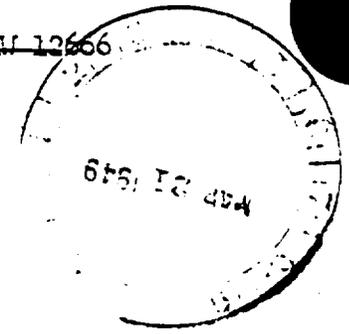


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- #8 - F. R. Creedon
- #9 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
- #10 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
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HANFORD WORKS

MONTHLY REPORT

FEBRUARY 1949

March 18, 1949

Classification Cancelled (Change to)

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HW 12666-DEL
March 18, 1949

TABLE OF CONTENTS

	<u>Starting Page</u>
General Summary.	3
Staff.	8
Force Report	9
Personnel Distribution	10
Plant Statistics.	18
Manufacturing Divisions	20
<u>Operations Division</u>	
P Division	22
S Division	31
Power Division.	39
<u>Mechanical Division</u>	
Instrument Division	45
Maintenance Division	47
Electrical Division	49
Transportation.	54
Project Engineering Division	56
Technical Division.	67
Pile Technology Division	69
Separations Technology Division.	80
Metalurgy and Control Division	93
Medical Division.	106
Health Instrument Division	115
General Accounting Division.	148
Service Division.	163
Purchasing and Stores Division	164
Plant Security and Services Division	170
Employee and Community Relations Division	201
Community Divisions.	224
Public Works Division.	227
Community Administration	240
Commercial Facilities.	241
Community Housing.	245
Community Safety.	250
Community Fire	251
Community Patrol.	253
Community Activities	266
Community Accounting	272
Design Division.	276
Project and Related Personnel	279

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HW-12666-DEL

GENERAL SUMMARY

FEBRUARY - 1949

A total of 52 tons of metal was discharged from the three piles which had an average operating efficiency of 86.6 percent. The nominal power level of 275 MW was maintained throughout the month.

Approximately 22 tons of alpha-rolled, triple-dipped metal were discharged at 200 ID/ton without difficulty.

The 300 Area canned a total of 87 tons of acceptable slugs at a yield of 92.2 percent. This yield is one of the highest ever attained and represents reduction in all reject classifications through an intensified Quality Control program in conjunction with the Technical Divisions.

A total of 47 batches was processed through the Isolation phase of the Separations Operation. The over-all Separations waste losses averaged 2.6 percent in February. It was necessary to curtail operation at B plant for 21 days while product amounting to 11 percent of a normal run was recovered from cell drainage water following a gasket leak in the process piping between the second cycle precipitator and centrifuge. The lost production time did not prevent meeting the delivery quota to the Atomic Energy Commission.

The standard operating crew of the 101 Building (River Pump House) in the 100 Areas was reduced by nine operators.

Detailed studies of pile operation at higher powers continued, with the objective of evolving a specific program for taking one of the piles to higher power levels. Studies on the operation of the D and DR Piles also continued.

Improvements in graphite purity were obtained by the use of higher temperatures and more carbon tetrachloride. Changes in the nitrogen flushing cycle had little effect; increases in the amount of Freon had an adverse effect.

Test File results show that substitution of magnesium alloys for aluminum in the piles would produce a reactivity gain of the order of 500 inhours. With suitable control, it is expected that corrosion problems could be minimized; this aspect is being investigated.

Alpha-rolled, triple-dipped slugs continue to show satisfactory dimensional stability at exposures approaching 300 ID/ton.

Current laboratory experiments indicate that galvanized stainless steel nozzles should be a reasonably satisfactory, inexpensive method for alleviating corrosion of front Van Stone flanges, but that galvanized nozzles will be unsatisfactory at the rear face of the piles, especially at higher operating levels.

The carbon dioxide concentration in the F File atmosphere was increased to 40%. No conclusive effect on graphite expansion has been demonstrated.

Allocation of graphite to the H File has been completed. Purified graphite has been used in 56% of the pile as compared with only 17% in the DR File.

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HW-12666-DEL

General Summary

-2-

During the month, it was necessary to rework approximately 175,000 lbs. of Canyon Sump Tank drainage water to recover a single run plutonium leakage of 20% at B-Plant. An increase in the scavenger weight in the first cycle by-product precipitation has regained the decontamination factor loss apparently caused by returning to the procedure of slurry agitation while centrifuging. Alternative methods of Concentration Building LaF_3 by-product waste rework are under current study. An apparent correlation between hot water and hot potassium hydroxide cake removal from the LaF_3 product centrifuge and lowered Isolation Process product recycle is being pursued further.

The Plant ventilation air sand filters have continued to operate at previously quoted air flows, pressure drops, and activity removal efficiencies. Additional testing of a pilot bed of No. 55 fiberglass has continued to demonstrate filtering efficiencies superior to sand at equal pressure drops. Fiberglass filtration studies with dissolver off-gas have produced 99.9% beta-activity removal. Electrostatic precipitator runs have continued but have been hampered by electrical troubles. Assistance has been given the Project Engineering Division on the design of dissolver off-gas fiberglass filters.

Los Alamos operations training has been completed for all Hanford Works 234-5 personnel scheduled. All hoods for the 234-5 RG Line and Recovery Area have been received in the 272-Z shop and seventeen additional hoods were moved into the 234-5 Building for installation during the month. Preliminary inspections of auxiliary area facilities now completed have been carried out. Approximately 75% of 234-5 Building construction is estimated as completed at month-end. During the month, continuance of Phases II and III was directed to be suspended and postponed by A.E.C. Test precipitations of plutonium oxalate have been successfully carried out in the ten gram laboratory equipment. The enamel coating and strip film testing on hood surfaces has continued. Additional test reductions of uranium tetrafluoride as a stand-in for plutonium have produced up to 98% yields on ten gram charges.

Rehabilitation of the 321 Building Redox Semi-Works was virtually completed during the month. Agreed revision of the Canyon Area to provide isolation from the Service Area and venting of any future pressure deflagration is currently in progress. Further investigation of the cause of the IAX test stand explosion in January more positively points to vapor space ignition of hexone inside the drum because of pump drive-shaft bearing corrosion and seizure. Test studies of solvent vapor explosions and HNO_3 -hexone reactions are being continued both in the field and in the laboratory. The Demonstration Unit is being revised to increase capacity handling and to provide automatic feed control. The Scale-Up continuous hexone stripper has been completed and steps are being taken to provide an inert gas blanket on the Scale-Up Tank Farm.

In the research laboratory, HNO_3 -hexone reaction studies have been carried to the point where several reaction products have been synthesized, purified, and absorption spectra determined. Density-composition data have been extended for $\text{Al}(\text{NO}_3)_3$ Redox solutions. Small-scale packed column studies have been carried out to study effects of acid-pickling of packing, solvent phase continuous, sulfuric acid, and nitrogen gas bubbling on column H.E.T.S. valves. Ruthenium ozonization studies with IBP and ICU solutions have been extended to Hanford dissolver solution, with ca. 98.5% of the ruthenium volatilized in four hours at 75°C. Dissolver solution zirconium and columbium scavenging by glass wool

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-3-

HW-12666-DEL

General Summary

adsorption has given lower removal than with previously tested metal solutions. Ozone oxidation of plutonium has been extended in study to Redox LIF solution. Studies of methods of preparation of solvent extraction feed from current and stored metal wastes have been initiated.

