and Control. One clerical transferred from Administration to Pile Physics, and one clerical from Administration to Pile Engineering.

PILE PHYSICS

Graphite Development

A number of experiments have been carried out to determine the effect of various changes in the purification process on the quality of GBF graphite. The results of these experiments point to the following conclusions:

The quality of bars from the ends of the furnaces was improved substantially by increasing the diameter of orifices in these positions from 1/32 to 3/64 inches.

Better quality has been obtained on GBF heats which were treated with twice the usual amount of carbon tetrachloride and on which no flushing was done during the cooling phase.

The quality of GBF was lowered by doubling the quantity of Freon and increasing the time during which the Freon was added from 5 to 6 hours. The lower purity was found to be due to residual chlorine in the bars. The concentrations of boron, vanadium, and ash were reduced by the additional Freon, but this improvement was more than offset by the residual chlorine.

File Technology Division

calculated from X-ray data is 2.26. These samples will be irradiated to determine density changes with irradiation.

Higher Power

A study has been made of the outlet water temperatures of individual tubes during the period following start up. During this period the normal power distribution is distorted due to the presence of many control rods. Some revisions of the orifice pattern would allow operation at 275 MW throughout this period. Operation at higher levels during this time is not likely with a 70°C. limit on the outlet water temperature. This situation will not affect the level attainable during normal operation.

Reactivity Power Coefficient Test

A standard coefficient test was carried out at the B File for the first time since the pile atmosphere contained 25% carbon dioxide. A large increase in the graphite coefficient was observed. This is contrary to the experience at the D and F Files where only a small increase in the graphite coefficient was found after addition of carbon dioxide. The test will be repeated in the near future to determine the statistical reliability of the results.

Critical Mass of Plutonium Solutions

A group of physicists visited the K-25 critical mass laboratory at Oak Ridge to observe the facilities which have been used there for measuring critical masses of U^{235} solutions and to study the results of those experiments. For the most part, their simplified apparatus could not be used on plutonium solutions because of the toxicity of plutonium.

A program of experiments and calculations was agreed upon to determine what concentration of boron in the U^{235} would best simulate the properties of plutonium in a thermal reactor. Also a tentative program was set up for experiments beyond this point.

Insulating Materials

Tests on bakelite exposed in the "B" Test Hole show that it is unsuitable for an insulating material when exposed to pile irradiation. One sample of bakelite exploded violently when removed from its casing, due apparently to gas pressure buildup in voids and internal cracks. Glass fiber insulation and asbestos showed no apparent loss in physical strength for a one week exposure.

Reactivity

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

	<u>B File</u>	<u>D File</u>	<u>F File</u>
In rods	85 1h	73 1h	61 1h

File Technology Division

	<u>B Pile</u>	<u>D Pile</u>	<u>F Pile</u>
In xenon	505	481	493
In over-all coefficient	<u>-130</u>	<u>-160</u>	<u>-179</u>
Total cold, clean reactivity	839	880	810

The B Pile gained 31 inhours, the D Pile 8 inhours and the F Pile 20 inhours during the month. Large gains rates have occurred for all three piles during periods of steady operation. Observed rates during the month were: for B Pile, 1.6 to 1.9 ih/day; for D Pile 1.1 to 1.2 ih/day; and for F Pile 1.3 to 2.2 ih/day. These gains are due to the increase in the amount of plutonium in the piles resulting from the higher product concentration to which metal is taken before discharge.

Status of Special Irradiations

Beginning this month the status of Hanford Requests will be reported separately. The reports for the current month are documents HW-12952 and HW-12952-A.

PILE ENGINEERING

Blistering of Slugs

Alpha-rolled, triple-dipped metal (Group 4 material) was examined after an exposure of 318 MD/ton and appeared satisfactory for still higher exposures. Dimensional changes were negligible at this concentration, and the maximum degree of blistering observed was classified as slight.

A severely stuck tube containing eight-inch slugs was encountered at the F Pile. Examination of the material after discharge showed that the sticking was caused by one piece which was grossly distorted by the formation of large bumps. This piece was canned on July 28, 1947, and evidently came from the same lot of metal which has been responsible for two previously encountered stuck tubes.

Lubricant for Pile Charging Operations

Initial tests in the flow laboratory permit the tentative conclusion that the "Ucon" type of water soluble oils will be satisfactory lubricants for process tubes and slugs during charging, and have the advantage of not causing cloudiness of the basin.

Van Stone Corrosion

The program of evaluating galvanized nozzles in the flow laboratory was essentially completed during the month. These tests show that aluminum corrodes to zinc at temperatures above 50°C., and Van Stone flange corrosion on the rear face would be comparable to that encountered with stainless steel if galvanized nozzles were used at outlet temperatures of 70°C. or higher. Thus the use of galvanized outlet nozzles would not be adequate at power levels higher than current. Aluminum is

File Technology Division

protected by zinc, however, at temperatures below $45^{\circ}\text{C}.$, and galvanized nozzles are satisfactory for front face use. Both mechanical and electrical measurements indicate the corrosion rate of zinc at inlet water temperatures will be less than 0.0005 inches per year, indicating a service life as high as ten years for a coating thickness of 0.005 inches.

A four-months' test in the flow laboratory at inlet water temperatures showed that a galvanized nozzle furnished complete protection against Van Stone flange corrosion. The control flange run for the same length of time with a stainless steel nozzle showed corrosion products and definite evidence of pitting. Further information on the behavior of galvanized nozzles is not anticipated until the tests currently being run on the F Pile are completed (approximately six more months).

Attempts to find a suitable process for coating stainless steel with aluminum have to date been unsuccessful. Flow laboratory tests showed that the aluminum-zinc alloy coating produced by hot-dipping a galvanized piece had less corrosion resistance than a pure zinc coating.

Examination of sacrificial magnesium slugs installed over inlet Van Stone flanges at the F Pile indicated that the corrosion rate of these slugs is not sufficiently rapid to preclude their use. The flanges have not yet been examined to evaluate the degree of corrosion protection.

Third Safety System

Various boric acid esters have been prepared and tested for thermal stability and boiling point. Ester derivative of high boiling liquids such as the "Cellosolves" or "Carbitols" (e.g. butyl carbitol) are simple to prepare, resist boiling and pyrolysis at temperatures up to $300^{\circ}\text{C}.$, and are satisfactory for use as a third safety fluid from the standpoint of viscosity and boron content.

Corrosion and Chattering of Slugs

Slugs from a tube in the 0.200 orifice zone which had operated with a 0.175 orifice showed an average corrosion rate of 0.085 mils per month and a maximum of 0.14 mils per month. Respective rates from a control were 0.064 and 0.12 mils per month.

The maximum slug chattering which could be produced in flow lab tests was a relatively mild fluttering action of both aluminum and lead dummies. This action occurred only over narrow ranges of both water flow and gap between slugs, and could be produced only by mechanical support of upstream slugs to prevent their washing downstream and closing the gap.

Assistance to New Construction

A system of graphite storage has been effected so that allocation of graphite to future new piles can be accomplished without additional testing and with a minimum of handling of the stored material.

Graphite Expansion

Mock-up tests of a knuckle jointed rod with joints at about 4-1/2 feet intervals indicated smooth operation with the thimble distorted to simulate #27F. However,

Pile Technology Division

with a further 3/4-inch distortion the rod hung up. The number of joints was doubled and the rod put into service in the #27F thimble.

Improvements in instrumentation for pile motion measurements are being made. New targets and bench marks have been installed at B, D, and F Piles. A recording mercury level is in operation on the top of the D Pile. New tight wires which are independent of the pile are being installed on the Far Side and Front Face of the three piles. Additional instruments for measurement of effects from increasing carbon dioxide concentrations are about 90% complete at the B Pile and 60% complete at the F Pile.

The carbon dioxide concentration was held at 25% at the B Pile and at 40% at the D and F Piles. The previous rate of rise of the center of the top shield was about 0.1-inch per month at the B Pile and 0.03-inch per month at the F Pile, and the level of the top is measured with an accuracy of about $\pm$ 0.05-inch. Hence, though there are some indications that the rate of expansion of the F Pile is being retarded, firm conclusions regarding the effect of carbon dioxide can not yet be established.

Nine Tube Mock Up tests of the "H" design made in conjunction with the Design Division have been completed.

Induction heating of graphite was demonstrated in the 314 Building using 3000 cycles current. One tube block 18 inches long was heated with internal coils to about 900°C. The heat generated in the graphite was at least 12 KW per foot of length. This method appears entirely feasible for heating short lengths of graphite tube block in the pile for studies of annealing.

Plant Assistance

It is anticipated that higher pile operating levels will cause increased loss in efficiency because of isolated hot process tubes. Flow laboratory tests and analysis of pile operating data indicated that decreased water flow caused by the presence of front dummy slugs, insufficient purging, and reversal of the double diameter stainless steel dummy slug are partially responsible. Use of an all perforated aluminum dummy slug charge in the downstream end of the process tubes was found to increase water flow about 4% at a 350 p.s.i. header pressure with a 0.240 orifice, as compared to the flow obtained with conventional tube charge.

New Pile Design

Design of a water system for the exponential pile which is to be used for lattice design tests was essentially completed.

P-10 PROJECT

Extraction of fluoride slugs with pile exposures of from units of product with an average purity of . This yield is about that obtained for alloy slugs at comparable exposures. High gas pressure was observed for many of the slugs and in almost all of the slugs the lithium fluoride pellets had disintegrated into a fine powder.

Developments on the alloy program continued to be more favorable than expectations.

The number of slugs in the piles was increased from 555 to 937 with the prospect that the total can be increased to approximately 1100 during the next few months. Argonne has reported that the yield is linear at per month for exposures to . A gas density determination indicated a product purity of . Examination of slugs discharged after 4 months' exposure showed that no measurable change in dimensions had occurred.

These results and other data collected during the month have provided the information necessary to proceed with the completion of facilities for the handling and extraction of alloy slugs.

INVENTIONS

All File 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

C. W. Botsford	High boiling borate esters for third safety liquid.
----------------	---

Signed

C. W. J. Wende

C. W. J. Wende
Division Head

CWJW:sr

[REDACTED]

April 7, 1949

SEPARATIONS TECHNOLOGY DIVISION

MARCH, 1949

VISITORS & BUSINESS TRIPS

G. W. Watt, G.E. Consultant from the University of Texas, visited this site from March 23 to 29 for consultation on chemical research and development problems of the Division.

W. A. Hartman of the General Engineering & Consulting Laboratory visited P. E. Collins at the Hanford Works from March 7 to 14 for consultation on the plastic bag techniques for the 234-5 Project.

Raymond Blanco and Irving Higgins of the Oak Ridge National Laboratory visited this site March 22 and 23 for a discussion of waste disposal studies.

G. W. Pomeroy's loan to the Oak Ridge National Laboratory for assistance to Redox pilot plant operation was extended from March 31 to May 1.

V. R. Cooper and F. W. Woodfield visited the Argonne National Laboratory March 2 and 3 and March 10 and 11, and the Carbide & Carbon Chemical Corp. X-10 Plant from March 4 to 10 for Redox consultations.

M. J. Szulinski attended a meeting at the University of Chicago on March 1 to March 4 for discussion of 200 Area critical mass problems.

R. H. Beaton attended a Nucleonics Committee Meeting at Schenectady on March 14, a Redox Advisory Committee Meeting at New York City on March 15, and inspected Project 432 progress at Schenectady on March 16.

C. Groot, C. F. Callis, A. R. Matheson, and F. W. Albaugh attended the ACS Meeting at San Francisco from March 28 to April 1 and visited the Radiation Laboratory at the University of California.

A. G. Blasewitz attended the ACS Meeting at San Francisco on March 28 to 31.

R. E. Smith visited the Knolls Atomic Power Laboratory from March 28 to April 13 for technical consultations on SPRU design problems.

Separations Technology Division

ORGANIZATION AND PERSONNEL

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

	<u>February</u>	<u>March</u>
Administration	2	2
Process Section	28	27
Development Section	95	94
Research Section	<u>30</u>	<u>31</u>
	155	154

One new hire, a Chemical Engineer, was added to the Research Section. One Draftsman II was transferred from the Project Engineering Division to the Research Section. One Chemical Engineer was transferred from the Process Section to Technical General. Terminations were as follows: one Chemist from the Development Section and one Steno-Typist B from the Research Section.

200 AREAS PLANT ASSISTANCE

Canyon Buildings

The procedure of washing the first-cycle by-product precipitate in the precipitator tank was discontinued at B Plant in line with the results obtained by this change at T Plant during January and February. Although Canyon decontamination factors were lowered (average log factor of 4.17 for first 24 runs at T) by resumption of the old procedure for washing in the centrifuge, there was no obvious effect on waste loss averages and there was definite improvement in stability of 13-4BP waste loss level due to elimination of the variable heel hold-up in the precipitator. An improvement in Canyon decontamination factor (to an average log factor of 4.57 for 36 runs at T) was obtained by increasing the cerium and zirconium scavenger concentrations from 25 to 50 mg./l., the concentration used previous to the reduction effected under Production Test 221-B-6. Further means of improving decontamination without detriment to waste losses, cycle time, or economy are being sought.

As the first operational change brought about by the increase in metal enrichment, the extraction volume was decreased by 10% during the month to maintain the UNH concentration between 20 and 24%. As the enrichment increases beyond the present minimum of 220 MWD/ton, further reduction in process volume will be made.

An attempt was made to correlate T Plant extraction waste losses with hydrogen ion concentration of the diluted dissolver solution. Sampling difficulties invalidated the results on Dissolver 4-5L and the range on 14 samples from Dissolver 3-5R was too slight for a significant correlation with extraction losses to be found. Plans have been made to take similar samples at B Plant and note the acidity range of metal solution there.

Several high first-cycle waste losses were encountered at B Plant early in the month. Reworks were carried out and satisfactory operation was maintained for the balance of the period.

Separations Technology Division

Two serious mechanical failures which occurred at T Plant required equipment replacement, the agitator in an extraction precipitator tank and the second cycle by-product centrifuge.

Concentration Buildings

There were no major technical problems or developments in the Concentration Buildings during the month. Illustrative of the results of joint operational-technical efforts to shorten time cycles, however, were the demonstration of an 11.5 hour cycle on one run at B Plant and the processing of 50 runs through the building at T Plant during March.

Isolation Building

A demonstration of the effect of extended settling of first-cycle peroxide cakes was provided by a delay of 24 hours in the initial decanting of Run T-9-O3-D-27. After a leak in the vacuum system was repaired, decantation was completed. The amount of product recycled to the Concentration Building was approximately double the average of the preceding five runs.

REDOX DEVELOPMENT

Rehabilitation of 321 Building

The service-side facilities (office, lunchroom, locker room, etc.) were occupied during the month. Work was subsequently directed toward achieving a safe degree of isolation between the service-side and canyon. At balcony level, all but three doors were completely blocked by reinforced concrete. The remaining passageways will be equipped with explosion-resistant steel doors. Emergency exits have been installed in the "hot" laboratory, the southwest corner of the canyon, and northwest corner of "A" cell. In addition, pressure relief hatches (ca. 16 ft. x 10 ft.) are being cut in the east and west canyon walls. These architectural revisions are about 50% complete. A design for an improved ventilation system for the canyon and service-side has been completed and included in the project proposal for building rehabilitation. It is expected that minor changes in the present ventilation system will permit operation while the revised ventilation is being installed. During the month, the CO₂ gas blanketing system was installed on the Scale-Up tank farm. A solid CO₂ gas generating system is currently being fabricated. Until this installation is complete, gas will be provided by CO₂ cylinders. The revisions described above have been set forth in Document HW-12873 (dated 4-1-49), together with a summary presentation of the progress of the 321 Building explosion investigation.

Investigation of Solvent Explosion

During the month, it was fairly definitely established that a violent explosion of hexone-air mixtures could be realized at liquid temperatures of 60°C and air pressures of 50 p.s.i.g. An ignition test in a 55-gallon drum produced a violent explosion, with the final condition of the drum being very similar to the one involved in the recent explosion. Studies conducted previously have reproducibly shown that at room temperature and atmospheric pressure a low-intensity explosion

[REDACTED]

Separations Technology Division

resulted, which did not rupture the drum. The postulation of "pressure-piling" described in last month's report might possibly account for the creation of high-temperature, high-pressure conditions. Further, it is conceivable that a chemical reaction of moderate violence could have raised the temperature, leached the grease from the bearings, and subsequently produced a hot or sparking bearing. This latter contention will be substantiated further by the results of the chemical stability tests described below.

During the month, five 8-gallon stainless steel containers were set up to reproduce the rate of solvent evaporation, temperature, and air flow rate that existed during operation of the 55-gallon submerged-pump test involved in the explosion. The units will be maintained under these conditions for about 450 hours. Samples are being taken at 50-hour intervals to check both the rate of HNO_3 build-up and the extent of hexone oxidation.

Equipment Development and Modifications

Completion of the 16-inch hexone steam stripper was followed by a series of tests with a hexone-saturated ICU stream. Processing at a rate of 4 g.p.m. reduced the hexone content from 1.1% to 0.03%. Further tests with hexone-saturated water resulted in essentially complete hexone removal.

Detailed layout and engineering diagrams permitting cascade operation of the Demonstration Unit IA-IB-IC columns have been completed. Revision will be started as soon as the project is approved.

A test stand has been modified to study the performance characteristics of a Roth Turbine Pump. The performance of Fischer and Porter stainless steel "hot" rotameters controlling a Hammel-Dahl diaphragm-operated control valve will also be studied on the same unit, with the Roth pump providing the head. The "hot" rotameters have been received and it is expected that studies with water and salt solutions will begin during the coming week.

During the month, the experimental equipment for the box-type mixer-settlers was provided with a nitrogen blanket. Shakedown studies with the 21-stage S.O.D. box indicated poor stage efficiency by virtue of phase by-passing between mixer and settler zones. Until this difficulty can be remedied, the 14-stage modified A.N.L. box has been installed for study.

Miscellaneous

Considerable effort has been devoted to a documentation of previous experimental studies for issuance in report form. Technical Data Studies dealing with 1) solvent extraction studies with Fenske helices, 2) IB column studies, 3) IC column studies, and 4) IC equilibrium data will be issued in the near future.

Necessary uranium equilibrium data for the O.R.N.L. alkaline Redox flowsheets are being obtained in the laboratory. With the cooperation of the Chemical Research Section, a compilation of the various physical properties and Pu equilibrium data is being assembled for O.R.N.L.-type systems.

Separations Technology Division

REDOX RESEARCH

Reaction of Nitric Acid and Hexone

The room temperature reactions of nitric acid and hexone in the presence of materials, such as uranyl nitrate, stainless steel, etc., are being followed by measuring changes in the gas pressure as well as by a chemical analysis of the liquid phase. When air is initially above the reaction mixture, a photo-sensitized absorption of oxygen by solutions of uranyl nitrate and nitric acid in hexone is observed.

Methylisopropyl diketone was removed from hexone solutions by 2 M sodium hydroxide at 100°C when the diketone content was one gram per liter or less. Higher diketone contents could not be completely extracted even by hot 4 to 8 M caustic solutions. Hot sodium carbonate solutions were entirely inadequate for diketone removal.

Physical Properties of the System: $\text{UO}_2(\text{NO}_3)_2 - \text{HNO}_3 - \text{Al}(\text{NO}_3)_3 - \text{H}_2\text{O} - \text{Hexone}$

Infra-red spectra were employed in an attempt to verify the existence of an addition compound of hexone and water. The spectrum of water-saturated hexone showed no bands which could not be attributed to hexone alone or to water alone, and the water band at six microns followed Beer's law. In the hexone-saturated water system, one of the water bands was shifted slightly. Work on this problem is continuing, since physical studies have strongly indicated a water-hexone complex.

Viscosity and density data have been obtained for the 0.2 M alkaline Redox flow sheet (ORNL #1). The addition of NaOH to aqueous solutions of $\text{UO}_2(\text{NO}_3)_2$ and $\text{Al}(\text{NO}_3)_3$ gave a molar coefficient of 0.020 for the density equation. The viscosities of the basic solutions were found to be somewhat lower than predicted, which might be accounted for by a change in the composition of the hydrated cation.

The distribution study of Pu(VI) in both acid and alkaline solutions was completed and the results presented in tabular form in the Chemical Research Section Monthly Report for March, 1949. These data were obtained with distilled hexone at $25.0^\circ \pm 0.1^\circ\text{C}$ and were checked in each case by a material balance. The distribution of uranyl nitrate and nitric acid in these samples is also given. In general, the distribution of Pu(VI) in solutions 0.2 M alkaline to 0.3 M acid is found to increase in favor of hexone as the $\text{UO}_2(\text{NO}_3)_2$ concentration drops from 0.1 M to very low concentrations.

To date the Pu(IV) distribution studies indicate that E_a^h for Pu(IV) is very close to one-third the E_a^h value for Pu(VI) in the region of 0 M HNO_3 , 0 to 1.0 M $\text{UO}_2(\text{NO}_3)_2$, and 1.0 to 1.3 M $\text{Al}(\text{NO}_3)_3$.

Pulse Column Studies

The one-inch by 20-inch pulse column described in HW-12188 was set up to run with uranyl nitrate solutions. Upon rechecking the operating characteristics, it was found that flow rate, displacement, and pulse frequency were not simple variables, necessitating considerable arbitrary choice in their establishment for purposes of securing design data.

Separations Technology Division

The results of approximately ten runs have demonstrated the preliminary feasibility of such an extraction column. Using the IAF-IAS-IAX compositions of the ANL June 1, 1948, flowsheet, a minimum H.E.T.S. of five inches was achieved with a pulse frequency of 50 cycles/minute and a liquid flow rate of 400% ANL (i.e., 700 gal/sq.ft./hr.), comparing favorably to an H.E.T.S. of two inches obtained previously in the same apparatus for HNO_3 in the hexone-nitric-8 M NH_4NO_3 system. On the other hand, under less favorable conditions, H.E.T.S. values as high as 12 inches have been obtained.

The feed solutions had a greater-than-normal standard disengaging time, and emulsion formation made it impossible to reach the maximum capacity of the column. The IA Column of the 0.2 M alkaline Redox flowsheet (ORNL #1) is being studied at the present.

Ruthenium Investigations

Using Hanford dissolver solution which had been diluted one to ten with synthetic dissolver solution (2 M UNH and 0.3 M HNO_3), 96% of the ruthenium activity could be readily removed as the volatile RuO_4 by ozonization. The remaining four per cent was oxidized only with difficulty. Of five runs made, a small improvement was obtained by raising the temperature to 95°C and increasing the silver nitrate concentration to 0.05 M. Even under these conditions, 0.6% of the ruthenium activity remained in the residue after six hours treatment. An increase in the nitric acid concentration to 2 M was not effective in facilitating the removal of the slowly oxidized species, but the addition of 0.025 M NaNO_2 showed some promise.

The ruthenium activity was removed slowly when IBP solutions obtained from ORNL column runs and acidified to ca. 0.5 M HNO_3 were ozonized. The rate of volatilization may be increased by raising the temperature from 75° to 95°C and increasing the silver catalyst concentration from 0.01 M to 0.05 M. This effect is more marked than the similar effect noted with dissolver solution and may be associated with the formation of a dark brown precipitate which appears to be MnO_2 . At 95°C and 0.05 M silver nitrate, the precipitate forms but is oxidized to permanganate. Under these conditions, using 10 ml. of IBP solution and an ozone-oxygen stream of three per cent ozone at a flow rate of 50 ml./min., the ruthenium left in the residue dropped exponentially to about one per cent in seven hours. In a similar run at 75°C and 0.01 M AgNO_3 , the per cent left in the residue after seven hours was 20.8%.

From data obtained in extraction and scrub studies, interchange between ruthenium carrier and tracer appears to have been accomplished in 1.3 M $\text{Al}(\text{NO}_3)_3$ - 0.3 M HNO_3 solutions by oxidation with paraperiodic acid followed by reduction with hydrogen peroxide. This conclusion is based upon the observation that the distribution data agree favorably with those obtained when the carrier and tracer were known to have been interchanged by common distillation as the tetroxide.

Similar studies indicate that a nitric acid reflux at 110°C does not accomplish complete interchange between ruthenium carrier and tracer.

Head-end Scavenging

Extraction and scrub tests have been performed to study the latent effect of scavenging dissolver solution (3-5-R) with Standard Filtrol (activated clay

Separations Technology Division

adsorbent) at 100°C and pH of 0.5. Improvement in zirconium decontamination by a factor of at least 18 was obtained over that in the control experiment using no adsorber. This improvement factor is the limit of detectability in the tests used since the final zirconium gamma count was only slightly above background. The Filtrol adsorbed 99.8% of the zirconium activity. Only a slight improvement in the over-all gross gamma decontamination was observed because of the good zirconium decontamination factor observed in the control (ca. 1000) and the low ruthenium decontamination factor (ca. 20).

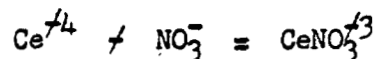
Plutonium adsorption on Filtrol in this study was surprisingly high (6-8%) but appears to have been satisfactorily removed by leaching with 8 M HNO₃. Preliminary studies indicate that plutonium (VI) adsorption is small at a pH of 0.1 and that zirconium adsorption is not impaired.

Zirconium adsorption on Pyrex glass wool increased 127% and gross gamma adsorption increased 43% when the temperature of the contact was raised from room temperature to 105°C. On the other hand, pretreatment of the solution at 105°C followed by room temperature contact resulted in decreased total gamma adsorption.

Porous Vycor is considerably better than Pyrex wool as an adsorbing agent for zirconium and gross gamma activity, being approximately equivalent to Filtrol in its effectiveness. Employing a 30-minute contact at 100°C, gross gamma and zirconium adsorptions were 60.5% and 66.2%, respectively, for Pyrex wool and 76.1% and 91.9%, respectively, for porous Vycor.

Cerium Chemistry

For the reaction represented by the equation:



the equilibrium constant has been determined by optical density measurements at three independent wave lengths and found to be 2.48. The molar extinction coefficients of the CeNO₃⁺³ ion at 470, 464, and 398 mμ are 66, 84 and 8200, respectively.

There is evidence of a higher nitrate complex at 4 M HNO₃, but the data were not of sufficient accuracy to calculate a precise equilibrium constant.

Using the above value for the equilibrium constant for the first complex, a decrease in the oxidation potential of the Ce(III)-Ce(IV) couple of ca. 0.009 volts is calculated. This decrease of oxidation potential is of minor concern in Redox solutions having ca. 4 M NO₃⁻, provided no unusually large changes in the activity of Ce(IV) occur at the lower acidities.

Plutonium Oxidation and Extraction Studies

A second experiment on the stability under Column IIA conditions of Pu(VI) formed by ozone oxidation of an ORNL IBP solution has been completed. The IBP solution was sparged free of hexone prior to ozonization and dissolved ozone was removed after conclusion of the ozonization by sparging with air. Care was taken to minimize cross-contamination from the pipettes, stirrers, etc., employed. Otherwise, the procedure was identical to that previously reported. After four extrac-

[REDACTED]

Separations Technology Division

tions with IIA, only 0.02% of the original plutonium was left in the aqueous phase. Experiments to determine the improvement in cerium decontamination have been performed but the analytical results are not yet complete.

Besides the IIA extraction studies on ozone-oxidized IBP solutions, two similar studies have been carried out in which the ORNL solution was oxidized, after sparging free of hexone and acidifying to 0.5 N HNO_3 , by adding 30% H_2O_2 to 0.1 M . In both cases, 96% oxidation to Pu(VI) was obtained and four successive hexone extractions left less than 0.04% of the initial plutonium in the aqueous phase.

A rate study was carried out to determine the rate of oxidation of the plutonium in an ORNL-IBP solution by dichromate at room temperature. The hexone-saturated solution was acidified to 0.5 M HNO_3 and $Na_2Cr_2O_7$ added to 0.02 M . These are the conditions of the ANL June 1, 1948, flowsheet cross-over oxidation. The half-time for the oxidation of Pu(IV) to Pu(VI) was found to be seven hours.

An investigation was carried out to see whether iron would prevent the reduction of Pu(IV) in acid-deficient solutions corresponding to the ORNL acid-deficient Flowsheet #1. The results were inconclusive but noteworthy because of the observed formation of a voluminous precipitate in IAFS solution (0.9 M UNH, 1.0 M ANN, 0.2 M NaOH) which contained 2.5 g/l of ferric iron. It appeared that the iron hydrolyzed slowly under these alkaline conditions and that traces of iron, from reagent impurities or corrosion, may be very objectionable in acid-deficient process solutions.

Preparation of Solvent Extraction Feed from Metal Wastes

Preliminary experiments have been performed involving the precipitation of sodium diuranate and uranium peroxide from a synthetic solution having the ionic composition of the alkaline supernatant in Waste Storage Tank 103-T. Both the diuranate and the peroxide give satisfactory uranium recovery (>99%) and adequate sulfate removal (final mole ratio $U/SO_4 > 15$) in a single precipitation. As expected, the major difficulty in both precipitation methods is the phosphate removal. The maximum U/PO_4 mole ratios which have been attained are five for the diuranate and eight for the peroxide, as compared to the 0.4 mole ratio in the original 103-T supernate.

Sodium diuranate usually precipitates in a flocculent and voluminous form, making it difficult to separate and wash free from mother liquor. Conditions which have been found to increase the particle size and density include (1) slow, simultaneous addition of the supernate and caustic, (2) dilution of either reactant, and (3) vigorous agitation during the precipitation. The temperature of the slurry during precipitation and digestion has no appreciable effect on the density of the precipitate.

Under favorable conditions (slow, simultaneous addition of the supernate and 5% NaOH) a precipitate with good settling characteristics centrifuges to a solid containing 1.8 moles of uranium per liter. The U/PO_4 mole ratio in this precipitate is 5.1 after a single equal-volume wash with hot 0.1 N -NaOH. Successive washings remove phosphate ion only slowly, indicating the probable presence of uranyl phosphates. Conversion of such uranyl phosphates to sodium diuranate should be facilitated by increasing the pH of the precipitation or metathesis

Separations Technology Division

medium. Accordingly, alkaline precipitation is now being studied using 50% NaOH to give higher hydroxyl ion concentrations and to minimize the increase in waste volumes at the possible cost of some reduction in "uranium molarity" of the resultant precipitate.

Attempts to precipitate uranium peroxide directly from 103-T supernate containing excess hydrogen peroxide by the addition of 70% HNO₃ gives a product having a U/PO₄ mole ratio of 1.0 ± 0.2 over the pH range 4.0-0.5. This ratio indicates that the precipitate is uranyl hydrogen phosphate (UHP) containing little, if any, peroxide. Similarly, if the supernate is acidified to dissolve completely the UHP and excess hydrogen peroxide is added, pH adjustment with ammonium hydroxide results in a precipitate having a U/PO₄ ratio of 1 or less over the pH range 0-7. Under the latter conditions, the precipitate is probably uranyl ammonium phosphate (UAP), which is even less soluble than UHP.

On the other hand, addition of NaOH to acidified supernate containing excess peroxide produces a precipitate having a U/PO₄ ratio of 2-4 (equivalent to a UO₄/UHP mole ratio of 1-3) over the pH range 1-7. No evidence of metathesis of UHP to UO₄ was obtained on standing at pH 2.7 and 4.2. Further investigation of the acidified supernate-H₂O₂-NaOH precipitation procedure indicates that both phosphate removal and compactness of precipitate are favored by low pH and low temperature. Specifically, a U/PO₄ mole ratio of 8 and a "uranium molarity" of 1.5 can be achieved by precipitation at pH 0.6 and 25°C.

Investigation of the optimum conditions for UO₄ precipitation at low pH is being continued. A study of the phosphate tolerance in the feed solutions for ANL and ORNL #1 and #2 flowsheets is also in progress.

STACK GAS DISPOSAL

Monitoring of plants and filter efficiency was continued by the Technical Division at B Plant (5 days per week) and by the "S" Division at T Plant (one day per week). Operations were normal except for a few days when efficiencies were several tenths of a per cent low at B Plant, presumably due to resumption of frequent dissolver operation. Another activity traverse of the sand filters (by ionization chambers lowered in sleeves extending through the sand bed) showed the expected general increase with maxima again shown at the base of the fine (Type G) sand layer.

Efforts to determine the hydrogen content of dissolver off-gas during coating removal and uranium dissolving operations have been continued. Values obtained ranged from nil to 1.7%. Since analyses for ammonia (on coating removal off-gas) and nitrogen oxides were lower than expected, further work must be carried out before the hydrogen assays can be considered firm.

Three studies were made to ascertain the iodine content of the ventilation air and dissolver off-gas concurrently at several sampling points. Early laboratory results could not be readily interpreted and later re-runs gave discrepant results. Work on this important problem has been suspended until the analytical difficulties can be solved.

Separations Technology Division

Extensive further studies have been made with a 48-inch depth of No. 55 Fiberglass. With a packing density of 3 lbs./cu.ft., runs were made with and without steam injection for air flow rates of 2 to 50 ft./min. As reported, the data showed the expected dependence of efficiency upon flow rate (with some slight exceptions) but did not show significant improvements to result from steam injection. A thorough examination of the system revealed a partially plugged steam orifice, which may have prevented saturation being achieved in the questionable runs. Further study of the effect of steam is planned. Other discrepancies may have resulted from variations in uniformity of packing at the density of 3 lbs./cu.ft., since separate studies of pressure drop showed significant variations to accompany repeated repacking of the "permeability meter" at this low density. Reproducible pressure drop was found at 6 lbs./cu.ft., however.

A number of special runs were made during the month. Particle samples were collected for and given to Dr. Hatch, an AEC consultant on stack gas problems, using equipment furnished by him. A small shipment of CWS Type 7 filter paper was tested briefly on Canyon ventilation air. Early results indicated efficiencies comparable to those for Type 6 paper. Two separate sets of runs were made with a ten-inch section of a commercial fiberglass filter (Dustop) at a packing density of 2.6 lbs./cu.ft. and a specified flow rate of 125 ft./min. Particle removal efficiencies ranged from 5 to 21%, as measured by "Cutie Pie" monitoring. A sample of glass wool (10-inch depth) packed to a density of 7.7 lbs./cu.ft. was similarly evaluated at a linear velocity of 160 ft./min. A surprisingly high efficiency range of 60 to 70% was found for Canyon air.

234-5 PROJECT

Operations

One member of the group was transferred out of the Division at the beginning of the month, and one supervisor and three operators were brought in on loan from the "S" Division during the period.

All remaining R.G. line (including Recovery) hoods were installed in the process bay early in the month. Installation of piping, wiring, equipment, and instruments was approximately 70% complete at month-end. Final acceptance hydrostatic tests were made on the D-4, D-5, D-7, D-8, and parts of the D-3 and D-6 waste systems, as well as portions of the service piping systems.

Official inspections were held on the 283-W Building Addition and on 2704-Z Building. Only minor exceptions were found and the acceptance papers were signed for 283-W Addition. The Medical Division occupied the 2719-A Building late in the month. Preliminary inspections of several rooms in the 234-5 Building were attended although Phase I of Project C-138 was estimated to be only 93% complete at month-end.

Approximately two man-weeks of key personnel time were devoted to the preparation of a report for the General Manager titled, "A Review of 234-5 Project Specifications." This listed the major design specifications advanced by the operations-technical group and discussed the background and bases for same.

[REDACTED]

Separations Technology Division

Development

Three of the four plutonium oxalate precipitates prepared in the previous month have been processed to the metal state in Room 38 of the Isolation Building. No operating difficulties were encountered. Hydrofluorination was indicated to be greater than 99.6% complete in all cases and reduction yields were 96.7%, 97.8%, and 97.8%, respectively, based on the fluoride. Samples were furnished to the Analytical Development Group of the Metallurgy & Control Division at the various intermediate stages.

A spill involving dry plutonium oxalate occurred in Room 41, very strongly emphasizing the limitations of open-face hoods for high product level work where solutions are allowed to evaporate. Decontamination was laborious, but successful at the cost of several man-weeks of clean-up.

Assistance was rendered to W. A. Hartman of the 432 Project group during his demonstration of the plastic bag technique for handling material in and out of ventilated dry-boxes. An access port of this design was installed in the Room 38 dry-box hood where actual use tests have started. The first four entries via the port were quite satisfactory.

Schenectady Liaison

The 432 Project proposals for hood ventilation were reviewed early in March. The air system was considered satisfactory and a number of changes were suggested for the helium system.

The demonstrations of the plastic bag and mitten technique referred to above covered a period of a week in which 95 people from the Maintenance, Design, and Technical Divisions observed the method.

The Schenectady Design is proceeding at a reduced pace (12 engineers and 12 draftsmen) with over-all design and construction estimated to be 45% complete.

[REDACTED]

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.

<u>Inventor</u>	<u>Title of Invention or Discovery</u>
-----------------	--

None

None

R. H. Beaton

R. H. Beaton, Head
Separations Technology Division

Date: April 1, 1949

METALLURGY & CONTROL DIVISION

MARCH 1949

VISITORS & BUSINESS TRIPS

Prof. H. H. Willard of the University of Michigan was here March 10-11 in consultation with the Analytical Section on methods development problems.

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

G. J. Alkire attended an Analytical Symposium of the American Chemical Society at Baton Rouge, La., on March 2-5.

E. W. Rebol attended a meeting of the American Society for Testing Materials in Chicago, Ill., on March 1-3. He spent March 4 at Argonne National Laboratory discussing analyses associated with the P-10 process.

M. C. Lambert attended a Spectroscopy Conference at Oak Ridge National Laboratory on March 23-25.

The American Chemical Society convention at San Francisco, Calif., March 28-31, was attended by D. W. Pearce, H. R. Schmidt, and G. B. Barton. D. W. Pearce attended a meeting of the Fissionable Standards Committee on March 30. All three representatives visited the Radiation Laboratory, University of California, during this same period, to inspect laboratory facilities.

J. K. Figenshau visited the Puget Sound Naval Yards, at Bremerton, Wash., on March 31, to discuss the fabrication of special laboratory equipment.

ORGANIZATION & PERSONNEL

Personnel totals in the several subdivisions are summarized below:

	<u>February 28</u>	<u>March 31</u>
300 Area Plant Assistance Group	12	12
Metallurgy Laboratory Section	20	21
Analytical Section	425	388
Statistics Group	11	11
Information Group	53	53
Administrative	<u>3</u>	<u>3</u>
Totals	524	488

The Analytical Section transferred six laboratory assistants to the Pile Technology Division. Transfers into this Section were as follows: Two instrument makers (machinists) from the Maintenance Division, one draftsman from the Project Engineering Division and one stenographer from the Construction Division.

The Metallurgy Laboratory Section transferred one exempt metallurgist to the Schenectady Works Laboratory. Transfers into this Section were as follows: One laboratory assistant (X-ray technician) from the Medical Division and one equipment designer and one draftsman from the Project Engineering Division. The Information Group employed one non-exempt technical graduate for technical abstracting and literature searching.

Terminations totaled thirty-seven, all from the weekly roll. Of these, twenty-three were laboratory assistants with less than six months' service who were given no-work lay-offs. Twenty-two of these personnel were from the Analytical Section, wherein the analytical control load in support of Redox development had been reduced by 25%.

300 AREA PLANT ASSISTANCE

Chip Briquetting

An investigation of the uranium chip pickling operation, which was started in February (as a part of the chip briquetting process) to effect improved melt plant yields from briquetted turnings, indicated a surprisingly high uranium loss to result from the carry-over of dissolved uranium from the acid pickle into the two flow water rinses. A trial with stationary water rinses showed this rinsing method to be feasible, and production is proceeding with a throughput of about 1800 pounds of turnings before discarding the first water rinse solution for chemical recovery of the dissolved uranium. Turnings processed in this manner do not discolor objectionably after rinsing, and the uranium yield obtained with them during melting (93.4%) is comparable to yields obtained with turnings pickled according to the former procedure.

Slug Canning

In preparation for additional exploratory work to determine the effect of canning conditions on canned slug quality (under PT 313-107-11), it was established that a modified penetration test to determine can wall thickness, which is performed by alternately lathe turning about 0.0025" of the aluminum can from canned slugs and etching, is sufficiently sensitive to permit statistically significant results to be obtained with as few as 20 slugs. Heretofore, can wall thickness has been tested by turning about 0.010" from the can wall, and a much larger number of slugs have had to be examined to obtain significant data on specific canning conditions.

A final report was issued for PT 313-104-11 as Document HW-12859. This report records the results of an investigation of the bronze dip conditions required to effect complete transformation of the uranium slug structure into the beta phase during triple-dip canning. Document HW-12814 was issued as a final report to PT 313-108-11, summarizing the procedure used to prepare 200 beta quenched slugs with a modified triple-dip canning process for pile irradiation.

Induction Heating Experiments

Additional induction heating trials with uranium slugs showed that the unusual end expansion which occurred when gamma extruded slugs were cycled into the beta phase and water quenched was also obtained with alpha rolled slugs. This same behavior was noted when slugs were cycled using mechanical feed equipment specially designed to pass the slugs through the coil at a constant feed rate, but which allowed a $\frac{1}{4}$ " air gap between slugs. This equipment is being altered to permit intimate contact of the slugs in the coil, in an attempt to eliminate the non-uniform rate of heating which appears to cause the above difficulty.

Cyclical heating of alpha rolled slugs into the beta phase in the bronze bath followed by water quenching did not cause this unusual expansion of the slugs.

P-10 Alloy

Work on the installation of Li-Al alloy preparation facilities in Bldg. 108-B is progressing satisfactorily. The high frequency motor-generator set for this project has been received, and the necessary vacuum pumping equipment is on hand. Construction of the resistance-type furnace for melting lithium, and the two vacuum induction melting furnaces for preparing billets, has been started by Maintenance Division shops.

Miscellaneous

At the request of the Redox Development Section, work has been started to procure uranium metal of known silicon content and to determine whether the silicon content reported in the egg analysis is representative of the silicon content throughout the billet.