Arrangements were completed for the transfer of routine 100 Area water control laboratory operations from the Metallurgy and Control Division to the Power Division as soon as the Power operators involved can be trained in this work. This will allow the Technical force in these laboratories to be reduced to the few chemists required for certain special services and record analyses.

The Health Instrument Divisions force increased by three. Four Class I Special Hazards Incidents were reported. In none of these was there serious exposure of personnel.

In the Operational Division of H. I., increased canyon maintenance work placed a heavy monitoring load on the Survey Group. Hazardous conditions in some instances were aggravated by apparent haste in various phases of maintenance and operations. In the Control and Development Division, analytical results on samples of water, air and vegetation followed the normal pattern. Special tests were continued on the Bioassay procedure for plutonium analyses to determine and eliminate the troublesome low yield problem. Fluorophotometer analyses showed a maximum content of 51 μ g of uranium in the urine of 300 Area workers.

Work in establishing the Biology Division Botany Experimental Farm progressed satisfactorily. Electrostatic precipitators were installed and collection of active particles began.

There was one Major Injury in February bringing the total for the year-to-date to three and resulting in a cumulative frequency rate of 1.02.

There were six fires during the month resulting in a loss of \$17,50. Official estimates of the fire loss due to the 300 Area explosion in January have been set at \$26,520. Additional losses attributed as a direct result of the explosion were \$98,700.

Three carloads of du Pont records have been shipped to Wilmington. The one remaining carload is scheduled for shipment early in March.

One set of questions and answers was distributed to all supervisors participating in the Nine-Point Job Improvement Program. The instructors of this Program were sent questionnaires for distribution to the supervisors upon the completion of their meetings in order to obtain information on which future training programs can be based. Also a sound, slide film entitled, "This is Our Problem" was issued to the instructors for use in connection with the economic sessions in this Program.

Open requisitions for additional personnel decreased from 262 at the beginning of the month to 29 at the end of February. This decrease was due to an announced over-all reduction of force at this Works. Total plant roll decreased during February by 10 employees.

Employee Services Counselors made 2,009 contacts during February. Two employees retired and two employee deaths occurred during February. Eighteen suggestion awards, totaling \$260, were granted during the month. A conference between

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General Summary

-4-

HW-12666 DEL

representatives of the General Electric Company and the Washington State Department of Labor and Industries was held at Olympia, Washington.

Preliminary announcements of the reduction in force were issued through a variety of media during the latter part of February.

Assistance was given to the Richland Chamber of Commerce in entertaining representatives from the Portland Chamber of Commerce in the nature of a tour of Richland and North Richland as well as making arrangements for speakers to describe what was being shown to the people making the tour.

An election was held on February 8 and 9 to determine whether certain employees in the Hanford Works wanted to be represented by the Atomic Metal Trades Council. This election was supervised by the N.L.R.B. field representatives. Official notice of certification was received from the N.L.R.B. on February 24 which authorized the Atomic Metal Trades Council as the bargaining agent for employees included in the bargaining unit. Several meetings were held with the Company's negotiating committee to discuss anticipated demands from the Union and compare these anticipated demands with existing Company and Hanford Works policies. Meetings were held with supervisors to better acquaint them with some of the Union relations problems.

A general review of all wage rate classifications was completed in several of the divisions during the month and general discussions were held with the Division Heads.

The proposal for revision of the Community bus system was approved by the Atomic Energy Commission, including increase in fares from five cents to ten cents; institution of thirty minute service; and extension of routes to serve the new ranch house area.

Richland submitted their 1948 Traffic Contest entry to the National Safety Council.

Invitations to Bid were mailed on the following prospective facilities to be established in Richland:

Combination Fountain Lunch & Smoke Shop
Drive-In Restaurant

Bids were received on the following facilities and it is anticipated that leases will be selected in the near future:

Optical Shop
Auto Supply Store
Fuel Delivery

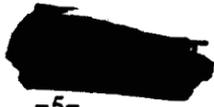
The final appraisal report of Messrs. Barrett and Wheeler was submitted February 15, 1949.

There were 86 ranch type houses accepted during the month of February: 78 Y, three bedroom type; and 8 Z, four bedroom type. This makes a total of 869 ranch type houses that are being constructed by the Nettleton Sound Company which have been accepted to date.

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General Summary

-5-

HW-12666-DEL

Fourteen alarms in Richland and twenty-four in North Richland were answered. These fires resulted in damage of \$75 in Richland and \$102 in North Richland to project property and \$86.73 in Richland and \$796.75 in North Richland to personal property.

On February 28, first student groups officially occupied Carmichael Junior High School. The estimated number of students making the move was 550.

The Community Activities Division, through the County Prosecutor, made arrangements for the use of thirty polling booths for use in Union elections on February 8 and 9.

The plan for enlarging the steam plant in the 700 Area was abandoned on February 11, 1949.

It was decided to hold up further action regarding the construction of additional apartment dwelling units.

The government owned equipment in Ganzel's Barber Shop, Columbia Service, Garmo's Grocery and the Style Center was purchased by the respective facility during the month of February.

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

Total absenteeism increased to 3.20% largely due to increase in sickness as compared to 2.81% for January.

Two industrial physicians accompanied legal and insurance representatives in a visit to the State Department of Labor and Industries to meet the new administrators of this department and to discuss common problems.

The average daily hospital census was 127, a new peak. Average daily clinic visits also reached a new high of 409.

January Financial Statements for Hanford Works and Nuclonics Department were issued on February 28, 1949. Operating Reports for the month of January were issued on February 24, 1949.

Budgeted amounts were entered on Operating Reports (except Medical Division) for the first time this month and for the most part compared favorably with operating costs. Total applied labor and material for all General Divisions amounted to \$550,303 as compared with the budgeted amount of \$582,331. The total Within-Division Expenses for all General Divisions amounted to \$549,041 as compared with the budgeted amount of \$564,626.

Following is a comparison of unreimbursed expenditures as of January 31, 1949 and February 28, 1949:

	<u>January 31, 1949</u>	<u>February 28, 1949</u>
Billed on Public Vouchers	\$ 5 026 544	\$ 8 348 321
Submitted on Pre-Billing Audit Vouchers	5 938 914	3 508 956
Unbilled	6 291 671	6 169 755
Total	\$17 257 129	\$18 027 032

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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