A final report for PT 314-53-M was issued as Doc. HW-12787. This document summarizes the procedures used to prepare lead-dip and triple-dip canned slugs from alpha extruded uranium for irradiation in the piles. Document HW-12888 was issued as a final report to PT 314-60-M, covering the results of an investigation reported last month on the effect of rolling temperature on the dimensional stability of alpha rolled slugs during triple-dip canning and in the piles.

METALLURGY LABORATORYUranium Alloys

The following uranium alloy rods were received from Battelle: (a) Binary alloys having a nominal composition of 0.005, 0.01, 0.05, 0.1, 1.0, and 2.0 atomic percent zirconium, 0.1, 0.3, 0.6, and 2.0 atomic percent chromium, 1.5 atomic percent silicon, and 0.5 atomic percent strontium; (b) ternary alloys having a nominal composition of 0.005 and 0.1, 0.03 and 0.1, 0.03 and 0.3, 1.0 and 0.1, 1.0 and 1.0 atomic percent, respectively, of zirconium and chromium.

No work was accomplished on these or any of the other alloy rods already available because of the extensive Bldg. 3706 metallurgy laboratory revisions still in progress under project C-227.

X-Ray Crystallography

The x-ray diffraction equipment was moved from Room 101 to Room 7-A, in Bldg. 3706. After installation, the spectrometer was calibrated and all sample holders were adjusted.

A specimen was run to compare intensity data obtained by manual counting with that obtained from spectrometer tracings. Although the sensitivity of the manual counting is considerably higher than that of the spectrometer recorder, it is doubtful whether the additional accuracy in fixing orientations gained in counting would justify the extra time required.

Preliminary plans were made for Instrument Division design and fabrication of a piece of equipment to be used for developmental work on a method for x-ray analysis of irradiated materials.

Radio-Metallurgy

Conversion of Building 111-B to a radio-metallurgy laboratory is 90% complete (Project C-294).

The mechanical hands of schenectady design to be used in wooden mock-up studies of hot metallurgical cell design are now installed in Bldg. 108-B. All electrical connections have been completed. A mirror system and some trial equipment remain to be inserted in the cell.

Modifications of a power hacksaw to be used for sectioning a vertical safety rod (VSR) guide and tip from 100-F pile, and other similar irradiated materials at the 100-B burial ground, are completed. It is planned to use these metals as stand-ins during equipment development in Bldg. 111-B.

Dilatometry

A study was made of the effect of beta quenching upon the expansion characteristics of gamma extruded and alpha rolled uranium. In the "as-received" condition, gamma extruded metal tended to have a random orientation while alpha rolled metal had a definite preferred orientation. After beta quenching, both gamma extruded and alpha rolled metal had a random orientation as judged by the dilatometric data.

Of particular interest was the fact that the alpha rolled samples tested in this study had a coefficient of apparently zero. This means that the b-axis of the uranium was very nearly parallel to the rolling direction.

The above data are based on alpha expansion curves obtained in heating the specimens to the beta transformation point. However, the specimens were always heated

DECLASSIFIED

into the beta region and the alpha coefficient determined on cooling from the beta-alpha transformation. Thus, the effect of slowly heating into and cooling from the beta phase on alpha orientation was observed. The "as-received" alpha rolled metal and both beta quenched metals had a random alpha coefficient after heating slowly into the beta phase. However, the coefficient of the "as-received" gamma extruded metal varied somewhat during the cooling cycle.

Work on the assembly of the dilatometric equipment into a compact unit is continuing.

Redox Corrosion Testing

As a result of investigations of the stability of IAX Redox solution, all tests with this solution which were dynamic in nature, including alternate immersion and stressed sample tests, were discontinued. In lieu of these dynamic tests, static tests employing the former dynamic test steels have been inaugurated. The dynamic and stressed test specimens are now being tested in a total immersion environment, and the alternate immersion specimens in a partial immersion environment. These tests are all being conducted at room temperature.

Stainless steels 309 SCb, 316 ELC, 347 and 318 have now completed a 7-month test in IAF and IBP Redox dynamic solutions. Since no significant changes in the appearance or the weight of these samples were observed, a committee composed of representatives of the Design Division, the Redox Development Section, and the Metallurgy Laboratory decided that the results of these tests would be sufficient and acceptable and that the tests on these particular specimens could be discontinued. Stressed metal tests on stainless steels 347, 309 SCb, 316 ELC, and 318 have completed a total of four months' exposure in IAS, IAF, IBX, and IBP Redox solutions and were found to be in excellent condition.

A steel container clad with 347 stainless steel has been exposed to IAF solution for two weeks with no deleterious effects noted to date.

Miscellaneous

A preliminary aging curve on the aluminum - 10% magnesium alloy has been completed. Plans were made to include samples of this material in the beryllium creep capsules to determine the effect of irradiation on the hardness of the alloy in various conditions of aging.

All parts of the container in which the beryllium will be irradiated have been completed. It is tentatively planned to charge the capsules early in May.

Arrangements have been made for all sites working on the metallurgy of uranium to examine standardized samples of uranium prepared by Battelle, in order to effect a standard terminology and a better understanding of the metallography of this metal. Eight standardized samples of uranium, each sample having had a different heat treatment, have now been received from Battelle.

Service Work

The following work was done for the Pile Technology Division:

- (1) The pile angle knock-up tests were completed, with results as follows:
 (1) Failure due to bending in the first test, and (2) rupture of the plug weld, as well as bending in the second test. In the third test, failure did not occur up to the 60,000 pounds limit of the machine.
- (2) Tensile tests to rupture were made on eighteen-inch lengths of special pile process tubing.

Twelve disconnectors for metal-to-glass seals were copper and then silver plated for the Instrument Division (700 Area).

Spot tests to segregate molybdenum and nickel-molybdenum steels in the construction stockpiles at White Bluffs are partially complete.

An investigation of steam condensate line corrosion is being conducted for the Community Maintenance Section.

ANALYTICAL LABORATORIESWork Volume Statistics

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

	<u>February</u>		<u>March</u>	
	<u>Samples</u>	<u>Determinations</u>	<u>Samples</u>	<u>Determinations</u>
Routine Control - 200	2259	4069	3259	5816
Routine Control - 300	396	980	569	1787
Water Control - 100, 700	12272	23640	13588	26576
Redox Control	673	2734	1905	5742
Process Reagents	994	1718	1653	3139
Essential Materials	141	691	141	621
Special Samples	4536	8638	4616	11160
Stack Gas Filters	<u>148</u>	<u>287</u>	<u>137</u>	<u>234</u>
Totals	21419	42757	25868	55086

100 Areas Process Control

The training of Power Division operators in the procedures used for analytical control of the 100 Areas water treatment processes was started as scheduled. By month end this training had progressed sufficiently to allow transfer of most of this control work to the Power Division early in April.

200 Area Process Control

Agreement was reached with the S Division that analytical control of 200 Area run schedules in T and B plants for the next 8 - 12 months can be handled by a single Bldg. 222 Control Laboratory. Accordingly, it is planned to consolidate this work into 222-B, and release the T plant laboratory for pressing analytical research studies. This decision is recorded in document HW-12892, dated March 30, 1949.

In an effort to determine the possibility of redissolving and analyzing final product (AT) retain samples from the Isolation Bldg., ten samples were investigated. Results indicated that complete dissolution of the sample can be obtained with a nitric acid concentration of one normal or greater. An accuracy of $\pm 5\%$ between the original AT sample assay and the redissolved AT retain sample assay can apparently be expected. Pending disposition of the AT retain sample storage and recovery problem, all retain samples are being weighed by the laboratory prior to storing by the S Division.

A one milliliter sample of the final product solution from the Isolation Bldg. was evaporated to near dryness for shipment to Schenectady.

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

<u>Laboratory</u>	<u>Ave. Geometry (%)</u>	<u>No. Tests</u>
B Plant (222-B)	50.52	115
T Plant (222-T)	50.50	110
Isolation Bldg. (231)	50.52	44

The precision of the analytical results of the T plant canyon starting solution (8-1-MR), the B plant canyon starting solution (6-3-MR), the Isolation Bldg. starting solution (P-1) and the final product solution (AT) may be summarized as follows:

<u>Sample</u>	<u>Precision**</u>		
	<u>Expected</u>	<u>February Ave.</u>	<u>March Ave.</u>
*8-1-MR	1.43	1.49	1.25
6-3-MR	1.43	1.36	1.59
P-1	2.39	2.51	1.97
AT	1.98	1.74	1.77

*The 8-1-MR samples were discontinued in the T canyon with run T9-3-F35. Both the B Plant and the T Plant are now using the 6-3-MR sample as a basis for material balance control.

**Effective February 11, cumulative precisions were discontinued and monthly averages are compared with "expected" values (see explanation in February report).

The results of the synthetic 8-l-HR assays are tabulated below. The standard precipitation procedure, Ca-2n, was used and the percent recovery based on 2.077×10^6 c/p/ml.

Month	Laboratory	Ave. Results ($\times 10^6$)	No. Assays	% Recovery
February	222-B	2.064	14	99.4
	222-T	2.065	13	99.4
March	222-B	2.078	12	100.1
	222-T	2.065	17	99.4

The standard iron solution used in the Isolation Bldg. Laboratory to check the chemical titration of plutonium was analyzed a total of 86 times during the month. There were 73, 12, and 1 results inside $\pm 1\%$, $\pm 2\%$, and outside $\pm 2\%$ of the assay value, respectively. The average precision for duplicate titrations was ± 1.76 as compared to ± 2.37 for February.

Assay Value	Group Ave.	% Diff.	No. Determinations	Precision ($\pm\%$)	
				Single	Duplicate
14.65	14.64	- 0.07	30	1.87	1.32
14.98	14.99	+ 0.06	22	2.95	2.09
14.99	14.96	- 0.20	24	3.32	2.35
11.06	11.04	- 0.18	20	1.78	1.26

300 Area and Essential Material Control

General

A preliminary study of the essential materials requirements of the Redox process is in progress. A tentative list of chemicals and their constituents has been compiled and laboratory work has been started. Complete information as to the constituents desired and the lower limits required is to be supplied by the Chemical Development Section.

Spectrographic procedures for the analyses of 2S aluminum have proven satisfactory and have been placed in effect on a routine basis. Procedures for the spectrographic determination of copper and aluminum in tin are now under investigation, and results to date have been encouraging.

Wet chemical procedures for the determination of Li, B, Cu, Fe, and Si in P-10 alloy have been tested and appear to be satisfactory. Development of spectrographic procedures for the complete analysis of this alloy is in progress. Reagent grade aluminum-oxide has been found to be sufficiently pure for the preparation of synthetic standards.

A program intended to appraise alternate methods of uranium scrap recovery has been initiated by the P Division. Each type of this scrap is to be analyzed for its uranium content. To date, approximately 150 samples have been scheduled for analysis and some of these have been completed.

Redox Process Control

At month end, there were 74 people assigned to the Redox program, all of whom were permanently assigned to Bldg. 3706. The standards program continued to full effect and over 1,400 results were obtained on known synthetic samples.

Methods Adaptation

The fluorimetric procedure for the determination of uranium is being systematically studied for those elements which cause quenching of the fluorescence. To date, chromium has been studied and its effect has been measured.

An attempt has been made to apply this fluorimetric procedure to the determination of uranium in 5-6-W samples from the BiPO_4 process. Comparative analyses were made on synthetic standard by the fluorimetric and colorimetric (ammonium thiocyanate) procedures and good agreement was obtained. However, on a plant sample, the fluorimetric procedure gave significantly lower results. The plant sample was then concentrated and analyzed volumetrically but the result obtained was considerably higher than was expected. The fluorimetric procedure is believed to be the most accurate but, as yet, no conclusive evidence has been accumulated.

The procedure for the determination of phase separation time of Redox solutions has been established and placed on a routine analysis basis. Similarly, a procedure for spectrophotometric determination of mesityl oxide has been issued. In the latter, the mesityl oxide is separated by extraction with iso-octane and its adsorption is read directly.

The polarographic method for the determination of uranium has been found to be satisfactory in the range of 0.2 to 7.0 g/l of UNH. Results obtained in the control laboratory indicate that a precision of 5% may be obtained in this region. Investigation of this method at higher concentration ranges is being continued.

Miscellaneous Analyses

Considerable effort has been spent during this period on the analysis for hexene decomposition products. Difficulty was encountered in analyzing for NO and NO_2 in gaseous mixtures, and the problem has been referred to the development group for further study. Erratic results were obtained for the determination of C, H_2 and N_2 in synthetic decomposition products by combustion methods. Some of the error was found to be due to the type of tube packing used, but the purity of the compounds is also open to question.

Work on the analysis of gases evolved in various plant process stages continued. No significant amount of hydrogen was detected in the exhaust gas from uranium chip-pickling. Likewise, no NH_3 or NO was detected in 200 Areas dissolver off-gas.

Equipment for the determination of cerium and for the determination of organic acids by distillation was set up in the Research Service Laboratory,

and these constituents can now be determined on a routine basis.

Chemical and Counting Standards

The fatigue characteristics of mica window tubes have been under investigation for some time. Early in the month it was shown that tube fatigue could be reduced if static charges on the window could be prevented. This was accomplished by coating the mica with Aqua-Dag to provide a conducting surface. Further testing has shown that the distance between the electrode and the window is significant. If this distance is sufficient to prevent discharge of the electrode, fatigue can be eliminated. With these modifications, all tubes now in operation are performing satisfactorily.

In cooperation with the Instrument Division, a mica window tube supplied by Tracer Lab has been tested extensively. Although it differs considerably from the Hanford tube in construction, its average performance is comparable. This tube has shown a tendency toward instability of plateau and threshold voltages, but this may correct itself after the tube has been in operation for some time.

Experimental Shop

Four wooden hoods, fabricated by the Maintenance Division, were equipped with automatic dampers by the Technical Shops. These hoods are now being installed in Bldg. 3706 and will be subjected to severe use tests. A gloved box unit, fitted for animal experimentation, was fabricated for the Health Instrument Divisions. A second unit, designed for the 234-5 project, is nearing completion. It is composed of two boxes joined together in series, and is equipped for the handling of dry radioactive materials.

An adjustable coll carrier for Beckman Spectrophotometers was designed and fabricated. This carrier also has an alignment mechanism which allows the use of several sizes of colls in one carrier.

A revised model of the electric wand-type stirrer was completed and tested. The unit was found to be satisfactory in operation and several more are now being fabricated for Hanford at the Puget Sound Naval Yard. Design work on stirrers to be used in gloved box operation is being continued.

Special Hazard Control

A stainless steel decontamination sink and hood was installed in Room 7 of the 222-T Laboratory, replacing the obsolete bayonet cleaning hood.

In order to investigate further the possibility of using filter assemblies in the vacuum lines of the Isolation Bldg. Laboratory, thus eliminating the use of water aspirators for vacuum and reducing the volume of water sent to the liquid waste disposal cribs, a modified assault mask filter has been fabricated and installed for evaluation.

Analytical Research and Development

The X-ray photometer has been placed in service in the control laboratories for the determination of U in Redox solutions; a series of standard solutions analyzed with this instrument was found to yield results within 1% of the standard value. A series of standard solutions was analyzed for Al in the Redox Control Laboratory by the volumetric method; a precision of 3.2% (99% limits) was found.

U(VI) was found to interfere in the standard colorimetric procedure for the determination of NO_2^- and in the distillation of methyl nitrite from HCl solutions; distillation from an H_3PO_4 solution, followed by colorimetric evaluation, was found to permit the determination of 2 to 5 μg . of NO_2^- to within $\pm 10\%$. A gasometric method using sulfamic acid as a reagent gave a precision of $\pm 10\%$ in the determination of 50 μg of NO_2^- .

The reagent aluminon has been employed in the determination of Al in hexone; the method eliminates interference from Fe, Cr and U and is capable of determining 0.1 to 1 g of ANN per liter with a precision of $\pm 25\%$. The potassium oxalate procedure for determination of HNO_3 in Redox solutions has been reduced to the micro scale and has a precision of $\pm 5\%$ on a 10 lambda sample.

Experiments have continued on application of LaF_3 carrying procedure for the determination of small quantities of Pu in the presence of large quantities of U; it was found that the optimum pH for precipitation is 0 to 1, and that washing the precipitate with dilute HF will dissolve U but not Pu compounds. A solution of Ru(IV) nitrate, containing HNO_3 and KNO_3 , was prepared and found to give two separate and distinct polarographic waves of equal height; the solution was prepared from Ru(III)(IV) chloride by oxidizing with chlorine at room temperature and then fuming several times with HNO_3 . Ammonium ceric nitrate was found to be a purer and, therefore, a more reliable salt than cerous nitrate for preparation of standard cerium carrier.

Infrared absorption studies show no indication of an addition complex between the components of a water and hexone solution; contrary to the literature, no such addition complex was found between acetone and water.

A procedure has been established for the determination of organic acids in Redox solutions; it involves addition of H_3PO_4 to the sample, distillation of the acids, addition of isopropyl alcohol to the distillate and titration with alcoholic KOH using the potentiometric endpoint. Coulometric titrations have been applied to the determination of weak organic acids, and were found to give a precision of about $\pm 5\%$ when applied to 400 lambda of 0.1 g/L acetic acid solution.

The Section has cooperated with the Chemical Research Section on a special problem that involves the analysis of gas evolved from a nitric acid-hexone solution.

In the 234-5 Process, the Pu cupferrate-spectrochemical procedure has been adapted, tested, and found adequate for the determination of 18 separate

impurities in process materials. A method has been established for the determination of impurities in witch-hazel, and standards have been prepared for the spectrochemical determination of B in MgO. The observation that La solutions absorb ultraviolet radiation of 212 mμ wave length has led to an attempt to employ this property in the determination of La in Isolation Building process materials.

Radioactivation studies have shown that the half life of Eu^{152} is 9.32 ± 0.04 hours, and that of Sm^{153} is 46.3 ± 0.3 hours. Neutron-irradiated phenanthrene was found by infrared absorption studies to contain phenyl compounds.

The flame photometer has been employed in the determination of Li in P-10 alloy and spectrochemical methods have been employed in the analysis of the first P-10 gaseous by-product.

Steps are being taken to have two spontaneous fission counters constructed at K.A.P.L. for the study of Pu isotope ratios in Hanford materials produced under various pile conditions of operation.

STATISTICAL STUDIES

300 Area P Division Data

At the request of the P Division, a study was made of the savings which have accrued during the past ten months due to lower Al-Si rejects resulting from the use of a new type crimping tool. The savings, which were material, were reported to the P Division.

The canning yield for March was below statistical control limits, but was considerably better than any month during the past year with the exception of February when the yield was within control limits. The lack of control coincided precisely with changes in personnel which occurred during the month. Frost test and marred surface rejects were major factors depressing the yield.

Statistical Quality Control techniques are being extended to the 300 Area melt plant in cooperation with the P Division and the 300 Area Plant Assistance Group.

A preliminary study was made of the effect of the Victor cans on rejects. No apparent differences were determined.

300 Area Plant Assistance Data

A study of pre-exposure dimensions of uranium slugs fabricated under FT-314-60-M was made for the 300 Area Plant Assistance Group, and a pile loading diagram was prepared.

A preliminary study indicated no statistical justification for the present practice of segregating type Z and M slugs because of reactivity differences.

An improved method for measuring can wall penetration was recommended to the 300 Area Plant Assistance Group, whereby the sample size necessary to detect significant penetration differences was reduced from 1500 slugs to 20 slugs.

300 Area Analytical Data

Statistical calculations of half-life and the associated precision were made from data on two decay curves submitted by the Analytical Section.

Metallurgy Laboratory Data

A study has been made to determine the possible mathematical relationship between the relative intensity of X-ray diffraction from various uranium crystal planes, and the angle which they make with a plane perpendicular to the rolling direction. A modified hypocycloid equation was found to fit satisfactorily for samples with a high degree of orientation, but did not apply in other situations.

Pile Engineering Data

In order to determine the operating efficiency when the operating level of a pile is limited by temperature rise in a few individual tubes, data from daily temperature maps were analyzed to determine control limits for maximum temperature rise in an individual tube in each zone of the 100-D pile. Satisfactory limits were obtained from 24 hours after start-up forward, and the ratios of maximum temperature to average temperature computed. Additional data on the first 24 hours after start-up have been submitted, and will be used to complete the control picture.

The precision of electrical resistance and thermal conductivity measurements on graphite was computed.

Pile Physics Data

The exact numerical solution of a set of three simultaneous linear differential equations was computed. Several short numerical calculations of a purely mathematical nature were made.

200 Area S Division Data

As one of the initial steps in the statistical study of 200 Area material balances, a significant correlation was found to exist between Hanford-Los Alamos differences and Hanford 200 Area material balances. This means that techniques applied to control Hanford-Los Alamos differences will also be of benefit in 200 Area accountability.

200 Area Plant Assistance Data

A decay curve study was made for the 200 Area Plant Assistance Group on counting data obtained over a period of four months on LaF_3 precipitates from oxidized 8-1-MR and 8-3-WS solutions. A statistically significant decay, consistent in half-life with theoretical considerations, was found to exist.

Chemical Research Data

A study is being made to find a possible mathematical relationship between the distribution coefficient for plutonium and the composition of the aqueous phase, as a part of the equilibrium studies in progress.

200 Area Analytical Data

The application of the relationship between chemical assay and specific gravity which has proved so successful in the accuracy control of AT analyses was found to be impractical with P-1 solutions because of the lower plutonium content.

Control charts have been furnished to the Analytical Section to assist in the accuracy control of the analysis of Redox Solutions.

Routine accuracy studies of 8-1-MR radio assay determinations have been established and will be included in future monthly analytical accuracy and precision reports.

200 Area Accountability Data

As a result of extensive statistical studies during the past year, a considerable amount of information in regard to Los Alamos-Hanford product measurement differences, requested by the AEC S.F. Accountability Group as a result of their previous visit to Hanford, has been obtained. This information has been summarized for presentation at the next meeting with the Accountability Group (scheduled to take place at Hanford during April).

Instrument Division Data

Considerable progress has been made on the development of the sequential process for the inspection of G.M. tubes. A full report on the procedure will be issued soon.

North Richland Realty Division Data

Additional data on cafeteria use trends have been received and are being processed.

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 the following periodicals: "Annales de Chimie", "Annales de Physique", "The Analyst", "Biological Abstracts", and the early volumes of the "Journal of the American Chemical Society". Literature searches were undertaken during the month on such varied topics as the preparation and properties of deuterium and hydrogen peroxide; corrosion problems of the 241 tank farms; corrosion of stainless steel; lead burning and welding; water-

proofing of canvas; etc.

Two issues of the Information Bulletin were published during the month, the February issue being late due to delay in receipt of the inserts used.

Library statistics were as follows:

(Note: Previous figures did not include the processing for circulation of unclassified reports. This consists of checking in the report, binding it in a folder, preparing a book pocket and charge-out card for it, and filing in the unclassified report catalog the index cards relating to it).

	<u>February</u>	<u>March</u>
Number of books on order received	161	221
Number of books fully cataloged	205	373
Number of bound periodicals processed but not fully cataloged	152	278
Pamphlets added to pamphlet file	26	144
Miscellaneous material received, processed, and routed (Included maps, photostats, patents, etc.)	53	103
Books and periodicals circulated	1065	1412
Unclassified reports processed	(No record kept)	690
Unclassified reports circulated	156	253
Reference service rendered	953	870

	<u>Main Library</u>	<u>W-10 Branch</u>	<u>Total</u>
Number of books	4164	1599	5763
Number of bound periodicals	3206	100	3306

Classified Files

The usual work on the receipt, issuance, and routing of documents proceeded routinely.

The new "Registered Delivery" mail procedure was inaugurated with HW Instructions Letter #112. This Instructions Letter was reviewed at a meeting of all Plant personnel who work directly with the mail services. Suggested forms and procedures to implement the Letter were distributed.

The staff of the Report Abstracting Unit was completed by the addition of a third Technical Abstracter. This program is rapidly gathering momentum and is being extended to include the earlier Project reports. Every effort is being made to correlate the program as closely as possible with the indexing program underway at the Technical Information Branch of the AEC at Oak Ridge. In this connection, selected sets of index cards covering reports indexed here are currently being sent to Oak Ridge.

On their part, the subject headings of CA-1927 (Subject Headings to be used in the Indexing of Reports) are constantly being expanded and adapted to Hanford's specific needs. Subject Headings submitted in February covering the 300 Area metallurgy and canning processes have been accepted and incorporated as additions to the 3rd revision of CA-1927 which already contained an earlier subject breakdown submitted on the Redox Process. In addition, a set of subject headings covering the Rala Process has been developed and submitted to the Technical Information Branch of Oak Ridge for inclusion in future revisions of CA-1927. Finally, reorganization of the present report index to conform to the subject arrangement of the third revision of CA-1927 was completed.

A new three-runs-per-day pickup and delivery mail schedule was instituted in the 300 Area. All offices in the Area are currently being circularized regarding their personnel, and the information developed will be used to compile an up-to-date mailing list for the 300 Area.

Work statistics for the Classified Files were as follows:

(Note: Future tabulations will include number of technical reports abstracted by Report Abstracting Unit.)

	<u>February</u>	<u>March</u>
Documents routed	12,043	10,055
Documents issued	6,607	5,947
Reference services rendered	4,245	3,978
Reports abstracted	(No record kept)	452

Files Assistance Unit statistics were as follows:

Ditto masters run	848	790
Micrograph stencils run	515	1,188
Ditto master copies prepared	42,412	34,658
Micrographed copies prepared	26,527	55,657
Volume of mail handled	13,060	17,917

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)

T. J. Birchill
T. J. Birchill

Item

Stirrer for Sealed Container
Beckman Spectrophotometer Cell Box and Carriers

Signed

T. W. Hauff
T. W. Hauff

Division Head.

MEDICAL DIVISION

MARCH 1949

General

The Medical Division roll decreased to 508.

Industrial

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

Employee physical examinations increased from 4,971 to 5,612, due primarily to termination examinations. First aid treatments decreased by 4,051 to 12,852.

Total absenteeism decreased to 2.84%. Of this, 2.06% was due to sickness only.

Eleven major and twenty-six sub-major injuries were treated. Of these, three majors and three sub-majors were sustained by G. E. employees.

"Mass Chest X-Ray" for all residents 15 years or older was the health topic for discussion at Safety-Health meetings. Chest x-rays will be made available to all residents during the coming month.

Communities - Hospitals & Clinics

The average daily hospital census was 102. Average daily clinic visits were 356, 20% of this total being treated at North Richland.

Dental clinic visits increased to 3,611.

Public Health

Communicable disease showed a slight increase with chicken pox and German measles contributing almost 70% of the total.

Costs (February)

Net cost of operation of the Medical Division (before assessments to other divisions) was \$122,908., a decrease of \$12,291. This was due to a net decrease of \$8,000. in expense, which consisted of \$11,000. decrease in direct expense and an increase of \$3,000. in transferred charges, plus an increase of \$4,000. in revenue.

The net expense of hospitals and clinics was \$5,053. as compared to \$9,343. for January. This expense was made up of hospitals \$15,104., while the clinics operated at a profit of \$10,051.

MEDICAL DIVISION

MARCH 1949

Plant Medical Section

General

Dr. M. W. Toll of the Knolls Laboratory was a visitor to this plant during the month.

The new first aid station in the 200-W area began operation. It has been planned that x-rays will be taken in this area and in 100-H, thus eliminating time-consuming trips to Richland in many cases where the trip is necessary only for x-rays. With the present volume of patients seen in these two areas, it is estimated that a \$6. per year saving will result.

The industrial physicians' scientific meeting dealt with industrial dusts and particles. Apparatus for collection of samples was demonstrated, and the physiology and pathology in this regard was discussed.

With the large number of termination examinations for both operating and construction employees, the number of claims filed with the Washington State Department of Labor increased considerably during the month.

Dr. J. H. Gray has been assigned to the 100-F area to replace Dr. W. H. Frazee who has accepted a position with the Du Pont Company Chambers Works in New Jersey.

The new degreasing units in the 105 Building 100-H Area have been inspected and appear to be satisfactory. Control check tests for atmospheric contamination with Tri-clene during regular operation are to be made. All men employed on this operation have received a special medical examination which will be repeated periodically.

A procedure has been instituted to re-examine periodically all sand-blasters employed on this project.

The number of examinations increased from 4,971 in February to 5,612 in March. This increase was due chiefly to termination examinations. The number of first aid treatments decreased from 16,803 to 12,852. Three G.E. major and three sub-major injuries were treated during the month. Sub-contractor major injuries numbered eight and sub-majors twenty-three.

The Health Activities Committee met on March 16th, and the health topic "Mass Chest X-Ray" for all residents 15 years or older was presented. It was announced that a mobile unit will be placed at convenient locations during the month of April for mass survey of this community. Material regarding the benefits of such surveys is to be distributed throughout the plant.

MEDICAL DIVISION

MARCH 1949

<u>Physical Examinations</u>	<u>Feb. 1949</u>	<u>Mar. 1949</u>	<u>Year To Date</u>
Pre-employment (G.E.).....	99	11	309
Food Handlers.....	113	42	279
Annual.....	466	425	1377
Sub-contractors.....	3294	3285	8467
Rechecks.....	376	314	1113
Interval Rechecks (Area).....	519	749	1703
Terminations & Transfers (G.E.).....	96	768	954
Government.....	8	18	29
Total.....	4971	5612	14231

Laboratory Examinations Clinical Laboratory

Government.....	28	76	111
Pre-employment, terminations, transfers.....	6342	5885	20121
Annual.....	2892	2592	8445
Rechecks (Area).....	2800	3663	8849
First Aid.....	69	67	182
Clinic.....	4127	4277	12095
Hospital.....	4206	3647	11866
Public Health (Including food handlers).....	517	463	1584
Total.....	20981	20670	63253

X-Ray

Government.....	9	12	24
Pre-employment, terminations, transfers.....	1076	408	2812
Annual.....	479	454	1434
First Aid.....	394	304	1014
Clinic.....	449	425	1290
Hospital.....	362	276	999
Public Health (Including food handlers).....	99	46	261
Total.....	2868	1925	7834

Electrocardiographs

Industrial.....	176	149	535
Clinic.....	17	15	54
Hospital.....	38	30	106
Total.....	231	194	695

Allergy

Skin Tests.....	85	63	194
-----------------	----	----	-----

Pathological Slides

Hospital.....	0	210	210
---------------	---	-----	-----

1219612

RECEIVED
MARCH 1949

111

MEDICAL DIVISION

MARCH 1949

<u>First Aid Treatments</u>	<u>Feb. 1949</u>	<u>Mar. 1949</u>	<u>Year To Date</u>
Occupational Treatments.....	2198	1756	6299
Occupational Retreatments.....	8121	6297	22448
Non-occupational Treatments.....	6484	4799	18714
Total.....	<u>16803</u>	<u>12852</u>	<u>47461</u>

Major Injuries

General Electric.....	1	3	6
Sub-contractors.....	19	8	39
Total.....	<u>20</u>	<u>11</u>	<u>45</u>

Sub-major Injuries

General Electric.....	7	3	15
Sub-contractors.....	41	23	134
Total.....	<u>48</u>	<u>26</u>	<u>149</u>

Absenteeism

Weekly employees, all causes.....	3.20%	2.84%	2.95%
Weekly employees, sickness only.....	2.29%	2.06%	2.07%
Total days lost by males due to sickness...	1898	1668	5548
Total days lost by females due to sickness...	1270	1183	3657
Total days lost due to sickness.....	3168	2851	9205
Investigation:			
Total calls requested.....	27	17	80
Total calls made.....	27	17	80
No. absent due to illness in family.....	0	0	0
No. not at home when call was made.....	0	1	3

Village Medical Section

General

The average daily hospital census was 102, a decrease of 25% over the previous month, and an increase of 20% over March, 1948.

Clinic visits decreased from 9,803 to 9,260. This is 6% lower than February 1949, and 44% higher than March, 1948. North Richland Medical Center accounted for 20% of the current total.

The net expense of the Richland community medical program was \$5,053, as compared to \$9,343. for January. This was made up of Kadlec Hospital expense of \$15,104., a \$600. increase over January, together with the clinic which operated at a profit of \$10,051. Clinic profits were \$5,000. greater than the previous month.

North Richland hospital showed a profit of \$293. as compared to a loss of \$731. for the previous month. The net expense of North Richland clinic was \$1,879., a decrease of \$140. over January.

1219613

112

MEDICAL DIVISION

MARCH 1949

<u>Clinic Visits</u>	<u>Feb. 1949</u>	<u>Mar. 1949</u>	<u>Year To Date</u>
Medical.....	2015	1901	6050
Pediatrics.....	847	780	2561
Well Babies.....	195	237	724
Surgical.....	881	1000	2757
Gynecological.....	692	782	2029
Obstetrics (new).....	127	103	333
Obstetrics (recheck).....	862	1002	2717
Venereal Disease.....	389	334	1043
Ear, Nose & Throat.....	535	576	1695
Eye.....	284	317	763
Visits handled by nurses.....	2172	1536	5828
Night clinic visits.....	804	692	2634
Total.....	<u>9803</u>	<u>9260</u>	<u>29134</u>

Average clinic visits per day.....	409	356	383
------------------------------------	-----	-----	-----

Home Visits

Doctors.....	413	247	1148
Nurses.....	694	417	1937
Total.....	<u>1107</u>	<u>664</u>	<u>3085</u>

Kadloc Hospital Census

Admissions.....	609	551	1804
Discharges:			
Surgical.....	114	119	348
Medical.....	173	124	460
Obstetric & Gynecologic.....	135	141	393
Eye, Ear, Nose & Throat.....	57	54	173
Pediatrics:			
Children.....	69	53	203
Newborn.....	77	91	241
Total Discharges.....	625	582	1818
Patient Days.....	3568	3163	10284
Average Stay.....	5.8	5.7	5.6
Average Daily Census.....	127.4	102	114.6
Discharged against advice.....	2	3	8
One-day cases.....	80	82	254

Operations

Transfusions.....	28	49	130
E. E. N. T.....	49	38	131
Dental.....	0	1	4
Casts.....	30	21	71
Minors.....	77	77	215
Majors.....	63	66	186

MEDICAL DIVISION

MARCH 1949

<u>Vital Statistics</u>	<u>Feb. 1949</u>	<u>Mar. 1949</u>	<u>Year To Date</u>
Deaths.....	5	5	21
Deliveries.....	80	81	238
Stillborn.....	1	1	2
<u>Physiotherapy Treatments</u>			
Clinic.....	117	145	398
Hospital.....	59	22	152
Industrial:			
Plant.....	403	310	1038
Personal.....	57	60	169
Total.....	<u>636</u>	<u>537</u>	<u>1757</u>
<u>Pharmacy</u>			
No. of prescriptions filled.....	4318	3905	12728
<u>Patient Meals</u>			
Regulars.....	5611	4337	15240
Lights.....	163	216	564
Softs.....	1738	1388	5064
Surgical Liquids.....	89	83	321
Tonsils & Adenoids.....	111	73	295
Specials.....	1056	1394	3485
Liquids.....	275	212	797
Total.....	<u>9043</u>	<u>7703</u>	<u>25766</u>
<u>Cafeteria Meals</u>			
Noon.....	2481	2644	7845
Night.....	307	338	967
Total.....	<u>2788</u>	<u>2982</u>	<u>8812</u>
<u>Nursing Personnel</u>			
First Aid Nurses.....	52	45	
Clinic Nurses.....	19	18	
Public Health Nurses.....	13	14	
Hospital General Nurses.....	82	83	
Aides & Orderlies.....	57	53	
Total.....	<u>223</u>	<u>213</u>	

MEDICAL DIVISION

MARCH 1949

Public Health Section

General

Communicable disease control visits remain the same with chickenpox and German measles accounting for the principal portion.

Arrangements have been made with Mr. P. A. Wright, Superintendent of the Richland Schools, to begin auditory training and lip reading with five students who have been under supervision of the Conservation of Hearing Program in Richland.

During the month of March, plans were completed for the development and operation of the free mobile chest x-ray survey.

The mosquito control crew started operation the first of the month. Their activities to date have been confined to cleaning ditches and burning last year's vegetation and woods from the breeding areas.

Laboratory tests were made to ascertain dishwashing efficiency of Richland food handling establishments. Results were within the U. S. Public Health Service Standards in 14 out of 16 samples tested.

<u>Administration</u>	<u>Feb. 1949</u>	<u>Mar. 1949</u>	<u>Year To Date</u>
Newspaper Articles.....	18	12	58
Committee Meetings.....	15	15	45
Attendance.....	200	200	600
Staff Meetings.....	3	2	8
Conferences.....	36	36	108
Attendance.....	150	150	450

Immunizations

Cholera.....	1	2	3
Diphtheria.....	72	139	300
Influenza.....	0	0	5
Smallpox.....	29	23	91
Tetanus.....	1	1	4
Typhoid.....	1	2	4
Whooping Cough.....	0	0	1
Total.....	104	167	408

Social Service

Cases carried over.....	74	77	233
Cases admitted.....	27	32	75
Total.....	101	109	308
Cases closed.....	24	17	65
Remaining case load.....	77	92	243

MEDICAL DIVISION

MARCH 1949

<u>Social Service - Sources of Referral</u>	<u>Feb. 1949</u>	<u>Mar. 1949</u>	<u>Year To Date</u>
Public Health.....	9	7	19
Doctors.....	11	15	35
Interested Person.....	1	0	1
Schools.....	1	0	1
Personnel Office.....	0	1	1
Personal Application.....	3	4	11
Other Agency.....	0	1	1
Miscellaneous.....	2	4	6
Total.....	27	32	75
<u>Sanitation</u>			
Inspections made.....	389	454	1219
<u>Bacteriological Laboratory</u>			
Treated water samples.....	198	205	589
Milk samples (Inc. cream and ice cream)....	101	185	392
Other bacteriological tests.....	338	394	1116
Total.....	637	784	2097
<u>Communicable Diseases</u>			
Amoebic Dysentery.....	0	1	1
Chickenpox.....	96	92	315
German measles.....	11	35	59
Gonorrhea.....	6	3	17
Impetigo.....	0	0	2
Influenza.....	4	2	8
Measles.....	0	7	15
Meningococcic Meningitis.....	0	3	3
Mumps.....	9	7	18
Podiculosis.....	1	0	2
Pinkeye.....	10	4	19
Ringworm.....	2	2	9
Scabies.....	2	0	7
Scarlet Fever.....	2	3	8
Syphilis.....	25	23	63
Tuberculosis.....	0	2	2
Vincent's Infection.....	0	1	2
Total.....	168	185	550
Total No. nursing field visits.....	1653	1501	4908

RECEIVED
MARCH 1949

1219617

MEDICAL DIVISION

MARCH 1949

Dental Section

General

The total number of patients treated in the Dental Section increased 9% over the previous month, and 25% over March, 1948. Average for the current month was 139 patients treated daily.

	Feb. 1949	March, 1949	Year To date
Patients treated.....	3336	3611	10165

MEDICAL DIVISION PERSONNEL SUMMARY

March 31, 1949

AREAS	Physicians	Dentists	Nurses	Aides & Orderlies	Technicians	Office Workers	Others
100-H			4			1	
234-5			1				
White Bluffs			2				
241-BY			1				
101			1				
3000	10	2	9	4	6	24	14
100-B			5			1	
100-D					2*		
100-F					2*		
200-E			4		2*	2	
200-W			4		2**		
300			2		2**	1	
Plant General	6		10				
700-1100	23	9	117	49	25	86	83
Total	39	11	160	53	33	115	97

Grand Total: 508

Number of employees on payroll:

Beginning of month 520

End of month 508

Net decrease 12

* One day per week.

** Two days per week.

HEALTH INSTRUMENT DIVISIONS

MARCH 1949

Summary

The force decreased by three. Three Class I special Hazards Incidents were reported; one indicated how errors or relaxation in control can cause spread of dangerous amounts of active materials through public residences, vehicles, etc.

Several hazardous conditions, apparently resulting from poor job analysis, operating errors, or improper personal contamination surveys, were reported by the Operational Division. In general, radioactive particle emission from process stacks approximated the level reported last month.

In the Development Division, normal results were obtained on samples of water, air, and vegetation. The low yield problem in the Bioassay procedure for plutonium analysis was reported solved. Fluorophotometer analysis showed a maximum uranium content of 83 μg in the urine of 300 Area workers.

In the Biology Division, the Botany Experimental Farm was established, and planting was started. The Biochemistry group moved into temporary quarters in the old First Aid Building of 200-W, and the Botany group occupied its new laboratory in 100-F. A shipment of active particles was sent to the University of Rochester.

Health Instrument Divisions

HEALTH INSTRUMENT DIVISIONS

MARCH 1949

Organization

The composition and distribution of the force as of 3/31/49 was as follows:

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>200-W</u>	<u>200-E</u>	<u>300</u>	<u>700</u>	<u>P.G.</u>	<u>Total</u>
Supervisors	1	1	3	8	3	16	7	0	39
Engineers	5	4	10	16	14	7	1	0	57
Clerical	0	0	2	1	1	5	5	0	14
Others	8	15	19	66	34	59	9	6	216
Total	14	20	34	91	52	87	22	6	326

<u>Number of Employees on Payroll</u>	<u>March 1949</u>
Beginning of Month	333
End of Month	<u>326</u>
Net Decrease	7

An Industrial Hygiene engineer was added to the roll. Nominally added were two clerks who displaced employees of short service. The roll was reduced by eight general clerks, 5 of whom were laid off. Two laboratory assistants terminated.

General

Atmospheric contamination arising from the emission of radioactive particles from the process stacks has been maintained at approximately the level established in the past two months. Exceptions are some high values inside process buildings and laboratories, the origin of which will require further investigation.

RF Foster and PA Olson attended a meeting of the Pacific Biologists at Gearhart, Oregon. PL Eisenacher attended the National Research Council Subcommittee Meeting on Instrumentation in New York City, and visited also the Brookhaven Laboratories, and the Knolls Atomic Power Laboratory. W Singlevich attended the meeting of the American Chemical Society in San Francisco to hear the discussion on atmospheric pollution, and also visited the Radiation Laboratory at Berkeley.

Health Instrument Divisions

AC Case observed the biological programs at the Argonne National Laboratory, the Oak Ridge National Laboratories, University of Rochester, and at Schenectady.

Three Class 1 Special Hazards Incidents were investigated. Two involved gross contamination of personnel by plutonium, and the other involved entry into a Radiation Danger Zone during a fire, contrary to Special Hazards Bulletin #8. No undue exposure occurred in any of these incidents; one indicated how easily dangerous amounts of active materials could be spread through the residential areas, public transportation, etc., if errors in control occur.

In the Development Division, it is claimed that the tedious search for factors producing low yield in the difficult plutonium analysis in urine has been successfully concluded.

The Biology Division has made a sound start toward the provision of adequate laboratories with the limited funds available. The Minor Construction Division has expeditiously removed Power Division equipment from the 108-F building, which is to be used as the main shell of the Biology Laboratory. The temporary Radiobotany Hutment is now judged to be adequate for the entire Botany program, with the exception of a gas cell exposure of plants, which in any case would have to be done in the open. Space for Radiobotany will not be included in 108-F Building, thus increasing available space for other groups. An abandoned farm across the river from Hanford has been converted into an experimental station for the study of the effect of Columbia River water used for irrigation. This valuable addition to the environmental hazard program has been completed with maximum economy.

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.

<u>Inventor</u>	<u>Title</u>
LC Schwondiman	An electroplating process for producing uniform stable plutonium counting standard.
JW Healy	A device for obtaining average integrated water samples for radioactivity assay.
MW McConiga	Electrically-powered, water sampling, reel rig
EG Ruppert	Removable water stage shelter bolt plate

RECEIVED
1219522

Health Instrument Divisions

OPERATIONAL DIVISION

100 Areas

General Statistics

	<u>B</u>	<u>D</u>	<u>F</u>	<u>Total</u>	<u>B</u>	<u>D</u>	<u>F</u>	<u>Total</u>	1949 <u>To Date</u>
Special Work Permits	651	490	801	1942	577	747	811	2135	6214
Routine & Special Surveys	582	437	822	1841	583	501	538	1622	5099
107 Effluent Surveys	88	85	81	254	98	95	113	306	841
Air Monitoring Samples	119	52	95	266	111	93	103	307	973

Retention Basin Effluent

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

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>
Power Level (MW)	275	275	275
Average beta dosage-rate (mrep/hr)	0.9	0.7	1.0
Average gamma dosage-rate (mr/hr)	2.4	2.3	2.9
Average total dosage-rate (mrep/hr)	3.3	3.0	3.9
Average integrated dose in 24 hours (mrep)	79	72	94
Maximum integrated dose in 24 hours (mrep)	96	101	106
Maximum integrated dose in 24 hours (mrep) 1949	96	101	106

An examination of the north retention basin at 100-B revealed that the floor and the side slopes have become brittle and chalky. There was also evidence that the basin was badly undermined. Some immediate repairs were made which included mainly the recalking of the expansion joint.

Due to high effluent water activity, both basins were put in operation on March 15. During the shutdown of March 21, "P" Division leak-tested the north basin and discovered it leaking at the rate of about 840 g/m. Because the basin discharge water activity approached permissible maximum during the period prior to shutdown even with two basins in operation, both basins were used following startup. However, because of the danger of undermining the north basin, H.I. suggested discontinuing use of that basin, increasing the tolerance for the activity of the water as discharged into the river. This suggestion was followed with no appreciable increase in activity noted for the outlet basin water. A check of the water monitoring instrument showed all to be functioning properly as far as could be immediately ascertained. To date, however, there has been no indication that water discharged into the river exceeded 4.17 mrep/hr.

100-B Area

A hole was cut into the side of the housing of the condenser in #1 Dryer

[REDACTED]

Health Instrument Divisions

Room in the Gas Purification Building in order to repair leaks in the condenser coil. The dryer was off the line for about two days and the dosage rate was negligible. However, when the cut was almost complete, the dosage rate at the opening rose very suddenly to 3.0 r/hr including 400 mr/hr. Personnel immediately left the room, receiving only a 15 second exposure at this radiation level. Investigation showed that the equalizer valve between #1 dryer room and the other two dryer rooms had been left open, thus displacing the inactive gas in the line and purging hot gas out the opening in the condenser housing. Assault masks were worn at the time of the incident. Contamination checks of personnel and chest checks for radiation did not reveal anything significant. An air filter sample taken during the cutting operation and counts made on sections of the assault mask filters worn showed very little air borne contamination present. A gas sample taken near the condenser after the equalizer valves were closed jammed the counter but indicated 300,000 c/m by extrapolation. The half life for the gas was about 110 minutes, indicating radio-argon. After the activity had diffused sufficiently, the work was completed without further incident. An investigation of the incident under Special Hazards Bulletin #6 was suggested by H.I., but deferred by "P" Division as control was adequate and it occurred due to an obvious operating error.

The "B" test holes were brushed and vacuumed. Personnel exposure was high, but no more than expected. All the equipment used became highly contaminated but the control of contamination in general was excellent and no contamination escaped the vicinity of the facility. Air samples taken during the course of the work were as high as 5.3×10^{-6} μ c/liter. It is expected that this job will reduce contamination encountered in future work at this location.

Following each shutdown during this period, the storage basin flow was reduced before replacing the #4 drain plug. As a result, high air-borne activity from the effluent line was prevalent until the plug was replaced. Personnel were contaminated in the storage area when #4 storage area drain was left unplugged following a shutdown. The contamination level was low and decayed rapidly.

Several filters used in sampling the 105 Building stack air were radiographed, but no particles were found.

Due to the burial of rod guides and tips in the burial trench, the dosage rate at the fence along the east side of the burial ground increased to a maximum of 10 mr/hr. A temporary Danger Zone was established beyond the fence so that the dosage rate at the edge did not exceed 6 mr/hr.

Gas leaks were prevalent along the near side base of the pile. Several were sealed during the period and new ones found. A gas leak was isolated at the front bellows of tube #1555. These leaks together with any disruption in air balance in the building contributed to a spasmodic high background

[REDACTED]

[REDACTED]

Health Instrument Divisions

in the work area and corridor.'

A sample of sludge removed from a dryer room condenser of the Gas Purification Building was sent to the H.I. Methods Laboratory for analysis. Calculated activity of 5.9×10^{-3} $\mu\text{c/g}$ due entirely to S^{35} in the form of SO_4 was reported.

Four spots of particulate contamination were found at the railroad spur just outside the 105 exclusion fence at the rear of the transfer area. They were believed to have fallen from transfer cars during the transfer of casks.

P-10 Operations - 108 Building

No appreciable contamination was encountered when a vacuum pump and the room air Kanne Chamber were dismantled after the initial run last month. Ground glass fittings were removed from hood process lines with no indication of product.

Undue product was encountered each time the spent LiF boat was removed from the furnace. Product liberated from the furnace when the initial boat was removed two weeks after the initial run, produced a reading of 6×10^{-11} amps on the exhaust air Kanne chamber. For following runs, the activity was even greater. Purging the furnace several times before removing the boat was somewhat effective in reducing these readings. Following is a typical example of the activity encountered: (Calculated permissible concentration for breathing - 1.2×10^{-12} amps.)

<u>Operation</u>	<u>Exhaust Kanne Chamber Reading</u>
1st purge	1.3×10^{-10} amps
2nd purge	3.5×10^{-12} amps
3rd purge	2.5×10^{-12} amps
Breaking of furnace seal	2.0×10^{-11} amps
Removal of boat	5.0×10^{-11} amps

Rubber gloves showed definite contamination after being used to remove boats from the furnace. Pellet dust contaminated the floor and equipment in the can opening hood and the floor of the #1 hood upstairs.

Process Hood #2 was operated for the first time on March 23rd. During boat removal, the activity rose to maximum permissible (as read with Zeuto) at the edge of the hood. Personnel were evacuated from the room immediately. Investigation showed that the hood damper was closed, thus preventing the exhaust of gases from the hood. A lock and tag procedure was recommended to prevent a recurrence of this incident.

At no time during this period did the room air Kanne Chamber exceed a reading of 1.5×10^{-13} amps.

Health Instrument Divisions

100-D Area

During the shutdown on March 2, the storage area basin was pumped down in order to repair the chute liners. A narrow flat beam of 3 roentgens per hour was encountered coming from the "A" chute near the point where the temporary effluent line passes under the chute seal wall. An 8-inch irradiated metal piece was found wedged between the pipe and seal wall. This was dislodged into the basin without overexposure to personnel.

A special request sample was pulled into the loading mechanism at the "B" experimental hole and became jammed when an attempt was made to rotate the mechanism. The sample could not be returned to the biological shield and it was necessary to start up the pile with the equipment in this condition. Neutron surveys taken around the slot after start-up indicated a maximum flux of about 40 mrem/hr ($310 \text{ N/cm}^2/\text{sec}$) for fast neutrons and 6 mrem/hr (740 nv) for slow neutrons. Adequate shielding erected before start-up prevented undue scatter. The sample was removed during the next shutdown.

Following the removal of a process tube it was observed that the coating of aquadag on the outside of the tube had flaked off and contaminated a wide area on the discharge face. Personnel were found contaminated about the hands and neck to as much as 2,000 c/m. Washing successfully removed all traces of the material. Air samples taken during the work gave no evidence of air contamination. Assault masks were worn during the entire job.

Helium was circulated through the 105-DR pile during the shutdown of March 22-23. The 105-D pile was temporarily removed from the system and new gas was used. At the completion of the run, and after 105-D had been returned to the system, there appeared to be some slight diffusion of gas past the closed D-DR division valves. Dosage rates up to 20 mr/hr at the D-DR 115 tunnel barricade were observed coming from the process gas lines but the dosage rate was lower as the line approached the DR pile. At the base of the DR pile the level was less than 1.0 mr/hr. Subsequent checks of the area and frequent checks of the DR Inner Instrument room indicated a gradual lowering of the radiation level and no evidence of active gas leaks.

Two small spots of contamination, possibly particles, were found along the railroad track between the Transfer Area and the 105 exclusion fence and were presumed to be from transfer cars. An attempt to isolate the active material failed.

A slow neutron survey in the beam at the top far edge of the pile showed a reading of 9.4 mrem/hr ($1100 \text{ N/cm}^2/\text{sec}$) at the #4 seam and no detectable flux at the front corner of the pile. The gamma dosage rate in this beam is still about 1 roentgen per hour.

Health Instrument Divisions

100-F Area

An operating error during charging operations on the front elevator resulted in widespread contamination, both to the elevator and to three operating personnel. Decontamination efforts on the face and neck of one operator were suspended when the skin condition would not allow further decontamination attempts. The initial dosage rate on his face was approximately 5 mrep/hr and the remaining count was approximately 1000 c/m when decontamination efforts were suspended. This count was successfully reduced the next day.

A leaking condenser in a drier room of the Gas Purification Building was successfully repaired at nominal exposure rates, but under extreme contamination conditions. Corrected soft beta dosage rates were as high as 170 rep per hour. Some contamination was spread in the room, but no personnel contamination was observed.

Several times during discharge operations the discharge crew entered the rear face and found irradiated special request pieces on the tip-offs. No overexposures resulted as entry to the area is done under close control conditions.

The #27 VSR was replaced with a "knuckle rod" and is now in use. This was necessitated by the bowing of this thimble and is in addition to the insertion of a short rod guide. Nominal exposure rates were experienced during the replacement and contamination control was good. Gamma surveys in the vicinity of the new rod during pile operation showed no unusual dosage rates.

The gamma dosage rate from the beam at the top, far edge of the pile increased again this month and now shows a dosage rate of approximately 2.8 roentgens per hour. The dosage rate on the 50-foot far roof is now 80 mr/hr. A survey for induced radioactivity in the building structure was made in the vicinity of the beam during a pile shutdown. All results were negative.

Hand contamination resulted during sample irradiation by the Technical Physics Section but was easily removed. An air sample taken during work at the "A" experimental hole showed 1.2×10^{-2} $\mu\text{c/liter}$ and initial indications on decay studies seem to show Na^{24} as the contaminant.

A large number of contaminated particles were found in the transfer area and in the near vicinity of the railroad track outside of the 105 Building. Decay studies showed no appreciable decay during three days. A cursory survey of the tracks outside of the 105 exclusion area showed many less active particles in the vicinity. Small areas in various places inside the exclusion area showed no significant contamination. One spot near the tracks on the road to the burial ground showed approximately 100,000 c/m.

RECEIVED
JAN 10 1957

Health Instrument Divisions

200 Areas, T and B Plants

General Statistics

	<u>T</u>	<u>B</u>	<u>Total</u>	<u>T</u>	<u>B</u>	<u>Total</u>	1949 <u>To Date</u>
Special Work Permits	385	392	777	432	459	891	2512
Routine & Special Surveys	551	526	1077	595	574	1169	3331*
Air Monitoring Samples	512	764	1276	570	636	1206	3580
Thyroid Checks	125	104	229	192	107	299	675

*Corrected total.

Canyon Buildings

In the T Plant, the 8-4 agitator was removed to a flatcar in the tunnel for burial and a dosage rate of 100 mr/hr was recorded at the canyon deck overlooking the car. The 6-1 agitator was also buried. The regulated flatcar was contaminated to 1.25 rep per hour surface with 35 mr/hr at 2 inches, and tunnel contamination of 1.5 rep per hour surface including 150 mr/hr at 2 inches occurred when the agitator shifted as the train started. These locations were cleaned. A survey of the railroad cut outside the tunnel showed nine contaminated locations indicating more than 100,000 c/m, with a maximum surface dosage rate of 80 mrep/hr, which probably resulted from previous burial operations. Shoe protection is now worn in this zone. Canyon sampling equipment was decontaminated with maximum exposure rates of 500 mrep/hr, and buckets of acid used showed dosage rates of up to 3 rep per hour surface including 300 mr/hr at 2 inches. A 12-7 sample showed a dosage rate of greater than 35 rep per hour during the short period of transfer, and 350 mr/hr at 2 inches when in the doorstep. The 8-4 port continually showed high dosage rates, with a maximum of 400 mr/hr at 2 inches. A survey of sections 3 through 14 of the process piping in the Pipe Gallery showed 18 locations with contamination of up to 12,000 c/m. This area is not currently restricted except during work on the equipment. Two empty casks returned from another location showed surface dosage rates of 15 mrep/hr, and a choker on a cask showed a surface dosage rate of 500 mrep/hr. The freight car involved showed floor contamination of up to 6000 c/m and cleanup is in progress. A total of 23 canyon air samples showed significant concentrations, the maximum of 1.2×10^{-5} μ c f.p./liter occurred during the installation of the 6-3 agitator.

In the B Plant, good cleanup work was done after the many canyon maintenance jobs. After the interchange of the 16-4 and 10-4 agitators, rust on the protective deck paper showed dosage rates of up to 30 rep per hour surface, and the paper was removed. Conductivity meter maintenance was done with a maximum exposure rate of 500 mrep/hr. The removal of protective paper from the canyon caused contamination in the R-7 stairwell

127

Health Instrument Divisions

of a maximum of 5 rep per hour surface including 120 mr/hr at 2 inches, and this location was cleaned. Contamination was found under the 3-5 to 4-7 gang valve at section 3 of the Operating Gallery, which showed a maximum dosage rate of 2 rep per hour surface including 50 mr/hr at 2 inches. Smears showed 125 mrep/hr surface and the gang valve manifold and contaminated lagging were removed. Russian thistle in the R-3 Zone, showed dosage rates of 105 mrep/hr surface including 5 mr/hr at 2 inches, uncorrected for source size, and radioautographs showed that the activity was concentrated in the seeds. The H.I. Botany Group has planted alfalfa at this location to study the effects on long-rooted plants. A total of 51 canyon air samples showed significant concentrations, the maximum of 10^{-4} $\mu\text{c f.p./liter}$ occurred when cell 4R was opened.

Control Laboratories

In the T Plant, 224 items, not regulated with respect to handling, were found contaminated on surveys by Technical and Health Instrument Divisions personnel. In addition, 42 contaminated floor locations were reported. The two cases of product and four cases of fission product hand contamination were successfully cleaned. Three spills were reported in Room 7, and caused considerable floor and protective clothing contamination, but no personnel contamination occurred. Waste cartons showed a maximum dosage rate of 800 mrep/hr surface, and a face shield showed 185,000 d/m.

In the B Plant, 217 items, not regulated with respect to handling, were found contaminated on surveys by Technical and Health Instrument Division personnel. In addition, 36 contaminated floor locations were reported. The two cases of product and three cases of fission product hand contamination were successfully cleaned. Bottles in ice cream cartons containing waste solutions from the 300 Area laboratories were received in leaking condition, with a maximum surface dosage rate of 4 rep per hour reported.

Concentration Buildings

In the T Plant, after the replacement of the F-10 sampler assembly, an operator discovered high level product contamination, estimated at 26 $\mu\text{g Pu}$, on his knee, which was successfully cleaned using the standard procedure for skin decontamination. The contamination spread was ascribed to poor handling of the removed assembly. The significant feature of the incident was that the potentially hazardous amount of plutonium was detected because of the diligent self-survey on the part of the operator. The need for such surveys following Radiation Danger Zone work cannot be overestimated. In another incident, a Poppy probe in the F-10 room showed high level product contamination of about 500,000 d/m, and resultant low level hand contamination to an Instrument Mechanic was easily removed. Follow-up surveys did not identify the source of this probe contamination, but floor contamination of about 0.4 $\mu\text{g Pu}$ was found in the Air Lock and F-10 room, and was cleaned. The incident was probably caused by careless

DECLASSIFIED

Health Instrument Divisions

use of, and incomplete survey of the Poppy instrument on some previous radiation work. The continued frequency of product contamination spread incidents in the vicinity of the F-10 Zone, indicates a need of closer attention to compliance with accepted protection procedures. Small leaks in the tank vent lines on the outside wall of the building showed readings of up to 10^6 d/m, and repairs are in progress. Routine cell surveys by H.I. showed the following product contamination and gamma radiation levels:

<u>Cell</u>	<u>Estimated $\mu\text{g Pu}$</u>	<u>Location of Maximum</u>	<u>Gamma Dosage Rates</u>
A	55	A-1 manhole cover	A-1 & A-4 - 500 mr/hr at 2 inches.
B	4	Blanked Line	
C	2		C-4 - 1900 mr/hr at 2 inches.
D	36	D-1 tank. Gasket on floor showed 50,000 d/m. 12 μg on floor	
F	19	12 μg on floor	

During the month, approximately 40,000 cubic feet of air exhausted from the A Cell roof fan was sampled, and the 13 samples ranged in concentration from 3.5×10^{-10} to 2.5×10^{-9} $\mu\text{g Pu/cc}$, with an average of 10^{-9} $\mu\text{g Pu/cc}$ and 6.5×10^{-7} $\mu\text{c f.p./liter}$. If this average is representative, about 160 $\mu\text{g Pu}$ is exhausted to the atmosphere each day from the A Cell fan. Studies of this and other building exhausts are continuing.

In the B Plant, cell maintenance work was done without significant contamination spread. During the replacement of the B-4 to F-1 jet in B Cell, product contamination of up to 3×10^6 d/m was encountered. Routine surveys in the cells and sample rooms showed no readings of greater than 5000 d/m.

Stack Areas

In the T Plant, the activity at the various levels of the sand in the sand filter was measured by probe survey of the installed risers, with results of:

<u>Distance from Bottom</u>	<u>West Riser, mr/hr</u>	<u>East Riser, mr/hr</u>
6"	25	50
60"	105	140
90"	110	150
108"	1	3
114"	1	1

In the B Plant, decontamination of the ground in the vicinity of the fans

Health Instrument Divisions

continued, and a total of about 100 square feet reduced to background. Personnel contamination occurred in one instance when the work was done in windy weather, and this work is now done during ideal weather conditions only. A cave-in occurred around the 292-B drywell, and excavation showed the presence of liquid only three feet below ground level. The liquid level in the well was only 18 inches below the ground. This liquid showed no significant activity as measured by portable instruments, but laboratory analysis indicated about 1 $\mu\text{c}/\text{liter}$.

Waste Disposal Areas

In the T Plant, excavation and laying of forms for the tie-in between 155-TX and 151-T and 152-T diversion boxes is in progress. The maximum dosage rate encountered in the vicinity of current waste lines was 5 roentgens per hour, and exposure rates of up to 1.5 roentgens per hour occurred during the placement of temporary lead shields. The 112-T storage tank is again being emptied to the crib, and second cycle waste from process is simultaneously flowing into the tank via 111-T and 110-T tanks.

Health Instrument Development Laboratory

A hood in Room 5 was found contaminated with alpha emitting material, which was presumed to be plutonium, to the extent of about 3.5 μg Pu, and was cleaned.

Construction Areas

In the 241-BY area, further surveys were made to define safe working zones in the vicinity of the X-ray units, and compliance with the suggested zoning reduced the X-ray exposure to personnel.

North Areas

Surface dosage rate measuring instrumentation was supplied to the "S" Division for well car and cask monitoring, and improved contamination control of these items is anticipated.

Plant Laundry

A total of 39 spot air samples and 38 continuous air samples was taken during Plant Laundry operations. The maximum concentration, calculated as uranium, was 1.6×10^{-4} μg U/cc during the charging of washers.

General

All thyroid checks were below the warning level. In the West Area, these checks are being done in the new First Aid Building, as of 3/31/49:

DECLASSIFIED

Health Instrument Divisions

Respirator requirements for outdoor exposure in the T and B Exclusion Areas were removed during the month. In the B Plant, a total of 50 respirator filters were radioautographed, and no particles were detected.

The Isolation Building

General Statistics

	<u>February</u>	<u>March</u>	<u>1949 to Date</u>
Special Work Permits	46	41	124
Routine & Special Surveys	260	416	938
Air Monitoring Samples	417	497	1235

Operating Cells

During maintenance work in Cell 3, when assault masks were worn, four significant air samples were obtained with a maximum concentration of 6.4×10^{-11} $\mu\text{g Pu/cc}$. A total of 33 items, not regulated with respect to handling, were found contaminated on surveys by H.I. personnel. In addition, one incident of floor contamination was reported with .03 $\mu\text{g Pu}$ involved. One case of hand contamination of .01 μg was cleaned.

A routine survey of Vault A showed about 16 $\mu\text{g Pu}$ on the lid of a PR can jacket. The source of this contamination could not be determined. Operating procedures were changed to include a survey of the jacket and lid.

The filter over the D leg of Cell 4 was replaced with an old style rock wool filter and the work was done without contamination spread.

A total of 109 special air samples was taken covering filter media breakdown tests, and testing of filtered and unfiltered air from the Cell 2 greenhouse. These samples indicate that the plutonium concentration in the greenhouse air has increased by a factor of at least 20. As the rock wool filters now in use reduce the concentration by a factor of about 12 (as indicated in the filter media evaluation tests, as reported in HW-9129), the concentration in the present filtered air is greater than the concentration in unfiltered air of six months ago. Samples of the filtered air from the A leg of Cell 2 show concentrations as high as 5×10^{-9} $\mu\text{g Pu/cc}$. Air jets are used in Cell 2 which exhaust up the A leg.

The 14 samples of the 903 system exhaust air have shown a definite upward trend with a maximum concentration of 2.6×10^{-11} $\mu\text{g Pu/cc}$.

Maximum gamma radiation levels encountered were 70 mr/hr on P.R. Containers, 3 mr/hr at the process hoods, and 5.2 mr/hr on S.C. Two of the P.R. Containers which showed dosage rates of greater than 25 mr/hr at 4 inches were handled on Special Work Permits.

[REDACTED]

Health Instrument Divisions

Control Laboratories

A total of 114 items, not regulated with respect to handling, was found contaminated on surveys by Technical and H.I. personnel. In addition, 5 incidents of floor contamination were reported with a maximum of .02 μg Pu involved. An air sample of 2.4×10^{-10} μg Pu/cc was obtained in Room 34 at the sample receiving sink, but subsequent samples at this location were not significant.

A laboratorian discovered about 0.3 μg Pu on the hands. When a tender skin condition developed during the decontamination, cleaning was stopped as directed by the Medical Division with about 2000 d/m remaining. The possibility of contamination on other parts of the person was overlooked. Upon return to work after a weekend, hand contamination was again detected and subsequent surveys showed about 0.3 μg Pu on the forehead, hair, ears, and back of neck. The contamination was satisfactorily removed. Surveys of the employee's dormitory room revealed wide-spread contamination of personal effects and furnishings totalling about 1.6 μg Pu, of which about 1 μg Pu was found on the upper part of the lower bedsheets. All contaminated articles were removed for proper handling, and contaminated room surfaces were cleaned by H.I. A urine sample was obtained from the employee and is being analyzed. The incident was formally investigated.

Technical Development Laboratories

Gross spread of product contamination occurred in Room 42. About 100 μg Pu was involved with about 1.2 μg Pu found on the hands, forearms, and body of a Chemical Engineer. The skin contamination was easily removed, and urine samples taken showed negative results. An air sample taken at the time of the incident showed 4.3×10^{-9} μg Pu/cc, and the continuous sample for the week in this room showed 2×10^{-11} μg Pu/cc.

In addition 20 other items, not regulated with respect to handling were found contaminated on surveys by H.I. personnel.

[REDACTED]

132

Health Instrument Divisions

The 300 Area

General Statistics

	<u>February</u>	<u>March</u>	<u>1949 To Date</u>
Special Work Permits	142	302	582
Routine and Special Surveys	138	222	481
Air Monitoring Samples	63	124	336

Metal Fabrication Plant

Forty-five of eighty air samples taken showed a concentration greater than 5×10^{-5} $\mu\text{g U/cc}$ as follows:

<u>Location</u>	<u>Number Taken</u>	<u>No. Above 5×10^{-5} $\mu\text{g U/cc}$</u>	<u>Maximum Concentration $\mu\text{g U/cc}$</u>	<u>Conditions</u>
Cutomatic	9	9	3.2×10^{-3}	Adjacent to machine.
Saw room	1	1	3.3×10^{-4}	Adjacent to machine.
Furnace room	1	1	1.1×10^{-4}	Near furnace.
Rod Straightener	2	2	1.4×10^{-2}	Near scales.
Machining	13	0	---	Operator's position.
Chip Recovery	54	32	1.1×10^{-2}	Operator's position.

Records and papers used in the 303 Area and subsequently passed on to the Accountability Section were surveyed and found to be contaminated to the extent of 6,000 d/m. A new procedure is being instituted for handling such papers in the future.

Of thirty-one Melt Plant crucibles surveyed, twenty-seven showed dosage-rates greater than 1 rep/hr, and one as high as five rep/hr at surface. Those with a dosage-rate greater than 1.5 rep/hr at surface were retired from use.

A survey of the ground around the 314 Building showed surface dosage-rates of 1.5 rep/hr near the Burn-out Room. The contaminated soil was removed and buried.

Six M.S.A. Dustfoe respirator filters were examined and found to be contaminated to greater than 1,000 d/m. One worn for $3\frac{1}{2}$ hours in the Burn-out Room gave 5,000 d/m, and one worn for an unknown time and in an unknown place gave 75,000 d/m.

Two wooden flatbed trucks were found contaminated. One was successfully cleaned, but the other could not be cleaned and the wooden flatbed was replaced.

Health Instrument Divisions

100 Areas Associated Laboratories

A dosage rate of 12 mr/hr was discovered in the main hallway opposite Room #31. The condition was corrected when personnel were advised of the condition and samples returned to the lead safe.

Two capsules containing radioactive graphite were brought into the 300 Area in a small lead cask from the 100 Areas. When the cask was opened, a dosage-rate of 25 rep/hr was obtained at six inches. The capsules were removed from the cask using 18-inch tongs, and a dosage-rate of 450 mrep/hr to the hands was encountered. It was agreed that the process would not be attempted again until better equipment was obtained.

A motor and fan located above the Metallurgy laboratories in the 3706 Building were found to be contaminated. The open end of the fan showed 75 mrep/hr at surface including 2 mr/hr at two inches.

Burial Ground

A fire started spontaneously in the 300 Area burial pit on March 11, 1949, at 3:00 P.M. Fire-fighting personnel worked upwind of the trench, and no contamination of equipment or clothing was found on subsequent surveys.

Technical Building

Nine of 43 air samples taken showed a concentration above 2×10^{-11} $\mu\text{g Pu/cc}$, as follows:

<u>Rooms</u>	<u>Number Taken</u>	<u>Number Above 2×10^{-11} $\mu\text{g Pu/cc}$</u>	<u>Maximum Concentration</u>	<u>Conditions</u>
1, 3, 17, 53, 64, 96 and attic	11	0	---	---
55	10	3	4×10^{-11}	Hood #1-hood duct removed.
57	4	1	3.2×10^{-11}	Open hood
98	18	5	5.7×10^{-11}	Work in progress with hood doors open

Assault masks were worn in Room 55 during the duct removal. No other contamination was noted, and subsequent samples were below 2×10^{-11} $\mu\text{g Pu/cc}$.

Special dissolver sample discs and carriers were taken from Room 96 to the counting room. Technicians were exposed to dosage-rates as high as 200 mrep/hr, during work with these discs. Procedures now in effect limit the number of samples to be handled by any technician to ten per day. This will help obviate possible overexposure.

A dosage-rate of 4.2 rep/hr including 250 mr/hr at two inches was reported on dry waste removed from Room 98. Other contamination in the room was cleaned up

Health Instrument Divisions

or covered. A routine survey at a later date, however, showed contamination in the hood, on load bricks, and on the badge, pencils, finger rings, and hands, of one chemist. Five washes with KMnO_4 reduced the hand contamination to less than 100 c/m for beta, and less than 500 d/m for alpha.

A.E.C. personnel requested surveys of a C-47 aircraft #77263 (M. A. T. S.) before beginning flights over the project. The entire plane was spot surveyed inside and out, but no contamination was found. Two H.W. reconnaissance planes were also spot surveyed and found free of contamination.

Cold Semi-Works Building

A survey of the building roof showed the West and Southwest sections contaminated up to 20,000 d/m. Four process tanks were surveyed, and one found contaminated to the extent of 10,000 d/m on the inside surfaces, and 2,500 d/m on the outer surfaces.

Plant General

A total of 88 frames exposed on the Hanford reservation, Benton City, and Pasco, covering about 700 square miles, showed a deposition rate of 4.7×10^{10} particles per month. Frame studies completed in the 200 Areas during the month indicated deposition rates of 6.7×10^7 particles in 200 West.

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

<u>Inhalation rate particles per month</u>		
<u>Location</u>	<u>February</u>	<u>March</u>
200-E Area Gatchouse (outside)	0.1	0.1
200-E Area Gatchouse (inside)	0.1	0.1
"B" Plant Exclusion Gatchouse (outside)	0.2	0.5
200-W Area Gatchouse (outside)	0.9	0.4
200-W Area Gatchouse (inside)	0.4	0.4
"T" Plant Exclusion Gatchouse (outside)	0.3	0.5
3' Level Meteorology Tower	0.1	0.2
250' Level Meteorology Tower	0.1	0.6
400' Level Meteorology Tower	(Destroyed)	0.4
100-D Area	0.1	0.1
100-B Area	0.1	0.1
Benton City	None	0.1
Richland	0.1	0.1

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

Health Instrument Divisions

Inhalation rate particles per month

<u>Location</u>	<u>February</u>	<u>March</u>
East Area Maintenance Shop	0.1	0.5
West Area Maintenance Shop	0.7	0.8
222-T Hall	3.0	8.0
222-B Hall	1.0	3.0
224-T Air Conditioning Room	0.2	0.4
"B" Plant Operating Gallery	0.9	3.0
West Area Garage	0.5	0.4
2704-E Administration Building	0.2	0.2
622 Meteorology Building	0.1	(Discontinued)

Hand Score Summary

A total of 36,166 alpha and 43,963 beta hand scores was recorded. About 0.17% of the alpha and about 0.07% of the beta scores recorded were high. No attempt at reduction was recorded for 17 high alpha and 10 high beta scores, all in the 300 Area. When decontamination was attempted it failed in one case of alpha contamination in the 300 Area due to uranium.

PERSONNEL METERS

<u>Pencils</u>	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>E&N</u> <u>200</u>	<u>200-W</u>	<u>300</u>	<u>Total</u>	<u>1949</u> <u>To Date</u>
Pencils read	13,565	13,325	15,659	33,073	50,545	46,353	172,611	490,623
Single Readings (100 - 280 mr)	21	40	24	52	63	83	283	933
Paired Readings (100 - 280 mr)	0	0	0	1	0	1	2	5
Single Readings (Over 280 mr)	19	22	39	72	90	88	330	843
Paired Readings (Over 280 mr)	1	0	1	0	1	0	3	11
Paired Readings lost	1	0	1	2	3	0	7	22

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

Badge Resume, Construction Areas

	<u>105-DR</u>	<u>241-TX</u>	<u>384</u> <u>115-KV</u>	<u>241-BY</u>	<u>200-W</u> <u>REDOX</u>	<u>Total</u>	<u>1949</u> <u>To Date</u>
Badges Processed	1,856	11,452	197	1,038	3,339	17,882	45,590
No. of Readings (100 - 500 mrep)	8	10	1	18	0	37	133
No. of Readings (Over 500 mrep)	0	0	0	12	0	12	19
Lost Readings	2	6	0	1	2	11	19

Health Instrument Divisions

All results above 500 mrep were X-ray exposures in connection with inspection work. Maximum exposures were about 1 roentgen for two weeks exposure. The badges for personnel actively engaged in this inspection work are now serviced weekly in order to better assess the radiation exposures.

Lost readings were occasioned as follows:

Lost badge	6
Damaged film	2
Film not packaged	2
Faulty package	1

<u>Badges</u>	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>200-E</u>	<u>R.R.T.</u> <u>200-N</u>	<u>200-W</u>	<u>300</u>	<u>Total</u>	<u>1949</u> <u>To Date</u>
Badges Processed	1,922	2,208	2,203	3,613	691	5,798	6,746	23,181	62,596
Number Readings (100 - 500 mrep)	1	3	9	12	0	12	197	234	858
Number Readings (Over 500 mrep)	0	0	0	1	0	0	0	1	2
Lost Readings	1	0	1	1	0	3	1	7	31

The result of over 500 mrep, routinely reported in the 200 East Area, was investigated and proved to be due to the X-ray inspection work in the BY Area. When X-ray calibrated film was used as the standard, no overexposure was found. Total exposure as recorded by pencils was 25 mr and by the shielded portion of the badge, 30 mr.

Lost readings were accounted for as follows:

Contaminated badge (destroyed)	2
Light struck	2
Faulty packaging	1
No packet in badge	1
Film not packaged	1

No possibility of an overexposure was found upon investigation as required.

Badges processed, 1949	Operations	62,596
Badges processed, 1949	Construction	<u>45,590</u>
	Total	108,186

In addition, 3,768 items of non-routine nature were processed. The 1949 total to date is 8,519.

Health Instrument Divisions

CONTROL AND DEVELOPMENT DIVISION

Water Monitoring

Two hundred and thirty-seven 500 ml. samples, and forty-three 12 liter samples of drinking water were analyzed during the month. The maximum alpha activity detected in any drinking water sample was 52 dis/min/liter from the Benton City Water Company. Traces of alpha activity are also appearing in the 100-H Sanitary Water (Average = 8 dis/min/liter). The results of the more numerous 500 ml. samples were in general confirmed by the large samples and the fluorophotometer analyses. Positive beta results on the order of 50 to 200 micromicrocuries per liter are still obtained in Kennewick, Pasco, and the 100-H Sanitary Water. Decay studies on Pasco samples indicate that this activity is 90 to 95% Na^{24} . Other locations averaged less than 50 micromicrocuries per liter.

Thirty-five 500 ml. samples, and five 3-gallon samples, were taken from test wells. The maximum alpha activity was from 300 Area Well #4, which gave an average value of 41 dis/min/liter. There was no beta activity as great as 50 micromicrocuries per liter in any test well sample.

Fifty-one routine samples were taken from the Columbia River. The alpha activity was generally less than 6 dis/min/liter. The maximum beta activity was 3000 micromicrocuries per liter at Hanford. One hundred and twenty special samples were taken to study dilution and mixing. The results indicate non-uniformity in mixing below Hanford at this water level. Decay curves on some of the samples indicate that 2 to 5% of the activity has a half-life greater than one day. Twelve samples from the Yakima River gave less than 6 dis/min per liter of alpha activity, and less than 50 micromicrocuries per liter of beta activity.

Eighty-four mud samples from the banks of the Columbia River gave results comparable with past months with the exception of the beta activity at 300 Area, which increased to an average of 20 to 30 millimicrocuries per kilogram.

Atmospheric Monitoring

Detachable chambers gave results consistent with last month's data. The highest average reading on an air filter was 1×10^{-9} microcuries per liter in the 200 East Area. A check on the efficiency of filters in field tests was made using a scrubber following the filter. First results indicate efficiencies of 50 to 70% for the filter paper assuming 100% for the scrubber. Seventy-seven rain samples were collected with the maximum activity of 60 millimicrocuries per liter in the 200 West Area. The maximum Off-area rain sample was 0.25 millimicrocuries per liter from Benton City.

Health Instrument Divisions

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

Location	Integrons (mrep/24 hrs)		C Chambers (mrep/24 hrs)	
	March	February	March	February
100-B Area	0.6	0.3	0.3	0.3
100-D Area	< 0.1	< 0.1	0.4	0.4
100-F Area	0.2	0.8	0.4	0.4
200-West Area	0.2	0.2	0.4	0.7
200-East Area	0.4	0.2	0.5	0.5
Riverland	0.3	0.5	--	--
Hanford	*	2.0	--	--
300 Area	< 0.1	0.4	*	0.6
700 Area	< 0.1	0.4	--	--
Kennewick	0.5	< 0.1	--	--
Pasco	1.1	0.7	--	--
Benton City	< 0.1	< 0.1	--	--
3000 Area	< 0.1	--	0.3	0.4

*out of order.

Land and Vegetation Contamination

The average activity measured in vegetation samples during March was:

I^{131} CONTAMINATION IN VEGETATION

Location	millimicrocuries I^{131} /kg		
	Maximum	Average	Average-Feb.
North of 200 Areas	11	3	4
Near the 200 Areas	60	9	9
Route 3	610	96	170
200-West Gate	420	314	530
South of 200 Areas	36	6	6
Richland	9	3	3
Pasco	7	2	2
Kennewick	6	2	2
Benton City	7	3	3
Richland Y	6	3	2
Hanford	4	2	4

Health Instrument Divisions

Land and Vegetation Contamination -continued

NON-VOLATILE BETA ACTIVITY IN VEGETATION

<u>Location</u>	<u>millimicrocuries/kg</u>		
	<u>Maximum-March</u>	<u>Average-March</u>	<u>Average-Feb.</u>
North of 200 Areas	29	11	13
Near the 200 Areas	220	23	24
Route 3	270	65	87
200-West Gate	370	230	220
South of 200 Areas	36	13	13
Richland	19	7	10
Pasco	18	9	<10
Kennewick	23	9	11
Benton City	11	8	12
Richland Y	19	15	16
Hanford	26	10	13

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

<u>Location</u>	<u>millimicrocuries I^{131}/kg</u>		<u>millimicrocuries Non-Volatile Beta/kg</u>	
	<u>Maximum</u>	<u>Average</u>	<u>Maximum</u>	<u>Average</u>
Pasco -Eltopia	2	< 2	12	< 10
Kennewick-Hover	2	< 2	10	< 10
Goose Egg Hill	50	13	62	18
300 Area - Hanford	6	3	31	16
Yakima-Ellensburg-Sunnyside	4	< 2	19	10

Waste Monitoring

Maximum results from waste surveys in all areas are tabulated below:

<u>Location</u>	<u>Type Sample</u>	<u>Alpha dis/min/kg</u>	<u>micromicrocuries of beta per kilogram</u>
300 Area - old pond inlet	water	16,000	21,000
300 Area - new pond inlet	water	28,000	4,800
300 Area - old pond	mud	18,000	--
200 Areas -T & U swamps	water	60	160
200 Areas -Laundry ditch	water	375	2,300
200 Areas -231 Ditch	water	< 30	36
200 Areas -Retention Ponds	water	< 30	100
200 Areas -Laundry Lint	solid	1,083,000	710,000
100 Areas -107 Basins	water	< 30	740,000 *

*This high value was obtained at 107-D and was not repeated. The average for all areas was 330,000 micromicrocurie per kilogram.

Health Instrument Divisions

The "B" Ditch at 200-West has spread outside of the fence about two miles leaving a soggy area where cars may be stuck on cross-country travel. Positive activities up to 0.4 $\mu\text{C}/\text{kg}$ of beta activity in the mud have been obtained. Analyses of the 107 water for S^{35} indicate an average concentration of about 1.0 millimicrocurie per liter. This indicates about 0.5 curies per day into the river from the three areas, for a total in existence in the river of approximately 60 to 70 curies.

Geology

The wells in the 361-B Area continue to show activity which follows the previously established trends. Analysis of another sediment sample taken from 361-B-9 confirms the presence of ruthenium to the extent of 63% of the total activity. The low result of 20% quoted last month is presumably in error. A slight amount of fission product contamination was again found in a sediment sample from beneath the 241-T number three crib.

The alpha activity in two of the three wells between the 300 Area Retention ponds and the river has decreased considerably, probably because of reversal of the movement of ground water with the rising of the river.

Each of the three wells around the 108-B cribs has positive results for beta activity, the maximum being 420 micromicrocuries per liter. This activity is believed to be due to water from the pile building effluent line which passes about 50 feet from the crib.

Water level recorders have been placed to best advantage to record the changes in the ground water during the spring flood of the Columbia River.

The last three wells of the nine scheduled for drilling in the 241-TX Area have been completed. Four of eleven wells scheduled for the crib and tile field in the 234-5 Area have been completed, and two more are currently being drilled.

Health Instrument Divisions

Meteorology

8-hour Production Forecasts: Ninety-three were made. The average accuracy was 84.2%.
 24-hour General Forecasts: sixty-two were made. The average accuracy was 83.7%.
 Special Forecasts: None were made.