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FORCE REPORT
FEBRUARY 1949

	Non-Exempt		Exempt		Total	
	1-31-49	2-28-49	1-31-49	2-28-49	1-31-49	2-28-49
<u>GENERAL</u>	17	18	10	10	27	28
<u>LAW DIVISION</u>	3	3	4	4	7	7
<u>DESIGN & CONSTRUCTION DIV'S.</u>						
ADMINISTRATIVE	28	28	6	6	34	34
CONSTRUCTION	231	203	169	163	400	366
CONSTRUCTION ACCOUNTING	75	73	6	7	81	80
DESIGN	143	140	112	113	255	253
PROCUREMENT	27	25	55	54	82	79
NORTH RICHLAND REALTY	283	279	28	28	311	307
<u>MANUFACTURING DIVISIONS</u>						
GENERAL	3	3	8	8	11	11
PROJECT ENGINEERING	74	78	53	54	127	132
MANUFACTURING ACCOUNTING	42	45	7	7	49	52
<u>OPERATIONS DIVISIONS</u>						
"P" DIVISION	303	302	68	71	371	373
"S" DIVISION	268	272	65	71	333	343
POWER	376	386	82	82	458	468
<u>MECHANICAL DIVISIONS</u>						
MAINTENANCE	524	524	73	72	597	596
ELECTRICAL	240	238	48	48	288	286
INSTRUMENT	177	184	44	45	221	229
TRANSPORTATION	691	689	69	69	760	758
<u>TECHNICAL DIVISIONS</u>						
TECHNICAL GENERAL	2	2	5	5	7	7
PILE TECHNOLOGY	12	18	54	55	66	73
SEPARATIONS TECHNOLOGY	66	62	94	94	160	156
METALLURGY & CONTROL	414	409	114	115	528	524
<u>MEDICAL DIVISION</u>	427	424	95	96	522	520
<u>H. I. DIVISION</u>	235	238	95	94	330	332
<u>ACCOUNTING DIVISIONS</u>	160		21		181	
ACCOUNTING - PAYROLL		75		14		89
ACCOUNTING - ALL OTHERS		84		7		91
<u>EMPLOYEE & COMMUNITY RELATIONS</u>	68	64	24	24	92	88
<u>SERVICE DIVISIONS</u>						
<u>PLANT SECURITY & SERVICE DIV'S.</u>						
PATROL & SECURITY	633	640	69	69	702	709
SAFETY & FIRE	149	150	39	40	188	190
GENERAL & OFFICE SERVICES	296	295	23	23	319	318
PURCHASING & STORES DIVISION	180	180	25	25	205	205
<u>COMMUNITY DIVISIONS</u>	797	795	169	169	966	964
<u>GRAND TOTAL</u>	6,944	6,926	1,734	1,742	8,678	8,668

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PERSONNEL DISTRIBUTION - FEBRUARY 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
<u>GENERAL</u>										
Clerical	-	-	-	-	-	-	-	-	10	10
Total	-	-	-	-	-	-	-	-	18	18
<u>LAW DIVISION</u>										
Clerical	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	3	3
<u>DESIGN & CONSTRUCTION DIVISIONS</u>										
<u>ADMINISTRATIVE</u>										
Supervisors	-	-	-	-	-	-	-	-	5	5
Engineers	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	23	23
Others	-	-	-	-	-	-	-	-	5	5
Total	-	-	-	-	-	-	-	-	34	34
<u>CONSTRUCTION</u>										
Supervisors	-	-	1	-	-	-	13	30	-	44
Engineers	-	27	9	-	-	1	13	19	16	85
Clerical	-	15	1	-	-	1	13	87	7	124
Others	-	36	8	-	-	2	49	8	12	113
Total	-	78	19	-	-	2	88	144	35	366
<u>CONSTRUCTION ACCOUNTING</u>										
Supervisors	-	-	-	-	-	-	-	6	-	6
Clerical	-	-	-	-	-	-	-	71	-	71
Others	-	-	-	-	-	-	-	3	-	3
Total	-	-	-	-	-	-	-	80	-	80

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

DESIGN & CONSTRUCTION DIVISIONS

DESIGN

Supervisors	-	-	-	-	-	-	-	-	13	13
Engineers	-	-	-	-	-	-	-	-	111	111
Clerical	-	-	-	-	-	-	-	-	66	66
Others	-	-	-	-	-	-	-	-	63	63
Total	-	-	-	-	-	-	-	-	253	253

PROCUREMENT

Supervisors	-	-	-	-	-	5	-	-	5	10
Engineers	-	-	-	-	-	-	-	-	-	-
Clerical	-	-	-	-	-	23	-	-	34	34
Others	-	-	-	-	-	28	-	-	12	35
Total	-	-	-	-	-	28	-	-	51	79

NORTH RICHLAND REALTY

Supervisors	-	-	-	-	-	-	27	-	-	27
Engineers	-	-	-	-	-	-	4	-	-	4
Clerical	-	-	-	-	-	-	33	-	-	33
Others	-	-	-	-	-	-	243	-	-	243
Total	-	-	-	-	-	-	307	-	-	307

MANUFACTURING DIVISIONS

GENERAL

Supervisors	-	-	-	-	-	-	-	-	8	8
Clerical	-	-	-	-	-	-	-	-	3	3
Total	-	-	-	-	-	-	-	-	11	11

PROJECT ENGINEERING

Supervisors	-	-	-	-	1	-	-	-	14	15
Engineers	-	-	-	-	3	1	-	-	36	40
Drafting Personnel	-	-	2	-	5	3	-	-	32	42
Clerical	-	-	2	-	-	-	-	-	16	18
Others	-	-	1	-	2	-	-	-	14	17
Total	-	-	5	-	11	4	-	-	112	132



MANUFACTURING DIVISIONS
MANUFACTURING ACCOUNTING

	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
Clerical
Total

	-	-	-	-	-	-	-	-	7	7
	-	-	-	-	-	-	-	-	45	45
	-	-	-	-	-	-	-	-	52	52

OPERATING DIVISIONS

"M" DIVISION
Supervisors
Operators
Clerical
Total

	15	18	17	-	-	14	-	-	7	71
	49	56	49	-	-	133	-	-	-	287
	2	2	2	-	-	5	-	-	4	15
	66	76	68	-	-	152	-	-	11	373

"S" DIVISION
Supervisors
Operators
Clerical
Total

	-	-	-	27	38	-	-	-	8	73
	-	-	-	115	142	-	-	-	-	257
	-	-	-	3	7	-	-	-	3	13
	-	-	-	145	187	-	-	-	11	343

POWER
Supervisors
Engineers
Operators
Clerical
Others
Total

	15	14	14	5	7	1	4	-	-	60
	5	4	7	-	-	-	6	-	-	22
	94	87	85	25	35	11	-	-	-	337
	2	1	2	-	1	-	2	-	-	8
	8	7	8	5	7	6	-	-	-	41
	124	113	116	35	50	18	12	-	-	468

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	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MECHANICAL DIVISIONS										
MAINTENANCE										
Supervisors	2	8	7	5	15	7	18	-	2	64
Engineers	1	-	2	1	1	1	4	-	6	16
Mechanics	29	30	59	39	96	52	123	-	-	428
Clerical	1	1	2	2	2	2	5	-	2	17
Others	3	1	8	4	15	12	28	-	-	71
Total	36	40	78	51	129	74	178	-	10	596
ELECTRICAL										
Supervisors	2	2	5	2	4	2	2	-	23	42
Electricians	13	12	13	11	12	16	-	-	97	174
Clerical	1	-	1	1	1	1	2	-	4	11
Others	2	2	3	2	5	5	1	-	39	59
Total	18	16	22	16	22	24	5	-	163	286
INSTRUMENT										
Supervisors	3	4	2	2	4	6	-	-	5	26
Engineers	7	-	-	-	1	8	-	-	3	19
Mechanics	7	5	9	8	13	25	-	-	8	75
Clerical	2	1	1	1	1	4	-	-	4	14
Others	10	11	8	9	11	38	-	-	8	95
Total	29	21	20	20	30	81	-	-	28	229
TRANSPORTATION										
Supervisors	7	3	2	4	4	1	1	-	48	69
Drivers (Based on areas served)	32	27	35	35	39	11	11	-	79	258
Mechanics	12	3	1	4	2	-	-	-	78	100
Trainmen	10	4	4	4	4	3	-	-	6	35
Laborers	9	15	11	32	8	7	7	-	34	116
Clerical	-	-	-	1	-	1	1	-	27	29
Others	9	12	15	19	25	6	6	-	65	151
Total	79	64	68	99	82	29	29	-	337	758