The weather for March was characterized by near normal temperatures with no high or low extremes and by excessive precipitation.

The mean temperature was 45.1 degrees, which is 0.7 degrees below normal. The maximum was 64 degrees and the minimum 27 degrees. Total precipitation amounted to 1.22 inches, making this the second wettest March in the 37 years of records in this locality.

Bioassay

Past difficulties with the procedure have been tracked to the aluminum nitrate preparation and eliminated. An improved purification of the lanthanum was also instituted. Since routine operations were resumed, one hundred and thirty samples were run with an average value of 0.05 d/m. Yields have averaged 100% on spiked samples.

Two hundred and sixty-six samples were analyzed on the fluorophotometer. The uranium in these samples was:

<u>Job</u>	<u>Micrograms of Uranium per liter of urine</u>	
	<u>Maximum</u>	<u>Average</u>
Melt Plant	83	19
Material Handling	11	5
Machining	21	5
Canning and Dipping	65	26
Inspection	12	3
305 Building	11	2

Methods Development

Nine water samples have been measured for Rn content. The results vary from an estimated 15 dis/min/liter of radon and daughters from Wills Ranch to 840 dis/min/liter at Benton City. These results are calculated and may be in error due to the lack of calibration of the process. The preliminary work indicates that this method may be used to distinguish project uranium from natural uranium. Additional work on spreading techniques for mounting crud for counting has been discouraging. The electroplating of plutonium looks more promising since yields up to 70 to 85% have been obtained using spikes of 0.025 µg of plutonium. Preliminary work on alpha film indicates

Health Instrument Divisions

that with sources mounted on copper, a yield of 50 to 53% may be expected in track production. The examinations of electroplated sources exposed to alpha film indicate very uniform distribution.

Considerable work has been done on the Bioassay procedure. An improved process has been developed for purifying lanthanum and controls were set up on all reagents. Several curves showing effect of aluminum nitrate variation were made and some preliminary work on an improved fission product process was started. The resin column experiments to completely free lanthanum of activity have continued with some samples of count-free lanthanum produced.

Methods Control

Eleven special samples or groups of samples were analyzed during the month. A new water evaporator capable of handling up to 10 to 20 twelve liter samples per day has been installed. Three thousand, six hundred and forty-one measurements were made for alpha activity and four thousand, six hundred and thirty-four measurements were made for beta activity for a total of eight thousand, two hundred and seventy-five measurements. In addition, eight hundred and fourteen points on decay curves and one thousand, four hundred and seventy-five control points were measured. Two hundred and forty-three analyses were made on the fluorophotometer.

Physics

A number of chamber and gas combinations has been examined for fast neutron counting efficiency, and some work has been done with a discriminator to determine pulse height distribution obtained in the counters. Five identical aluminum counters are being constructed so that investigation of gas and radiator combinations may proceed more rapidly.

On March 10, measurements were attempted at the 100-F far side neoprene seal with two experimental counters. It was found that the radiation beam contained few fast neutrons, less than 50 neutrons per square cm per second above the undetermined energy threshold of the counter. This same counter indicated a flux greater than 100 neutrons per square cm per second above the energy threshold coming out of one of the vertical rod guides.

The experimental work necessary to determine the fast neutron sensitivity of a CP chamber is complete, but the rather complex calculations necessary to reduce this data to specific sensitivity figures is still in progress.

The current investigations of the properties of fast neutron instruments have made it desirable to have figures for the numbers of neutrons which will produce one rep, as a function of neutron energy. An assortment of values appears in the literature for neutrons of thermal energies and of energies above 0.5 Mev. An attempt is being made to reconcile the published

Health Instrument Divisions

figures and to calculate values to fill in the gap of seven orders of magnitude between thermal energies and 0.5 Mev.

Industrial Hygiene

Laboratory tests are being made on a thermal precipitator which will be used for various particle size studies. The preliminary work to date has included developing techniques to permit utilizing this instrument in the field for the collection of samples for electron microscope analysis. Some tentative arrangements have been made to get some samples analyzed with the electron microscope at Washington State. An instrument, the "Scalomatic", designed for rapid measuring and recording of particle sizes from electron micrographs is practically complete.

A study of oxide of nitrogen exposures associated with the pickling of chips in the Metal Fabrication Plant was made as a result of a request from the Safety Division. A separate report was made on this investigation.

Instrument Development

An electrostatic dust precipitator operated from an R.F. high voltage supply and using a thermistor flowmeter was completed and delivered to the Industrial Hygiene Group. This unit is about the same size and weight as the M.S.A. Precipitron and affords advantages in (a) stable corona discharge (b) accurate flowmeter (c) maneuverability of the collector head.

Pulse analyzer work was limited to testing and adjusting a low noise level preamplifier to obviate tube selection. The work appears to be successful although time did not permit testing with an ionization chamber.

An experimental mounting for an 8" x 18" poppy probe for floor monitoring was obtained from Instrument Division, and an alpha floor monitor was assembled. Preliminary testing showed deficiencies in probe balance and microphonic response. Microphonic difficulties were anticipated because of the large probe capacity, and will probably be reduced to a satisfactory level in the next few days. It seems that this probe is approaching the practical upper limit of sensitive area for mobile applications.

A C.P. with full scale sensitivities of 10^3 and 10^6 roentgens per hour was built for the 100-F Operational Group. Test measurements showed the specified sensitivities to leave too large a gap in the useful monitoring range, whereupon the lower sensitivity was raised to 10^5 roentgens per hour full scale deflection. From the Instrument Development viewpoint, the project is complete.

The probe for monitoring soft beta particles was improved by injecting the counter gas (helium) through a manifold. This indicates that the sensitive spot previously observed at the gas inlet was caused by diffusion of air into the probe in the remaining counter volume. A mixture of helium and 5%

Health Instrument Divisions

propane used with this gas inlet arrangement gave a usable 100 volt proportional region and a 100 volt Geiger region with 7% slope.

The combination alpha-beta hand counter work was concerned with the applicability of an R.F. power supply for operating 16 Geiger tubes simultaneously. Data indicates that the current capacity of the supply is adequate but that regulation is poor except near the rated voltage of the particular coil. This is not a serious limitation but is an important consideration in choosing R.F. coils.

The experimental dry voltaic pile gave sufficiently promising results to warrant building one to supply a higher voltage. Upon attempting to obtain the required additional tinfoil, it was found that aluminum foil had been provided on the original store order and that no tinfoil is stocked on the site. However the characteristics of the aluminum foil pile are nearly the same as those published for the tinfoil pile.

The effect of an argon atmosphere in a low background alpha counter is under investigation. Preliminary results follow the expected pattern: improved signal to noise ratio; sharper and larger pulses; and reduced microphonic response upon extending the high frequency response of the amplifier. When each of the parameters is adjusted for optimum response, considerable improvement in the counter may be expected.

Calibrations

The routine calibrations were:

<u>Radium Calibrations</u>	<u>Number of Calibrations</u>	
	<u>February</u>	<u>March</u>
Fixed Instruments		
Gamma	567	466
Portable Instruments:		
Alpha	240	180
Beta	320	361
Gamma (Radium)	2,937	628
X-ray Scanning	41	30
Neutron	30	23
Total	3,568	1,222
Personnel Meters:		
Beta	1,142	1,280
Gamma (Radium)	9,075	9,961
X-ray	6,298	7,396
Neutron	0	0
Total	16,515	18,637
GRAND TOTAL	20,650	20,325

Health Instrument Divisions

BIOLOGY DIVISIONAquatic Biology1. Effect of Pile Effluent on Aquatic Life

The undiluted pile effluent, pre-pile process water, and 20% area effluent water was lethal to the young chinook salmon. Increased mortality and slower growth occurred among the young fish held in 10% area effluent, and 5 p.p.m. sodium silicate. No adverse effects are yet discernable in concentrations of the area effluent water of 5% or less.

The young salmon held in the laboratory are currently about 20 times more active than the water, and caddis fly larvae are 40 to 80 times more active than the water.

2. Biological Chains

Water temperatures rose during the month which increased the metabolic rate and improved the appetites of the fish being fed active snails, crayfish, carp, or algae. This resulted in an appreciable increase in activity in all tissues of the fish. The activity of the food organisms remains at about the same level.

The supply of active snails being used as food for the trout was exhausted and could not be replenished from natural sources at this time of year. The remaining trout which had been on this diet are being sampled periodically to determine the rate of decay of the activity in the various tissues. Activity had reached a maximum of 11 $\mu\text{c}/\text{kg}$ in the scales of these fish.

3. Radiobiological Survey

The activity of the aquatic life of the river decreased to about half that found last month. The spring freshet has now started and sampling of bottom organisms will have to be discontinued temporarily. The quantity of bottom algae appeared to decline during the month, while the quantity of plankton increased about six-fold. In the vicinity of Hanford, the following amounts of activity were found: Plankton - 1.4 $\mu\text{c}/\text{kg}$; bottom algae - 0.4 $\mu\text{c}/\text{kg}$; midge larvae - 0.5 $\mu\text{c}/\text{kg}$; fish (scales of sucker) - 0.1 $\mu\text{c}/\text{kg}$.

Health Instrument Divisions

Zoology1. Chronic Toxicology of I¹³¹ in Stock Animals

Two sheep grazing near 100-D for the past six months had radioactivity of a level about one-half of that offered by the new tolerance value. Arrangements have been completed to obtain thyroids from sheep slaughtered at the Armour Plant in Spokane. These glands will serve as controls and reference information to past and future work in histopathology.

2. Biological Monitoring

Five muskrats trapped at the 300 Area pond all exhibited activity of less than 0.01 $\mu\text{c}/\text{kg}$. Only four samples of the 50 assayed were definitely above background. Fluorophotometric analyses indicated about one microgram of uranium per gram of bone, while muscle and liver was usually lower by a factor of 5 to 10. A pekin duck that had been on the pond for 8 months had 11 μg of U/gram of bone.

A jackrabbit from near 200-E had a thyroid activity of about 50 $\mu\text{c}/\text{kg}$, or approximately 10 times the new tolerance, while four others from near the Separations areas had less than 7 $\mu\text{c}/\text{kg}$.

Analysis of the thyroid of a horse that died near Sunnyside indicated radioactivity of less than 3% of the new tolerance.

Botany

1. Agronomy

The survey of numbers and species of vegetation in the 200 Areas and vicinity is continuing. A study of the area of dead vegetation in and between the 200 Areas is nearing completion.

2. Plant Toxicology

Work on the experimental farm is as far along as the season permits. Orchards were given a late dormant spray of light oil lead arsenate and D.D.T. Plowing is nearly done, and the early potatoes are ready for planting.

The irrigation system is being made ready for service by the middle of April. Tests on the new well produced more than fifty gallons per minute, which is ample for all requirements.

3. Miscellaneous

This group is presently in the process of moving into the Botany laboratory (1705-F). Some minor electrical work remains to be done. The personnel are very pleased with the facilities offered by the new laboratory.

Health Instrument Divisions

Biochemistry

1. Collection of Active Particles

The first collection of active particles from 200-E has been shipped to the University of Rochester this month, where a study of their biological hazard is to be initiated.

2. Exposure of Rabbits to Active Particles

Further arrangements were made for the execution of the stack discharge active particle experiment. The animals have arrived, and the experimental work will start in the near future.

3. Miscellaneous

During the month of March, the Biochemistry group moved from the 222-U Building to the 2719 Building in 200-West Area.

DECLASSIFIED

GENERAL ACCOUNTING DIVISIONS

MARCH 1949

GENERAL

Hanford Works Financial Statements for the month of February were issued on March 21, 1949 and those for the Nucleonics Department were issued on March 24, 1949. General Divisions' Operating Reports were issued on March 18, 1949.

Work continued on studies in connection with liquidating costs in order that more equitable rates may ultimately be established. To date, liquidations of Indirect Manufacturing Expenses are within $\frac{1}{2}$ of 1% of total actual expenses. Total Applied Labor and Material Costs, and Within Division Expenses for all General Divisions were well within budgeted amounts.

In connection with reduction of forces, Employees and Payroll statistics and chart were prepared indicating number of employees on Payrolls, number of employees paid, gross amount of payroll, and amount of overtime payments. Statistics covered weeks ended February 20 and 27, March 6, 13, 20, and 27, and, in the case of monthly paid employees, the months ended January, February, and March, 1949.

The Payroll Divisions handled 610 removals from payroll for lack of work, including preparation of final checks, payments in lieu of vacation, bond refunds, letters on status under Employee Benefit Plans, deductions for receivables, etc.

The following comparison of unreimbursed expenditures as of March 31, 1949 with those of February 28, 1949 reflects a decrease of \$3 267 868. This difference is primarily comprised of the decrease of \$650 000 in the amount of vouchers in the hands of the AEC Audit Branch awaiting approval and of \$2 650 000 representing a decrease in the amount of unbilled vouchers in the various accounting divisions.

	<u>February 28, 1949</u>	<u>March 31, 1949</u>
Billed on Public Vouchers	\$ 8 348 321	\$ 8 376 146
Submitted on Pre-Billing Audit Vouchers	3 508 956	2 859 632
Unbilled	<u>6 169 755</u>	<u>3 523 386 *</u>
Total Unreimbursed Expenditures	<u>\$18 027 032</u>	<u>\$14 759 164 *</u>

* Preliminary totals prior to final closing entries.

General Accounting Division

STATISTICS

<u>Employees and Payroll</u>	<u>Total</u>	<u>Monthly Payroll</u>	<u>Weekly Payroll</u>
Employees on Payroll at beginning of month	8 686	1 760	6 926
Additions and transfers in	23	5	18
Removals and transfers out	(737)	(11)	(726)
Transfers from Weekly to Monthly Payroll	--	5	(5)
Transfers from Monthly to Weekly Payroll	--	(20)	20
Employees on Payroll at end of month	<u>7 972</u>	<u>1 739</u>	<u>6 233</u>
<u>Employees on Payroll at end of month</u>		<u>February</u>	<u>March</u>
Manufacturing		3 251	3 054
Design and Construction		1 127	1 006
Community		973	861
Other		3 335	3 051
Total		<u>8 686</u>	<u>7 972</u>
<u>Overtime Payments</u>			
Weekly Paid Employees		\$ 79 647	\$ 40 305
Monthly Paid Employees		26 753	8 185
Total		<u>\$106 440</u>	<u>\$ 48 490</u>
<u>Number of changes in Salary Rates and Job Classifications</u>		823	792
<u>Gross Amount of Payroll</u>			
Manufacturing		\$1 087 508	\$1 291 979
Design and Construction		417 039	400 159
Community		289 119	329 653
Other		978 433	1 131 968
Total		<u>\$2 772 099*</u>	<u>\$3 153 759**</u>
<u>Annual Going Rate of Payroll</u>			
Manufacturing		\$13 655 729	\$13 538 101
Design and Construction		4 720 847	4 180 379
Community		3 661 357	3 395 088
Other		12 385 051	11 753 824
Total		<u>\$34 622 984</u>	<u>\$32 867 392</u>
<u>Average Salary Rate Per Hour</u>	<u>February</u>	<u>March</u>	
	<u>Weekly</u> <u>Monthly</u> <u>Total</u>	<u>Weekly</u> <u>Monthly</u> <u>Total</u>	
Manufacturing	\$1.925 \$2.576 \$2.031	\$1.960 \$2.578 \$2.065	
Design and Construction	1.475 2.595 1.828	1.490 2.596 1.885	
Community	1.715 2.252 1.808	1.718 2.267 1.818	
Other	1.548 2.471 1.733	1.568 2.499 1.767	
Total	<u>\$1.704</u> <u>\$2.508</u> <u>\$1.864</u>	<u>\$1.735</u> <u>\$2.522</u> <u>\$1.901</u>	

*Includes four weeks in case of weekly paid employees.

**Includes five weeks in case of weekly paid employees.

General Accounting Division

Employee Plans

Pension Plan

Number participating at beginning of month
New participants and transfers in
Removals and transfers out
Number participating at end of month

February

6 128
150
(33)
6 245

March

6 245
127
(43)
6 329

% of eligible employees participating

94.4%

93.8%

Employees Retired

Number

March

9

Total to Date

56

Aggregate Annual Pensions including
Supplemental Payments

\$1 434

\$10 282

Amounts contributed by employees retired

\$ 995

\$ 4 131

Group Life Insurance

Number participating at beginning of month
New participants and transfers in
Cancellations
Removals and transfers out
Number participating at end of month

February

6 459
143
(35)
(39)
6 528

March

6 528
72
(20)
(268)
6 312

% of eligible employees participating

78.0%

78.1%

Insurance Claims

Number of deaths

March

1

Total to Date

24

Amount of insurance

\$2 340

\$120 408

Premiums paid by employees who died

\$ 14

\$ 1 360

Group Disability Insurance - Personal

Number participating at beginning of month
New participants and transfers in
Cancellations
Removals and transfers out
Number participating at end of month

February

7 239
201
(11)
(62)
7 367

March

7 367
78
(8)
(320)
7 117

% of eligible employees participating

88.7%

91.2%

Group Disability Insurance - Dependent

Number participating at beginning of month
Additions and transfers in
Cancellations
Removals and transfers out
Number participating at end of month

4 338

4 389

90

31

(16)

(5)

(23)

(162)

4 389

4 253

General Accounting Division

Employee Plans (continued)

Group Disability Claims

Number of claims paid by insurance company:

Employee Benefits

Weekly Sickness and Accident
Daily Hospital Expense Benefits
Special Hospital Services
Surgical Operations Benefits

February

March

103 122
75 122
89 112
49 82

Dependent Benefits Paid

Daily Hospital Expense Benefits
Special Hospital Services

101 115
98 118

Amount of claims paid by insurance company:

Employee Benefits
Dependent Benefits
Total

\$ 8 015 \$12 149
3 231 4 449
\$11 246 \$16 598

Group Disability Insurance - Premiums

Personal - Employee Portion

- Company Portion
- Total

\$12 442 \$12 628
7 567 7 658
\$20 009 \$20 286

Dependent- Employee Portion

- Company Portion
- Total

\$ 3 933 \$ 3 994
436 411
\$ 4 369 \$ 4 405

Grand Total

\$24 378 \$24 691

Annuity Certificates (For du Pont Service)

Number issued

March
1

Total to Date
57

U. S. Savings Bonds

Number participating at
beginning of month

Mfg.

D&C

Comm'y

Other

Total

2 041 524 458 1 641 4 664
13 5 4 19 41
(48) (30) (20) (29) (127)
(63) (50) (43) (51) (207)
22 2 21 31 76

Number participating

at month end

1 965 451 420 1 611 4 447

% participating

64.3% 45.5% 48.8% 52.8% 55.9%

Bonds issued

Maturity Value

\$95 800 \$21 375 \$17 825 \$69 900 \$204 900

Number

1 921 432 372 1 444 4 169

Refunds issued

121 42 35 84 282

Revisions in authorizations

33 20 14 56 123

Annual going rate of deductions

New Plan

\$847 436 \$189 754 \$162 567 \$644 172 \$1 844 329

Old Plan

253 429 49 844 35 810 154 021 493 104

Total

\$1 100 865 \$239 598 \$198 377 \$798 193 \$2 337 433

General Accounting Division

Employee Plans (continued)

<u>Suggestion Awards</u>	<u>March</u>	<u>Total to Date</u>
Number of Awards	12	310
Total Amount of Awards	\$145	\$3 225

Employee Sales Plan

	<u>March</u>	
	<u>Major</u>	<u>Traffic</u>
	<u>Appliances</u>	<u>Appliances</u>
Certificates Issued	41	257
Certificates Voided	5	18

Salary Checks Deposited

	<u>February</u>	<u>March</u>
Monthly	903	870
Weekly	1 038	1 006
Total	<u>1 941</u>	<u>1 896</u>

Special Absence Allowance Requests

Number submitted to Pension Board	5	20
-----------------------------------	---	----

Absenteeism (Weekly Paid Employees)

January 1 to March 21	1948 2.87%	1949 2.88%
-----------------------	---------------	---------------

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING

	<u>February</u>	<u>March</u>
Number of Employees		
On payroll at beginning of month	181	182
Removals and transfers out	(4)	(7)
Additions and transfers in	5	9
Number at end of month	<u>182</u>	<u>184</u>
Net increase during month	1	2
% of terminations and transfers out	2.2%	3.8%
% of absenteeism	4.7%	3.3%

Changes by division in number of Accounting Division employees during March were as follows:

General Accounting - General: Decrease of one employee

One termination

Accounts Payable: Increase of one employee

One new hire

One return from illness absence

One termination

Cost: Decrease of one employee

One termination

General Accounting Division

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING (continued)

General Accounts: Decrease of one employee

One termination

Property Accounting: Increase of six employees

Four transfers from Construction

One transfer from General and Office Services Division

One transfer from Purchasing and Stores Division

Weekly Payroll: Decrease of one employee

One return from illness absence

One removal due to illness

One transfer to Monthly Payroll

Monthly Payroll: No change

One removal due to illness

One transfer from Weekly Payroll

Special Assignments: Decrease of one employee

One transfer to Manufacturing Accounting

<u>Injuries</u>	<u>February</u>	<u>March</u>
Major	0	0
Sub-major	0	0
Minor	0	0

Number of Accounting Division employees as of March 31, 1949, were as follows:

	<u>Number of Employees</u>		
	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Total</u>
General Accounting - General	2	3	5
Accounts Payable	26	1	27
Cost	9	1	10
General Accounts	16	1	17
Property Accounting	26	3	29
Weekly Payroll	73	5	78
Monthly Payroll	13	1	14
Special Assignments	0	4	4
Total	<u>165</u>	<u>19</u>	<u>184</u>

General Accounting Divisions

Accounts Payable*

	<u>February</u>	<u>March</u>
Balance at Beginning of Month	\$ 4 965	\$ 40 739
Vouchers Entered	2 115 249	1 287 164
Cash Disbursements	2 226 769 Dr.	1 382 951 Dr.
Cash Receipts	53 811	12 847
Miscellaneous Credits	93 483	101 535
Balance at End of Month	\$ 40 739	\$ 59 334
Number of Vouchers Entered	2 081	2 478
Number of Checks Issued	1 538	1 805
Number of Freight Bills Paid	271	391
Amount of Freight Bills Paid	\$ 6 948	\$ 12 490
Number of Purchase Orders Received	1 148	924
Value of Purchase Orders Received	\$ 236 885	\$ 166 120

Public Vouchers (1034) Submitted to AEC

Not Reimbursed at Beginning of Month	\$ 5 026 544	\$ 8 348 321
Submitted During the Month	17 667 329	15 064 559
Sub Total	22 693 873	23 412 880
Reimbursements During the Month	14 345 552	15 036 734
Not Reimbursed at End of Month	\$ 8 348 321	\$ 8 376 146

Public Vouchers (1034) Submitted to AEC

Not Reimbursed at Beginning of Month	150	209
Submitted During the Month	423	530
Sub Total	573	739
Reimbursements During the Month	364	511
Not Reimbursed at End of Month	209	228

* General Divisions Only.

General Accounting Divisions

	<u>February</u>	<u>March</u>
<u>Pre-Audit Vouchers (1035) Submitted to AEC</u>		
<u>Not Yet Approved</u>		
Community	\$ 80 935	\$ 41 531
Design and Construction	1 296 434	1 339 087
General	2 128 321	1 456 061
Manufacturing	3 266	22 953
Sub Total	\$ 3 508 956	\$ 2 859 632
<u>Not Submitted to AEC on Pre-Audit Vouchers</u>		
Community	153 167 Cr.	60 910 Cr.*
Design and Construction	4 514 812	2 635 015*
General	1 146 761	602 263
Manufacturing	661 215	347 018
Sub Total	\$ 6 169 621	\$ 3 523 386*
Total Unbilled Items	\$ 9 678 577	\$ 6 383 018*
<u>Bank Balances at End of Month</u>		
Chemical Bank & Trust Company,		
Contract Account	2 754 322	5 770 210
Seattle First National Bank - Richland		
Contract Account	2 201 828	3 135 254
Salary Account No. 1	20 000	19 986
Salary Account No. 2	30 000	30 000
U. S. Savings Bonds Account	187 263	40 848
Seattle First National Bank - Seattle		
Salary Account No. 3	5 000	5 000
Escrow Account	59 806	59 806
	\$5 258 219	\$9 061 104
<u>Cash Disbursements</u>		
Community	\$ 240 453	\$ 157 733
Design and Construction	10 304 306	7 876 144
General	4 179 770	3 277 001
Manufacturing	789 092	701 084
Total	\$15 513 621	\$12 011 962
Accounts Payable	\$13 400 957	\$ 9 748 457
Payrolls (Net)	1 953 001	1 894 050
U. S. Savings Bonds	159 663	369 455
Total	\$15 513 621	\$12 011 962

* Preliminary totals prior to final closing entries

General Accounting Divisions

	<u>February</u>	<u>March</u>
<u>Number of Checks Written</u>		
Community	229	370
Design and Construction	1 284	1 245
General	1 538	1 805
Manufacturing	598	763
Total	<u>3 649</u>	<u>4 183</u>
<u>Cash Receipts</u>		
Community	\$ 99 947	\$ 99 293
Design and Construction	112 657	539 732
General	14 495 259	15 158 410
Manufacturing	13 107	17 412
	<u>\$14 720 970</u>	<u>\$15 814 847</u>
<u>Detail of Cash Receipts*</u>		
U. S. Government	\$14 345 552	\$15 036 734
Hospital	91 242	101 571
Scrap Sales	22 148	9 447
Miscellaneous Accounts Receivable	429	1 157
Educational Program	3 870	654
Employee Sales	1 406	988
Refunds from Vendors	26 379	1 646
All Other	4 233	6 213
	<u>\$14 495 259</u>	<u>\$15 158 410</u>
<u>Travel Advances and Expense Accounts</u>		
Cash advance balance at end of month	\$ 15 291*	\$ 10 840*
Cash advance balance outstanding over one month	835*	161*
Traveling and Living Expenses:		
Paid Employees	7 361	11 362
Billed to Government	7 567	11 616
Balance in Variation Account at end of month	2 778 Cr.	3 033 Cr.
<u>Hospital Accounting</u>		
Balance at Beginning of Month	\$ 94 700	\$ 103 309
Invoices Issued	122 970	118 418
Refunds	642	4 350
Cash Receipts	(91 358)	(101 571)
Payroll Deductions	(22 672)	(22 665)
Miscellaneous Journal Entries	(973)	(416)
Balance at End of Month	<u>\$ 103 309</u>	<u>\$ 101 425</u>

* General Divisions Only

General Accounting Divisions

<u>PROPERTY</u>	<u>February</u>	<u>March</u>
Number of Transfer Notices Received	674	580
Number of Items Affected	2 528	1 381
Number of Receiving Reports Classified	7 336	8 824
Number of Items Tagged at beginning of month	90 865	91 658
Number of Items Tagged this Month--Metal	829	941
Number of Tagged Items dropped from record	(36)	(2 411)
Total Tagged Items Recorded	<u>91 658</u>	<u>90 188</u>
Number of Items Recorded in quantity only at beginning of month	13 533	13 533
Items added to record during month	-0-	4
Dropped from record during month	-0-	(6)
Total Items Recorded in Quantity	<u>13 533</u>	<u>13 531</u>
Total Items on Record	<u>105 191</u>	<u>103 719</u>

General Accounting Divisions

ACCOUNTS PAYABLE

The number of accounts payable vouchers entered during March was 2 478, the greatest number entered during any one month since 10-1-48. These vouchers totaled \$1 287 164, as compared with \$2 115 249, the amount entered in February.

There were 1 805 checks issued applying to General Divisions vouchers amounting to \$1 382 951. This is also the greatest number of checks written in any one month applying to the General Divisions since October, 1948.

Vouchers on hand in the Accounts Payable Section at the end of March which required additional supporting data before they could be billed to AEC numbered 592 and amounted to \$179 857, as compared to 763 in February amounting to \$229 379. Of the 592, 196 were paid and 396 were unpaid.

The number of unbilled vouchers outstanding more than 60 days again decreased considerably during the month. There were 157 on hand as of March 31 amounting to \$154 351, as compared to 216 the end of February amounting to \$291 891. Of these 157 unbilled vouchers, 72 were on 1035's as of April 1.

During March 391 freight bills were paid totaling \$12 490, as compared to 271 in February, totaling \$6 948. The balance in the general ledger Freight account at the end of March representing paid freight bills not yet distributed to other ledger accounts was \$207.

COST

February Operating Reports were completed and distributed on March 21, 1949. Total costs of each division reflected a slight decrease over the previous month. Average General Divisions' costs during February were approximately 7% under those of January.

Accrual was made in March covering assessments from the Manufacturing Divisions, which will enable the General Divisions' Operating Reports to be issued several days earlier. In the future, each month's assessments will be entered in cost in the following month.

Steps were also taken to accrue assessments from all divisions to AEC in order to make cost transfers at an earlier date.

GENERAL ACCOUNTS

Final closing entries for February were received on March 18. Hanford Works Financial Statements for the month of February were completed on March 21 and Consolidated Financial Statements were completed on March 24.

As of March 31, there was a small increase (\$28 000) over the previous month in amount billed on Public Vouchers (Form 1034). However, there was a large decrease (\$649 324) in value of billings on Pre-Audit Vouchers at end of month.

General Accounting Divisions

GENERAL ACCOUNTS (Cont.)

Although final totals for unbilled items of all divisions are not yet available, it is evident that the aggregate unbilled balance will have decreased by approximately \$2 650 000.

Unbilled expenditures as of March 31, 1949 on the General Accounting Divisions books as compared with those of February 28, 1949 may be summarized as follows:

	<u>February</u>	<u>March</u>	<u>Difference</u>
Salaries	\$ 2 119 522	\$ 906 030	\$ 1 213 492
Continuity-of-service (Includes Payment to Pension Trust)	1 042 038	1 004 572	37 466
Accounts Payable	403 838	296 451	107 387
Accounts Receivable	292 231 Cr.	198 023 Cr.	94 208 Cr
Freight	31 605	23 780	7 825
Payroll Deductions	28 111 Cr.	23 745	51 856 Cr
All Other	1 579 Cr.	1 769	3 348 Cr
	<u>\$ 3 275 082</u>	<u>\$ 2 058 324</u>	<u>\$ 1 216 758</u>

Average daily cash receipts amounted to \$687 633 as against \$736 170 during February and average daily disbursements were \$733 276 as against \$797 916 the previous month. Average bank balances remained approximately the same as last month; i.e., \$3 278 010 in the Richland Bank and \$5 048 184 in the New York Bank.

MEDICAL ACCOUNTING SECTION

Operating Reports for the month of February were issued on March 23, 1949. The report form as originally suggested by Touche, Niven, Bailey, and Smart, a public accounting firm, has been revised; the present report is patterned after standard form of the American Hospital Association and is considered a decided improvement over the original one. Most details are completed in connection with the salary-plus-commission plan for the doctors which is to become effective April 1, 1949.

For the first time since June, 1948, the Medical Accounts receivable balance reflected a decrease. The present balance of \$101 425 represents \$94 532 in the Kadlec Hospital ledgers and \$6 893 on the North Richland ledgers.

The number and amount of invoices issued during the month may be detailed as follows:

	<u>Number</u>	<u>Amount</u>
Cash Invoices	10 943	\$ 52 850
Charge Invoices	4 549	65 568
Total	<u>15 492</u>	<u>\$118 418</u>

General Accounting Divisions

SPECIAL ASSIGNMENTS

Special assignments during the month of March consisted of:

1. Assistance to the Design and Construction Accounting Division in the preparation of Cost Reports.
2. Preparation of a recommended procedure for the handling of accounting work in connection with the salary-plus-commission plan for the Medical Division.
3. Devising a Keysort card system to be used by the Recruitment and Placement of Technical Personnel group for tabulating as to age, sex, service date, education, job, etc.
4. Making numerous studies in connection with distribution of costs of several divisions and presenting the results to the Cost Section for adoption by them.
5. Assistance to the Design and Construction Accounting Division in determining costs in connection with graphite procurements.

PLANT ACCOUNTING

The appraisal of Plant Facilities continued throughout the month under the direction of Engineering Consultants retained by the Atomic Energy Commission. Plant Accounting personnel assisted with the field work connected with the appraisal and continued to list and price Class B property. This work will continue for approximately two more weeks.

Pricing of the field inventories is well under way and is expected to continue until approximately May 15. Plant Accounting personnel are being utilized in pricing plant equipment in addition to their work in connection with maintaining Class B property records. Du Pont construction cost estimates are being utilized for this work and are proving extremely helpful.

Two new employees were added to the unit in anticipation of additional work resulting from new plant accounting procedures.

General Accounting Divisions

PAYROLLS

There were 737 removals from the payroll processed during March, of which 610 were removals due to lack of work. The number of employees "checking out" at Weekly Payroll varied each day during the month. On March 25th ninety-seven weekly paid employees "checked out".

Weekly Payrolls have been billed to the Government through the week ended March 20, 1949 and Monthly Payrolls have been billed through the month of February, 1949.

Weekly salary payrolls have been reimbursed through the week ended March 13, 1949. Weekly vacation payrolls have been reimbursed through the week ended February 20, 1949 and monthly salary payrolls have been reimbursed through the month of February, 1949.

Labor cost distribution and journalization of payrolls for the week ended March 27 and the month ended March 31 were completed on March 31, 1949.

Payroll deductions for contributions to the American Red Cross, Benton County Chapter, totaling \$2 276.56 were deducted from salaries of 838 employees in March.

During March there were ninety time cards received late in Weekly Payroll as follows:

<u>Week Ending</u>	<u>Number</u>
3-6-49	39
3-13-49	7
3-20-49	38
3-27-49	<u>6</u>
Total	<u>90</u>

U. S. Savings Bonds and Custody Receipts for U. S. Savings Bonds purchased by employees through payroll deductions in January 1949 were delivered to employees on Friday March 4, 1949. Bonds and custody receipts for weekly paid employees were delivered with salary checks and those for monthly paid employees were delivered through supervision. The total number of bonds delivered was 3 761 and the total number of custody receipts was 808. Bonds and custody receipts totaling 4 087 and 782 respectively covering payroll deductions made during the month of February 1949 were delivered to employees on Friday March 18, 1949.

Delivery of bonds purchased by payroll deductions is now on a current basis; that is, they are being delivered to employees within sixty days of the issue date during which period they may not be redeemed.

During March, 216 employees withdrew 510 U. S. Savings Bonds from the G. E. Employees Savings and Stock Bonus Plan. The total maturity value of the bonds withdrawn was \$22,800.

General Accounting Divisions

PAYROLLS (CONT.)

In addition to regular payroll addressograph work, the following material was addressographed during March.

1. Approximately 8 600 envelopes for use in mailing Mr. Prout's letter dated March 1, 1949 to all employees in connection with reduction in forces.
2. Approximately 6 900 3 x 5 cards showing pay number and name of weekly paid employees for use of Employee and Community Relations Division in connection with lay offs.
3. Approximately 1 700 G. E. Monograms for mailing to the monthly paid employees by the Employee and Community Relations Division.
4. Approximately 6 000 envelopes for use in mailing the following letters:
 - a. H. E. Callahan's letter dated March 3, 1949 concerning a meeting with representatives of the Hanford Atomic Metal Trades Council.
 - b. H. E. Callahan's letter dated March 4, 1949 relative to National Labor Legislation.
 - c. H. E. Callahan's letter dated March 7, 1949 concerning reduction in forces.
 - d. H. E. Callahan's letter dated March 11, 1949 outlining procedure for lay off of employees with more than six months of service.
 - e. H. E. Callahan's letter dated March 23, 1949 in respect to interim grievance procedure.
5. Approximately 19 200 items as follows:
 - a. Cover slips for mailing H. E. Callahan's letter dated March 15, 1949 to approximately 1 200 supervisors concerning interim agreement with the Hanford Atomic Metal Trades Council as to procedure for laying off employees.
 - b. Cover slips for use in mailing approximately 1 200 booklets "G. E. Educational Assistance Program".
 - c. Approximately 1 200 3 x 5 cards for use of H. E. Callahan.
 - d. Eleven Instructions Letters and two Organization Announcements addressographed to 1 200 supervisors.

General Accounting Divisions

PAYROLLS (CONT.)

Approximately sixty man hours were expended in reviewing and revising material relative to payrolls submitted by the Employee and Community Relations Division for use in a manual for supervisors.

During the month of March, Employees and Payrolls statistics showing number of weekly paid employees on the payroll, number of employees paid, gross amount of payroll, and overtime payments for the weeks ended February 20 and 27, and March 6, 13, 20, and 27 were furnished to Management and to the Chief, Organization and Personnel, Atomic Energy Commission. The same information was furnished in connection with the Monthly Payroll for the months ended January, February, and March, 1949.

Semi-annual Organization Chart and Personnel Lists were prepared during the latter part of February and submitted to the Atomic Energy Commission on March 7, 1949. The chart and lists indicated number of Hanford Works employees as of February 1, 1949, segregated by job classifications and salary ranges. Approximately eighty man hours were expended in preparing this report.

The 700 Area West Gate House (Bldg. 701-B) was closed effective Monday, March 14, 1949. There were 122 weekly paid employees of five divisions who were using time clocks in the West Gate House prior to that date. Interested superintendents were notified on March 4, 1949, and arrangements were made for employees affected to use time clocks in the North Gate House of the 700 Area (Bldg. 701-A) effective with the first shift on Monday, March 14, 1949.

SERVICE DIVISIONS

SUMMARY - MARCH 1949

Plant Security and Services Division

There were two Major Injuries this month bringing the total for the year-to-date to five with a frequency rate of 1.13.

There were six fires in the Industrial Areas with no loss involved.

The 700 Area Laundry was reduced from a two to a one-shift operation due to the lower volume of work coming from North Richland.

There was a net reduction of 220 employees during the month; the total being made up of 121 from Patrol and Security, 42 from Safety and Fire Protection, and 57 from Office Services.

PURCHASING AND STORES DIVISION
MARCH, 1949

GENERAL

Purchasing

The work load was at a reduced level during the month. 1,197 purchase orders were placed as compared to 1,435 placed in February. 1,551 purchase requisitions were received as compared to 2,159 received during February. Requisitions on hand at month end totaled 294 as compared with 614 at the end of the previous month.

During the month four additional orders were placed for Project P-10 and seventeen orders were placed for Project P-10-A. This is the final report of orders placed for Project P-10 as it was completed during the month; deliveries of materials for Project P-10-A are continuing satisfactorily.

The downward trend in the commodity price structure continued throughout the month. As a specific example we received notice of a price decrease in non-ferrous metals which was the first decline in many years. Signs of an easing in the supply situation were evident in other lines that have been difficult to obtain; this was particularly true of aluminum and steel.

A substantial reduction in expenditures of new monies was made by refraining from ordering or by reducing the quantities of essential materials ordered during the month. On steam coal, which is our largest single item, the reduction amounted to approximately \$227,989.33.

The American Agricultural Chemical Company was awarded a contract covering our requirements of Ammonium Silicofluoride for the period 3-1-49 through 2-28-50.

Invitations to bid were mailed during the month to prospective suppliers on our requirements of argon gas, nitric acid, and steam coal.

Stores

Noteworthy results were shown in our program of excessing no-activity items from Stores stock. The accumulated value of excess declarations of Stores materials since November 11, 1948 is \$71,999.03.

Considerable quantities of materials were returned to Stores for credit to the operating divisions. Disbursements for the month of March were reduced about one-third, which indicated that the field was beginning to consume existing area stock-piles of materials.

Surplus, Salvage & Scrap

Excess Lists No's. 58, 61, 65, 68 through 74, 76, 79, 80 and 33, a total of fourteen, were transmitted to the Atomic Energy Commission during the month. Twelve Field Lists were circulated throughout the Project, but only seven were approved as excess at month end. Twenty-four 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.

PURCHASING AND STORES DIVISION

GENERAL (Cont.)

Surplus, Salvage & Scrap

Receipts of material and equipment from various divisions and subcontractors increased steadily throughout the month. It was necessary to assign three checkers to the 3000 Area, two on heavy equipment and one on piping and fittings. An increase in materials and equipment received at the Pasco General Depot was noted. It was necessary for checkers and stockroom keepers to utilize most of their time in unloading and warehousing materials and equipment. This condition resulted in a decrease in the number of Receiving Reports that we were able to process.

PERSONNEL

<u>Administrative Supervision</u>	1
 <u>Purchasing</u>	
Employees Exempt	9
Employees Non-Exempt	20
 <u>Stores</u>	
Employees Exempt	8
Employees Non-Exempt	102
 <u>Surplus, Salvage & Scrap</u>	
Employees Exempt	8
Employees Non-Exempt	44
TOTAL	192

SAFETY AND SECURITY

<u>Purchasing</u>	
Safety and Security Meetings Scheduled	1
Number of Employees attending	27
 <u>Stores</u>	
Safety and Security Meetings Scheduled	12
Number of Employees attending	104
Minor Injuries	4
 <u>Surplus, Salvage & Scrap</u>	
Safety and Security Meetings Scheduled	14
Number of Employees attending	55
Minor Injuries	2

STATISTICS

<u>Purchasing</u>	
Requisitions on hand 3-1-49 (includes 58 assigned to Govt.)	614
Requisitions received during March	1,551
Requisitions placed during March	1,871
Requisitions on hand 3-31-49 (includes 15 assigned to Govt.)	294
HW Orders placed	1,197
TPS Orders placed	156

PURCHASING AND STORES DIVISION

STATISTICS (Cont.)