12-5-58
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	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
<u>TECHNICAL DIVISIONS</u>										
<u>TECHNICAL GENERAL</u>										
Supervisors	-	-	-	-	-	-	-	-	5	5
Clerical	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	7	7
<u>PILE TECHNOLOGY</u>										
Supervisors	7	1	-	-	-	9	-	-	-	10
Chemists-Engineers-Physicists	2	5	3	-	-	30	-	-	1	46
Laboratory Assistants	-	3	2	-	-	6	-	-	-	13
Clerical	-	-	-	-	-	3	-	-	1	4
Total	9	9	5	-	-	48	-	-	2	73
<u>SEPARATIONS TECHNOLOGY</u>										
Supervisors	-	-	-	1	5	18	-	-	1	25
Chemists-Engineers-Tech. Graduates	-	-	-	4	15	55	-	-	1	75
Laboratory Assistants	-	-	-	-	-	8	-	-	-	8
Clerical	-	-	-	-	2	8	-	-	1	11
Others	-	-	-	-	1	36	-	-	-	37
Total	-	-	-	5	23	125	-	-	3	156
<u>METALLURGY & CONTROL</u>										
Supervisors	-	6	-	5	11	32	-	-	6	60
Chemists-Engineers-Metallurgists-	1	5	1	9	19	98	-	-	1	134
Technologists & Technical Grads.	9	14	18	38	58	106	-	-	-	243
Laboratory Assistants	-	1	-	1	2	39	-	-	32	75
Clerical	-	-	-	-	-	12	-	-	-	12
Others	-	-	-	-	-	-	-	-	-	-
Total	10	26	19	53	90	287	-	-	39	524

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	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	
<u>MEDICAL DIVISION</u>										
Physicians	-	-	-	-	-	-	7	12	20	39
Dentists	-	-	-	-	-	-	-	2	9	11
Technicians	1	-	1	-	-	-	-	6	28	36
Clerical	1	-	1	2	-	-	1	29	80	114
Others	11	5	-	4	4	2	18	41	235	320
Total	13	5	2	6	4	2	26	90	372	520
<u>H. I. DIVISION</u>										
Supervisors	1	1	3	3	8	17	-	-	6	39
Engineers	4	4	8	14	15	8	1	-	1	55
Clerical	-	-	2	1	1	3	-	-	5	12
Others	11	14	21	38	65	60	6	-	11	226
Total	16	19	34	56	89	88	7	-	23	332
<u>ACCOUNTING DIVISIONS</u>										
<u>ACCOUNTING-PAYROLL</u>										
Supervisors	-	-	-	-	-	-	-	-	14	14
Clerical	-	-	-	-	-	-	-	-	75	75
Total	-	-	-	-	-	-	-	-	89	89
<u>ACCOUNTING-ALL OTHERS</u>										
Supervisors	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	84	84
Total	-	-	-	-	-	-	-	-	91	91
<u>EMPLOYEE & COMMUNITY RELATIONS</u>										
Supervisors	-	-	-	-	-	-	-	-	20	20
Employee Relations Counselors	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	56	56
Others	-	-	-	-	-	-	-	-	8	8
Total	-	-	-	-	-	-	-	-	88	88



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

SERVICE DIVISIONS
PLANT SECURITY & SERVICE DIVISIONS

PATROL & SECURITY

Table with 10 columns (100-B Area to Total) and 4 rows (Supervisors, Patrolmen, Clerical, Stenographers). Values range from 4 to 141.

SAFETY & FIRE

Table with 10 columns (100-B Area to Total) and 4 rows (Supervisors, Firemen, Inspectors, Clerical). Values range from 12 to 141.

GENERAL & OFFICE SERVICES

Table with 10 columns (100-B Area to Total) and 6 rows (Supervisors, Laundry Operators, Janitors, Office Machine Operators, Clerical, Others). Values range from 1 to 7.

PURCHASING & STORES

Table with 10 columns (100-B Area to Total) and 2 rows (Supervisors, Clerical). Values range from 1 to 1.

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	<u>100-B Area</u>	<u>100-D Area</u>	<u>100-F Area</u>	<u>200-E Area</u>	<u>200-W Area</u>	<u>300 Area</u>	<u>Plant General</u>	<u>3000 Area</u>	<u>700-1100 Area</u>	<u>Total</u>
Supervisors	-	-	-	-	-	-	-	-	169	169
Others	-	-	-	-	-	-	-	-	795	795
Total	-	-	-	-	-	-	-	-	964	964
<u>GRAND TOTAL</u>	<u>533</u>	<u>618</u>	<u>570</u>	<u>581</u>	<u>954</u>	<u>1057</u>	<u>413</u>	<u>641</u>	<u>3301</u>	<u>8668</u>

COMMUNITY DIVISIONS

Supervisors
Others
Total

GRAND TOTAL

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WITH DELETIONS

TOP SECRET

DECLASSIFIED
WITH DELETIONS

12/19/94

HW-12666-DEL

DECLASSIFIED
WITH DELETIONS

257

DECLASSIFIED
WITH DELETIONS

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MANUFACTURING DIVISIONS

FEBRUARY 1949

SUMMARY

A total of 52 tons of metal was discharged from the three piles which had an average operating efficiency of 86.6 percent. The nominal power level of 275 M.W. was maintained throughout the month.

Approximately 22 tons of alpha-rolled, triple-dipped metal were discharged at 280 MWD/ton without difficulty.

The 300 Area canned a total of 87 tons of acceptable slugs at a yield of 92.2 percent. This yield is one of the highest ever attained and represents reduction in all reject classifications through an intensified Quality Control program in conjunction with the Technical Divisions.

A total of 47 batches was processed through the Isolation phase of the Separations Operation. The over-all Separations waste losses averaged 2.6 percent in February. It was necessary to curtail operation at B plant for 21 days while product amounting to 11 percent of a normal run was recovered from cell drainage water following a gasket leak in the process piping between the second cycle precipitator and centrifuge. The lost production time did not prevent meeting the delivery quota to the Atomic Energy Commission.

The standard operating crew of the 181 Building (River Pump House) in the 100 Areas was reduced by nine operators.



C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

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MANUFACTURING DIVISIONS
PATENT REPORT SUMMARY
FOR
MONTH OF FEBRUARY, 1949

Richland, Washington
March 10, 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

H. H. Stier - T. T. Thompson
(Maintenance Division)

Spring-loaded, self-closing,
stainless steel valve, designed
to operate easily and save
distilled water.

A. S. Marken
(Maintenance Division)

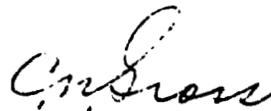
Circle cutting device for use on
table saw.

A. S. Marken
(Maintenance Division)

Wedge cutting guide for table
saw.

K. M. Jacobson
(Maintenance Division)

A dump bucket for use in connection
with well drilling.



C. N. GROSS

MANAGER, MANUFACTURING DIVISIONS

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P DIVISION

FEBRUARY, 1949

I. GENERAL

All piles operated at 275 M.W. throughout the month except for the outages listed under Area Activities in this report.

A total of 52 tons of uranium slugs was discharged from the piles during the month.

The 300 Area melt plant billet yield of 71.9% was 8.3% higher than the yield for January, largely resulting from the use of briquettes made from pickled chips. The canning yield of 92.2% was 2.4% higher than in January, resulting from improvement in nearly all types of reject classifications.

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - February	
Beginning of Month	375
End of Month	372
Net Decrease	3

One operator and one business machine operator B terminated voluntarily, and one operator was transferred to the Power Division.

The following changes in monthly personnel were made effective on February 1, 1949:

W. A. Blanton was promoted to Assistant Chief Supervisor, 300 Area.

E. S. Whittaker was promoted to Area Supervisor, 100-B Area.

S. L. Nelson was promoted to Area Supervisor, 100-D Area.

I. L. Huffman was promoted to Shift Supervisor, 100-D Area.

J. H. Hoage was promoted to Shift Supervisor, 100-D Area.

J. K. Clausen was promoted from Chief Operator to Supervisor-in-Training, 100 Areas.

W. A. Blanton visited the Waterbury, Connecticut plant of the Scovill Manufacturing Company on February 18 and 21 to assist in setting up standards for the manufacture of aluminum cans. He visited several plants while in the East to inspect various types of automatic lathes for use in the 300 Area.

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H. T. Wells visited Detroit on February 21 and 22 to consult with the Giffels & Vallet, Inc., concerning the water areas design program.

III. AREA ACTIVITIES

<u>PILE SUMMARY</u>	<u>PILE B</u>	<u>PILE D</u>	<u>PILE F</u>
Time Operated (%)	91.5	89.8	82.9
Operating Efficiency (%)	90.4	87.8	81.5
*Power Level (M.W.)	275	275	275
*Inlet Water Temperature (°C)	5.7	7.8***	5.3
*Outlet Water Temperature (Maximum °C., 10 tubes, 0.240" Zone)	49.8	46.8	48.0
Number of Scrams	0	0	5
Number of Purges	2	1	1
Helium Consumption (cu. ft.)	35,645	64,139	109,770
Metal Discharged (tons)	12.91	12.94	26.24
**Inhours Gained (this month)	46	10	19
*Inhours Poisoned	320	480	403
*Inhours in Rods	99	71	65

*Month end figures.

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

***The higher inlet water temperature at D Area is the result of the reuse of condenser water at the 182-D Building.

PILE BUILDING

Outage Breakdown

<u>Date of Outage</u>	<u>Scheduled</u>		<u>Unscheduled</u>	<u>Length of Outage (Hours)</u>
	<u>Metal Discharged</u>	<u>Maintenance</u>		
2-2	B			20.6
2-7	D			21.1
2-8 & 9	F			70.8
*2-13			F	0.2
*2-13			F	0.1
*2-13			F	0.1
*2-13			F	0.1
*2-14			F	0.5
2-14	B			18.1
2-15	F			21.4
2-16	D			24.2
**2-18			B	0.5
**2-18			D	0.4
2-21	F			21.8
2-22		D		22.6
2-23		B		16.2
2-28	B			1.4

* Scrams caused by local disturbances in the No. 1 Safety Circuit.

** Outage during critical "Y" power condition due to sub-standard

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frequency on B.F.A. system. The F File had reached a level of only 30 M.W. when the Critical Condition was declared over, and was immediately returned to nominal level; thus it was not listed in the tabulations as a shutdown.

Operating Experience

Production tests having operational significance are reported below:

- 105-168-P (Replacement of Pile Helium Atmosphere with CO₂)
Changes and month end conditions are noted below:
100-B: No changes in the CO₂ content were made during the month and operation was normal. Concentration of CO₂ remained at 25%.
100-D: The concentration of CO₂ remained at 40% throughout the month. No unusual operating conditions were observed.
100-F: The CO₂ concentration in the F File atmosphere was held at 25% until February 15. It was increased in increments of 3% at 24-hour intervals until a concentration of 40% was reached on February 19. Observation of the data revealed no abnormalities in operating conditions other than somewhat higher pressures in the circulating gas system during drier regeneration. (See Gas Processing Building, this report). Concentration at month end was 40%.
- 105-208-P (Special Irradiation - Request No. 52)
A total of 101 pieces of S.R. 52 (U-235, aluminum alloy) was discharged from Tube Nos. 1983-F, 2770-F, 2778-F, and 3469-F on February 21 without incident. This completes the irradiation of this material.
- 105-237-P (Total Stored Energy of Process Tube Blocks)
Tube No. 3169-F was removed and samples of graphite obtained from the channel during the February 8 to February 10 shutdown. Since some difficulty was experienced in obtaining the samples, the channel was borescoped during the February 21 shutdown and found to be undamaged. The tube will be replaced.

During the month 21.6 tons of alpha-rolled, triple-dipped metal were discharged without difficulty at a nominal concentration of 280 M.W.D. Inspection of selected tubes of this material indicated that exposures at this level are satisfactory. This completes the test tonnage to be discharged at this concentration. In view of these results, the program of stepwise increases in concentration will be continued. The next test tonnage will be discharged at a nominal concentration of 320 M.W.D.

A critical power condition, Grade Y, was declared on February 18 at 5:56 p.m. due to low frequency (59.36 cycles) on the B.P.A. system. The system returned to normal at 6:24 p.m., and all piles were able to return to level without any further lost time.

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Mechanical Experience

Vertical Safety Rod No. 17 at B Area was tied out at month end as a result of a tangled cable. This condition will be corrected at the first scheduled outage in March.

Horizontal Rod No. 5 at F Area binds slightly near the "full--in" position and Horizontal Rod No. 7 binds at approximately 145" out. Corrective action will be taken on these rods during the next shutdown.

Five vertical safety rods at F Area, Nos. 14, 20, 26, 27, and 33, do not completely enter the pile when it is hot but perform satisfactorily when the unit is cold. The total loss of holding power is less than two rods. Corrective action will be taken during the next outage.

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

1. A total of 37 new stainless vertical safety rods and guides was installed in the three piles during the month, 15 at B Area, 9 at D Area, and 13 at F Area. This brings to a total of 41, the number of the new rods installed in the three piles.
2. During the shutdown of February 16, a short rod guide was installed in #27 V.S.R. at D Area to facilitate the rod action. Since the rod continues to rub the thimble, the 3XX feed line was blanked off as a precautionary measure. The rod now operates satisfactorily.
3. On February 9, "A" horizontal rod kick-plate in the F Pile was bent 1/8" at the inner end tapering to 0" at a distance 18" from the inner end. A special cutter developed for this job was used. This tapering eliminated the binding experienced previously. The rod now operates satisfactorily.

A leak of approximately 1,200 gallons per minute, midway along the north side of the 107-B basin, developed during the month. At month end the basin is being emptied to allow an investigation into the source of the trouble.