Purchasing

H.O.'s placed	0
O.R.'s placed	6
Alterations issued	164
Orders Expedited	190

Stores

Number of items added to Stores stock	206
Number of items deleted from Stores stock	10
Items in Stores stock at month end	50,188
Receiving Reports issued	4,384
Store Orders filled	16,568
Emergency Store Orders filled	7
Returnable containers on hand at month end	5,372
Returnable containers on hand over six months	1,096
Shipments processed (containers and material) during the month	203
Inventory valuation (903 - all captions, 906 and 912) Stores at month end	\$2,982,394.93
Inventory valuation (Spare Parts) at month end	1,558,832.11
Total value inventories at month end, including Spare Parts	4,541,027.04
Value of Disbursements, not including cash sale items	130,523.26*
Value of transfers from Surplus, Salvage & Scrap to Stores	4,022.50
Value of materials declared excess and removed from Stores stock	36,261.39

* Includes \$14,850.68 disbursed to Construction and CPFF subcontractors

Surplus, Salvage & Scrap

Excess Account #10.10 Balance 2-25-49	\$3,139,387.64
---------------------------------------	----------------

Receipts 2-26-49 to 3-25-49

Automotive Equipment	\$185,256.78	
Machine tools and equipment	16,367.60	
Office furniture, machines, etc.	12,935.37	
Household furniture, etc.	550.61	
Material and supplies	292,140.38	
Lumber	357,421.41	
Miscellaneous equipment	19,508.21	
	\$884,180.96	884,180.96
		\$4,073,568.60

Disbursements 2-26-49 to 3-25-49

On Project:

Office furniture, machines, etc.	18.75
Household furniture, etc.	1.50
Material and supplies	9,840.53
Lumber	2,568.37
Miscellaneous equipment	300.00

Off Project:

Automotive equipment	49,549.98
Office furniture, machines, etc.	8,681.95

PURCHASING AND STORES DIVISION

STATISTICS (Cont.)Surplus, Salvage & Scrap

Disbursements 2-26-49 to 3-25-49

Off Project (Cont.)

Household furniture

\$ 1,385.09

Material and supplies

23,469.45

Miscellaneous equipment

7,875.29

\$104,190.91

104,190.91

\$3,969,577.69

Balance of Account \$10.10 as of 3-25-49

(See attached list for breakdown of

materials in this account by classifications)

Total Receipts to date

\$4,522,449.70

Total Disbursements to date

553,072.01

Disbursements prior to Excessing

Richland Salvage Yard

Number of items

99

Value

\$1,992.53

Leazer Spur Salvage Yard

Number of items

11

Value

373.80

Pasco Depot material

Number of items

359

Value

25,741.28

Total Value

\$28,107.61

Scrap and Salvage Disbursed

Scrap Sales Completed

9

Scrap Sales in Process

16

Scrap Sale Revenue for month plus adjustments
on previous sales

\$ 6,687.47

Total Scrap Sale Revenue to date

\$ 30,061.92

PURCHASING AND STORES DIVISION
RECAPITULATION BY MATERIAL CLASSIFICATIONS OF ACCOUNT 10.10

Class	Description	Monetary Value
4	Ammunition	\$ 1,029.55
5	Flags, bunting, pennants, etc.	1.00
7	Fuel	10.34
3	Motor vehicles: electric trucks, tires, tubes	173,180.65
10	Outboard motors and all accessories	243.00
11	Pumps and pump parts	69,349.83
12	Marine hardware	174.72
13	Engine and fireroom fittings	33.20
14	Lubricants	789.44
15	Electric cable and insulated wire	7,292.74
16	Radio and sound signal apparatus	8,335.51
17	Electric apparatus	603,197.33
18	Instruments of precision & photographic equipment	15,511.87
19	Blocks	4,291.08
21	Cordage: Hemp, Jute, Oakum, Twine, etc.	82.59
22	Wire rope, bare wire, etc.	687.23
24	Canvas, duck, tentage, etc.	157.80
26	Furniture	107,405.04
27	Textiles: thread, findings, floor coverings	21,801.67
29	Toilet articles	24.38
30	Bathroom and toilet fixtures	4,792.35
31	Non-electric lighting apparatus	2.40
32	Fire-surfacing and heat insulating materials	3,884.26
33	Gaskets, hose, packing, sheet and strip rubber, hose fittings, flexible tubing, etc.	457.99
37	Special wearing apparel and athletic equipment	14,441.49
38	Brooms and brushes	3.00
39	Lumber	1,898,372.05
40	Machine tools	59,503.90
41	Hand tools	16,956.41
42	Builders and general hardware	9,280.50
43	Bolts, nuts, rivets, screws, washers, etc.	2,745.32
44	Pipe and non-flexible tubes and tubing	48,045.31
45	Pipe fittings	150,609.69
46	Metal in bars: including flat, hexagon, octagon, round and square shapes, etc.	270.09
47	Metal in plates and sheets	5,113.07
48	Metal shapes and structural	111.84
51	Acids, chemicals, etc.	3,755.73
52	Paints and paint ingredients	71,931.07
53	Pens, pencils, paper, drafting room and printers' supplies	5,363.48
54	Office equipment	17,628.87
55	Clothing	1,384.67
57	Laboratory equipment	28,362.78
58	Fire fighting apparatus: railway equipment, prefabricating buildings, etc.	96,235.30
59	Building materials: asphalt, brick, etc.	12,992.60
60	Boilers and power plants	763.95
63	Tableware	11,378.23
64	Kitchen utensils and apparatus	29,149.99
65	Ovens, ranges, stoves, etc.	31,953.33
66	Machinery: Pneumatic tools, etc.	36,937.17
69	Animal and hand-drawn vehicles	3,915.03
70	Agricultural implements	2,354.07
73	Caps, hats, gloves, etc.	187.26
74	Infantry and landing force equipment	142.50
78	Motorized equipment and heavy construction equipment	390,953.02

Total Account 10.10 \$3,969,377.69

PLANT SECURITY AND SERVICES DIVISION

MONTHLY REPORT - MARCH - 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	<u>Beginning of Month</u>	<u>End of Month</u>	<u>Increase</u>	<u>Decrease</u>
Staff	3	3		
Patrol and Security	713	592		121 (a)
Safety & Fire Protection	190	148		42 (b)
Office Services (General & Clerical)	<u>317</u>	<u>260</u>		<u>57 (c)</u>
TOTAL	1223	1003		220

NET DECREASE - 220

- (a) - 2 - Returned from illness leave (Patrol)
 - 16 - Transferred from Community Patrol
 - 4 - Terminations (1 Clerical - 3 Patrol)
 - 3 - Removed from Roll due to Leave of Absence (1 Clerical - 2 Patrol)
 - 132 - Terminated due to Reduction of Force
- (b) - 2 - Terminations (Firemen)
 - 40 - Terminations due to Reduction of Force
- (c) - 6 - Transferred to other Divisions (1 General - 5 Clerical)
 - 3 - Retired (General)
 - 8 - Terminations (3 General - 5 Clerical)
 - 40 - Terminations due to Reduction of Force (32 General - 8 Clerical)

DECLASSIFIED

Service Divisions
Plant Security and Services

SAFETY AND FIRE PROTECTION

Plant Safety Record - 8 Days

Injury Statistics

Accumulated Exposure Hours since last Major Injury 384,098
Major Injury Frequency Rate (start-up to date) 0.855

	<u>February</u>	<u>March</u>	<u>Year to Date</u>
Major Injuries	1	2	5
Sub-Major Injuries	3	0	8
Minor Injuries	419	410	1273
Exposure Hours	1,443,986	1,488,380	4,418,603
Major Injury Frequency Rate	0.69	1.34	1.13
Major Injury Severity Rate	0.017	0.103	0.043
Minor Injury Frequency Rate	2.95	2.75	2.88

Major Injury No. 62

March 3, 1949 at approximately 2:55 p.m., an employee of the Patrol and Security Division, incurred a wound to the right chest when he was struck by a 50 caliber spent tracer bullet. A demonstration of routine range practice was being filmed by a Paramount News Photographer. It is felt that one of the tracer bullets struck the target area approximately 1000 yards away and then ricocheted back striking the injured who was standing with others approximately 40 feet to the rear of the firing line. It is not felt that the accident could have been reasonably foreseen or guarded against.

Major Injury No. 63

March 23, 1949 at approximately 5:20 p.m., , an employee of the "P" Division working in the 300 Area suffered an amputation of the end section of the little finger to the first joint while dressing a bit in a monarch lathe with crocus cloth. Injured's little finger of gloved right hand was caught between crocus cloth and turning bit.

Safety Meetings

There were 600 Safety Meetings held during the period of March 1 through March 31, 1949, with a total attendance of 6,788.

Safety Spectacles

There were 31 pairs of prescription safety spectacles ordered during the period of March 1 through March 31, 1949; 44 pairs of prescription safety spectacles were checked, received, and fitted; and 199 adjustments and repairs were made to all types of safety spectacles.

100 Areas Activities

A new type of control for the circular saw involved in a major injury in 100-D Area has been installed as a result of investigation and has proved very satisfactory. A design is being drawn, and the Maintenance Division is planning installations for other Areas.

DECLASSIFIED

Service Divisions
Plant Security and Services

From the discussion in a "Stump the Experts" type safety meeting, it was brought out that the lock and tag procedure is being violated by members of Supervision and weekly-paid employees of various groups. It was agreed by all Supervision present, who were acting as experts, that violations should be reported immediately to Supervisor in charge. If the Supervisor is in error, the person noting violation is to report it to him and, if no action is taken, the employee noting violation is to report it to higher supervision.

There have been several incidents reported of horseplay during shift change and on the buses. This is being discussed at all Council Meetings.

200 Areas Activities

Orientation classes were held three times during the month.

A preliminary inspection and coverage appraisal was made of the 234-5 Building for the purpose of setting up adequate safety coverage for this Building.

Special efforts are being put forth to correct the unsafe act or failure to follow the lock and tag procedure in draining dangerous acid lines before repairing same.

300 Area Activities

Postponement of the Area No Injury Contest was made. It will start May 1, 1949.

Suggestions are being made to the Area Council to correct the lack of necessary roadways around the 321, 3702, and 3703 Buildings.

Changes were made in the "Column" Room 55, 3706 Building to eliminate a possible explosion and fire hazard in connection with the motor driven pump currently being used.

700-1100 and Miscellaneous Areas Activities

No lost time injuries were sustained for the month of March.

A problem in the use of carbon tetrachloride was presented from Riverland. A check of the job was made and recommendations were given for establishing job safety procedures pertaining to respiratory, eye, and skin protection. The job involves cleaning of electric motors on Diesel locomotives.

Field trips have been made with Dr. Wood of the Medical Division for the purpose of acquainting him with job titles, types of work, and to present a picture of industrial activities to assist him in getting a clearer understanding of individual injury cases.

A survey is now underway to assure safe handling of acids at receiving in Pasco and Richland. Also, a check will be made into disbursement to the areas on handling and safety measures for delivery.

Gas mask demonstrations were given to the Power group in Village, Utilities and Riverland Transportation personnel.

A check was made of all ditto machines in the 700 and 100 Areas to assure safe location of each machine, proper ventilation, and fire protection.

Service Divisions
Plant Security and Services

Recommendations were made to the Transportation Division on improvements for chain fall and mono rail at the heavy equipment shop. A safer method of handling large engines is to be set up.

The process of cleaning radiators for liquid cooled engines was reviewed and recommendations made to Transportation on cleaning compounds, protective clothing, and procedures.

A check is being made on carbon monoxide concentrations in 700-1100 Area garages.

Suggestions were made and recommendations given for grounding of laquer spray guns in paint booth, 722 hanger to eliminate static sparks.

Recommended a barricade which has been installed between two lathes in which operators were in line of work of each other.

General

Closing dates for the H.W. Safety Statistics report, beginning with March, will be the end of each month; in the past, the period from the 16th day of the previous month to the 15th day of the current month was used. The period of March 16th to March 31st will be shown as a supplement in the H.W. Report for the month of March.

FIRE PROTECTION

	<u>Number of Fires</u>		<u>Estimated Damage</u>	
	<u>February</u>	<u>March</u>	<u>February</u>	<u>March</u>
Industrial	6	6	\$ 17.50	\$ -
Construction	14	6	475.00	1600.00
Community	4	3	75.00	2700.00
A.E.C.	2	0	1450.00	-

Routine Duties

Fire Extinguishers

Inspected	3,149
Installed and Relocated	130
Refilled	22
Resealed and Repaired	18
Summerized	25
Salvage	1

Gas Masks

Inspected	104
Serviced	5

Fire Drills and Lectures

Outside	105
Inside	90
Safety Meetings	41

All fire alarm boxes in the Industrial Areas were tested.

All fire hose houses, hydrants, and lines in Plant Areas were inspected.

SAFETY DIVISION - INJURY AND ACTIVITY STATISTICS

	100-B	100-D	100-F	200-E	200-W	300	700-1100	3000	Pasco	Miscellaneous	TOTAL
	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	
Minor Injuries	35	22	47	47	75	85	21	49	23	1	410
Sub-Major Injuries	0	0	0	0	0	0	0	0	0	0	0
Major Injuries	0	0	0	0	0	1	0	0	0	1	2
Days since last Tabulatable Major Injury	309	77	101	504	237	8	437	43	199	609	28
Days since last Sub-Major Injury	272	58	39	477	56	67	108	82	154	77	175
Days without a Minor Injury	13	14	12	9	6	7	14	8	15	30	22
Safety Meetings Conducted	60	65	55	56	76	66	159	25	21	17	600
Number in Attendance	439	533	474	907	833	779	2162	207	336	118	6788
Safety Spectacles Delivered	1	6	5	7	5	11	9	0	0	0	44
Safety Spectacles Serviced	30	35	37	30	35	12	20	0	0	0	199

1219076

MONTHLY INJURY ANALYSIS

Period - February 16, 1949 through March 15, 1949

Minor Injuries

	Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Blisters	Unclassified	TOTAL	
											MARCH	LAST MONTH
GENERAL	0	0	0	0	0	0	0	0	0	0	0	2
"P" DIVISION	5	6	3	6	1	1	2	0	1	4	29	20
"S" DIVISION	4	2	0	1	1	1	0	1	1	1	12	17
POWER	1	2	0	3	0	1	0	2	0	0	9	15
MAINTENANCE	14	28	14	29	4	6	2	6	7	3	113	115
PROJECT ENGINEERING	0	0	0	0	0	0	0	0	0	0	0	0
ELECTRICAL	3	0	3	9	1	3	2	1	0	0	22	24
INSTRUMENT	2	4	1	7	3	0	0	2	1	2	22	20
TRANSPORTATION	0	8	5	10	0	2	4	3	2	2	36	35
COMMUNITY	0	5	8	12	1	1	3	3	0	1	34	43
ACCOUNTING	0	0	0	0	0	0	0	0	0	0	0	1
TECHNICAL	7	9	4	11	5	1	0	1	0	2	40	58
MEDICAL	1	2	6	6	2	0	1	3	0	3	24	18
HEALTH INSTRUMENT	4	7	3	10	1	0	1	1	0	0	27	17
SERVICE	0	7	2	9	6	4	3	2	1	3	37	39
EMPLOYEE AND COMMUNITY RELATIONS	0	0	0	0	0	0	0	0	0	0	0	1
DESIGN AND CONSTRUCTION	1	4	0	5	2	1	4	2	0	3	22	23

TOTAL 42 84 49 118 27 21 22 27 13 24 427

LAST MONTH 43 97 55 98 35 31 40 21 10 18 448

DECLASSIFIED

1219577

176

MONTHLY INJURY ANALYSIS

Period - March 16, 1949 through March 31, 1949

Minor Injuries

	Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Blisters	Unclassified	TOTAL MARCH
GENERAL	0	0	0	1	0	1	0	0	0	0	2
"P" DIVISION	2	0	3	1	0	0	0	1	0	1	8
"S" DIVISION	0	3	0	1	2	0	0	0	1	0	7
POWER	0	2	3	0	0	0	0	0	0	0	5
MAINTENANCE	3	6	2	9	1	6	2	3	1	5	38
PROJECT ENGINEERING	0	1	0	0	0	0	0	0	0	1	2
ELECTRICAL	0	1	1	2	1	1	0	1	1	1	9
INSTRUMENT	1	2	2	6	0	0	0	3	0	3	17
TRANSPORTATION	0	5	7	6	0	0	0	2	0	0	20
COMMUNITY	1	3	3	1	3	2	0	1	0	2	16
ACCOUNTING	0	0	0	0	0	0	0	0	0	0	0
TECHNICAL	3	3	2	8	1	0	0	0	0	1	18
MEDICAL	0	2	1	2	2	0	0	0	0	0	7
HEALTH INSTRUMENT	0	2	3	7	0	0	0	0	0	1	13
SERVICE	2	3	2	5	3	2	2	0	0	4	23
EMPLOYEE AND COMMUNITY RELATIONS	0	0	0	0	0	0	0	0	0	0	0
DESIGN AND CONSTRUCTION	0	2	2	1	1	0	0	0	0	0	6
TOTAL	12	35	31	50	14	12	4	11	3	19	191

RECEIVED
MAR 31 1949

Service Divisions
Plant Security and Services

OFFICE SERVICES DIVISION

General Services

Laundrying volumes were as follows:

	<u>February</u>	<u>March</u>
<u>Plant Laundry (Building 2723)</u>		
Coveralls - Pieces	29,148	33,466
Towels - Pieces	5,727	7,554
Miscellaneous - Pieces	<u>58,015</u>	<u>65,191</u>
Total Pieces	92,890	106,211
Total Dry Weight - Lbs.	132,513	156,425
<u>Richland Laundry (Building 723)</u>		
Flatwork - Pieces	142,051	140,222
Rough Dry - Pieces	33,463	36,306
Finished - Pieces	5,249	5,500
Total Pieces	180,763	182,028
Total Dry Weight - Lbs.	117,496	118,318
<u>Monitoring Section (Building 2723-W)</u>		
Poppy Check - Pieces	62,673	80,903
Scaler Check - Pieces	<u>97,786</u>	<u>114,082</u>
Total Pieces	160,459	194,985

2723-W Laundry

Extra heavy volume in this laundry due to operating shutdowns in the 100 Areas. There was also a heavy backlog of maintenance coveralls held over from February due to an equipment breakdown that was processed during the past month.

723 Laundry

One Foreman and twelve non-exempt employees were eliminated and the Laundry Operation put on a one-shift schedule during the past month. This was done in anticipation of a lower volume of work coming from North Richland due to the layoff of Construction employees.

Janitors (Plant)

Janitor and Floor Maintenance Crews were reduced by a total of two Foremen and 20 non-exempt. This reduction was in conjunction with the general force reduction.

Service Divisions
Plant Security and Services

Clerical Services

Telephone

There were 3,500 new Kennewick-Pasco telephone directories received and delivered to all official and unofficial subscribers.

One lease line to each of the following points were cancelled during this period: Seattle, Portland, and Spokane. This was possible due to a drop in traffic.

Local traffic between Richland and Kennewick and Richland and Pasco also dropped off to the where four Pasco and two Kennewick lines were cancelled.

The Atomic Energy Commission has requested Interstate to make memo tickets on all official calls to Kennewick and Pasco to determine if they are bona fide business calls.

Traffic counts for March were 28,947, 31,080, 32,598.

Line distribution of the Telephone Exchange is as follows:

	<u>February</u>	<u>March</u>
Lines working as 1 - O Lines	643	633
Lines working as 2 - O Lines	57	55
Lines working as 0 - PBX Lines	31	31
Lines working as 1 - N Lines	25	25
Lines working as 2 - N Lines	2	2
Lines working as 2-O-R Combination	<u>1</u>	<u>1</u>
Total Official Lines	759	747
Lines working as 1 - F Lines	94	99
Lines working as 2 - F Lines	24	24
Lines working as F - PBX Lines	4	4
Lines working as 1 - R Lines	8	8
Lines working as 2 - R Lines	1187	1179
Lines working as 2 - RF Lines	85	87
Lines workings as 3 - RF Lines	<u>2</u>	<u>2</u>
Total Non-Official Lines	1404	1403
Vacant Lines	<u>37</u>	<u>50</u>
Total Lines in Multiple Bank	2200	2200

Service Divisions
Plant Security and Services

Mail Room

Escort service provided by the Mail Room in Building 703 was discontinued on March 21, 1949.

The stationery room is now open only two hours in the morning rather than two hours in the morning and two in the afternoon.

Telegraph and Teletype service on Saturday has been discontinued.

	<u>February</u>	<u>March</u>
Pieces of First Class mail received	27,956	29,037
Pieces of Parcel Post mail received	1,371	---
Pieces of Registered mail received	360	433
Pieces of Insured mail received	235	138
Pieces of Special Delivery mail received	<u>222</u>	<u>182</u>
	30,144	29,790
Pieces of mail sent out	49,453	27,924
Amount of money used in Postage Meter	\$1,905.28	\$1,476.49
Teletypes sent out	1227	430
Teletypes received	<u>1324</u>	<u>549</u>
Total Teletypes	2551	979

Office Equipment

Two shipments of typewriters totaling 120 to replace all machines older than 1941 models were received. This leaves approximately 180 machines still due to be received.

There were 154 typewriters excessed during the month with all being older than 1941 models.

	<u>February</u>	<u>March</u>
Machines repaired in shop	198	232
Machines service calls	<u>229</u>	<u>199</u>
Total machines serviced	427	431

Printing

	<u>February</u>	<u>March</u>
Multilith Orders received	142	180
Multilith Orders completed	155	168
Multilith Orders on hand at month end	18	30
Mimeograph Orders processed	2152	2070
Ditto Orders processed	2933	3185

Records Service Center

The last carload of duPont records were shipped to Wilmington.

Service Divisions
Plant Security and Services

	<u>February</u>	<u>March</u>
Cartons of records received for storage	142	160
Cartons of records processed	79	160
Cartons of records shipped (duPont)	2839	516
Persons viewing files	140	130

Stenographic Services

Work continues heavy in this section and the reduction of the number of stenographers has made it necessary to turn down some requests for service.

PATROL AND SECURITY

General

During the month, notices were given to 121 employees of a reduction in force, which was made possible by a number of service curtailments approved by the Atomic Energy Commission and listed below:

Two Captains were reduced to Lieutenants; ten Sergeants reduced to Patrolmen.

The Protection Procedure in the 100-H Pile Area was revised. Plant Operation Areas were placed in the "control" category. Construction personnel will enter areas through the Operation Badge Houses in several areas. Elimination of one Badge House and Vehicle Gate in the 700 Area. Reduction in the 300 Area assignments. Reduced services in the 101 and 221-U Areas. Elimination of the Regular Outer Area Traffic Car. Approximately, thirty percent reduction on Railroad Crossing Posts, and a reduction in other construction posts.

Effective March 1, 1949, the post inside the 321 Building, 300 Area, was discontinued.

The three Patrol Posts in the Redox Construction Area were discontinued March 9, 1949, due to the complete shutdown of this area.

Effective March 15, 1949, at 7:24 A.M., the 100-H Area Patrol radio (WCMB-14) will be manned 24 hours daily.

On March 15, 1949, effective the No. 1 Shift, the White Bluffs Jeep Patrol will operate out of the 100-H Area daily instead of the 100-F Area, and two patrolmen will be assigned on each shift.

Working hours of the "Emergency Officers" were changed to conform to the 700 Area hours on March 16, 1949.

On March 17, 1949, escorts from the 300 Area to the outer areas, previously handled by the Outer Area Traffic Car, will now be furnished by the 300 Area Patrol.

H. W. Instructions Letter No. 112 entitled "Registered Delivery for Classified Documents" was issued on March 22, 1949, to all Operations personnel.

Effective March 29, 1949, at 5:00 p.m., the operation of the 105-DR Badge House and Vehicle Gate were discontinued. All General Electric, Atomic Energy Commission and sub-contractor personnel will utilize the gate at the 100-D Operations Area. At this time the original perimeter fence was re-established and the Fence Patrol Road was reopened for normal Patrol.

Service Divisions
Plant Security and Services

During the month, four Ford Sedans and six Jeeps were declared excess and returned to Transportation.

Due to coveralls being worn by the Industrial Fire Department, Patrol discontinued handling laundering and dry cleaning for this Department with the exception of the Officers uniforms on March 21, 1949.

PATROL

The 200 Areas handled 164 process escorts between the areas.

Requests handled totaled 444, mainly consisting of opening doors, gates and escorts for employees of other departments.

A total of 18 construction employees were escorted into areas for First Aid treatment.

Ninety-six unusual incident reports were received, consisting mainly of lost badges, pencils, contrabands picked up at barricades, traffic violations and fires.

Twenty-seven classified escorts were handled during the month.

Practice evacuations were held as follows:

100-D and 105-DR	3/1/49	10:07 a.m.
100-B	3/16/49	10:45 a.m.
100-F	3/17/49	2:08 a.m.

Arrest Summary

	<u>February</u>	<u>March</u>
Citation tickets issued	9	2
Number of violations	9	2
Continued from February	7	0
Cases cleared	16	2
Fined	16	1
Cases pending	0	0
Jailed	0	0
Dismissed	0	1
Total amount of fines	\$217.50	\$17.50
Operators Licence revoked	0	0

Accident Summary

Total accidents	17	7
Government permits revoked	1	1
Warning tickets issued	2	0
Verbal warning given	44	25
Citation tickets issued (traffic only)	9	2

Training

Basic training at the Patrol Small Arms Range has been discontinued.

Service Divisions
Plant Security and Services

Effective March 18, 1949, all advanced training courses will be given over a eight-week period rather than the previous four-week period. The current program is directed towards the M-8 Light Armored Car and its equipment. Each man is given a review in the nomenclature of the .30 and .50 Caliber Machine Guns, the 37 m.m. Gun, and the M-8 Light Armored Car. Maneuvers are being conducted, the vehicles being directed by the use of two-way radio.

The following topics were included this month:

Safety: "Two Seconds Thought For Safety All The Time" and the film
"The Safety Sleuth"
Security: "The Criteria For Obtaining and Maintaining a Security
Clearance"
Health: "Heart Diseases"

A class was conducted on "interrogation" and consisted of instructions on how to detect deception during an interrogation.

Mr. Edwards, Paramount News Service, Hollywood, California, was present at the Training School March 3, 1949, and photographed the different phases of training of the weapons and the M-8 Light Armored Cars.

SECURITY

Operations Section

There were 391 security meetings held and attended by 7,002 General Electric employees.

Employee Clearance

Class "Q" clearances received on old employees this month	12
Class "Q" clearances received on old employees to date	4,427
Class "Q" clearances received on new employees this month	71
Class "Q" clearances received on new employees to date	5,807
Class "Q" clearances received on both old and new employees since February 17, 1947:	10,234
Formal "P" clearances awaiting change to "Q"	33
Authorization clearances issued this month	47

Statistical Summary of Outstanding Area Badges

Next Page

Service Divisions
Plant Security and Services Division

Statistical Summary of Outstanding Area Badges

February					March				
	A	B	C	Total		A	B	C	Total
100-B	711	1588	636	2935	100-B	669	1549	550	2768
100-D	800	1610	608	3018	100-D	724	1565	597	2886
100-F	751	1609	608	2968	100-F	693	1563	547	2803
200-E	1107	1652	497	3256*	200-E	1032	1628	441	3101*
200-W	1395	1692	490	3577	200-W	1370	1601	450	3421
200-N	43	862	166	1071	200-N	51	860	157	1068
300	1455	1660	361	3476	300	1398	1588	325	3311
100-DR	5002	182		5384	234-5	3197	289		3486
234-5	3080	306		3386	241-BY	336	116		452
Redox	1218	93		1311					
241-BY	323	112		435					

*Includes 50 "A" badges at Riverland Yards

*Includes 42 "A" badges at Riverland Yards

100-DR and Redox Areas were closed-out during the month of March.

Visitors or Temporary Badges

Area	February	March
100-B	276	315
100-D	420	490
100-F	517	561
200-E	409	452
200-W	691	778
200-N	227	245
300	837	937
100-DR	554	Closed Out
234-5	83	113
241-BY	45	70
Redox	310	Closed Out
Total	4,369	3,961

Special Clearance Section

Following is a statistical summary of emergency clearance status of vendor and consultant vendor companies:

Total companies forwarded to AEC this month: 9 Personnel: 35
Total companies forwarded to AEC to date: 186 2,032

Total companies cleared for restricted data this month: 19 66
Total companies cleared for restricted data last month: 29 108

Two new companies were forwarded to the Atomic Energy Commission this month:

Akos Corporation
1500 South 50th Street
Philadelphia, Pennsylvania

Puget Sound Naval Shipyard
Bremerton, Washington

Service Divisions
Plant Security and Services

Number and type of clearance granted by the Atomic Energy Commission this month to vendors and consultants:

"P" clearance	1
"FP" Formal "P"	57
Formal "Q"	41
Emergency "Q"	2

Emergency clearances requested this month for GE employees:	0
Emergency clearances received this month for GE employees:	0

Emergency "Q" clearances received this month for vendors & consultants 0

Emergency clearances requested for GE personnel to date:	161
Emergency clearances granted for GE personnel to date:	121

There have been 40 Emergency clearance requests withdrawn or cancelled; therefore, no emergency clearance requests are pending.

HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING MARCH 31, 1949

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u> <u>Classified Unclassified</u>
MEDICAL DIVISION					
I. Visitors to this Works					
S. T. Cantrill Tumor Institute Swedish Hospital Seattle, Washington	Medical consultation	W. D. Norwood, M.D. P. A. Fuqua	3-28-49	3-30-49	X
T. F. Hatch Division of Engineers Washington, D. C.	Medical consultation	W. D. Norwood, M.D.	3-1-49	3-4-49	X
CONSTRUCTION DIVISION					
I. Visitors to this Works					
M. Fogarty State Boiler Inspector State of Washington Olympia, Washington	Inspect boilers in 184-H Building	L. S. Grogan	3-7-49	3-8-49	X
W. C. Smith Hartford Boiler Inspection & Insurance Company Hartford, Connecticut	Inspect steam boiler in 184-H Building	L. S. Grogan	3-4-49	3-10-49	X
R. C. Robin Nucleonics Department General Electric Company Schenectady, New York	Coordinator of history	D. K. Warner	3-16-49	3-23-49	X



<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Classified Unclassified</u>
E. A. Zeretzke Oil Gear Company Milwaukee, Wisconsin	Installation of equip- ment	G. E. Hotaling	12-3-48	3-8-49	X
J. Culos Terry Steam Turbine Company Hartford, Connecticut	Inspect operation of two Terry Steam turbines	G. E. Hotaling	2-21-49	3-19-49	X
J. P. Dunlap Buckner Weatherby Company York, Pennsylvania	Supervise installation of equipment	G. E. Hotaling	3-7-49	3-11-49	X
DESIGN DIVISION					
I. Visitors to this Works					
K. D. Greenhalgh General Electric Company Schenectady, New York	Design consultation	D. L. Peterson	3-21-49	4-21-49	X
E. C. Giles J. H. Marvin Company Seattle, Washington	Discussion of pressure control systems	G. R. Hosack	3-8-49	3-10-49	X
G. O. Goddard Kewanee Company Adrian, Michigan	Engineering consultation	C. A. Coulter	3-8-49	3-10-49	X
L. W. Williams Brown Instrument Company Portland, Oregon	Discuss thermostat con- trols	W. W. McIntosh	3-10-49	3-11-49	X
R. T. Roberts Ingersoll Rand Company Seattle, Washington	Design discussion	J. J. McCullough	3-10-49	3-11-49	X

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Classified	Unclassified
P. Sturmer Armco Company Spokane, Washington	Discuss means of repairing concrete pipe with tunnel liner	O. H. Pilkey	3-14-49	3-15-49		X
W. H. McPhee Products Research Company Glendale, California	Discuss coatings and gas-welding kits	W. W. McIntosh R. R. Henderson	3-15-49	3-16-49		X
W. B. Kruse General Electric Company Fort Wayne, Indiana	Engineering consultation	W. E. Johnson	3-23-49	3-25-49		X
K. E. Atwood Bailey Meter Company Seattle, Washington	Inspection of thermal elements	E. Hilgeman	3-25-49	3-26-49		X
II. Visits to other Installations						
J. B. Medlin to: United Aircraft Products Los Angeles, California	Consult with vendor	Mr. Hinman	3-7-49	3-11-49		X
J. B. Medlin to: Puget Sound Navy Shipyard Bremerton, Washington	Consult with vendor	S. A. Allison	3-7-49	3-11-49		X
W. R. McKenna to: Puget Sound Navy Shipyard Bremerton, Washington	Inspect and discuss fabrication of equipment	S. A. Allison	3-10-49	3-13-49		X
E. V. Plock to: DeLaval Centrifuge Company San Francisco, California	Attend conference	Mr. Landis	3-27-49	3-31-49		X
H. H. Hubble to: Kellogg Corporation New York, New York	Expedite design information to architectural engineer	H. H. Willis	3-20-49	3-29-49		X

- 4 -

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u> <u>Classified Unclassified</u>
H. H. Hubble to: Argonne National Laboratory Chicago, Illinois	Technical consultation	S. Lawroski	3-20-49	3-29-49	X
W. B. Webster to: Kellex Corporation New York, New York	Expedite design information to architectural engineer	H. H. Willis	3-20-49	3-26-49	X
H. W. Huntley to: Kellex Corporation New York, New York	Expedite design information to architectural engineer	H. H. Willis	3-18-49	3-26-49	X
T. Williams to: Kellex Corporation New York, New York	Expedite design information to architectural engineer	H. H. Willis	3-20-49	4-3-49	X
D. E. Irons to: Kellex Corporation New York, New York	Expedite design information to architectural engineer	H. H. Willis	3-20-49	3-29-49	X
HEALTH INSTRUMENT DIVISION					
I. Visitors to this Works					
O. J. Biddulph General Electric Company Schenectady, New York	Discuss Health Instrument problems	H. A. Kornberg	3-18-49	3-19-49	X
R. J. Morton Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss Health Instrument problems and mutual problems	H. A. Kornberg	3-21-49	3-23-49	X
L. R. Setter Atomic Energy Commission Oak Ridge, Tennessee	Discuss Health Instrument problems and mutual problems	H. A. Kornberg	3-21-49	3-23-49	X

1219690

122

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u> <u>Classified</u> <u>Unclassified</u>
R. C. Robin General Electric Company Schenectady, New York	Consultation on health instrument problems	C. M. Patterson	3-23-49	3-24-49	X
M. E. Ensminger Washington State College Pullman, Washington	Consultation	K. E. Herde	3-8-49	3-9-49	X
P. E. Church University of Washington Seattle, Washington	Technical consultation	D. E. Jenne	3-18-49	3-20-49	X
II. Visits to other Installations					
P. L. Eisenacher to: General Electric Company Schenectady, New York	Discuss instrument prob- lems	L. L. Gerwan	3-23-49	3-23-49	X
P. L. Eisenacher to: Brookhaven National Lab. New York, New York	Discuss instrument prob- lems	F. P. Cowan	3-24-49	3-24-49	X
P. L. Eisenacher to: New York, New York	Attend National Research Council Meeting	Dr. Kuper	3-25-49	3-26-49	X
W. Singlevich to: Radiation Laboratory Berkeley, California	Study health problems	N. B. Garden N. G. Seaborg	3-31-49	4-1-49	X
A. C. Case to: Argonne National Laboratory Chicago, Illinois	Study health problems	A. M. Brues	3-7-49	3-11-49	X
A. C. Case to: Clinton National Laboratory Oak Ridge, Tennessee	Study health problems	A. Hollaender	3-14-49	3-18-49	X

Name - Organization Purpose of Visit Person Contacted Arrival Departure Restricted Data
Classified Unclassified

A. C. Case
to: Rochester University
Rochester, New York

Study health problems H. A. Blair 3-21-49 3-24-49 X

A. C. Case
to: General Engineering & Consulting Lab.
Schenectady, New York

Study health problems H. M. Rosendahl 3-25-49 3-26-49 X

R. E. Foster
to: Seaside, Oregon

Attend meeting of the Pacific Fish Biologists - - 3-18-49 3-20-49 X

P. A. Olson
to: Seaside, Oregon

Attend meeting of the Pacific Fish Biologists - - 3-18-49 3-20-49 X

INSTRUMENT DIVISION

I. Visits to other Installations

H. L. Libby
to: Oak Ridge National Lab.
Oak Ridge, Tennessee

Study experimental process Dr. Mann 3-21-49 3-26-49 X
L. B. Emler

PROJECT ENGINEERING DIVISION

I. Visitors to this Works

D. F. Hatch
Industrial Hygiene Foundation
Melon Institute
New York, New York

300 Area ventilation problems V. W. Wood 3-4-49 3-5-49 X

MAINTENANCE DIVISION

I. Visits to other Installations

R. T. Jessen
to: General Eng. & Consulting Lab.
Schenectady, New York

Technical consultation D. H. Marquis 2-28-49 3-5-49 X
regarding the 234-5 project

Name - Organization Purpose of Visit Person Contacted Arrival Departure Restricted Data
Classified Unclassified

MANAGEMENT

I. Visitors to this Works

M. M. Boring Technical consulta- W. I. Patnode 3-15-49 3-16-49 X
 Knolls Atomic Power Laboratory tion D. W. McLenegan
 Schenectady, New York

POWER DIVISION

I. Visitors to this Works

A. H. Y. Hedner Boiler inspector work H. F. Measley 3-23-49 3-25-49 X
 Traveler's Insurance Company
 Seattle, Washington

II. Visits to other Installations

H. A. Kramer Regarding flood control F. Banks 3-11-49 3-12-49 X
 to: District Engineer
 U. S. Bureau of Reclamation
 Coulee City, Washington

"S" DIVISION

I. Visitors to this Works

J. S. Atwood Technical consultation R. S. Bell 3-15-49 3-16-49 X
 Kellix Corporation
 New York, New York

G. White Technical consultation R. S. Bell 3-15-49 3-16-49 X
 Kellix Corporation
 New York, New York

TECHNICAL DIVISION

1-1-49

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Classified Unclassified</u>
I. Visitors to this Works					
W. A. Hartman General Engineering & Consulting Lab. Project Schenectady, New York	Consultation on 234-5	P. E. Collins	3-7-49	3-14-49	X
R. Blanco Oak Ridge National Laboratory Oak Ridge, Tennessee	Waste disposal studies discussion	R. H. Beaton	3-22-49	3-23-49	X
I. Higgins Oak Ridge National Laboratory Oak Ridge, Tennessee	Waste disposal studies discussion	R. H. Beaton	3-22-49	3-23-49	X
K. N. Mathes General Engineering & Consulting Lab. Schenectady, New York	Consultation on Special Irradiation Program	L. W. Fox	3-8-49	3-9-49	X
W. E. Johnson Oak Ridge National Laboratory Oak Ridge, Tennessee	Technical consultation	C. W. J. Wende	3-11-49	3-12-49	X
J. L. Klein Massachusetts Institute of Technology Cambridge, Massachusetts	Metallurgical consul- tation	C. W. J. Wende	3-14-49	3-16-49	X
II. Visits to other Installations					
A. B. Greninger to: Research Laboratory Schenectady, New York	Redox Advisory Confer- ence	J. Marsden	3-14-49	3-18-48	X
A. B. Greninger to: Kellogg Corporation New York, New York	Redox Advisory Confer- ence	H. H. Willis	3-15-49	3-16-49	X

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Classified	Unclassified
O. H. Greager to: Research Laboratory Schenectady, New York	Redox Advisory Confer- ence	J. Marsden	3-14-49	3-18-49	X	
O. H. Greager to: Kelllex Corporation New York, New York	Redox Advisory Confer- ence	H. H. Willis	3-15-49	3-16-49	X	
R. H. Beaton to: Research Laboratory Schenectady, New York	Redox Advisory Confer- ence	J. Marsden	3-14-49	3-18-49	X	
R. H. Beaton to: Kelllex Corporation New York, New York	Redox Advisory Confer- ence	H. H. Willis	3-15-49	3-16-49	X	
G. W. Pomeroy to: Oak Ridge National Laboratory Oak Ridge, Tennessee	Assist Redox Pilot Plant Operations	D. G. Reid	3-31-49	5-1-49	X	
V. R. Cooper to: Argonne National Laboratory Chicago, Illinois	Redox consultation	S. Lawroski	3-2-49 3-10-49	3-3-49 3-11-49	X X	
F. W. Woodfield to: Argonne National Laboratory Chicago, Illinois	Redox consultation	S. Lawroski	3-2-49 3-10-49	3-3-49 3-11-49	X X	
V. R. Cooper to: Carbide & Carbon Chemical Corp. Oak Ridge, Tennessee	Redox consultation	D. G. Reid	3-4-49	3-10-49	X	
F. W. Woodfield to: Carbide & Carbon Chemical Corp. Oak Ridge, Tennessee	Redox consultation	D. G. Reid	3-4-49	3-10-49	X	

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u> <u>Classified</u> <u>Unclassified</u>
M. J. Szulinski to: University of Chicago Chicago, Illinois	Separations Plant consultation	Dr. Teller	3-1-49	3-4-49	X
C. Groot to: Radiation Laboratory Berkeley, California	Study Glove Box techniques	N. B. Garden	3-28-49	4-1-49	X
C. F. Callis to: Radiation Laboratory Berkeley, California	Technical discussions and inspections	G. T. Seaborg D. Templeton	3-28-49	3-31-49	X
A. R. Matheson to: Radiation Laboratory Berkeley, California	Technical discussions and inspections	G. T. Seaborg D. Templeton	3-28-49	3-31-49	X
D. D. Davies to: Radiation Laboratory Berkeley, California	Technical discussions and inspections	G. T. Seaborg D. Templeton	3-28-49	3-31-49	X
R. L. Moore to: Radiation Laboratory Berkeley, California	Technical discussions and inspections	G. T. Seaborg D. Templeton	3-28-49	3-31-49	X
F. W. Albaugh to: Radiation Laboratory Berkeley, California	Technical discussions and inspections	G. T. Seaborg	3-28-49	4-1-49	X
A. G. Blasewitz to: San Francisco, California	American Chemical Society Meeting	- -	3-28-49	3-31-49	X
R. E. Smith to: Knolls Atomic Power Laboratory Schenectady, New York	Technical consultation	J. Marsden L. B. Bragg	3-28-49	4-13-49	X
P. E. Collins to: General Engineering & Consulting Schenectady, New York	Technical consultation regarding 234-5 Project	D. H. Marquis	2-28-49	3-5-49	X

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Classified	Unclassified
P. F. Gast to: Argonne National Laboratory Chicago, Illinois	Separation Plant consultation	E. Fermi	3-1-49	4-9-49	X	
A. A. Johnson to: Argonne National Laboratory Chicago, Illinois	Consultation on technical problems	C. E. Stevenson	3-2-49	4-9-49	X	
F. E. Kruesi to: Oak Ridge National Lab. Oak Ridge, Tennessee	Inspect experimental facilities	A. M. Weinberg C. K. Beck	3-23-49	3-25-49	X	
J. M. West to: Oak Ridge National Lab. Oak Ridge, Tennessee	Inspect experimental facilities	A. M. Weinberg C. K. Beck	3-23-49	3-25-49	X	
P. F. Gast to: Oak Ridge National Lab. Oak Ridge, Tennessee	Inspect experimental facilities	A. M. Weinberg C. K. Beck	3-23-49	3-25-49	X	
G. W. Alkire to: Baton Rouge, Louisiana	Attend symposium on methods of analytical chemistry	- -	3-2-49	3-5-49		X
E. W. Rebol to: Chicago, Illinois	Attend A.S.T.B. Convention	- -	2-28-49	3-3-49		X
E. W. Rebol to: Argonne National Lab. Chicago, Illinois	Discuss analyses associated with P-10 process	C. E. Stevenson	3-4-49	3-5-49	X	
M. C. Lambert to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend ORNL spectroscopy conference	S. C. Lind	3-23-49	3-25-49	X	
D. W. Pearce to: San Francisco, California	Attend American Chemical Society meeting and meeting of Fissionable Standards Committee	- -	3-28-49	3-31-49		X

152

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Classified	Unclassified
D. W. Pearce to: Radiation Laboratory Berkeley, California	Inspect facilities	E. H. Huffman	3-30-49	3-31-49	X	
H. R. Schmidt to: San Francisco, California	Attend American Chemical Society meeting	- -	3-28-49	4-1-49		X
G. B. Barton to: San Francisco, California	Attend American Chemical Society meeting	- -	3-28-49	4-1-49		X
J. K. Figschau to: Puget Sound Naval Shipyard-special laboratory equipment Bremerton, Washington	Discuss fabrication of special laboratory equipment	S. L. Allison	3-31-49	4-1-49		X
H. R. Schmidt to: Radiation Laboratory Berkeley, California	Inspect facilities	E. H. Huffman D. Templeton	3-30-49	3-31-49	X	
G. B. Barton to: Radiation Laboratory Berkeley, California	Inspect facilities	E. H. Huffman D. Templeton	3-31-49	4-3-49	X	
CONSULTANT - TECHNICAL DIVISIONS						
G. W. Watt University of Texas Austin, Texas	Inspection and consultation	R. H. Beaton	3-23-49	3-29-49	X	
H. H. Willard University of Michigan Ann Arbor, Michigan	Consultation on analytical chemistry	T. W. Hauff D. W. Pearce	3-10-49	3-11-49	X	
CONSULTANT - HEALTH INSTRUMENT DIVISION						
L. L. Donaldson University of Washington Seattle, Washington	Consultation	R. F. Foster	3-25-49	3-26-49	X	

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u> <u>Classified Unclassified</u>
MANAGEMENT - MANUFACTURING DIVISION					
I. Visits to other Installations					
W. K. MacCreedy to: Research Laboratory Schenectady, New York	Redox Advisory Confer- ence	J. Marsden	3-14-49	3-18-49	X
W. K. MacCreedy to: Kelllex Corporation New York, New York	Redox Advisory Confer- ence	H. H. Willis	3-15-49	3-16-49	X

EMPLOYEE AND COMMUNITY RELATIONS DIVISION

SUMMARY - MARCH, 1949

One set of questions and answers was distributed to all supervisors, participating in the Nine-Point Job Improvement Program. About 50% of the questionnaires submitted to supervisors, participating in this Program, have been returned.