Tube No. 3762-D was removed with difficulty during the shutdown of February 22. This tube originally contained alpha-rolled, lead-dipped metal and had been discharged on January 4, 1949. As a typical "reluctant" tube, it was borescoped February 16, appeared to be damaged, and was removed for further study to determine the nature and extent of the damage. Replacement was not possible because of an accumulation of aluminum shavings at a crack between the second and third graphite blocks from the front of the unit. Removal of the shavings and replacement of the tube was postponed until the next shutdown.

The F-Pile front and rear neoprene seals, which were stretched tight at the far top corners, were replaced for a distance of approximately five feet in each direction from the corner during the extended shutdown of February 8. Also, the portion of the far top seal covered by the discharge area wall was replaced at that time.

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A leaking weld in the new F Area effluent water line, about 100 feet east of the main area road, was repaired on February 21. No further leakage has been noted.

PILE DEVELOPMENT

A cutter was fabricated to taper the inner ends of horizontal rod kick-plates. The tool proved satisfactory in mock-up tests and was used in tapering "A" horizontal rod kick-plate in the F Pile on February 9. (See Mechanical Experience).

A test run was made at Building 185-F of a vertical safety rod having flexible joints 4½ feet apart. Results indicate that more flexibility will be required to obtain adequate relief from rod binding.

GAS PROCESSING BUILDING

Water recovered from the driers at 100-B Area continued at a rate below normal. No reason has yet been determined for this unusual condition.

Pressures of almost 10" of water in the F Pile circulating gas system during the drier heating cycles were caused by the introduction of 40% CO₂ into the system. An intensive investigation of means of reducing these pressures by proper manipulation of the gas handling equipment is underway.

SPECIAL HAZARDS

Readings on the F Pile top far neoprene seal between the top of the unit and the far side show no marked increase during the month. Readings of 2280 mr/hr average were obtained as compared with 2150 mr/hr reported during January.

300 AREA - METAL FABRICATION

Production Statistics

Production for the month of February was as follows:

Billets Produced	41
Rods Machined	150
Bare Pieces Machined	104
Acceptable Pieces Canned	87

Melt Plant

The casting yields were as follows:

	<u>January</u>	<u>February</u>	<u>To Date</u> <u>1949</u>
Billet	63.6	71.9	67.9
Solid Metal	82.1	89.1	85.8

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P Division

Operation of the Melt Plant continued on a two-shift, five-day week basis during February. The average production of billets per shift per man was an all-time high, 409 pounds, this month and solid yields were the highest ever attained with the use of mixed briquette and solid scrap charges.

The high billet and solid metal yields, representing an improvement of 4.4% and 3.6% respectively over the averages for 1948, are a result of using briquettes made from turnings pickled in nitric acid. Approximately 68% of the briquettes charged into the furnaces were made from pickled turnings.

Machining

Machining yields were as follows:

<u>% Yield</u>		
<u>January</u>	<u>February</u>	<u>To Date</u> <u>1949</u>
65.2	69.3	67.5

Approximately 90% of the rods machined during the month were rolled to a diameter between 1.420" and 1.440". Many of these rods were of generally poor quality because of being elliptical in shape and having uneven surfaces. It is possible that further yield improvement will result if these conditions can be corrected at the rolling mills.

Chip Recovery

The Chip Recovery yield was as follows:

<u>% Yield</u>		
<u>January</u>	<u>February</u>	<u>To Date</u> <u>1949</u>
90.3	91.0	90.9

The entire Chip Recovery process was operated ten shifts with the press being operated an additional twenty-two shifts. A total of 71,290 pounds of TXB was produced.

The chip pickling facilities were operated without incident during the month. It was possible to pickle 39% of the turnings briquetted during the month with an average pickling loss of 5.8%. It is estimated that approximately 50% of all turnings can be pickled with the present equipment.

The material burned in the Oxide Burner was as follows:

<u>Weight Out - Pounds</u>		
<u>January</u>	<u>February</u>	<u>To Date</u> <u>1949</u>
15,882	18,605	34,487

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The Canning yield was as follows:

<u>% Yield</u>		<u>To Date</u>
<u>January</u>	<u>February</u>	<u>1949</u>
89.8	92.2	91.0

Canning rejects, by cause, were:

<u>% Total Canned (4")</u>			<u>To Date</u>
<u>January</u>	<u>February</u>		<u>1949</u>
Non Seating	1.4	0.8	1.1
Marred Surface	3.1	2.6	2.8
AlSi on Outside of Can	0.9	0.9	0.9
Frost Test	1.9	1.5	1.7
Bad Welds	0.8	0.6	0.7
Miscellaneous	<u>2.1</u>	<u>1.4</u>	<u>1.8</u>
	10.2	7.8	9.0

The Quality Control program covering non seats, marred surface, bad welds, and frost test rejects was continued during the month and contributed to the improved yield.

Production Test No. 313-108-M, ("The Effect of Quick Quenching from the Beta Phase on Uranium Slugs"), was completed with 209 slugs being canned.

Ten slugs were canned after preheating the sleeves for 30 seconds in an AlSi bath at 588 - 592°C. This was done under the provisions of Production Test No. 313-107-M, Supplement A, ("Effect of Canning Conditions on Slug Yield and Quality").

Canning was begun on 900 slugs as provided for in Production Test No. 314-60-M, "Fabrication of Slugs from Uranium Rolled at Different Finishing Temperatures."

The following special request pieces were canned in February:

<u>Request No.</u>	<u>Contents</u>	<u>Number of Pieces</u>
ANL-114	Thorium Oxide	1
ANL-124	Cobalt	2
ORNL-110	Fe58	1
SR-28	Iron	6
SR-63	Al-U235	1
ORNL-112	Uranium Slugs	6

In addition 1380 lead pieces were canned.

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P Division

Slug Recovery Operation

	<u>% Recovered</u>		<u>Average Weight-Lbs.</u>	
	<u>February</u>	<u>To Date 1949</u>	<u>February</u>	<u>To Date 1949</u>
Z Slugs	88.3	83.5	3.909	3.910
X Slugs	9.9	13.5	3.860	3.858
Rejects	<u>1.8</u>	<u>3.0</u>	<u>—</u>	<u>—</u>
	100.0	100.0		

Inspection and Testing

Autoclave rejects were as follows:

	<u>January</u>	<u>February</u>	<u>To Date 1949</u>
	.02/M	.02/M	.02/M

Only one autoclave failure occurred during February.

Two hundred and thirty-eight marred surface rejects resulted on February 7 when a set of autoclave baskets containing slugs overturned while it was being transferred to storage.

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

	<u>% Usable - 4"</u>		
	<u>January</u>	<u>February</u>	<u>To Date 1949</u>
Aluminum Cans	96.7	96.0	96.3
Aluminum Caps	92.3	93.9	93.1
Steel Sleeves	96.9	(none inspected)	96.9

A shipment of approximately 2,000 cans was received on February 25 from the Victor Manufacturing Company. These will be given a "use test" for determining their suitability for process use.