Preliminary plans were made during the latter part of March for Employee Relations to take over all supervisory training at the Hanford Works.

Open requisitions for additional personnel decreased from twenty-nine at the beginning of the month, to five at the end of March. Total plant roll decreased by 706 employees during March, due to the general reduction of force.

Employee Services Counselors made 2,428 contacts during March. Eight employees retired, three of which were on optional retirement basis; and two employee deaths occurred during the month. Twelve suggestion awards, totaling \$145.00, were granted during the month. R. C. Stratten, Supervising Chemical Engineer, for the Insurance Underwriters Association, plans to make a survey at this Works, during the month of April, to determine the necessary adjustments for personal life insurance premium rates.

The efforts of a local daily newspaper to discredit decisions made concerning certain phases of the Hanford Works Improvement and Construction Program, specifically as they pertained to the expenditure of taxpayers' money, has been one of the prime concerns of the Community Relations Division during the month. An effort has been made to maintain a relationship with the newspaper which would result in their coming to the Community Relations Division for factual information prior to publishing the "sensationalized" versions of the facts as they may have obtained them from other sources.

During the month a standard practice was adopted in that each time a release is prepared, the information is obtained for it from the individuals specifically concerned with that particular phase of the Hanford Works Program, the rough draft of the release is written, and the entire story is gone over carefully with both G.E. and A.E.C. officials at Hanford.

The demand for G-E films continued during the month, and a number of films were requested from the Portland Office of the Company for use by local schools, and other groups.

Forty photographs with captions and source material were furnished to the New York Office of the Employee Relations Vice President for use in a future issue of "Candid Camera". The photographs depicted the different activities at Hanford Works and Richland. These were requested as a means of publicizing Richland, and the Nucleonics Department, to offset any adverse opinion being formed as a result of criticism being leveled at the Company by union representatives concerning its association with the Atomic Energy Commission.

Employee and Community Relations Division

During the month, twenty-six informative news releases were made to the local newspapers and radio stations. Eleven informative news releases were sent to 41 of the leading daily newspapers in the Pacific Northwest during March.

Assistance was rendered during the month in the preparation of several letters to supervisors and to employees.

Four issues of the Works News were published during the month of March, and "Candid Camera" was inserted in the March 25 issue.

One hundred eighty women employees are being scheduled for the Women's Training Program to begin in April. It is planned to include an additional session which will consist of an informal discussion in which the girls will have an opportunity to talk about their jobs and supervisors in an effort to improve their job morale.

The activities of the Labor Relations Group relative to labor relations have been directed toward the negotiation of interim arrangements with the Hanford Atomic Metal Trades Council, preparation for negotiation of the formal agreement and negotiation of the formal agreement.

Throughout the month a number of meetings were held with the union representatives relative to the present reduction of force. On March 7, the stipulation governing the layoff of all personnel with less than six months' service was signed. On March 10, the interim layoff procedure was signed; this procedure designated that employees shall be laid off according to their Hanford Works seniority date, together with other working arrangements.

On March 22, the stipulation governing the interim grievance procedure was signed, such stipulation provided for the handling of grievances and the arrangements for Union shop stewards. Notice was received from the H.A.M.T.C. that the Union had forwarded a Union Shop Petition to the regional office of the National Labor Relations Board, such notice was acknowledged by the Company to the N.L.R.B. and the Union. On March 24, notice was received from the Field Examiner for the N.L.R.B. that case No. 19UA1842 had been assigned to the Union Shop Petition.

On March 31, formal negotiations commenced between the Company and the Union. A copy of the Union proposals was forwarded to the Company on March 15, such proposals contained the contract demands to be made by the Union. The Company submitted counter proposals to the Union during the opening meeting of the formal negotiations.

A number of grievances have been and are being processed as a result of the establishment of an interim grievance procedure.

The principal activity of the Wage Rate Group has been that of conducting studies and developing proposals for the forthcoming contract negotiations.

A complete review of the existing job descriptions was conducted, which resulted in the proposal of the addition and revision of a number of descriptions. An

Employee and Community Relations Division

analysis of existing wage rate regulations has been made and in a number of cases alternative regulations have been developed.

A large portion of the activities of the Wage Rate Group during the past month has been directed toward the handling of terminations and transfers resulting from a plant-wide reduction of force. In addition, a number of individual classification reviews have been made in various divisions for the purpose of determining the feasibility of logical classifications within the collective bargaining unit and in response to the day-to-day needs of the various divisions.

EMPLOYEE AND COMMUNITY RELATIONS DIVISION

MARCH, 1949

ORGANIZATION AND PERSONNEL

Employee Relations

Employment:

Effective March 10, 1949, one Stenographer-Typist "D" assigned to the Statistics and Records Group was terminated due to lack of work.

Effective March 11, 1949, two Employment Interviewers and Investigators "B" assigned to the Investigation and Files Group were terminated due to lack of work.

Effective March 11, 1949, one Reproduction and Photographic Assistant "E" assigned to the Statistics and Records Group was terminated due to lack of work.

Effective March 11, 1949, and March 14, 1949, two Reproduction and Photographic Assistants "E" assigned to the Statistics and Records Group terminated voluntarily.

Effective March 11, 1949, one General Clerk "D" assigned to Investigations and Files Group terminated voluntarily.

Effective March 28, 1949, one General Clerk "D" assigned to the Statistics and Records Group and one General Clerk "B" assigned to the Procurement Group were transferred to the Medical Division.

Effective March 28, 1949, one Stenographer-Typist "D" assigned to the Statistics and Records Group was transferred to the Community Divisions.

Employee Services:

Effective March 11, 1949, one Stenographer-Typist "D" was transferred to the Health Instrument Division.

Community Relations

No organization changes were made during the month of March.

Employee and Community Relations Division

Labor Relations and Wage Rates

No organization changes were made during the month of March.

Number of Employees on Payroll	<u>March, 1949</u>
Beginning of month	86
End of month	<u>75</u>
Net decrease	11

This decrease was due to the curtailment of activities in the procurement of personnel.

Employee and Community Relations Division

ACTIVITIES

Employee Relations

General

One set of questions and answers was distributed to the supervisors participating in the 9-Point Job Improvement Program during March. A majority of the Divisions' classes in this Program will be completed during the month of April. About 50% of the questionnaires submitted to supervisors, participating in this Program, have been completed and returned. As soon as all of these questionnaires are received, an analysis will be made.

Preliminary plans were made during the latter part of March for the Employee and Community Relations Division to take over all supervisory training at the Hanford Works. Tentative arrangements have been made to take over the entire staff of the Training Group of the Manufacturing Divisions.

Employment

	<u>February, 1949</u>	<u>March, 1949</u>
Applicants interviewed	1,423	294
Open requisitions	<u>February, 1949</u>	<u>March, 1949</u>
Exempt	4	0
Non-exempt	<u>25</u>	<u>5</u>
Total	29	5

Of the twenty-five non-exempt open requisitions at the beginning of March, thirteen were covered by interim commitments, and of the four individuals on exempt open requisitions, all had accepted offers. At the end of the month, two of the five open requisitions for non-exempt personnel were covered by interim commitments.

	<u>February, 1949</u>	<u>March, 1949</u>
Employees added to the rolls	109	16
Employees removed from the rolls	<u>119</u>	<u>722</u>
Net Gain or Loss	- 10	- 706

Employee and Community Relations Division

Of the seven hundred and twenty-two employees removed from the rolls during March, six hundred and twelve were terminated due to lack of work. Of this six hundred and twelve, three hundred and thirty were outside the bargaining unit.

During March, eleven new requests for inter-divisional transfers were received and reviewed by the Employment Group. As a result of these requests, three transfers were effected. In addition to this number, transfers were effected for thirty employees, who had received notice of termination due to lack of work.

Employee Services

During the month of March, there were a total of 2,428 contacts made by Employee Services Counselors. These contacts resulted in 2,777 inquiries. Approximately 700 of these contacts occurred as a result of the 1948 income tax return. Of these inquiries, 963 were made by exempt personnel, and 1,114 were made by non-exempt personnel.

Exit interviews were given to 611 terminating employees. Nine new employees were given orientation, of this number 78% elected to participate in the Group Life Insurance Plan, and 89% elected to participate in the Group Disability Insurance Plan.

Employee Services Counselors attended three Area Council Meetings during March. These meetings had a total of 47 members in attendance.

Twelve meetings were conducted by the Counselors, with a total of 149 employees in attendance. These meetings covered information on Employee Benefit Plans, particularly with reference to employees who were being terminated due to lack of work.

The following employees retired during the month of March:

John W. Hamilton, Medical Division;
Archibald M. Weir, Plant Security and Services Division;
Earlow J. Tague, Plant Security and Services Division (optional retirement);
Ben Dee Lindsey, Maintenance Division (optional retirement);
Emmett E. Foster, Power Division;
Benjamin F. Fink, Community Divisions, Public Works;
August G. H. Schuman, Sr., Plant Security and Services Division (optional retirement);
Wilford W. Whiteside, Community Divisions, Housing.

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.

Employee and Community Relations Division

Two employee deaths occurred during March, namely:

Transportation Division; and
Construction Division.

In each of these cases, the employees' families were contacted, and all 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.

Twelve salary checks were delivered to employees absent during the month of March due to illness.

The 1949 Red Cross Drive was officially completed March 11. The total amount contributed by the Hanford Works was \$ 12,707.56. 110% of the total quota was contributed during this campaign. A detailed report concerning each Divisions' contributions has been forwarded to all Superintendents and Division Heads.

Suggestion System

At the end of March the volume of work in the Office of the Secretary of the Suggestion System was as follows:

	<u>February, 1949</u>	<u>March, 1949</u>	<u>Total since July 15, 1947</u>
Suggestions received and acknowledged	141	100	3,385
Investigation reports completed	197	101	3,093
Awards granted by Suggestion Committee	18	12	313
Cash awards	\$ 260	\$ 145	\$ 3,235

During the month of March, the Secretary of the Suggestion System discussed this System with twenty-five Power Division employees in the 100-B Area.

The Hanford Works News carried a story in the March 4 issue of an award winner, and also a photograph of the award winner in the March 11 issue.

Insurance and Compensation

Insurance Coverage -- Public Liability

- A hearing was held on March 31 on the motion for judgment notwithstanding the verdict, and also the motion for a new trial in the Superior Court at Prosser, Washington. No ruling has been made on these motions.

PRIVACY ACT MATERIAL REMOVED

Employee and Community Relations Division

- It has been determined that this case will not be set for trial during this term of the Superior Court.

, Sub-contractor for
-- An offer for settlement in the amount of \$ 5,200.00 has been made in this case, and it is anticipated that this offer will be accepted.

Life Insurance

Code information for use by the insurance companies in issuing insurance to employees of this Works was furnished to 54 insurance companies and investigation agencies during March.

Information has been received from Mr. R. C. Stratton, Supervising Chemical Engineer, Travelers Insurance Company, who is acting as representative of the Insurance Underwriters Association, to the effect that another survey will be conducted at this Works during the month of April, to determine what re-adjustment is necessary for personal life insurance premium rates applicable to the various job classifications.

STATISTICS

<u>Number of employees on rolls</u>	<u>2-28-49</u>	<u>3-31-49</u>
Exempt	1,742	1,721
Non-exempt	6,926	6,241
Totals	8,668	7,962

ADDITIONS

	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
New Hires	3	5	8
Re-engaged	0	1	1
Re-activations	1	6	7
Transfers from other plants	0	0	0
Actual Additions	4	12	16
Payroll Exchanges	5 *	20**	25
Gross Additions	9	32	41

*Transferred from Weekly Salary Roll

**Transferred from Monthly Salary Roll

Employee and Community Relations Division

TERMINATIONS

	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
Actual terminations	9	684	693
Removals from roll	1	28	29
Payroll Exchanges	<u>20*</u>	<u>5**</u>	<u>25</u>
Gross Terminations	30	717	747

Approximately 10.1% of all terminations were on a voluntary basis, and most of these were for the following reasons: (a) Return or Remain Home, (b) Personal Reasons, (c) Another Job.

GENERAL

	<u>2-1949</u>	<u>3-1949</u>
Applicants interviewed	1,423	294
Photographs processed	4,840	3,122
Fingerprint impressions taken (in duplicate)	224	203
Procurement Letters written	1,397	719

ABSENTEEISM STATISTICS (Weekly Salary Roll)***

	<u>2-1949</u>	<u>3-1949</u>
Male	2.85%	2.04%
Female	4.85%	3.11%
Total plant average	3.20%	2.33%

INVESTIGATION STATISTICS

	<u>2-1949</u>	<u>3-1949</u>
Cases pending at beginning of month	1,340	1,206
Cases received during the month	158	150
Cases closed	292	510
Cases pending at month end	1,206	846
Number found satisfactory for employment	101	13
Number found unsatisfactory for employment	9	1
Cases closed before investigation completed	17	26
Special investigations conducted	17	0

*Transferred to the Weekly Salary Roll

**Transferred to the Monthly Salary Roll

*** Statistics furnished by Weekly Payroll Division

Employee and Community Relations Division

Compensation and Insurance

CLAIMS

	<u>Reported in March, 1949</u>	<u>Reported in February, 1949</u>	<u>Total since Sept. 1, 1946</u>
Workmen's Compensation	191*	157	2,371
Liability	7	15	297

COMPENSATION PAYMENTS APPROVED - Department of Labor and Industries

	<u>February</u>		<u>March</u>		<u>Total since Sept. 1, 1946</u>
	<u>No. of Claims</u>	<u>Amount</u>	<u>No. of Claims</u>	<u>Amount</u>	<u>Amount</u>
Medical Aid	58	\$ 1,503.81	51	\$ 2,691.79	\$ 20,714.26
Accident Fund	119	8,022.12**	96	8,489.06	135,119.58
Pension	30	2,340.32	29	1,294.82	42,459.01

LIABILITY PAYMENTS APPROVED - Travelers Insurance Company

	<u>February, 1949</u>	<u>Total amount paid out since Sept. 1, 1946</u>
Bodily Injury - excluding auto	0	\$ 67,973.95
Bodily Injury - auto	0	
Property Damage - excluding auto	\$ 4.23	
Property Damage - Auto	521.21	

*This total includes 13 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.

Employee and Community Relations Division

Community Relations

The efforts of a local daily newspaper to discredit decisions made concerning certain phases of the Hanford Works Improvement and Construction Program, specifically as they pertained to the expenditure of taxpayers' money, has been one of the prime concerns of the Community Relations Division during the month.

An effort has been made to maintain a relationship with the newspaper which would result in their coming to this Division for factual information prior to publishing the "sensationalized" versions of the facts as they may have obtained them from other sources.

In the instance of the story concerning the Yakima River bridge, no contact was made with this office prior to publication of the pictures and captions. In the instances of the water intake and filtration plant story, and of the water intake and pump story, contact was made with this Division prior to publication, and factual statements were prepared and handed over to the Richland reporter for that newspaper.

Each time a release is prepared, the information is obtained for it from the individuals specifically concerned with this particular phase of the Hanford Works program, the rough draft of the release is written, and the entire story is gone over carefully with both G. E. and A.E.C. officials at Hanford. This standard practice was adopted during the month and followed in the cases of both the filtration plant story and the pump story.

In addition to the local daily newspaper, the project was visited by a reporter from the DENVER POST who apparently was sent here for the purpose of digging up any information that could be published to substantiate rumors of the type currently being used by the local daily newspaper. Although the DENVER POST reporter was in Richland for several days, he did not contact G. E. or A.E.C. officials until the end of the fourth day. At that time he notified the A.E.C. Information Control Officer that he intended to publish a number of rumors he had picked up, and that project officials would be allowed to answer those rumors in a subsequent story. A call to the publisher of the DENVER POST resulted in the submission by the newspaper's reporter of a list of questions, the answers to which were to be published in the same story with the rumor. Information to answer one of the questions was supplied by Community Relations from figures maintained by the Sign-up and Termination group of the Employee Relations Division.

Another phase of Community Relations work consisted, during the month, of discussing with the Mayor, and other representatives of Arco, Idaho the problems which they might expect to experience in operating a town in the vicinity of the large atomic energy installation scheduled to be built in Idaho. This was a joint G.E.-A.E.C. affair, and the Manager of Hanford Directed Operations, together with his assistant, carried the burden of the discussion. The meeting was attended by Community Relations representatives, in lieu of other G. E. officials who would have attended had they not been out of town.

The General Electric Company's 1948 Annual Report was issued during the month, and 2,000 copies were ordered for distribution at Hanford Works. The MONOGRAM list will require approximately 1,500 copies, and the remainder will be used for distribution to those employees who desire them, and mailing to community thought leaders.

Employee and Community Relations Division

Upon receipt of a duplicate shipment of G-E diaries which was returned by the Nucleonics Department to Schenectady, the Advertising and Publicity Department noted a shortage of 125 copies, and it was decided by local Accounting people that Schenectady should be asked to assume the charges for this, because of the unique contract arrangements G. E. has for reimbursement by the A.E.C. The shortage was not substantiated by receiving personnel at Hanford Works, since none of the boxes was opened after the shipment was received here.

Four requests were received for information during the month and replied to. Copies of publications available from the stock maintained by Community Relations were sent in reply to the requests.

Community Relations was informed by the Advertising and Publicity Department West Coast Representative that a representative of ENGINEERING NEWS-RECORD will visit the project in the future. Arrangements were made for hotel reservations for that publication's representative, and he was informed of the action taken.

The advertising done during previous months in recruiting new personnel continues to require the time of Community Relations personnel in winding up details involved in payment for the services rendered by the newspapers. During the month these details included obtaining of required number of tear sheets, and required number of invoices in order to accomplish payment.

The demand for G-E films continued during the month, and a number of films were requested from the Portland Office of the Company for use by local schools, and other groups.

Another phase of our advertising service was entered into during the month. Insertion orders were placed with several weekly newspapers in the vicinity announcing that scrap lumber would be made available for sale by public bid.

Forty photographs with captions and source material were furnished to the New York Office of the Employee Relations Vice President for use in a future issue of "Candid Camera." The photographs depicted the different activities at Hanford Works and Richland. These were requested as a means of publicizing Richland, and the Nucleonics Department, to offset any adverse opinion being formed as a result of criticism being leveled at the Company by union representatives concerning its association with the Atomic Energy Commission.

One advertisement in the plant-city series being produced by the New York Office of the Employee Relations Vice President was scheduled in the TRI-CITY HERALD on March 22, and in the Richland VILLAGER on March 24. The title of the ad was "How Did We All Make Out in '48."

The speakers bureau function was active during the month, and on March 22, the Superintendent of the Commercial Facilities Division addressed the Wenatchee Chamber of Commerce. The subject of his talk centered around the operation of the town of Richland and the new commercial development here.

Dr. Winton Patnode addressed the 4th Annual Conference of the Greater Portland Management Club on March 19. He was Speaker #1, Panel #1 of that conference.

Employee and Community Relations Division

A representative of the Veterans of Foreign Wars notified Community Relations that the Seattle, Washington headquarters of the state organization intended to come to Richland to protest the method being followed in affecting layoffs at this project with respect to veterans' rights. A letter was prepared for the Employee and Community Relations Manager's signature which explained the procedure being followed. Nothing further was heard concerning this matter, and the protest was not carried out.

Biographical information concerning the Nucleonics Department General Manager was supplied to the Chairman of the Northwest Conference on Banking during the month. This was in connection with the talk which the General Manager will give at that meeting on April 9. Photographs of the General Manager were also supplied along with the biographical information.

The manager of McGraw-Hill's News Bureau was furnished with information in detail concerning the town of Richland and such non-restricted information concerning Hanford Works as has been made available in the past. This material was requested by him for use as the basis for an article in FACTORY Magazine which McGraw-Hill publishes.

"PUBLIC INFORMATION" -- COMMUNITY

Informative newspaper releases made during the month to the "Local List" of newspapers and radio stations served, which includes the VILLAGER, TRI-CITY HERALD, SPOKANE CHRONICLE, HANFORD WORKS NEWS, WALLA WALLA UNION-BULLETIN, radio stations, KPKW, KIT, and KWIE, including release dates were as follows: (An increasing 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.)

- 3/3 A photograph of the men in the Transportation Division who plan and placed in operation the new Village Bus Route was sent to local media.
- 3/3 A description of courses in shorthand, typing, sewing, women's physical education, Freiden calculator operation and folk dancing, which are now available to Tri-City residents through the Adult Evening School, was distributed.
- 3/3 A feature story was written and distributed urging parents who live in the ranch type area to keep their children away from heavy construction equipment operating in that district.
- 3/3 Statements signed by G. R. Prout and Mayor Crowder concerning the Red Cross Drive in Richland were obtained and publicized.
- 3/3 An informative release explained that fire alarms in the ranch house district are not yet connected. People were urged to use emergency phones in case of fire.
- 3/3 Two electrical outages of three and one-half hours duration to occur on March 4 and March 10 were announced.
- 3/3 A photograph showing F. C. Schlemmer, G. R. Prout, Mayor Crowder and J. P. Pierard conferring about the Red Cross Drive was released.

Employee and Community Relations Division

- 3/6 Two photographs featuring the new iron lung at Kadlec Hospital were distributed in publicizing gift of the lung to the Hospital by the Richland Auxiliary of the American Legion.
- 3/10 An article was sent to local media telling people in Richland that five electrical outages would occur on successive days during the week to follow.
- 3/10 Plant Chairman Paul Allen's summary of the progress made in the plant Red Cross Drive was released as a news story.
- 3/10 Announcement was made that grass seed was available from Tenant Relations for those living in ranch type houses whose lawns are ready for planting.
- 3/10 Two photographs showing heavy equipment working in the ranch type area in close proximity to the houses were distributed with a caption warning that children should not be allowed to play in areas where such equipment is working.
- 3/11 Ground breaking ceremonies for Dawson and Richards Men's Wear and Frank Berry's Sporting Goods store, two businesses in the new central commercial district, were observed by sending photographs of the activities to local media.
- 3/12 An informative release explained the procedure to be followed in laying off non-exempt G. E. personnel with less than 6 months' service. This was a joint statement by G.E. and the HAMTC (AFL).
- 3/20 Announcement was made that a course in gardening was available to adults in the Tri-City area through Columbia High School's Adult Evening School.
- 3/14 It was announced that R. C. Muir and H. A. Winne, G. E. Vice Presidents, were in Richland conferring with Mr. Prout.
- 3/21 Ranch type house residents were warned not to plant trees or build fences on their lawns until top soil had been added and grading completed.
- 3/27 The total amount collected in Richland, exclusive of Hanford Works, during the Red Cross Drive was announced.
- 3/28 Two power interruptions to occur on April 5 and 6 were announced.
- 3/28 A photograph was distributed to local media showing automobile ruts in a newly seeded area. The caption urged people not to drive on lawns.
- 3/28 Final results of the plant Red Cross Drive were announced.
- 3/29 An informative release explained that the in-patient section of the North Richland Medical Center would be closed for the summer because of the seasonal decline in the number of patients requiring hospitalization.
- 3/31 An electrical outage scheduled for April 6 was announced.

Employee and Community Relations Division

"PUBLIC INFORMATION"-- VILLAGER ONLY

- 3/10 An article was released reemphasizing that trash will be collected in Richland on Wednesdays only.
- 3/17 Richland residents were informed through a news story that peach trees were available in a nearby orchard to all who wanted them. Suggestions for moving the trees, replanting and caring for them were included in the story.
- 3/17 In response to an inquiry from the VILLAGER, figures on the population change in North Richland in both trailers and barracks between February 1 and March 10 were released.

"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:

- 3/2 G. R. Prout announced in a news release that reductions of G. E. personnel were expected to amount to 8 to 10 per cent of G.E.'s payroll.
- 3/4 A motion picture theater with a seating capacity of 1,200 to be operated by Mid-State Amusement Corporation in the new central business district was announced. Space is to be provided in the theater building for several small retail shops.
- 3/7 A news story announcing that a ground lease had been awarded to the Washington Investment Company of Spokane. On an 85 foot frontage this firm will erect business facilities which it will sub-lease.
- 3/10 The opening of Cahoon Motors on March 15 to be marked with elaborate open house ceremonies was explained in an informative release.
- 3/17 A news story was prepared and distributed announcing the beginning of construction of the new men's wear and sporting goods stores which will cost \$31,000 and \$36,000 respectively.
- 3/17 The first in a series of three informative releases concerning the Hanford Works Medical Division was released. The story enumerated some of the facilities at the hospital and quoted statistics that compare achievements here with other institutions in the state.
- 3/17 A news story announced that a ground lease had been awarded for a dry cleaning plant which will be located in the light industrial section of Richland.
- 3/17 A photograph of an architect's skotch of the dry cleaning plant was mailed to 12 selected daily newspapers.
- 3/23 On this day the second in a series of articles about the Hanford Works Medical Division was released. It concerned personnel of the division.

Employee and Community Relations Division

3/24 It was announced that the Morning Sun Dairy will build a building and operate a business in Richland. The story stated that the concern is offering service from a mobile unit at the present time.

3/31 An informative news release emphasized the exceptional safety record attained at Hanford Works. It pointed out that the G. E. Suggestion System has been a beneficial factor in safety performance.

On March 26 a member of the Division explained in an informal 15-minute talk the history, purpose and operating policy at Richland and Hanford Works to approximately 100 Boy Scouts and Scout Leaders. This group consisted of Scouts who have been awarded the Order of the Arrow. The Division member accompanied the group and described points of interest on a tour of Richland and North Richland. That was accomplished in about an hour's time in school buses.

Arrangements were concluded during the month for maintaining a continuous supply of 23 booklets published by General Electric Company in Stores Stock. Initial supplies of the booklets were delivered to buildings 720, 761 705 and the hospital and arrangements were made so that some person in each of the buildings will secure their own booklets hereafter with store orders.

"EMPLOYEE INFORMATION"--SPECIAL PROGRAMS

Promotion publicity for the 1949 Red Cross Fund Campaign at Hanford Works was handled as a Special Program. Pictures with captions, and news releases were prepared and distributed to Hanford Works NEWS and to local newspapers. A Red Cross display, prepared by the Community Relations Division artist, was placed in the display case near the Municipal Building. Radio spot announcements for radio stations KPKW and KWIE, a script for a partly transcribed half-hour radio program, and progress report news releases were also prepared. The Hanford Works drive extended from March 1 through March 11. A total of \$12,654, or 110 per cent of the plant quota, was contributed by Hanford Works employees despite current layoffs for lack of work. A member of this division served as publicity chairman for the drive in Benton County.

The Special Program conducted to inform Richland residents about the change in the Village Local Bus system was continued into the month of March. To further publicize changes in the Village Local Bus System and to explain again the reasons for an increase in fare, a news release was prepared which informed Richland residents of the extensive survey made by the Transportation Division to make the new bus service possible. Bus System changes include 30 minute service with 10 cent fare. The new Bus System service went into effect on March 3. Reports from the Transportation Division indicate that the transition to the higher fare and route changes were accomplished smoothly and without adverse comment on the increase in fare.

Assistance was given in the preparation of several letters to supervisors and to employees. A letter dated March 1 to all Hanford Works employees from G. E. Vice President G. R. Prout explained the reasons for the current layoffs for lack of work, and expressed Mr. Prout's regrets that the action was necessary. The letter pointed out that it is General Electric's responsibility to operate Hanford Works as efficiently as possible. It also informed employees that the total G-E working force at Hanford Works might be reduced by as much as 8 to 10 per cent.

Employee and Community Relations Division

A letter to all supervisors on March 11 explained the procedure for laying off for lack of work employees with more than 6 months' service. A news release covering the information contained in the letter was prepared.

On March 3, a letter to all supervisors was prepared which gave a report of the first meeting of the Company and representatives of the Hanford Atomic Metal Trades Council after formal certification of the Union by the National Labor Relations Board. The letter explained that the Company and the Union had agreed to work out an interim grievance procedure for processing grievances of employees included in the bargaining unit until a procedure is set up under the terms of a collective bargaining contract. The letter also informed supervisors that a procedure for laying off employees for lack of work had been presented to Union representatives.

A letter to all supervisors on March 23 informed supervisors that the Company and the Union had agreed on an interim grievance procedure. A copy of the Stipulation of Agreement covering the procedure was attached.

"EMPLOYEE INFORMATION"--WORKS NEWS

Despite the current reduction of force at Hanford Works the Works NEWS has only been able to reduce 100 in the number of its copies. The total publication now stands at 8,700, and a constant check of the Area Badge Houses is being maintained so that further reductions in the number of issues can be made when the case demands.

Four issues of the Works NEWS were published during the month of March, and "Candid Camera" was inserted in the March 25 issue.

The March 4 issue contained a story on the reductions with the announcement that it was expected that only 8 to 10 per cent would be reduced. The second in a series of articles coming from Schenectady on Vice President L. R. Boulware and President Wilson's testimony before the Senate Labor Committee was carried in this issue, and further installments were continued throughout the month.

In keeping safety foremost before the Hanford Works people, a story on the annual Maintenance Division Safety Derby appeared in the March 11 issue. During each quarter of the derby adequate publicity has been in the Works NEWS to show the standings of the various participating areas in the contest. In maintaining adequate publicity on the scholarships and loans a half-page mat was run on page 8 giving information on the deadline date that applications may be received, and information as to where to obtain additional information.

A banner headline story was contained in the March 18 issue announcing that the plant Red Cross Drive had gone over the top. This issue also marked the second anniversary of the Works NEWS and an appropriate message was contained on the first page by Vice President G. R. Prout, in which he expressed management's appreciation of the time and effort all reporters and others who have helped to make each publication of the Works NEWS possible. Pages 4 and 5 of this issue were devoted to pictures of all area reporters with a summary of the highlights of the year's progress at Hanford Works. General Electric's Annual Statement was contained in this issue which revealed the sound position that the Company maintained during its 1948 operations. In

Employee and Community Relations Division

connection with this same article a full-page mat appeared on page 6 under the heading "How Did We All Make Out in '43?" The procedure for layoffs was announced by General Electric according to the joint agreement between the Company and the Hanford Atomic Metal Trades Council in the same issue.

The Company's announcement of lower prices on many of its major lines of house appliances and construction materials appeared in the March 25 issue. This was supplemented by additional pictures and information on the house appliances which were reduced. Another story also appeared stating that over a quarter of a million dollars was paid by General Electric Company for suggestions submitted during 1948. This was the highest total amount awarded under the system for any peacetime year.

"EMPLOYEE INFORMATION" -- WOMEN'S ACTIVITIES

One hundred eighty women are being scheduled for the Women's Training Program. This includes stenos and typists, general clerks, secretaries and messengers. During the last sessions it was suggested that there be more group discussion. Therefore, one new meeting has been added to the program. It will consist of an informal discussion in which the girls will have an opportunity to speak of their jobs, and supervisors in an effort to improve job morale. An attitude survey is being prepared which the girls will fill out anonymously, sizing up their job, their supervision and themselves. The topics for the Women's Training Program are outlined as follows:

1. History of General Electric Company
2. Hanford Works Organization
3. Job attitudes from the supervisor's point of view
4. How to get along and get ahead
5. Security and safety
6. Employee benefit plan
7. Personal poise techniques
8. Speech and how it can help you get ahead
9. Telephone techniques and office shortcuts

"Today's G. E. Woman," a weekly feature for the women at Hanford Works was prepared for three issues of the Works NEWS during March.

Four new women were added to the employ of General Electric Company during the month of March.

Brush-up shorthand is being offered at Columbia High School under the direction of W. G. Allan, Director of the Adult Training Courses. Classes were begun on March 15. The responsibility of the shorthand classes was turned over to that authority as of that date.

Two hundred three (203) calls were received during the month from people wishing rides or passengers for various points in Washington, as well as out-of-state destinations. Such destinations included Spokane, Portland, Seattle, Los Angeles, Seaside, Denver, Salt Lake, New York, Tennessee, Oklahoma, Minnesota, Boise, Texas, Kansas City, and San Francisco.

An agent of the Canadian Pacific Railway contacted this office and left a number of vacation folders concerning resorts in Canada and cruises. Also available are movies in color which the agent would be willing to show to any interested group. This information was passed on to a number of organizations who expressed an interest in setting up the showing for their members.

LABOR RELATIONS AND WAGE RATES

MARCH, 1949

ORGANIZATION AND PERSONNEL

No organization changes were made in this group in March:

Number of employees on payroll	<u>March</u>
Beginning of Month	10
End of Month	<u>10</u>
No Change	0

ACTIVITIES

Labor Relations

The activities of this division relative to labor relations have been directed toward the negotiation of interim arrangements with the Hanford Atomic Metal Trades Council, preparation for negotiation of the formal agreement and negotiation of the formal agreement.

During the early part of the month meetings were held between the Company and the Union regarding the interim layoff procedure. On 3-7-49 the stipulation governing the layoff of all personnel with less than six months service was signed. On 3-10-49 the interim layoff procedure was signed; such procedure designated that employees shall be laid off according to their Hanford Works seniority date, together with other working arrangements. A number of meetings have been held with the Union throughout the month relative to deciding special cases as to the status of a number of employees in the layoff.

On 3-22-49 the stipulation governing the interim grievance procedure was signed, such stipulation provided for the handling of grievances and the arrangements for Union shop stewards. Notice was received from Mr. Kenneth Scott, of the H.A.M.T.C., that the Union had forwarded a Union Shop Petition to the regional office of the National Labor Relations Board; such notice was acknowledged by the Company to the N.L.R.B. and the Union. On 3-24-49 notice was received from Mr. J. N. Draznin, Field Examiner for the N.L.R.B., that case No. 190A1842 had been assigned to the Union Shop Petition.

Mr. G. H. Pfeif arrived on 3-28-49 from Schenectady for the purpose of working with Hanford Works personnel in the forthcoming Union contract negotiations. Preliminary discussions were held between Mr. Pfeif and the Hanford Works Negotiating Committee. On 3-31-49 formal negotiations commenced between the Company and the Union. A copy of the Union proposals was forwarded to the Company on 3-15-49; such proposals contained the contract demands to be made by the Union. The Company submitted counter proposals to the Union during the opening meeting of the formal negotiations.

A number of meetings were held by the officials of the Company and the Atomic Energy Commission to determine the status of the Company in negotiations and to submit the Company's plans to the A.E.C. for approval.

Throughout the month a number of meetings have been held by the Company Negotiating Committee.

A number of grievances have been processed and are being processed as a result of the establishment of an interim grievance procedure.

A talk was given by a representative of this division to supervisors of the Community 9-Point Program Group in regard to labor relations.

Wage Rates

The principle activity of the Wage Rate Group has been that of conducting studies and developing proposals for the forthcoming contract negotiations.

A complete review of the existing job descriptions was conducted, which resulted in the proposal of the addition and revision of a number of descriptions. An analysis of existing wage rate regulations has been made and in a number of cases alternative regulations have been developed. The above has resulted in continued meetings and individual contact with representatives of the division who are concerned with the bargaining unit.

On 3-1-49 Reimbursement Authorization was received from the A.E.C. governing the establishment of an additional classification, Laundry Sorter, to cover certain types of work performed in Hanford Works laundry.

The studies have been completed and information forwarded to weekly payroll on 3-15-49 and 3-17-49 regarding the changing of Maintenance and Electrical Division employees' wage rates in keeping with the policy of handling preferential rates of certain classes of employees in these divisions on a uniform basis.

On 3-17-49 verbal approval was received from Mr. Henry Thurston of the A.E.C. for the reimbursement of payments to employees to their rate of payroll record when such employee transfers to a job which he previously performed. On 3-21-49 written notification of the Company's position in regard to the above reimbursement was forwarded to the A.E.C.

A large portion of the activities of the Wage Rate Group during the past month has been directed toward the handling of terminations and transfers resulting from a plant-wide reduction of force. In addition to the above, a number of individual classification reviews have been made in various divisions for the purpose of determining the feasibility of logical classifications within the collective bargaining unit and in response to the day-to-day needs of the various divisions.

STATISTICS

Transfers from Weekly to Monthly Payroll	3
Transfers Approved	129
Job Reclassifications Approved	125
Automatic Increases	465
Merit Increases	47

COMMUNITY DIVISIONS

SUMMARY - MARCH, 1949

ORGANIZATION AND PERSONNEL

Number of employees on roll:	<u>Beg. of Month</u>	<u>End of Month</u>
Community Administration	6	6
Community Accounting	28	28
Community Public Works	564	490
Community Safety	2	2
Community Commercial Facilities	18	19
Community Housing	42	38
Community Fire	153	151
Community Patrol	137	102
Community Activities	<u>12</u>	<u>12</u>
	962	848

Force reductions were effected in the Community Divisions during the month of March as follows:

	<u>Reduced</u>	<u>Increased</u>
Community Administration	0	
Community Accounting	0	
Community Public Works	74	
Community Safety	0	
Community Commercial Facilities	0	1
Community Housing	4	
Community Fire	2	
Community Patrol	35	
Community Activities	<u>0</u>	
	115	1

TOTAL REDUCTION, MARCH, 1949 - 114

COMMUNITY PUBLIC WORKS

All pumps on the village irrigation system have been overhauled and are ready for use. Spillway gates and fish screens on the outer irrigation ditches have been checked and are ready for operation.

Delivery of oil was discontinued the latter part of the month. Coal deliveries are only being made where tenants actually run out of coal, and then the bins are being only half filled.

COMMUNITY COMMERCIAL FACILITIES

Cahoon Motors Company, Studebaker sales and service agency, held its formal opening on March 15th.

Morning Sun Dairy started making milk deliveries from a mobile, refrigerated unit, located north of Cahoon Motors Company, on March 21st.

COMMUNITY DIVISIONS SUMMARY - MARCH, 1949 (Continued)

COMMUNITY PATROL

Effective March 1, 1949, the Drivers Training Course was discontinued.

The practice of posting a patrolman at the North Richland Hospital on the first and third shifts was discontinued.

During the month, 86 prisoners were processed through the Richland jail.

COMMUNITY FIRE

Fourteen alarms in Richland and eighteen in North Richland were answered. These fires resulted in damage of \$2,700.00 in Richland and none in North Richland to project property and \$175.00 in Richland and \$641.33 in North Richland to personal property.

Three 750 gallon-per-minute pumpers received and placed in service at North Richland.

One 65-foot aerial ladder truck, equipped with 750 gallon-per-minute pump, received and to be placed in service at Richland No. 1 Station.

Alarm and heat detector system in Building 705, warehouse #5 and warehouse #6 completed and connected to Community Fire Alarm System.

COMMUNITY DIVISIONS
PUBLIC WORKS DIVISION
MARCH 1949

ORGANIZATION & PERSONNEL

Number of employees on payroll:	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
February 28, 1949	67	497	564
March 31, 1949	<u>66</u>	<u>424</u>	<u>490</u>
	- 1	- 73	- 74

Personnel changes made during the month:

Transfers:

From Housing Division		1
" Transportation Divn.		8
" Maintenance Divn.		1
" Project Engineering		1
To Maintenance Divn.		21
" Transportation Divn.	1	12
Terminations		51

GENERAL:

Further reductions in personnel in accordance with the economy program were carried out during the month with a reduction of from 564 employees on February 28 to 490 employees March 31. Further reductions are planned which will reduce the forces in the Public Works Division to 452 by April 20.

A combination of groups will make it possible for the entire maintenance section to be housed in the 722 combined shops building. This will make available to others several buildings in the 700 area.

The Design & Construction Divisions have made negotiations with consulting engineers, Alvord, Burdick & Howson, to further study the water situation and make recommendations for additional water supply for the summer.

The Nine Point program meetings were continued during the month and will extend through part of April.

PROJECTS:

C-134 - RICHLAND VILLAGE DUST CONTROL AND LANDSCAPING. No street trees were planted during March, as deep frost held street trees in the nursery until March 15, at which time notification was received to discontinue all work on this project.

COMMUNITY PUBLIC WORKS DIVISION

PROJECTS (Continued)

Puyallup Gardens, the grass seeding sub-contractor under contract G-216, started operations March 8, 1949. Crew worked on exceptions of work performed last fall until March 18, 1949, at which time they started hauling top soil in area to be seeded in south part of the village. It is expected that other seeding operations will start as soon as irrigation water is available. Irrigation equipment has been furnished the sub-contractor and he has placed same in the areas to be seeded.

C-146 - IRRIGATION EXTENSIONS. Irrigation system south of Jefferson is in place and complete. Testing and backfill was completed this month. Valve heads and risers were installed in the playground area at Hetrick during the month. Plans for the irrigation line connection to Kadlec Hospital ground were prepared and approved. Work will begin on this during the next ten days. Preliminary studies are being made for installation of snap-on valves to replace risers at school grounds. The number to be determined by location hazard to school children. The total number will be kept to a minimum.

C-253 - NORTH STORAGE RESERVOIR - ROOF REPLACEMENT. The opening notice for this project was issued to the field requesting the installation of chain link fencing and chlorinator.

C-282 - Rev. - DUST AND POLLEN CONTROL PROGRAM. Project C-282 has been revised to cover the Dust and Pollen Control Program for the remainder of the fiscal year from April 1 to June 30, 1949, and the entire fiscal year, July 1, 1949 to June 30, 1950. This project has been presented for approval.

C-311 - WATER LINES TO TRACT HOUSES 744, 748, 787, 784 and 718. Field work was inspected daily. All pipe installation was completed on 3-30-49. Patching of roads will complete this project.

ENGINEERING SECTION

Organization & Personnel

Number of employees on payroll:	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
February 28, 1949	17	12	29
March 31, 1949	17	12	29
Terminations		1	
Transferred from Project Engineering		1	

General

A total of 22 back charge estimates were prepared during the month of March.

82 alteration permit inspections and 21 electrical inspections were made for the Housing Division.

Community Public Works Division

ENGINEERING SECTION (Continued)

The weekly report on status of type "A" and type "B" work authorities was prepared, and also the tabulatory report on all developing information on work authorities.

The following routine items were handled by Material Control Section during the month:

Requisitions	49
Store Stock Requests	15
Store Stock Adjustments	17
Purchase Orders	15

The status of facility sponsored construction is as follows:

<u>FACILITY</u>	<u>PRELIMINARY PLAN REVIEW</u>	<u>DET. SPECS & PLANS REVIEWED</u>	<u>BLDG. PER- MITS ISSUED</u>	<u>CONST. STARTED</u>
Blocks Shoe Store	Appvd. 3-15-49			
Carlston & Hansen	" 3- 8-49			
Morning Sun Dairy	" 3- 9-49			
Donsow's Drug	" 3-15-49			
Payne Food Store	" 3-18-49			
House Dry Cleaning Plant	3- 9-49			
Anderson Motors	" 11- 2-48	(Awaiting resubmission of plans and specifications.)		
Barr's Apparel	Appvd. 2- 9-49			
Shell Serv. Station	" 2-17-49	Appvd. 3-23-49		
Yakima Tent & Awning	" 1- 1-49	" 3- 4-49	3-8-49	3-9-49
Dawson & Richards	" 1-28-49	" 3- 7-49	3-8-49	3-9-49
Mobiloil Serv. Station	" 2-23-49			
Davis Furniture	" 3- 2-49			
Cahoon Motors	" 11-16-48	" 11-26-48	11-29-48	11-30-48 Constn. 95% comp. Elec. work incomp.)
Morgan's Warehouse	" 3-24-49	" 3-39-49	3-29-49	3-31-49
Standard Serv. Station	" 1-25-49	" 2- 9-49	3-31-49	4- 1-49

3.

1219725

225

Community Public Works Division

ENGINEERING SECTION (Continued)

FACILITY	PRELIMINARY PLAN REVIEW	DET. SPECS & PLANS REVIEWED	BLDG. PER- MITS ISSUED	CONST. STARTED
L.D.S. Church	Appvd. 1-20-49	1-28-49	1-28-49	2-5-49
South side UP Church	" 10-28-49	11-2-48	11- 2-48	11-5-48 85% Complete
Richland Baptist			11-22-48	11-27-48 85% Complete
Assembly of God Church Apprvd. 11-8-48				
Church of Nazarene	" 3- 2-49			
Church of Christ	" 2-18-49			

The following is an alteration permit progress report:

FACILITY	DESCRIPTION	PERMIT APPROVED	REMARKS
Robley Johnson Studio	Extend front porch	3-23-49	
Campbell's Food Mkt.	Install Self- service meat case		Constn. 90% Complete
Village Pharmacy	Cut opening for refrigerator	3- 1-49	50% complete
Safeway Store	Add'l floor space	3-11-49	Construction started.
Richland Laundry	Construct small box	3-15-49	
Elite Shop	Removal of show window box & electrical alterations	3-21-49	95% complete
Desert Inn	Install banquet room and bar		40% complete. Work progressing. Formal approval pending receipt of complete plans.

Inspection and acceptance was made for the following:

1. Lee Blvd. south of grounds in 1000 housing area.
2. Extension of bridge over irrigation canal on Van Gieson St.
3. Rough grading of North Commercial Area, including back-filling of ditch north of Synone.
4. Improvements around Studebaker garage.
5. Relocated 30" sanitary sewer in North Commercial Area.
6. Water & sanitary sewer lines in Ranch house area between Lee and Van Gieson; and Wright and By-pass highway.

Community Public Works Division

ENGINEERING SECTION (Continued)

The inspection and acceptance of new houses is as follows:

Previously accepted	888
Accepted during March	112
Total accepted	1000

The house at 1512 Perkins was covered with panel shake firtex by the Lone Pine Roofing Company. This sample installation is complete.

The house at 1409 Perkins was covered with Spraz-On by the Northwest Painting and Roofing Company. This was a sample installation and is complete.

Painting of the prefab at 1407 Perkins with special paint prepared and furnished by the Sherwin-Williams Paint Company was completed.

Two houses - 1311 Symons, and 1015 Marshall - were selected for the sample installation of Alumitile on the bathrooms and was completed March 25 and 26, and are now available for inspection.

Records on Marvair Unit were discontinued until cooling season begins. Solenoid valve broke in February, and was repaired in March.

The following Engineering Service Requests were completed:

<u>Job. No.</u>	<u>Description</u>	<u>Completion date or Remarks</u>
22	Condition of Roof & Roof Framing Lutheran Church	3- 3-49
44	Governors - Roll-up Fire Doors Columbia & Jefferson Schools	3-30-49
87	Installing Dishwasher in Lewis & Clark School	3-17-49
110	Stairway Softball Field	3-17-49
114	Inadequate Supply of Water at Tract House L-865	ESR 146 cancelled this.
125	Stair Treads in Bldg. 703	Cancelled at request of Safety Division
129	Fire Hydrant Installation	3-18-49
132	Electric Service - 703 Bldg.	3-18-49
136	North Storage Reservoir Fence Location & New Chlorine Injection	3-31-49
140	Location of Rose Garden	3-10-49

5.

1219728

1327

Community Public Works Division

ENGINEERING SECTION (Continued)

Job. No.	Description	Completion date or Remarks
141	Cost Estimate for water line connection & Sewage Problem	3- 2-49
142	Focusing of Lights - Softball	3- 2-49
143	Park Wading Pool	3-15-49
144	Cleaning Drainage Ditch - Williams to Columbia River	3-17-49
146	Water Service to Track House L-865 and L-894	3-21-49
150	Tract House J-700	3- 7-49
161	Cost Estimate of water line to Nelson's Lake.	3-29-49
168	Rent Charts	3-25-49

Necessary work orders were issued for public buildings, grounds and street maintenance.

Field survey work was done on the following jobs:

1. Enclosure was run of area bounded by Swift, Thayer and Canal, for location of canal fence so a lease could be written for this property.
2. Street surface water flow.
3. By-pass shelter belt irrigation
4. Coal pile - cross-sectioned for quantity.
5. Golf Course - boundaries
6. Tenant surface water drainage problems.
7. Junior High School for location of canal.
8. Eleven ground leases were tied into coordinate system and descriptive maps prepared.

On March 23, 1949, small trees and shrubs, north of the Masonic Property and east of the temporary dike, were released from the public project by agreement, and were made available to village tenants for planting about their homes.

MAINTENANCE SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
February 28, 1949	24	273	297
March 31, 1949	23	223	246

Community Public Works Division

MAINTENANCE SECTION (Continued)

	<u>Exempt</u>	<u>Non-exempt</u>
Transfers: From Maintenance	1	1
To Transportation Divn.		9
" Maintenance Divn.		21
Terminations		20

General

During the month 57 renovations were completed, of which 30 were permanent type houses, 26 were prefabs, and 1 apartment. 18 of the permanent type houses were complete paint jobs, 8 were partially painted, and 4 were cleaned only. Of the prefab renovations 13 were complete paint jobs, 8 were partially painted and 4 were cleaned only. The one apartment was cleaned only. There were on hand at the end of the month 28 orders for renovations not completed.

The interior painting of 110 conventional type units was completed and an additional 37 bathrooms were also enameled.

The prefab at 1417 Perkins was painted, using S.W.P. asbestos fiber material for test purposes.

Laundry tubs were replaced in 26 conventional type houses; water heaters in 17; bath tubs in 25, wash basins in 7; toilets in 11; and kitchen sinks in 18.

During the month there were water stoppages in ten ranch type houses which were caused by cakum being left in the water system.

All pumps on the village irrigation system have been overhauled and are ready for use. Spillway gates and fish screens on the cutor irrigation ditches have been checked and are ready for operation. The number five well pump was overhauled this month and number 12 has been pulled and is waiting for replacements.

A total of 1426 electrical patrol order calls were made during the past month. There were 326 calls on hot water heaters, 18 AB ranges were rebuilt, 112 range hock-ups for ranch houses, 237 prefab dining room fixtures were replaced and 55 calls were made on refrigerators.

A summary of work performed in the furniture and upholstery shop is as follows: 17 mattresses, 1 daveno, 141 chairs, 8 box springs, 6 desks, 11 bed ends and 18 cushions rebuilt.

During the month linoleum was replaced on 22 bathroom floors, and 10 kitchen floors, 50 linoleum sink tops were replaced. 21 of these were in prefabs and 29 in conventional houses. 136 screen doors were replaced or repaired. 18 window screens were repaired and 16 sets of lawn steps replaced.

A portion of the partition was removed and roof beam was installed at #1 Fire Station to provide more room for a larger fire wagon.

Community Public Works Division

MAINTENANCE SECTION (Continued)

The plumbing work and installation of the heating system at tract house M-960 is approximately 80% complete. All carpenter work is completed.

New screens were installed at the head end of the irrigation siphon, concrete saddles were installed at each end where connected to irrigation canal on the new by-pass highway.

New front entrance doors were installed at Campbell's Food Store. A map railing was installed at Columbia High, Lewis and Clark, and Marcus Whitman schools. New floor tile was installed at the Groceteria and Safeway Food Stores and the inside of the Richland Theater front entrance. Floor tile was installed at Garmo's food store. Due to inferior quality tile, it was necessary to remove a portion of the tile and replace it with new. This job was completed this month.

The Hanford Ferry Boat house and dock was rebuilt due to having been completely destroyed by fire.

The rigging crew, consisting of nine men and one foreman was transferred to the Transportation Division March 7. They will be responsible for all rigging work on the plant.

UTILITIES SECTION

Organization & Personnel

Number of employees on payroll:	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
February 28, 1949	9	66	75
March 31, 1949	9	65	74
Terminations		1	

General

Steam facility operations at 784 boiler house were normal throughout the month. The steam load decreased steadily although three boilers are in service at the end of the month to carry peak steam demands. Minor repairs were made to furnace refractory on #1 boiler.

Operations at 1131 boiler house were normal throughout the month.

Operations at multiple apartment boiler house were normal. One boiler was taken out of service as heating requirements decreased.

Domestic water operations were normal throughout the month. Routine inspection and overhaul work was completed on all well pumps at 3000 area and on #5 well in 1100 area. #12 well pump is now being overhauled.

New construction acceptance inspections were made during the month on 1100 "A" well pump installation and on water and sewer mains in "F" housing area. Several exceptions were to be corrected on water and sewer mains in "F" housing area.

8.

1219731

250

Community Public Works Division

UTILITIES SECTION (Continued)

A chlorination connection in equalizing line between reservoirs at 1182 area has been installed and put in service. At 3000 area a two inch service water line was installed for service water to chlorinator station from North Richland grid system.

The 3000 area well recharging pit was drained and six to eight inches of silt and matted algae or moss were removed from the surface of the pit area. Water was turned in to refill the pit on April 1.

Operations at the sewage disposal plant were normal throughout the month. Some temporary arrangements have been made and the Flo-Gro Service Co. of Yakima, Wash., have been taking some digested liquid sludge from the plant.

The new addition to the sewage disposal plant is nearing completion. Some equipment is being tested and made ready for operation. It is expected that some of the plant will be in operation by the first of May and an additional operator was scheduled on each shift in preparation for starting up the new plant.

Pasco Warehouse Area operations were normal throughout the month.

Three operators were re-assigned from Pasco to Richland during the month.

MONTHLY REPORT OF UTILITY OPERATIONS
700, 1100 AREAS & NORTH RICHLAND

	STEAM		Rate	Unit
	Total M. Gal.	Total M. Lbs.		
784 Building				
Water Softened	3852.0	32,126.	86.29	G.P.M.
Steam to Auxiliaries		4,589.	6168	Lbs/Hr.
Boiler Feedwater		36,715.	49348	Lbs/Hr.
Steam Generated		28,602.	38444	Lbs/Hr.
Blowdown		8,113.	22.10	Percent
Steam Leaving Plant		24,013.	32276	Lbs/Hr.
Coal Consumed		4,354.	5851	Lbs/Hr.
Coal Consumed		4,354.	5851	Lbs/Hr.
Coal Received		912.9		
Coal in Storage		7,700.5		
B.T.U./Lb. Dry Coal		11,781		
Evaporation/lb. Coal		6.57		
Average CO ₂ - %		80		
Salt Used, Lbs.		4,375		
Sulphuric Acid Used, Lbs.		13,444		
Phosphate Used, Lbs.		286		
Sulphite Used, Lbs.		180		

Community Public Works Division

UTILITIES SECTION (Continued)

<u>WATER ANALYSIS - PPM</u>	Raw	Soft	Boiler	
	<u>Avg.</u>	<u>Avg.</u>	<u>Maximum</u>	<u>Minimum</u>
Phenolphthalein Alkalinity	0	0	212	110
Methyl Orange Alkalinity	183	22	260	140
Chlorides	19	21	246	126
Hardness	132	--	--	--
Phosphate	--	--	30	0
Sulphite	--	--	60	0

RICHLAND AND NORTH RICHLAND DOMESTIC WATER (PRODUCTION)

	<u>Richland</u>	<u>North Richland</u>	<u>Combined</u>
Total Pumpage, Million Gals.	85.6472	80.9364	166.5836
Avg. Daily Flow, Million G.P.D.	2.763	2.611	5.374
Rate of flow, G.P.M.	1919.	1813.	3732.
Chlorine Used, Lbs.	460	710	1170
Avg. Chlorine Residual, PPM	0.25	0.5	
Water to 300 Area, Million Gallons	23.9067		

SEWAGE DISPOSAL PLANT

Sewage Flow: 101.400	Million Gals. Total.	3.271	Million G.P.D. Avg.
Sewage Flow: 2272	G.P.M. Average.		
Chlorine Used 8482	Lbs.	1550	Lbs.
Average B.O.D.: 222	Raw Sewage	72	Final Effluent.
Average Suspended Solids: 205	Raw Sewage	68	Final Effluent.

/s/ Harold N. Petty
Supervisor

LABOR SECTION

Organization & Personnel

Number of employees on payroll:	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
February 28, 1949	14	144	158
March 31, 1949	14	122	136
Terminations		28	
Transfers: From Transportation Divn.		8	
From Housing Division		1	
To Transportation Division		3	

General

Refuse collection was extremely heavy during March, requiring additional manpower weekly.

Community Public Works Division

LABOR SECTION (Continued)

The providing of kindling for tenants was discontinued as of March 31.

Cleaning and repair of the irrigation canal is complete. The canal to the 3000 Area well field was placed in operation March 30.

The grading and reseeding of Haines Avenue is 90% complete.

The miscellaneous labor crew has assisted the maintenance section in the installation of domestic water to five tract houses. 85 work orders covering miscellaneous excavations were completed during the month.

Major repairs in connection with seal coating of road and streets have been started. Six permanent railroad crossings were installed in connection with project C-214.

Delivery of oil was discontinued the latter part of the month. Coal deliveries are only being made where tenants actually run out of coal, and then the bins are being only half filled.

Hose and sprinklers are now being delivered in accordance with the established policy.

Thirteen lots of personal furniture were handled during the month. 111 electric ranges and 111 refrigerators were installed in new residences.

FUEL INVENTORY

Coal

Beginning Inventory	1,370,800
Receipts	23,291,400
Consumed in village houses	5,886,100
3000 Area	13,350,600
101 Area	1,182,300
White Bluffs	1,294,000
Riverland	89,200
Lewis & Clark	98,000
Marcus Whitman	98,000
Sacajawea	56,000
Spaulding	146,000
American Legion	18,000
Pennywise	22,000
U. P. Church	18,000
Catholic Church	14,000
700 Area	528,000
Columbia Camp	544,000
Heavy Duty Eng. Garage	8,000
1131 Garage	216,000
Hanford Hot Plant	20,000
#6 Warehouse	2,000

Community Public Works Division

LABOR SECTION (Continued)

Automotive Warehouse	2,000
Electrical Distribution	2,000
#2 Fire Station	2,000
Pasco T-131 Garage	42,000
Pasco Patrol	2,000
Pasco T-201	4,000
1182 Power	6,000
Hanford School	12,000

24,662,200

23,662,200

Amount on hand April 1, 1949

1,000,000 pounds

Oil

Beginning Inventory	63,364
Receipts	63,800

Consumed in village houses	95,997
J. A. Terteling	2,280
Jefferson School	6,122
Pasco Fire Station	2,028
G. E. Pipe Yard (Operation)	49
#6 Warehouse	654
Castle Club	4
Apartment boiler house	7,497
AEC Airport	332
	<u>127,164</u>

114,963

Amount on hand April 1, 1949

12,201 Gallons

* * * * *

COMMUNITY DIVISIONS

COMMUNITY ADMINISTRATION

March, 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	<u>March</u>
Beginning of month	6
End of month	6

GENERAL

Requests for appropriation of funds approved by the Appropriations and Budget Committee during the month included the following:

Supplementary request for completion of Project C-170, Enlarged Patrol Headquarters and Administration Area Improvement.

Supplementary request to complete project C-231, By-Pass Highway, Yakima River Trestle and Approaches.

Revised project C-282, Dust and Pollen Control Program, Richland.

Supplementary request to complete project C-263, Patching of Pre-fab roofs.

The request for funds to implement project C-328, Improvements on Lee Boulevard between Wright and Wellsian Way was approved by the Appropriations and Budget Committee for the purpose of including this work in invitations for lump sum bids for related work with the provision that no expenditures would be made until the end of the fiscal year 1949.

Supplementary request for funds to complete project C-221, Emergency Fuel Oil Storage.

Supplementary request for appropriation to complete C-156, Additions to Columbia High and Jefferson Grade Schools.

Project C-153, Part II, Lighted Softball Park, was approved by the Atomic Energy Commission, directive HEW-54, Mod. 1., dated March 3, 1949.

COMMUNITY COMMERCIAL FACILITIES DIVISION

March, 1949

ORGANIZATION AND PERSONNEL

MARCH

Number of employees on payroll:

Beginning of month

18

End of month

19

COMMERCIAL FACILITIES

The following figures indicate trends in commercial activities as related to various basic items:

	<u>FEBRUARY</u>	<u>MARCH</u>
Cafeteria meal customers	68,570	74,284
Percent of room-day occupancy - Desert Inn	97%	75%
Gallons of ice cream sold	5,819	6,271
Carnation milk and cream deliveries	93,251	101,013
Darigold milk & cream deliveries (wholesale only)	6,680	6,375
Theater customer count	62,857	50,691
Gallons of gasoline sold	146,198	163,729

Total number of Commercial Facility Operators' employees, full and part-time as of March 31, 1949, is 1,031.

Safeway was issued an Alteration Permit to reduce the size of manager's office and provide additional space for warehouse stock. This has been completed at operator's expense.

Safeway has installed new meat cases at its expense.

Campbell's Food Store completed revision of the meat department. The government-owned meat cases and walk-in refrigerator were removed, and new self-service meat cases were installed at operator's expense.

New tile was laid in the Groceteria and Safeway at Project's expense.

Thrifty Drug completed installation of neon signs.

Village Pharmacy started work on construction and remodeling of the facility building and fixtures at operator's expense.

The Elite Shop was issued an Alteration Permit to make minor alterations to the south display window at operator's expense. This work has been completed.

Richland Laundry completed installation of a new neon sign.

Johnson's Photo Studio was issued an Alteration Permit to extend each end of the screened-in porch to provide approximately thirty-two (32) square feet of floor space.

COMMUNITY COMMERCIAL FACILITIES DIVISION

Cahoon Motors Company, Studebaker sales and service agency, held its formal opening on March 15.

Morning Sun Dairy started making milk deliveries from a mobile refrigerated unit, located north of Cahoon Motors Company, on March 21.

Curtis Gravel Company started operation of the Ready-Mix concrete plant.

INVENTORY AND PROPERTY

The sale of Project-owned equipment and fixtures was completed for the following facilities: Siler's Beauty Salon, Dog Pound, and Mickey's Shoe Renewing.

Final inventories were taken of equipment in the following facilities: Dog Pound, Richland Theater, Village Theater, Progressive Cafeteria, and Standard Oil Company.

CONTRACTS AND NEGOTIATIONS

An Assignment and Acceptance of Contract dated February 24, 1949 was entered into by and between General Electric Company and H. E. Garmo, Roy L. Stone and Roydon Lane Stone, covering the assignment of Garmo's Food Store in Richland.

A License Agreement dated July 16, 1948 was entered into by and between General Electric Company and Kit Manufacturing Company, Inc., covering the construction and operation of a parts and accessories sales and service business for trailer coaches in North Richland.

An Assignment and Acceptance of Contract dated January 28, 1949 was entered into by and between Kit Manufacturing Company, Inc. and Richland Trailer Coach Supply Company, Inc., in which Kit Manufacturing Company, Inc. assigned its interest in the License Agreement to Richland Trailer Coach Supply Company, Inc.

A Lease dated March 3, 1949 was entered into by and between General Electric Company and Seattle Tent and Awning Company, covering the construction and operation of a sporting goods store in Richland.

A Lease dated December 9, 1947 was entered into by and between General Electric and K. T. Campbell and F. G. Campbell, covering construction and operation of a building to house food lockers, a wholesale and retail bakery department, a delicatessen department and floral department.

An Assignment and Acceptance of Contract dated March 12, 1949 was entered into by and between General Electric Company and Campbell's Food Market, covering the operation of the food locker building.

A Lease dated April 1, 1949 was entered into by and between General Electric and James R. Parcell, covering the construction and operation of an automotive service station in Richland.

A Lease dated March 8, 1949 was entered into by and between General Electric and Grover W. Dawson and James H. Richards covering construction and operation of a men's and boys' wear store in Richland.

COMMUNITY COMMERCIAL FACILITIES DIVISION

A barber shop location was awarded to Mr. Elmer J. Hanson, 111 S. Chestnut, Toppenish, Washington, who will construct his own building to house the barber shop and other retail shops.

A multiple business location (85' frontage) in the North Commercial Area was awarded to Washington Investment Company, Spokane, Washington, which will construct its own building.

The National Bank of Commerce, Seattle, Washington was awarded a location in the North Commercial Area for the construction and operation of a bank.

A combination fountain lunch-smoke shop location was awarded to Mr. A. J. Deymonaz, 512 South Toppenish, Toppenish, Washington, who will construct his own building.

Two combination fuel dealership locations were awarded to American Lumber Company, 8503 North Denver Avenue, Portland 3, Oregon and Northwestern Fuel Company, 116 Livestock Exchange Building, Portland, Oregon, who will construct their own facilities.

Construction was started March 7, 1949 on the Frank Berry's Sporting Goods Store.

Construction was started March 9, 1949 on Dawson & Richards Men's and Boys' Store.

Construction of the Cahoon Motors Company building was completed on March 15, 1949.

Invitations to Bid were mailed on the following prospective facilities to be established in Richland:

Jewelry Store
Drug Store
Food Store

Bids were received on the following prospective facilities.

Combination Fountain Lunch-Smoke Shop - awarded to A. J. Deymonaz

Drive-In Restaurant--anticipated that Lessee will be selected in near future

It is anticipated that Invitations to Bid for additional facilities to be established in the new commercial area will be sent out during April.

REQUESTS FOR ESTABLISHMENT OF BUSINESSES IN RICHLAND

A number of Individuals expressed a desire during the month to establish and operate businesses in Richland. The types of establishments desired are shown in the following list:

COMMUNITY COMMERCIAL FACILITIES DIVISION

Auto Accessories .	Fuel Dealership	Multiple Business
Bakery	Garage	Newspaper
Barber Shop	General Merchandise	Printing Press
Beverage Store	Hardware	Radio Station
Bike & Lawnmower Sales & Service	Ice Cream Vendor	Recreation Hall
Cigar Stand	Jewelry Store	Restaurant
Cold Storage Locker	Landscaping	Riding Academy
Confectionery	Laundry & Dry Cleaning	Shoe Repair
Dairy & Dairy Products	Law	Sporting Goods
Dancing School	Lumber	Tailoring
Electric Appliance Shop	Men's Store	Tavern
Food Store	Motel	Watch Repair
Fountain Lunch	Music Store	Water Softener Unit
		Women's Wear

Written permission was granted to forty-five (45) Richland residents to conduct the following part-time businesses in their homes:

- Sale of fashion frocks and hosiery (5)
- Sale of Cosmetics
- Sale of vacuum cleaners (3)
- Fabricate and install screens for basement windows
- Sale of plastic goods—aprons, table covers, etc.
- Sale of Rawleigh Products (2)
- Sale of Wearever aluminum
- Sale of Electrolux cleaners & supplies
- Orders for men's and women's custom tailored clothes (3)
- Repair of appliances
- Pickup use—delivery & light hauling (2)
- Language classes
- Soft water service
- Magazine subscriptions
- Orders for made-to-order shirts
- Auto drivers' training course (2)
- Sale of religious literature (2)
- Planting of trees for residents
- Orders for band instruments
- Sale of aeronautical parts and equipment
- Sharpen lawn mowers (2)
- Mowing lawns
- Art metalizing non-metallic articles (2)
- Piano lessons
- Photographs
- Ironing
- Lawn Maintenance (3)
- Sale of auto insurance
- Sale of luminous decals

Written permission was granted sixteen (16) individuals living outside of Richland to contact residents, on an appointment basis only, on the following business matters:

- Pick up and deliver dry cleaning and furs for cleaning
and storage
- Sale of Rexair conditioners and humidifiers

COMMUNITY COMMERCIAL FACILITIES DIVISION

Orders for delivery of fertilizer for lawns and gardens
Orders for custom made men's and women's clothing (2)
Soft water service
Sale of religious literature
Sale of music libraries
Sale of life insurance (2)
Sale of Fuller Brush equipment
Pest exterminating service
Sale of men's and women's clothing
Sale of encyclopedias (2)
Represent Retail Credit Company

COMMUNITY DIVISIONS
COMMUNITY HOUSING DIVISION

March, 1947

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	<u>March</u>
Beginning of month	42
End of month	<u>38</u>
Net Decrease	4

RICHLAND HOUSING

Housing Utilization as of Month End

Houses Occupied by Family Groups	Conven- tional	Block	T	Pre- Cut	Ranch	Pre- fab	Apt.	Tract	Total
Operations	2179	261		370	835	1093	63	39	4840
Facilities	146	4		17	33	113	2	9	324
Government	99	30		14	19	35	4	6	207
Kellex Corporation		7		7	1	3	1		19
Morrison-Knudsen	4			1	1		1		7
Atkinson-Jones	23	22		19	23	18	2		107
J. Gordon Turnbull	1	2		3	4	14			24
Giffels & Vallet	3			1	8	11			23
J. A. Terteling & Sons			10	2		2			14
McNeil Construction Co.	2			2		4			8
Newberry Neon Electric	1	2		2	1	1			7
Urban, Smythe & Warren	2	2		1	1	3	1		10
Robert's Filter	1								1
Graysport Construction				1				8	9
Newport-Kern Kibbe								1	1
Vernita Orchards								4	4
P. S. Lord Co.	1								1
TOTAL HOUSES OCCUPIED	<u>2462</u>	<u>330</u>	<u>10</u>	<u>440</u>	<u>926</u>	<u>1297</u>	<u>74</u>	<u>*67</u>	<u>5606</u>
Houses utilized for special purp.								1	1
Houses assigned (leases written	13			6	25	13			57
Houses assigned - awaiting tenants	25	3		4	49	22			103
Government houses - unassigned								**38	38
TOTAL HOUSES	<u>2500</u>	<u>333</u>	<u>10</u>	<u>450</u>	<u>1000</u>	<u>1332</u>	<u>74</u>	<u>106</u>	<u>5805</u>

* Occupancy figure includes 4 houses occupied by Bonnaville Power in Priest Rapids and White Bluffs.

** This includes 31 Tract Houses boarded up for salvage.

COMMUNITY HOUSING DIVISION

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Diff- erence
Conventional Type	2477	44	59	2462	Minus 15
Block Type	328	6	4	330	Plus 2
T Type	10	1	1	10	None
Precut Type	448	7	15	440	Minus 8
Ranch Type	852	100	26	926	Plus 74
Prefab Type	1315	57	75	1297	Minus 18
Apartment Type	74	3	3	74	None
Tract	67	1	1	67	None
Total	5571	219	184	5606	Plus 35

Dormitory Statistics

		<u>Occupants</u>	<u>Vacancies</u>	<u>Total Beds</u>
Dormitories				
Men - Occupied	14	505	51	556
Men - Unoccupied				
Women - Occupied	14	558	34	592
Women - Unoccupied				

Women's Dormitories
Occupied by:

G. E. Office	1
Education	1
Apartment	1
	<u>31</u>

* This includes space of 6 beds in W-9 being used for Supply Rooms and Dormitory Offices.

GENERAL

During the month 103 Y, three bedroom ranch houses and 8 Z, four bedroom ranch houses were turned over by Nettleton Sound Company, making a total of 111 for the month. This completes the one thousand ranch type houses.

On March 21, 1949 a fire occurred in a Y type house located at 650 Chestnut Street. The fire was confined to the furnace and utility room, but there was extensive smoke damage through the house. Damage was estimated at \$2,700.00. The occupant had just received notice of reduction of force and was in the process of moving off the project.

During the month two employees of the housing division terminated. One was a reduction of force, the other a pregnancy leave.

TENANT RELATIONS

The processing of Patrol Orders and Work Orders during the month is as follows:

	<u>Incomplete</u> <u>2-28-49</u>	<u>Issued Dur.</u> <u>March</u>	<u>Incomplete</u> <u>3-31-49</u>	<u>Issued</u> <u>Prev. Mo.</u>
Patrol Orders - Days	891	3273	974	3576
<u>Maintenance & Electrical</u>				
Patrol (Off shift - Elect.)	0	472	0	531
Patrol (Off shift - Maint.)	0	510	0	424
Regular Work Orders	503	239	461	199
Backcharges	9	95	47	54

110 Conventional type houses were painted by Project Forces as compared to 110 the previous month. (Interiors).

289 Home Fire Inspections were reported and processed. 464 homes were visited. 348 Home Fire Inspections in February and 571 homes were visited.

Starting on March 15th 12,722 pounds of grass seed were issued in a period of seventeen days.

<u>Items of Interest</u>	<u>Total</u> <u>Outstanding</u>	<u>Outstanding</u> <u>In March</u>	<u>Outstanding Prev.</u> <u>Month</u>
Window glass replacements	195	140	100 (495)
Sink linoleum replacements	90	58	38 (452)
Bathroom painting	55	22	60 (-5)
Faucets	169	157	7 (4162)
Miscellaneous	520	425	639 (-119)

Alteration permits issued during the month of March, 1949 amounted to 192 as compared to 84 during the month of February. Permits were issued as follows:

Fences	102
Air Conditioners	23
Basement Excavations	14
Sanding Floors	14
Driveways	12
Automatic Washers	8
Patio	4
Door Alterations in Ranch Houses	3
New Doors-Ranch Houses	4
Arbors	3
Partial Basement Excavations	1
Extend storage space-Attic -	
Ranch House	1
Raise threshold	1
Install humidifier	1
Install door bell	2
Shelves in basement	1

TENANT RELATIONS

Install sidewalk	1
Install dishwasher	1
Install clothes poles	1
Storage shelter	1
Install concrete steps	1
Extend outside water pipe	1
Change position of range	1
Reline utility room	1
Remove heat outlet in kitchen	1
Install awning	1

INSPECTION INFORMATION:

1213 Inspections were made during the month of March. A breakdown of the inspections shows the following distribution:

a. Grass Seed	463
b. Lot Lines	448
c. Top Soil	41
d. Linoleum	35
e. Walls	31
f. Sidewalks	25
g. Bathrooms	25
h. Shades	31
i. Floor Boards	14
j. Leaking Basements	5
k. Miscellaneous	95
	<u>1213</u>

M. S. WAREHOUSE MONTHLY REPORT FOR MARCH, 1949.

Orders handled for March, 1949

		<u>Items</u>
Recall Orders	13	41
Delivery Orders	11	48
Range & Refrigerator		
orders to new houses	111	222
Dormitory Exchange Orders	22	150
Total Orders	176	<u>480</u>

Received from Maintenance	233
Sent to Maintenance	165
Three-burner Ranges Exchanged in Village	14
Refrigerators exchanged in Village	5
Trips to Pasco	5

Tenant Relations Store:

Orders Disbursed	969
Items Disbursed	2677
Value	\$26,497.15

TENANT RELATIONS

Items Received	41
Value	\$50,326.45

TOTAL M. S. WAREHOUSE INVENTORY	\$85,956.93
---------------------------------	-------------

General Changes in Policy and Improvement in Operations:

Work in M. S. Warehouse has been organized to include the distribution and sacking of grass seed.

All window shade stocks are being transferred from Stores account, and in the future, M. S. Warehouse will maintain and handle all distribution. Ordering will be direct.

Dormitory supplies will be consolidated with M. S. Warehouse supplies. This will release a section in 1125 Warehouse.

GENERAL

DORMITORY PROGRESS REPORT FOR MONTH OF MARCH

- a. To comply with standard building codes for apartments, space underneath staircase off main lobby in W-13 was walled in with fire board.
- b. Recommendations for dormitory ground repairs were submitted to the Community Engineer's Office for disposition.
- c. It was necessary to replace eight walkway guide posts during the month of March which were knocked down by careless motorists.
- d. A number of lead pipes underneath wash basins and flush tanks were replaced by copper tubings to prevent future damage to floors by pipes breaking. Lead pipe was war installed and future service was questionable. This replacement was done in connection with routine maintenance and no work order was necessary.
- e. Linoleum flooring was replaced in some of the wash rooms where excessive wear would soon result in floor damage.
- f. Electrical outlets and switches, as well as door hardware, were checked in the women's dormitories. Necessary repairs were made in connection with a fire and maintenance prevention measure.
- g. A survey was made of all project owned floor and table lamps. Cords and plug-ins were replaced where necessary to reduce fire hazards throughout the dormitories.
- h. Dormitory storage space was consolidated with M. S. Warehouse. This will result in releasing space in 1125 Warehouse and allow more working space in dormitory storage rooms.

5.

1219745

945

COMMUNITY SAFETY DIVISION
MARCH, 1949

ORGANIZATION AND PERSONNEL

Number of employees on Payroll:	<u>March</u>
Beginning of month	2
End of month	2

GENERAL

A reporting system for all residents receiving first aid at Kadlec Hospital for injuries received from accidents in their homes, is being established. This system is purely voluntary on the resident's part. Cooperation will be had from the first aid section of the hospital.

The plans for spring clean up week, April 10 through 16, 1949, were formulated and the responsibility accepted by the Chamber of Commerce. All finances will be handled by the Chamber.

Tests were made of the conversion unit for the furnaces of ranch type houses to eliminate the present fire hazard. The desired results were not achieved; additional work will follow.

Community Fire Division

March 1949

Organization and Personnel

Number of employees on payroll	<u>March</u>	
Beginning of the month	153	
End of the month	<u>151</u>	
Terminations	2	
	<u>Richland</u>	<u>North Richland</u>
Response to alarms	14	18
Fire loss (estimate)		
Hanford Works	\$ 2700.00*	0
Personal	175.00	\$ 641.33
Investigation of minor fires and incidents	9	13
Safety Meetings	16	8
Inside Drills	81	41
Outside Drills	66	51
Alarm Boxes Tested	138	72
2½" Hose Tested	1000 Ft.	2000 Ft.
1½" Hose Tested	300 Ft.	600 Ft.

* Estimate of fire damage at 650 Chestnut, reported by Community Engineer.
Figure subject to revision.

Fire Department Activities

Three 750 gallon-per-minute pumps received and placed in service at North Richland.

One 65-foot aerial ladder truck, equipped with 750 gallon-per-minute pump, received and to be placed in service at Richland No. 1 Station.

One obsolete and one overage 500 gallon-per-minute pumps, also one obsolete 300 gallon-per-minute pumper, withdrawn from service and returned to Transportation Division for disposition.

Received and packed firemen's uniform clothing from Plant Fire Protection Division.

RICHLAND FIRE PREVENTION ACTIVITIES

1. Fire Inspections

700 Area Buildings	153
1100 Area Buildings	190
Government Airport	2
Commercial Facilities	138
Schools, churches, clubs	44
Dormitories (30 rooms in each)	14
Homes	<u>289</u>
Total	830

2. Fire Extinguishers

Inspected	1343
Installed	8
Recharged	29
Removed	6
Defective (replaced)	1
Hydrostatically tested	58

3. Demonstrations

Attendance

Village painters at Perkins Street Eutment	22
Receiving Stores Division, Warehouse #6	30
Power Division of both 700 and 3000 Areas	25
Village painters at Snow Avenue Eutment	22

4. New Construction Acceptance Committee Inspections

Inspection of fire alarm system in Carmichael Junior High School. With exception of improper grounding, system appeared to be in good working order.

5. Other Additions to Fire Alarm System

Alarm and heat detector system in Building 705, warehouse #5 and warehouse #6 completed and connected to Community Fire Alarm System.

6. Miscellaneous

Report made to Dormitory Supervisor on numerous hazards in Women's dormitories, mainly improper installation of electric hot plates and wiring extensions.

Sprinkler systems inspected in 703, Kadlec Hospital and Public Health buildings. Systems operating normally.

All (7) 40 gallon wheel-type fire extinguishers given hydrostatic test, repairs and recharged.

Tested each fire alarm pull station in all men's and women's dormitories. Testing satisfactory.

Charred plastic lamp reflector, found by Home inspectors, shown to facility managers retailing the appliance. Facilities agreed to withdraw reflectors from sales counters.

Unusual hazards created by construction employees at Marcus Whitman Grade School reported to Community Activities Division.

February recommendation by Fire Marshal for installation of sprinkler system in Desert Inn, due to increased hazard by expansion of facilities, approved by facility management. Work started on March 30th.

COMMUNITY DIVISIONS

COMMUNITY PATROL

MARCH, 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	<u>March</u>
Beginning of Month	137
End of Month	<u>102</u>
Net Decrease for Month	35
Reason: 18 R. O. F.	
	16 R. O. F. Transfers
	1 V. T. Personal

GENERAL

Effective March 1, 1949, manpower assigned to the Traffic Division and duties assigned to them were absorbed by the enforcement groups in their respective areas, being divided equally between Richland and North Richland. Capt. A. E. Barron has assumed responsibilities of "Traffic Consultant", which include functions of traffic surveys, summaries, recommendations, School Boy Patrol, traffic and accident investigation, and sign co-ordination.

Effective March 1, 1949, the Drivers Training Course was discontinued.

On March 7, 8, and 9, 1949, a barracks check was made in North Richland for undesirables and contraband.

On March 15, 1949, the practice of posting a patrolman at the North Richland Hospital on the first and third shifts was discontinued.