305 Area Test File

The 305 Area Test File was operated on a one-shift, five-day week schedule during February. A total of 730 bars was received from the 101 Building, tested, and returned. A total of 90 tests was run on canned slugs, 77 on billet eggs, 414 on graphite, and the following special work requests:

<u>Request No.</u>		<u>No. of Tests</u>
56	To irradiate four indium foils and holders in hole #27.	4
57	To determine the induced activity of 2-S aluminum.	1

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<u>Request No.</u>		<u>No. of Tests</u>
58	To test the reactivity of quartz tubes to be used in special test which involves burning graphite powder.	4
59	To determine the reactivity of certain chemicals added to specially prepared graphite blocks.	10
60	To obtain dih of drilled graphite bars.	26
61	To collect data regarding efficiency of "F" process.	5
62	To determine the induced activity of 2-S aluminum at various flux levels and exposure times.	1

Special Hazards

No unusual condition developed during the month.

Development

No. 3-A bronze furnace was rebuilt using a refractory cement, Kast-Set, for insulation rather than the fire brick normally used for this purpose. This method of insulating seems to offer advantages in reducing the time and cost of repairs as well as in conservation of heat. It is expected that several months will be required for an evaluation of this method.

The substitution of graphite blocks for the sand on the furnace turntables was completed during the month. Crucible drippings on this graphite are now remelted rather than returned to the recovery plant. Based on past experience, this installation will, at the present level of production, result in an annual savings of 7 tons of scrap.

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S DIVISION

FEBRUARY, 1949

OPERATING SECTION

I. GENERAL

Thirty-seven batches were started in the Canyon Buildings and forty-seven batches were processed through the Concentration Buildings and the Isolation Building. The average purity for the completed batches was 98.5 percent.

The over-all material balance for the T and B Plants (including the Isolation Plant) averaged 101.3 and 99.9 percent, respectively, for a combined average of 100.8 percent. Waste losses for the two plants averaged 2.6 percent.

Canyon and Concentration Building Production Performance Data
(2-1-49 - 2-28-49, inclusive)

	<u>B Plant</u>	<u>T Plant</u>	<u>Combined</u>
Number of charges started	11	26	37
Number of charges completed	17	30	47
<u>For completed charges:</u>			
Percentage of starting product in waste:			
This month	2.7(a)	2.4(a)	2.6
Last month	2.7(b)	2.5(b)	2.6
Cumulative to date	4.7(c)	4.5(c)	4.6
Percentage of starting product recovered:			
This month	96.2	99.4	98.2
Last month	96.7	91.5	94.0
Cumulative to date	97.2	95.4	96.4
Percentage of starting product accounted for:			
This month	98.9	101.8	100.8
Last month	99.4	94.0	96.5
Cumulative to date	101.9	99.9	101.0
Gamma decontamination factor (Log.)			
This month	7.74	7.63	7.66
Last month	7.73	7.69	7.71
Cumulative to date	7.34	7.32	7.33

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S Division

(a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.022%-T Plant; 0.011%-B Plant. (b) 0.017%-T Plant; 0.012%-B Plant. (c) 0.120%-T Plant; 0.0081%-B Plant.

Isolation Building Performance Data (2-1-49 - 2-28-49, inclusive)

	% of Incoming Product			
	<u>Prepared for Shipment</u>	<u>Recycle</u>	<u>Waste</u>	<u>Retained Material Samples Balance</u>
Average for this month	94.7	5.41	-0.04	- 100.0
Average for last month	97.2	6.04	0.07	- 103.3
Average to date	96.0	4.61	0.06	0.03 100.7

Although not effecting production commitments to the Atomic Energy Commission, production at B Plant (reported above) was limited as a result of a product leak necessitating the suspension of normal operation to permit the recovery of that product which was accumulated in the cell drainage system. Further lost time was encountered in re-turning the building to operation when additional small leaks were detected and the necessary corrective action taken.

II. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	335
End of month	344
Net increase	9

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

- 9 new hires (all Weekly Roll)
- 3 terminations (all Weekly Roll)
- 5 transfers from other divisions (3 Monthly Roll, 2 Weekly Roll)
- 2 transfers to other divisions (all Weekly Roll)

Changes in supervisory organization:

R. C. Grant was transferred from the Manufacturing Divisions General Group to the S Division on special assignment.

P. S. Doctor, formerly a Chief Operator, was promoted to the exempt roll as Supervisor-in-Training.

William A. Brown and Edward G. Pierick were transferred from the Technical Divisions to the S Division as Supervisors-in-Training.

S Division

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants

Volume Reduction - Production Test 221-T-13

Operation at 30 percent volume reduction at the completion of the extraction step was continued during the month. Decontamination at T Plant which was lower than desirable last month has been improved by increasing the cerium and zirconium scavengers used in the first decontamination cycle. Waste losses have not been adversely affected.

Extraction Waste Losses

All runs were processed through the extraction sections in accordance with standard procedures. Extraction waste loss experienced during the month is tabulated below:

	<u>T Plant</u> (35 runs)	<u>B Plant</u> (9 runs)
Average original waste loss	0.88%	0.60%
Number of runs reworked	25	3
Average throw-away loss	0.50%	0.41%
Number runs 100-B material	18	6
Average original waste (January)	0.77%	0.78%

Consistently high extraction losses (~ 1.00%) are still obtained with material received from the 100-B reactor with subsequent poor recovery upon reworking. Investigation of the possibility of the existence of an alpha emitter other than normal plutonium is being continued by the Technical Divisions.

First Decontamination By-Product Cycle - T Plant

Efforts to increase the first cycle decontamination while maintaining the practice of agitating the slurry in the precipitator tank (settling of slurry in precipitator abandoned last month because of erratic waste losses) during centrifugation were continued. During the month the centrifuge skimming heel was increased from ten to fifteen gallons and the addition of cerium and zirconium scavengers was increased from 50 to 100 percent of that amount originally used. This has resulted in an increase in the T Canyon Building log decontamination factor of from 4.09 for January to 4.65 for February. The average first cycle waste losses for the month averaged 1.00 percent. Over-all decontamination has been entirely satisfactory.

Process Leak - Section 17 - B Plant

As a result of a blue african asbestos (G9) gasket failure in the

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process piping between the second cycle product precipitator and centrifuge approximately thirteen to twenty percent of a normal run was spilled to the cell drainage system during the processing of run B-9-01-B-30. Of the amount spilled eleven percent of a normal run was collected in 175,000 pounds of cell drainage water, returned to the system and reworked in the extraction sections. The exact amount of product lost is difficult to estimate. Excluding the product returned to the system the material balances for the run in question indicate a 17.6 percent loss when based upon analysis of the second cycle product solution tank, and 11.2 percent loss when based upon the (C-4) product oxidation tank in the Concentration Building; whereas 20 percent by volume of the liquor carrying the product slurry was spilled.

In an effort to prevent a recurrence, the following steps are being taken:

- (a) Precipitator tanks which have developed serious water jacket leaks are being replaced to simplify leak detection and rework procedures.
- (b) Blue african asbestos gaskets are being replaced with Teflon or Fluorothane gaskets in all product transfer lines as the opportunity is presented.
- (c) The enforcement of more rigid control measures has been adopted.

WASTE DISPOSAL

241-TX Tank Farm - Project C-163

Acceptance of the permanent fence around the tank farm marked the completion of the sub-contractor's phase (Part II) of the project.

In the General Electric phase of the work, (Parts I and III) progress was delayed considerably by adverse weather conditions. Extensive work is planned for the coming period, however.