On March 17, 1949, the Nine Point Job Improvement Program was completed in the Community Patrol Division.

On March 17, 1949, work was begun on the remodeling of the Records Room. Partitions were removed to form one large office from three small offices. This remodeling was part of the program to centralize all the records in one room and eliminate the duplication in records. By eliminating the duplication and combining the records in one large room, we were able to eliminate the need for two clerks. This remodeling project was completed in approximately one week.

One man was provided the Local School District for policing a Tolo Dance on March 18, 1949.

Effective March 21, 1949, Village patrolmen began wearing new uniforms designed to distinguish local police personnel from that of the plant guard force. Patrolmen assigned to North Richland will continue to wear the old uniform.

Beginning March 23, 1949, the patrolling on day shift of all downtown parking facilities was assigned to one patrolman.

Community Patrol Division - Continued

On March 29, 1949, a vehicle license directory was received and installed in the Desk Sergeant's office. This directory contains the license number, motor number, make and type of car, registered owner, and owner's address of all licensed vehicles in the state of Washington.

Effective March 31, 1949, Asst. Chief A. A. Layman terminated his employment with the Community Patrol Division. He has accepted a new position as Chief of Patrol for the Bendix Aviation Corporation in Kansas City, Missouri.

During the month a total of 35 persons were removed from the rolls of the Community Patrol Division. This, together with reductions made in supervisory classifications, effected an annual savings of approximately \$125,000. An additional 10 patrolmen were given their R. O. F. notice to be effective April 4, 1949. This additional number of patrolmen will effect an added annual savings of \$33,980.

During the month forty children from various organizations, such as Camp Fire Girls, Boy Scouts, etc., were fingerprinted, and prints were forwarded to the civilian files of the Federal Bureau of Investigation.

During the month, 56 gun registrations were taken by the Richland Patrol.

During the month, 86 prisoners were processed through the Richland Jail.

TRAFFIC

Traffic accidents in Richland declined approximately 22% in March compared to February.

With the improved weather conditions, traffic accidents increased in severity with property damage to vehicles involved, running higher than the previous month.

Issuance of traffic citation tickets to violators declined 32% for Richland and North Richland combined. Warning tickets dropped off approximately 31%.

Work orders were initiated to repaint crosswalks at downtown intersections and in the vicinity of the schools. Others will be repainted after the road seal-coating work has been completed.

Due to unsafe conditions existing in the vicinity of the Lewis and Clark School, recommendations were forwarded to the Community Safety Committee to erect a fence on the east side of Cullum Avenue to prevent children from running into the street. The School Boy Patrolmen were experiencing difficulty in controlling foot traffic at the crosswalks, due to a hedge that bordered the roadway. Children were walking through the hedge and across the street at points where there was no protection from vehicles. At this time the fence is nearing completion and the children will cross the street through one opening.

Seven traffic safety lectures and four traffic films were shown to various plant and civic groups during March. A program is under way to equip all bicycles in the Village with Scotch-Lite Reflectorized Tape. This program will be carried out by the Patrol and the Junior Chamber of Commerce.

During the month of March, a survey was made for all traffic and safety hazards in the North Richland Area.

Community Patrol Division - Continued

TRAINING

Subjects covered in the lieutenant's training classes for the month of March were as follows:

Attitude of Patrolmen toward Violators
Use of the Radio
Unattended Death
Fire Procedure
Traffic Violations
Versatility of Patrolmen
Writing U. I. Reports
Care of New Uniforms
Improvement of Personal Appearance
Use of Firearms
Shift Operation
Public Relations
Law of Arrest

Advance training for Community Patrol members at the Small Arms Range for the period February 11, 1949, to March 10, 1949, inclusive, was divided into field instruction as follows:

Pistol 1½ hour
Riot Gun 1 hour
Machine Gun 1 hour

Progress of scores and qualifications on the Army-L Course:

	January		February		March	
	No.	Percent	No.	Percent	No.	Percent
Unqualified	4	9%	6	6%	6	7%
Marksman	5	11%	26	25%	26	32%
Sharpshooter	8	17%	22	22%	12	14%
Expert	30	63%	48	47%	39	47%

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.

Training at the Patrol Range was discontinued from March 11 through March 17, 1949, in order that time could be devoted to transfers, terminations, shifting of men, etc., before resuming Range assignments.

Community Patrol Division - Continued

ACTIVITIES AND SERVICES (RICHLAND)

	<u>January</u>	<u>February</u>	<u>March</u>
Check on absentees	10	9	1
* Persons assisted	278	236	196
Doors & windows found open in commercial facilities	59	83	34
Lost children found	10	9	8
Ambulance runs	47	43	40
Lost dogs reported	4	1	3
Dog & cat complaints	31	39	46
Persons injured by dogs	1	3	6
Bank escorts and details	42	43	33
Fires investigated	30	17	10
Miscellaneous escorts	55	50	54
Complaints investigated	47	66	84
Missing persons reported	0	1	4
Totals	614	600	519

* 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)

	<u>January</u>	<u>February</u>	<u>March</u>
Check on absentees	7	3	5
* Persons assisted	519	478	329
Doors & windows found open in commercial facilities	73	69	45
Lost children found	2	1	4
Ambulance runs	7	26	12
Lost dogs reported	1	1	0
Persons injured by dogs	0	2	1
Dog & cat complaints	10	25	11
Bank escorts & details	55	48	48
Fires investigated	16	21	17
Miscellaneous escorts	45	23	43
Complaints investigated	102	108	72
Missing persons reported	0	0	4
Totals	837	805	591

* Includes: Admitting persons to their rooms; contacting parties on long distance calls; issuing rooms and bedding; locating persons wanted for various reasons; relaying messages; assisting outside police agencies; assisting other departments; aiding private persons, etc.

Community Patrol Division - Continued

TRAFFIC AND OFFENSE STATISTICS

These are presented in separate tables at the end of this departmental report. A comparison of Richland Offense Statistics with outside averages is also presented.

PATROL

A total of 124 Unusual Incident Reports were received, which consisted mainly of Traffic Accidents, Traffic Violations, and Public Intoxications. Regular Traffic Violation Reports, not accompanied by an Unusual Incident Report, are presented in separate tables in the Traffic Statistics attached to this report.

DECLASSIFIED

COMMUNITY PATROL DIVISION

FORCE REPORT

MARCH 1949

<u>Patrol</u>	<u>Entire Patrol</u> <u>2-28-49</u>	<u>Entire Patrol</u> <u>3-31-49</u>
Patrol Supervisor	1	1
Division Supervisor	1	0
Captains	5	5
Lieutenants	12	10
Sergeants	17	13
Patrolmen	<u>97</u>	<u>69</u>
Total	133	98

Clerical

Steno-Typists	Total	<u>4</u>	<u>4</u>
Grand Total		137	102

Decrease

14 R. O. F. 3-11-49
8 Transfers to Industrial Patrol R. O. F. 3-11-49
8 " " " " " 3-14-49
6 Sergeants Reduced to Patrolmen 3-14-49
2 Lieutenants Reduced to Sergeants 3-14-49
2 R. O. F. 3-15-49
1 R. O. F. 3-16-49
1 V. T. Personal 3-28-49
1 R. O. F. 3-31-49

PATROL DIVISION - TRAFFIC CONTROL STATISTICS

March - 1949

MOTOR VEHICLE ACCIDENTS

	Total Number	
	Feb.	March
Richland	29	22
North Richland	18	15
Totals	47	37

	Fatalities	
	Feb.	March
	0	0
	0	0
	0	0

	Major Injuries	
	Feb.	March
	1	0
	0	0
	1	0

	Minor Injuries	
	Feb.	March
	2	6
	3	6
	5	12

ACCIDENT CAUSES

	Negligent Driving	
	Feb.	March
Richland	1	10
North Richland	5	8
Totals	6	18

	Failure to Yield Right of Way	
	Feb.	March
	10	4
	7	4
	17	8

	Reckless & Drunken Driving	
	Feb.	March
	0	0
	0	0
	0	0

	Other Causes	
	Feb.	March
	18	9
	6	4
	24	13

PLANT WARNING TRAFFIC TICKETS ISSUED

	Speeding		"Stop" Sign	
	Feb.	March	Feb.	March
Richland	2	2	0	1
N. Rich.	1	1	1	0
Totals	3	3	1	1

	Parking		Imp. License	
	Feb.	March	Feb.	March
	168	122	11	1
	130	98	9	1
	298	220	20	2

	Def. Equip.	
	Feb.	March
	24	14
	11	5
	35	19

	Other Violations		Totals	
	Feb.	March	Feb.	March
	2	1	207	141
	0	1	152	106
	2	2	359	247

COURT CITATION TRAFFIC TICKETS ISSUED

	Speeding		"Stop" Sign		Drunken Dr.	
	Feb.	March	Feb.	March	Feb.	March
Richland	19	26	4	12	1	1
N. Rich.	7	14	10	5	3	3
Totals	26	40	14	17	4	4

	Right of Way V.		Reckless Dr.	
	Feb.	March	Feb.	March
	4	4	1	2
	0	0	1	0
	4	4	2	2

	Neg. Dr.	
	Feb.	March
	17	8
	10	14
	27	22

	Parking V.	
	Feb.	March
	21	17
	9	1
	30	18

	Other V.		Totals	
	Feb.	March	Feb.	March
	43	19	110	89
	42	11	87	48
	85	30	197	137

TRAFFIC VOLUME: Average 24-hour Traffic Volume Count for week ending on March 10, 1949, VanGieson west of By-Pass -

2,359 Cars.

Average 24-hour Traffic Volume Count for week ending on March 10, 1949, George Washington Way at Yakima

River Bridge - 11,330 Cars.

COMMUNITY PATROL DIVISION
RICHLAND JUSTICE COURT CASES

MARCH 1942

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.....	5	5	\$283.75	None	None	None	5	\$56.75	0	0
Reckless Driving.....	2*	2	\$75.00	None	None	None	2	\$37.50	0	0
Negligent Driving.....	18	18	\$357.50	None	None	None	0	\$19.86	0	0
Speeding.....	40***	40	\$420.12	\$40.00	None	None	0	\$10.53	0	4
Stop Sign.....	17	16	\$86.75	None	None	None	0	\$5.12	1	2
F.T.Y.R.O.W.....	5	5	\$50.50	\$45.00	None	None	0	\$9.92	0	0
Improper Passing.....	4	4	\$22.75	None	None	None	0	\$5.69	0	0
Improper Parking.....	14***	14	\$38.50	\$21.00	None	None	0	\$2.03	0	3
No Drivers License.....	12**	12	\$74.25	\$26.75	1	None	0	\$6.75	0	1
Defective Equipment.....	2	2	\$15.00	None	None	None	0	\$7.50	0	0
Invalid License Plates.....	8	8	\$37.50	\$28.75	None	None	0	\$4.69	0	3
Public Intoxication.....	29	29	\$365.50	\$22.50	None	4	0	\$12.60	0	0
Public Nuisance.....	15	15	\$237.50	\$35.00	None	1	0	\$15.83	0	0
Vagrancy.....	30	30	\$205.00	\$162.50	3	11	0	\$5.16	0	0
Third Degree Assault.....	1	1	\$27.50	None	None	None	0	\$27.50	0	0
Sex Offence.....	2***	2	None	None	2	None	0	None	0	0
TOTALS:	204	203	2,297.12	381.50	6	16	7	None	1	13

TOTAL FINES.....\$2,297.12
LESS SUSPENSIONS.....\$381.50
TOTAL FINES RECEIVED \$1,915.62

* Two cases reduced to Negligent Driving.
** Three cases included with other violations.
*** Two cases included with other violations.
**** Two cases taken to Prosser to await trial in Superior Court.

The above violations occurred on Hanford Works Project.

RICHLAND AND NORTH RICHLAND OFFENSES
PATROL DIVISION
MARCH, 1942

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses		Actual Offenses		Offenses Cleared		Perpetrators	
		Unfounded	Feb.	March	Arrest	By Other Action	Involved		
Arson (Attempt).....	1	1	0	0	0	1	2(f)		
Assault.....	4	0	3	4	1	2	1*		
Attempted Assault.....	0	0	1	0	0	0	u		
Breaking and Entering.....	3	0	3	3	0	0	u		
Larceny (Except Auto & Bike)									
(a) Over \$50.00.....	15	1	6	14	5	0	3		
(b) Under \$50.00.....	41	1	22	40	2	16	10**		
Auto Theft.....	5	0	2	5	2	3	3***		
Bike Theft.....	27	0	9	27	0	11	u		
Carrying Concealed Weapon.....	0	0	1	0	0	0	u		
Destruction of Government Prop.....	4	0	1	4	0	1	2 (b)		
Theft of Government Property.....	1	1	0	0	0	0	u		
Disorderly Conduct.....	6	2	1	4	2	2	4		
Drunkenness.....	29	0	42	29	29	0	29		
Embezzlement & Fraud.....	0	0	6	0	0	0	u		
Forgery.....	3	0	1	3	1	0	1		
Gambling and Or Possessing.....	0	0	3	0	0	0	u		
Missing Persons.....	2	1	4	1	0	1	1 (a)		
Offense Against Family & Children.	3	0	3	3	0	3	3		
Pickup for Outside Agency.....	3	0	0	3	3	0	3		
Prowlers.....	3	2	0	1	0	0	u		
Public Nuisance.....	15	0	14	15	15	0	15		
Rape.....	1	0	0	1	0	0	u		
Sex Offense.....	3	0	10	3	1	1	2		
Vagrancy.....	30	0	23	30	30	0	30		
Miscellaneous.....	9	0	11	9	8	8	5 (d)		
Juveniles (Other).....	10	0	2	10	0	.7	9 (e)		
Juveniles (Disorderly Conduct).....	1	0	2	1	0	1	1 (Age 12)		
	225	9	176	216	91	59	128 x		

* 1 Offense perpetrated by Juvenile, Age 11

**3 Offenses perpetrated by Juv. Ages, 14, 14, & 13.

u Represents Unknown

x 46 Perpetrators are colored.

Property Recovered for month, \$9,883.11
(11 Bikes)

***3 Offenses perpetrated by one Juvenile, Age 15

(b) 1 Case perpetrated by 2 Juveniles, age 12.

(c) 1 Case perpetrated by one Juv. Age 14

(d) 2 Cases Perpetrated by 2 Juv., Age 20, & 6.

(e) 4 Cases Perpetrated by 4 Juv. Age 15, 15, 16, & 8.

(f) 1 Case Perpetrated by 2 Juveniles, Age 7 & 9.

Number of offenses known to police per 10,000 inhabitants, in cities between 10,000 and 25,000 inhabitants:

<u>Classification</u>	<u>Wash. Oregon & Calif.</u>		<u>Richland and North Richland</u>		
	<u>Six Months</u>	<u>One Month</u>	<u>Six Months</u>	<u>Feb.</u>	<u>March</u>
	<u>(Jan-June 1948)</u>	<u>Average</u>	<u>(Jan-June 1948)</u>	<u>1949</u>	<u>1949</u>
Murder.....	.181	.031	0	0	0
Robbery.....	3.47	.58	1.00	0	0
Aggravated Assault.	1.75	.29	6.66	2.66	2.66
Burglary.....	35.69	5.95	4.63	3.32	2.00
Larceny.....	127.06	21.18	47.16	25.33	55.30
Auto Theft.....	15.56	2.59	3.10	1.33	3.33

Number of offenses known to police per 10,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

<u>Classification</u>	<u>State of Washington</u>		<u>Richland and North Richland</u>		
	<u>Six Months</u>	<u>One Month</u>	<u>Six Months</u>	<u>Feb.</u>	<u>March</u>
	<u>(Jan-June 1948)</u>	<u>Average</u>	<u>(Jan-June 1948)</u>	<u>1949</u>	<u>1949</u>
Murder.....	.140	.023	0	0	0
Robbery.....	4.90	.82	0	0	0
Aggravated Assault.	.78	.13	6.66	2.66	2.66
Burglary.....	36.91	6.15	4.63	3.32	2.00
Larceny.....	92.22	15.37	47.16	25.33	55.30
Auto Theft.....	18.15	3.03	3.10	1.33	3.33

The portion of offenses committed by persons under the age of 25 years, is shown by the following figures:

<u>Classification</u>	<u>National Average</u>		<u>Richland and North Richland</u>		
	<u>Six Months</u>		<u>Six Months</u>		
	<u>(Jan-June 1948)</u>		<u>(Jan-June 1948)</u>	<u>Feb.</u>	<u>March</u>
Robbery.....	55.5		0	0	0
Burglary.....	59.9		8%	0	0
Larceny.....	45.2		13%	86%	48%
Auto Theft.....	71.6		0	0	20%

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."

COMMUNITY PATROL DIVISION

U. I. MONTHLY REPORT

MARCH, 1949

PUBLIC INTOXICATIONS	29
TRAFFIC ACCIDENTS	26
TRAFFIC VIOLATIONS	20
VAGRANCY	16
PUBLIC NUISANCE	12
DISTURBANCE	7
STOLEN CAR	2
MENTAL CASE	1
VIOLATION LABOR LAW	1
AMBULANCE RUN	1
VANDALISM	1
FALSE ALARM FIRE	1
ACCIDENTAL SHOOTING	1
REMOVAL OF PERSONAL PROPERTY	1
INFLAMMABLE MATERIALS FOUND IN SCHOOL	1
RECOVERED CAR	1
DESTRUCTION OF GOVERNMENT PROPERTY	1
POISONED DOG	1
ASSAULT	1
TOTAL	124

COMMUNITY PATROL DIVISION

OPEN DOORS & WINDOWS

MONTHLY REPORT

MARCH, 1949

<u>LOCATION</u>	<u>DOORS</u>	<u>WINDOWS</u>
SUB-CONTRACTORS (N. RICHLAND)	24	2
FACILITIES (N. RICHLAND)	10	3
SCHOOLS (N. RICHLAND)	6	0
FACILITIES (RICHLAND)	19	15
SCHOOLS (RICHLAND)	<u>33</u>	<u>39</u>
TOTALS	92	59

COMMUNITY DIVISIONS

COMMUNITY ACTIVITIES DIVISION

March, 1949

ORGANIZATION AND PERSONNEL

Number of employees on roll

Beginning of month	12
Additions	0
Terminations	<u>0</u>
End of month	12

SCHOOLS

Construction progress on Carmichael Junior High School was checked by representatives of the Community-Activities Division on March 1.

On March 7, work orders were issued for the construction of permanent type barricades around newly seeded area at Columbia High School and along Cullum Avenue side of Lewis and Clark Grade School.

Representatives of the Fire Protection, Safety, Public Health, and Community - Activities Division conducted regular monthly inspections of Carmichael Junior High, Marcus Whitman, Jefferson, Sacajawea, and the Nursery Schools on March 14.

On March 15, Division representatives conducted regular monthly inspections of Columbia High School, Spalding, and Lewis and Clark Grade Schools.

Arrangements were made on March 21 to assign a North Richland warehouse and a section of Richland Warehouse #1 to School District #400.

On March 21, the Community - Activities Division completed final drafts of new lease for School District #400 as required by proposed procedures now pending approval by the Atomic Energy Commission.

The Community Fire Marshall and representatives of the Activities Division on March 28, conducted thorough inspections of the attic and fire walls in Marcus Whitman Grade School.

After a special hearing on March 24, the Richland School Board voted to continue the Columbia High School boxing program next year.

The Thespian organization of the Columbia High School presented as its annual production a three act comedy titled, "Brother Goose." The play was scheduled in the high school auditorium on March 25.

During the month of March a total of 520 students were transferred to the Carmichael Junior High School. This is considered the peak for this term.

Community - Activities Division

There is a total enrollment increase since September 7, 1948, of 369 pupils, with 389 additional pupils at the grade schools and a decrease of 20 pupils at the high school. During the month there was a decrease of 104 pupils in the grade schools and a decrease of 21 at the high school

CHURCHES

The following is a tabulation of full time paid personnel, as of March 31, 1949:

	<u>Ministers</u>	<u>Staff</u>	<u>Total</u>
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	2	1	3
United Protestant - West Side	1	0	1
United Protestant - South Side	1	0	1
	<u>18</u>	<u>7</u>	<u>25</u>

On March 18, representatives of the Fire Protection, Safety, Public Health, and Community - Activities Divisions inspected the Richland Lutheran, Redeemer Lutheran, Catholic, and Central United Protestant Churches.

Camp Fire Girls, Blue Birds, and Order of the Domolay were special guests at morning service of the Central United Protestant Church on March 20.

The Azimuth Society of the Redeemer Lutheran Church sponsored a public showing of the religious film, "Golgotha" in the Jefferson Grade School March 19.

COMMUNITY

The regular monthly meeting of the Recreation Advisory Committee was held on March 15, 1949. The Committee recommended for approval, subject to proper security clearances, the Foursquare Gospel Church, Mademoiselle Charm & Model School, Figureine Painting School, Richland Junior Riding Club, and Enterprise Citizens Committee. The minutes of the February 28, 1949, meeting were approved March 11, by the Atomic Energy Commission. Organizations receiving formal approval include the Tech-Recreation Society, Richland Diggers and Cutters Gardenaires, and the B.P.O.E. Tri-City Chapter of Pasco Elks Lodge 1730.

Final results of the 1949 Hanford Works plant Red Cross Drive, announced March 24, showed a total of \$12,654.31 in contributions by employees. This was 110% of the \$11,548 total assigned as the plant quota.

Community - Activities Division

The Meistersinger Concert staged March 11, at the Columbia High School for the benefit of the Richland Community Swimming Pool Fund resulted in a net profit of \$225.00 which was turned over to the association.

The Richland Players, Inc. sponsored three evening performances of "No. 9 Pine St." on March 3, 4, and 5 at the Columbia High School. The net profits of the performances were divided and 50% donated to the Richland Swimming Pool Fund which benefited to the extent of \$150.

The Junior Chamber of Commerce sponsored a performance of Gilbert and Sullivan's operetta, "The Mikado," on March 30 and 31 at Columbia High School.

On March 19, the Richland Rose Society held a ceremony and planted the first rose bushes at the new site of the Municipal Rose Garden on George Wash. Way. It was announced that each of the 50 members of the Society will procure and plant at least three rose bushes in the plot designated as the garden site.

The Richland Symphony Orchestra presented its third annual concert at the Columbia High School on Sunday afternoon, March 20.

The Red Cross bloodmobile visited Richland during the Month of March opening its blood donor campaign on March 8. More than 1,000 donors filed cards declaring their willingness to contribute one pint of blood during the campaign.

The Richland Meistersingers journeyed to Pendleton on March 12 under the sponsorship of the Pendleton Chamber of Commerce. They were presented in concert at the Vert Auditorium in that city. Proceeds were donated to the Pendleton High School Band.

Villagers, Inc. voted on March 7 to submit a bid and seek permission to publish the Richland Villager daily.

The Richland Jay Ceo-ettes sponsored a Fashion and Variety Show at Columbia High School on March 10 with all proceeds scheduled to go to the annual Cancer Drive which opens April 1.

On March 1, the American Legion Auxiliary presented a new iron lung to Kadlec Hospital.

The number and types of organizations presently served by the Community-Activities Division include 12 business and professional clubs, 24 churches and church organizations, 5 civic organizations, 16 fraternal organizations, 8 music and art associations, 9 private instructors, 43 recreation and hobby groups, 8 schools and 8 parent teachers associations, 2 social clubs and organizations, 11 veteran and military organizations, 5 welfare organizations, 19 Boy Scout troops, 15 Camp Fire Girls troops, 42 Girl Scout troops, 8 other youth groups, and 11 miscellaneous organizations.

Community-Activities Division

As of March 31, 1949, organizational personnel included:

Villagers, Inc.	8
American Legion	2
Co-ordinate Club	1
Youth Council	1
Boy Scouts	1
Camp Fire Girls	2
Hi-Spot Club	1
Red Cross	3
Castle Club	1
Post Office	80
Veterans Administration	2
Girl Scouts	2
	104

MAJOR ACTIVITIES DURING THE MONTH

March 3, 4, 5	Richland Players "No. 9 Pine Street"	Columbia High School
10	Jay-Cee-ettes Fashion and Variety Show	Columbia High School
11	Meistersingers Swimming Pool Benefit	Columbia High School
12	Pacific Lutheran Choir Concert	Columbia High School
20	Richland Symphony Orchestra Concert	Columbia High School
25	Thespain Troup in "Brother Goose"	Columbia High School
30, 31	Light Opera Association's "Mikado"	Columbia High School

Community - Activities Division

RICHLAND PUBLIC SCHOOLS PERSONNEL AND ENROLLMENT REPORT

The following is a tabulation of full-time school district paid personnel, as of March 25, 1949:

Administration	3
Clerical	15
Principals and Supervisors	17
Teachers	235
Building Custodians	45
Cooks	19
Nursery Sch. Ex. Day Care	17
Bus Drivers	2
Total	<u>353</u>

On March 25, 1949, there were 61 children enrolled in the Richland Nursery School with an average attendance of 47. There was a decrease 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 an increase in enrollment during the month of 1.

COLUMBIA HIGH SCHOOL

	<u>Boys</u>	<u>Girls</u>	<u>Total</u>
Freshman (9th grade)	164	179	343
Sophomore (10th grade)	158	160	318
Junior (11th grade)	115	95	210
Senior (12th grade)	98	94	192
	<u>535</u>	<u>528</u>	<u>1063</u>

GRADE SCHOOLS

	<u>Carmichael Jr. Hi.</u>	<u>Jefferson</u>	<u>John Ball</u>	<u>Lewis and Clark</u>	<u>Marcus Whitman</u>	<u>Sacajawea</u>	<u>Spalding</u>
Kindg.		*(3) 84	*(4) 110	*(4) 112	*(4) 91	*(2) 67	*(4) 134
1st		(3) 98	(5) 132	(5) 144	(4) 117	(4) 117	(4) 119
2nd		(3) 85	(4) 107	(4) 117	(3) 94	(4) 106	(3) 97
3rd		(2) 74	(4) 112	(4) 115	(3) 83	(3) 105	(3) 89
4th		(3) 88	(3) 91	(3) 104	(3) 99	(4) 107	(3) 83
5th		(2) 64	(3) 80	(3) 92	(3) 79	(3) 101	(3) 106
6th		(2) 66	(3) 83	(3) 83	(2) 73	(3) 90	(2) 52
7th	(5) 147			(3) 93	(3) 118	(3) 85	
8th	(12) 374						
	<u>521</u>	<u>559</u>	<u>715</u>	<u>860</u>	<u>754</u>	<u>778</u>	<u>680</u>

Totals by grades

Kindergarten	598
First grade	727
Second grade	606
Third grade	578
Fourth grade	572
Fifth grade	522
Sixth grade	447
Seventh grade	443
Eighth grade	<u>374</u>
	4867

*Half days

() Number of classes

GENERAL ELECTRIC COMPANY
HANFORD WORKS
COMMUNITY ACCOUNTING DIVISION
MONTHLY REPORT FOR MARCH 1949

ORGANIZATION

Employees-Beginning of Month	28	Exempt	5	Male	10
Terminations, Transfers or New Hires	0	Non-exempt	23	Female	18
Employees End of Month	28	Total	28	Total	28

ACCOUNTS RECEIVABLE

RENTS

House leases processed:	<u>MARCH</u>	<u>FEBRUARY</u>
New	139	294
Modifications	None	13
Cancellations	124	120
Active Total House Leases	5610	5595

There were 125 new dormitory assignments and 196 removals.

Rental revenue was as follows:	<u>MARCH</u>	<u>FEBRUARY</u>
Equipment	\$ 80.26	\$ 160.47
Houses	240,043.39	237,007.72
Dormitories	15,389.75	15,356.95
Facilities	34,703.71	35,053.00
	<u>\$290,217.11</u>	<u>\$287,578.14</u>

The rental value of unoccupied houses was \$1,749.55.

The decrease in equipment rental is due to the purchase of equipment by the facilities. However, there are still 22 facilities who still have equipment on a rental basis.

TELEPHONE

	<u>MARCH</u>	<u>FEBRUARY</u>
Number of work orders handled	193	154
Number of resident and facility phones in service	2535	2533
Revenue including services	\$4979	\$5082

A new operating contract between the A.E.C. and the Interstate Telephone Company is under consideration which should provide for further revenue toward the operation of the telephone system.

Community Accounting Division

MISCELLANEOUS RECEIVABLES

There were 156 miscellaneous invoices issued during the month which accounted for \$3733 in revenue. The revenue from dog licenses amounted to \$47.

The following building permits were issued:

<u>CONTRACTOR</u>	<u>LESSEE</u>	<u>AMOUNT</u>
A.R. Nieman Constr. Co.	Grover W. Dawson	\$133.35
Westland Constr. Co.	Berry & Reinterson	<u>130.80</u>
Total March fees		264.15
Previously reported		<u>891.51</u>
Total fees to date		\$1,155.66

Government owned equipment located in the respective facilities was sold during March to the following at an agreed-upon selling price:

3-15-49	Mickey's Shoe Renewing	\$ 2,672.97
3-15-49	Siler's Beauty Salon	<u>304.57</u>
Total sales this month		2,977.54
Previous sales		<u>43,410.11</u>
Total to date		\$46,387.65

Fifteen collection letters were written resulting in the payment of ten delinquent accounts totaling \$111.21.

ACCOUNTS PAYABLE

STATISTICS

	<u>MARCH</u>	<u>FEBRUARY</u>
Accounts Payable Vouchers Processed	457	333
Freight Bills Processed	353	371
Purchase Orders Received	54	83
Amount of Purchase Orders	\$12,320.49	\$94,401.73
Receiving Reports Received	418	426
Total Net Amount Disbursed	\$157,733.35	\$240,453.69

Although the volume of work did not decrease, the disbursements were a great deal less than in February.

RECEIVED
FEB 15 1949

Community Accounting Division

GENERAL

The freight account still reflects a zero balance at month end.

There were 18 open vouchers in the Accounts Payable balance at month end reflecting a credit balance of \$111.25. Eight of these vouchers were house rent refund items, payment of which was being withheld for possible application to outstanding receivable items of the respective individual; and the other ten vouchers are for collection of freight paid by the Project for vendors' accounts.

An audit of completed purchase order files will be performed as time permits in order to assure ourselves that the files are complete and closed.

The status of the contracts for which the Community Division is responsible is as follows:

<u>Subcontractor</u>	<u>Subcontract Number</u>	<u>Amount Awarded</u>	<u>Amount Paid</u>	<u>Amount Retained</u>
Vance Properties, Inc.	None Applied	CPFF	\$ 84,215.08	\$ -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	est. 67,186.82	7,343.60
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 & Paving Co.	G-227	7,500.00	6,750.00	-0-
Graysport Constr.Co.	G-231	* 43,270.00	est. 28,273.84	2,163.50
		\$397,299.15	\$301,033.46	\$13,628.32

* Total amount of contract will be the total of the estimates as submitted. Contract is based on a unit price award.

COST

REPORTS

The February cost report was issued on March 21, 1949. This is the earliest we have been able to issue the current operating report as the reports for the previous months have been issued usually on the last working day of the month.

By estimating assessments not received by the 8th of the month from other Divisions, and by releasing either actual or estimated assessments to other Divisions by the same date, we expect to distribute future Community Operating Reports by the 15th of each month. Adjustments between actual and estimated assessments will be made on the subsequent month's report.

Community Accounting Division

The Community Utilities Report for February was issued on March 25, 1949.

The Comptroller's Appropriation and Project Report for February was issued on March 22, 1949.

A procedure governing the control of expenditures between \$2,000 and \$5,000 was prepared and distributed to each of the Community Divisions. The procedure established a Community Division Appropriation Committee and provided for the request of expenditures through the medium of an "Appropriation Authorization Form". It is expected that this procedure will provide a satisfactory control of expenditures.

A careful scrutiny of the cost items which might possibly be charged to a Project or another capital account is being maintained and adjustments are being made when the application of cost is found to be in error.

GENERAL LEDGER

The February trial balance and supporting financial statements was forwarded to the General Division for consolidation on March 17, 1949. This shows a marked improvement over previous release dates which were near the last day of each month.

<u>STATISTICS</u>	<u>NO.</u>	<u>AMOUNT</u>
Second Class Invoices Received	85	\$593,837.03
Second Class Invoices Issued	51	310,205.66
Public Vouchers Forwarded for Govt. Billing	28	108,159.09

4.

RHH:jam

1219770

288

[REDACTED]

DESIGN DIVISION

MARCH, 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"

General

A substantial amount of effort has been devoted in the past month to a study of pile economics, aimed at proper orientation of the development and design program. Together with this, it has been necessary to review schedules in detail again on the basis of available manpower and taking into account the technical changes that are developing. Progress in the various fields of activity can be briefly summarized as follows:

A meeting between Dr. H. Johnson, our own staff, and personnel from the Technical Division was held during March as scheduled and the work of the Design Division on the heat transfer problem was reviewed. Since that review, the calculations have been carefully checked and the Technical and Design Divisions are in agreement with the technical results.

In conjunction with the work on heat transfer, it has been necessary to review the economics of pile construction and operation. This review indicates that by far the largest economic gain can be made by increasing the specific power level (heat load per unit volume). Three methods of effecting this increase are being studied:

1. Consideration has been given to an increase in orifice size, with the consequent increase in flow rate, together with an increase in exit water temperature. This method appears feasible and will not require as high a header pressure as previously reported.
2. At the suggestion of the Technical Division, consideration is being given to the effect on specific power as the water annulus is increased, with a simultaneous lengthening of the process tube. The allowable increase in annulus is determined by the increase in reactivity caused by a longer pile. The net result will be an increase in power per tube as compared with Item 1 above and there

[REDACTED]

is a possibility of an increase in power per unit of volume of pile.

3. Consideration is also being given to the feasibility of increasing power per tube by permitting an increase in annulus (and flow rate) without lengthening the pile. The value of the higher power level produced will be measured against the cost of the loss of reactivity caused by the increase of water volume.

Test work in support of these activities is getting under way. Flow and pressure drop tests under "cold" conditions have been completed. The creep test of a process tube under pressure and temperature conditions is ready and preparations are being made to conduct pressure flow tests with a steam-water mixture. Meanwhile, work is proceeding on the design of full-sized equipment for the heat transfer tests.

Preliminary studies have been made, based upon physics data submitted by Dr. P. Gast, of the economics of increasing pile size. These studies are incomplete, and, while it is evident that the economic gains would not be as large as those that may be obtained by increasing the specific power level, it is probable that some substantial gains can be made and that pile dimensions will be somewhat different than those currently used.

It still appears that concrete side shields will be the most economical and that a heavy aggregate M-O concrete, or an asphalt-aggregate material, may be more satisfactory for front and rear shields. Discussions have been held with Oak Ridge and a tentative test program which may be performed at Oak Ridge has been outlined. This has been discussed with the Technical Division; and, if it appears sensible, it is probable that we will issue a request through A.E.C. to have this test work performed.

Continued study of the sheet rod system indicates that it will have so much advantage from the standpoint of providing adequate control that its development should continue. If this development should fail, it appears that it may be possible to obtain sufficient control with round rods, although the extra control provided by the sheet rods is to be preferred.

Work is proceeding on development of tests of sheet rods, including the fabrication of a displacement-time recorder, the erection of graphite blocks for the full-scale drop test, and the fabrication of a 42-ft. sheet rod. It is hoped to have this test operating during May. The graphite structure is being arranged so that it can be distorted to assimilate growth conditions of the pile.

One of the most critical problems, for which no good solution has been found, is that of providing an adequate 3-X system of a type that can be used with no thimbles in the pile. Among the methods being considered is that of forcing a poison solution into a selected pattern of process tubes. Also, the feasibility of using a distilled water flooding system is being re-considered.

The use of a system of balls, or shot, is still under consideration, but does not appear too promising, although it is in use in the Brookhaven pile.

[REDACTED]

Considerable effort is being placed on evolving a satisfactory method for continuous loading and discharging of the pile. Two types of charging machines have been devised and are in the layout stage, with certain components under test. Specifically, tests have been completed on the water-filled test hopper for the discharge machine.

One type of machine requires the use of a synthetic rubber gland and tests are under way to determine whether any suitable compounds exist which will withstand the radiation effects.

Giffels & Vallet, Inc. are reporting continued progress on the Water Plant Study GED-13, although their progress has been delayed by placing their organization on a 40-hour week. As a result, they expect to delay submission of their report from May 1 to May 20.

Meanwhile, the work of preparing a scope of work which will include adequate design criteria for the various facilities (including flow diagrams, control diagrams, etc.) has been started and will accelerate during the next several months.

The cost report of February 28, 1949, shows expenditures, plus commitments, amounting to \$39,000.00, against an appropriation of \$250,000.00. However, both expenditures and commitments are proceeding at a much faster rate than this would indicate and it is anticipated that new funds will be needed before the end of June. Consequently, work is proceeding now on the preparation of a Part II of the project proposal, which should be submitted during April.

Instrument Design

At the request of the "P" Division, a study of existing equipment for monitoring process tube temperatures is being made for the purpose of providing a more rapid scanning operation. The study to date reveals that a complete traverse can be made in two minutes by the operation of switching relays at maximum speed. Some experimentation remains to be done to study the effects of contact potential and other transients which may mask the thermocouple signal to such an extent as to prohibit the use of the equipment. A six second scanning project is also contemplated although no work was done on it this month.

Bids have been received for the fabrication of a thermocouple assembly for measuring process tube temperatures at the centerline of the pile. The assembly will be inserted in a milled slot in the tube. The vendor, other than telegraphing prices, gave no information as to when or how the assembly would be made.

Humidity Charts for Helium - Carbon Dioxide Mixtures

Studies culminating in the preparation of a humidity chart for helium and a humidity chart for a helium 60% - carbon dioxide 40% mixture, were concluded March 11, 1949. Both charts represent conditions in which water vapor, as well as the gases named, is present. It is intended, with the cooperation of other Divisions at the Hanford Works, to check the charts against values of gas temperature, pressure, humidity, and velocity in the ducts, as observed in 105 and 115 Building gas systems.

[REDACTED]

The form of these humidity charts is the same as that of the General Electric Psychrometric chart for air, which has proven to be a fundamental and comprehensive tool for the use of the air conditioning engineer. However, some of the principles of the psychrometry of air are not applicable to helium, or to a mixture of helium with carbon dioxide gas; hence, the name "Humidity Charts" is preferred to "Psychrometric Charts", in this instance. The form of the charts is such as to make possible the ready solution of gas system problems involving heating, humidifying, cooling and de-humidifying, evaporative cooling, chemical drying, mixing of gas streams at different conditions, and duct losses.

The first step in the determination of values for the plotting of the charts was a comprehensive review of the available literature. This review showed a divergence in supposedly authoritative information. No experimental work was done, but calculations of the heat balances and considerations based upon energy conservation were used to locate points in what seem to be the most accurate positions possible with the experimental evidence at hand. Although no new information in regard to gas properties is included in the values indicated by the curves shown on the charts, it is hoped that the form in which this information is presented will be helpful in the solution of engineering problems and thus serve to make existing information much more useful and available than has ever been the case previously.

PROJECT AND RELATED PERSONNEL

<u>GOVERNMENT EMPLOYEES</u>	<u>2-28-49</u>	<u>3-31-49</u>	
Civilian Personnel -Atomic Energy Commission	339	344	
Civilian Personnel - G. A. O.	8	8	
Total			347 352
<u>RICHLAND VILLAGE PERSONNEL</u>			
Commercial Facilities (Including No.Richland)	1,627	1,468	
Organizations, Clubs, Etc.,	104	104	
Schools	343	353	
Churches	25	25	
Total			2,099 1,950
<u>MORRISON-KNUDSEN PERSONNEL (Columbia Camp)</u>			198 231
<u>CONSTRUCTION SUB-CONTRACTORS</u>			
Atkinson-Jones	7,002	5,426	
Newport, Kern & Kibbe	16	13	
Newberry Neon	780	621	
Urban, Smyth, Warren Co.,	2,002	1,687	
J. P. Head Co.,	12	11	
Kellex Corp.,	565	669	
J. Gordon Turnbull	139	128	
Giffels & Vallet, Inc.,	175	185	
Morrison-Knudsen Co.,	263	317	
C. C. Moore	51	37	
V. S. Jenkins Insulating Co.,	6	3	
Curtis Sand & Gravel	36	26	
National Carbon Co.,	330	330	
Trowbridge & Flynn Elect. Co.,	9	9	
J. A. Terteling & Son	424	358	
Graysport Const. Co.,	184	236	
Nettleton-Sound	4	3	
Thorgaard Plumbing	4	-	
Chris-Berg Co.,	16	-	
Holert Electrical Co.,	1	4	
McNeill Const. Co.,	189	120	
Rust Eng. Co.,	7	4	
Arnold & Jeffers Co.,	11	10	
Fox Metal Products	6	4	
Scott-Buttner	14	-	
Martins Furniture	2	-	
Williams Paint & Glass	2	-	

(Continued on page #2)

CONSTRUCTION SUB-CONTRACTORS

West Coast Painters
 Holaday & Edworthy
 P. S. Lord
 Haughton Elevator Co.,
 E. J. Bartells Co.,
 Howard P. Foley Co.,
 E. F. Sherrill
 Combustion Eng. Co.,
 Indust. Eng. & Contractors
 Hanley & Co.,
 Johnson Service
 X-Ray Products
 Anning-Johnson
 National Blower & Sheetmetal
 United Refractory & Const.,
 Link-Belt
 Isaacson Iron Works
 Strasser Drilling
 Warsaw Elevator
 Consolidated West Steel
 Raecolith Flooring
 Asbestos Supply
 Philadelphia Iron
 Swanson & Lyle
 Total

2-28-49

3-31-49

19	13
2	-
10	-
6	6
47	31
31	31
2	3
1	1
50	22
50	4
2	1
20	13
23	19
6	12
13	14
6	10
7	-
3	-
3	3
7	-
3	-
2	-
-	8
-	62

12,563

10,454

GENERAL ELECTRIC PERSONNEL

8,668

7,962

GRAND TOTAL

23,875

20,949

~~10,454~~
 10,454