Metal Waste Sampling

Ten metal waste sludge samples were taken from tanks X-101, 2, 3-U and one unneutralized metal waste sample was taken and prepared for shipment to site K-25 as requested by the Atomic Energy Commission.

Fabrication of two 100 gallon metal waste supernate containers is now in progress. The original six containers for these samples which were received from site K-25 were declared unsafe by both GE and AEC and are being returned to site K-25.

Cribbing of Second Cycle Waste - B Plant

The disposal of second cycle waste supernate from tank X-106-B which was started on December 14, 1948 was completed during the month. Five hundred thirty-one thousand and twenty-five gallons were jetted

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to the underground crib from this tank.

Waste Status

The status of the Waste Storage Areas as of February 28, 1949 is shown in the following table:

B Plant

Bldg. 241 Tanks	Waste	Percentage Full			Reserve Capacity In Batches to Process			
		B	C	BX	B	C	BX	Total
x101,2,3	Metal	100	100	100	0	0	0	0
x104,5,6	Metal	-	100	18.2	-	0	220	220
x201,2,3,4	Metal	0	100	-	-	0	-	0
x112	Metal	-	-	0	-	-	90	90
x107,8,9	Metal	-	-	-	-	-	-	-
x107,8,9	1st Cycle	100	100	32.8	0	0	297	297
x110,11,12	1st Cycle	-	100	-	-	0	-	-
x104,5,6	1st Cycle	-	-	-	-	-	-	-
x104,5,6	2nd Cycle	27.6	-	-	460	-	-	460
x110,11,12	2nd Cycle	100	-	-	0	-	-	0
x110,11	2nd Cycle	-	-	0	-	-	424	424

T Plant

Bldg. 241 Tanks	Waste	Percentage Full			Reserve Capacity in Batches to Process			
		T	U	TX	T	U	TX	Total
x101,2,3	Metal	100	100	0	0	0	379	379
x104,5,6	Metal	-	100	0	-	0	379	379
x201,2,3,4	Metal	0	0	-	-	37	-	37
x107,8,9	Metal	-	58.5	-	-	109	-	109
x107,8	Metal	-	-	0	-	-	252	252
x107,8,9	1st Cycle	100	-	-	0	-	-	0
x110,11,12	1st Cycle	-	100	-	-	0	-	0
x104,5,6	1st Cycle	100	-	-	0	-	-	0
x109,10,11,12	1st Cycle	-	-	5.3	-	-	777	777
x115,18	1st Cycle	-	-	0	-	-	410	410
x104,5,6	2nd Cycle	-	-	-	-	-	-	-
x110,11,12	2nd Cycle	89.7	-	-	64	-	-	64
x110,11	2nd Cycle	-	-	-	-	-	-	-
x113,14,16,17	2nd Cycle	-	-	0	-	-	1123	1123

MECHANICAL PERFORMANCE

Canyon Equipment Failures - T Plant

The following failures occurred to T Canyon process equipment during

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February:

- a) 14-4 product solution sampler connector failed due to a deteriorated gasket (G-9) at the wall connector. This connector was replaced with a new connector; regasketing of the original connector being precluded by excessively high radiation levels.
- b) 14-1 first cycle product precipitator ring balance instrument connector was plugged. After frequent attempts to unplug the dip tubes failed, the connector was discarded and replaced with a new connector.
- c) The 17-3 to 17-1 (second cycle product waste catch tank to precipitator) jet assembly was determined to be leaking by the conductivity meter and visual inspection. This connector was regasketed with Teflon (G15) gaskets. No significant product loss was incurred.
- d) The 5-7 to 5-6 cell drainage water jet assembly failed due to a broken weld on the steam line to jet. This connector was repaired by welding and returned to service.
- e) The 4-8 to 4-7 metal solution transfer jet assembly failed due to a defective gasket on the steam side of the jet. This connector was replaced with a new jet assembly and the old jet discarded because of excessive radiation levels.
- f) The 13-1 to 13-2 "B" jet assembly (first cycle by-product precipitator to centrifuge) was determined to be leaking by the conductivity meter and visual inspection. The connector was replaced with a new assembly and the old connector discarded due to excessive radiation levels. No significant product loss was incurred.
- g) The 16-2 second cycle by-product centrifuge failed due to a defective skimmer and was replaced with the 19-2 centrifuge. The 16-2 centrifuge had been in service since start-up and had the old type skimmer and plow installation. The 16-2 centrifuge was stored in Section 20L and will be repaired if radiation levels permit.

Canyon Equipment Failures - B Plant

The following canyon equipment failures occurred in B Plant during February:

- a) The 13-4 first cycle by-product cake solution sampler connector became plugged and was replaced. Repair to the old connector will not be possible because of excessively high radiation levels.
- b) The 14-4 first cycle product cake solution sampler connector became plugged and was replaced. Repairs to the old connector will be made if radiation levels permit.

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- c) The 17-1 to 17-2 A and B jet assemblies (second cycle product precipitator to centrifuge) failed and were replaced. The "A" jet assembly developed a gasket leak as explained under Process Performance. The "B" jet assembly became plugged. Both assemblies will be repaired.
- d) The 17-3 to 17-1 second cycle product waste catch tank to precipitator jet assembly developed a leak and was regasketed.
- e) The 12-8 to 12-7 jet assembly (extraction product solution) developed a gasket leak and was replaced. Excessive radiation levels preclude repairs to the old assembly. There was no significant product loss.
- f) The 9-1 metal waste neutralization sampler connector became plugged and was replaced. The old connector will be discarded.
- g) The jacket used for cooling and heating the second cycle by-product precipitator tank was determined to be leaking at the rate of 10,000 lbs. per hour. In order to alleviate the coil drainage and product recovery problem, the tank was exchanged with the unused 10-3 catch tank on February 23, 1949 by standard remote maintenance methods.

Replacement of B-2 and E-2 Bowl Spray Assemblies - T Plant

The bowl spray assemblies of the B-2 and E-2 centrifuges were inspected during the month to determine their exact position relative to the bowl and their physical condition. Their positions were found to be satisfactory (approximately 15° opposed to the direction of rotation). Both assemblies showed definite evidence of corrosion at the lower portions with the possibilities of slight leakage. Replacements were made using new assemblies.

Operation of Cell 2 - 231 (Isolation) Building

Process Cell No. 2, which has recently been equipped with air jets for the purpose of reducing the amount of waste water to be cribbed, was activated during the month and the previously used Cell 4 was placed in standby as a spare cell. Operation of Cell 2 has been satisfactory to date. Elimination of this water will do much to prolong the life of the 231 cribs and thereby effect a significant reduction in operating costs.

Replacement of Filters - Cell 4 - Isolation Building

Prior to the removal of Cell 4 from service, sporadic air sample results had necessitated the adoption of the wearing of assault masks during the operation of the cell. Measurements of the air flow having indicated a partial plugging of the exhaust filters in the A, E and D positions, the A and E filters were replaced on February 23, 1949 with a resultant increase in air flow of approximately 600 cfm. The filter in the D position will be replaced in the near future.

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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.

Preliminary drawings of the proposed dissolver off-gas filter units were reviewed during the month and final design approached completion at month end.

DESIGN AND CONSTRUCTION CONSULTANT'S SECTION

This section of the report will be reported by the Manufacturing Divisions Expansion Problems Section which was organized during February for the purpose of handling all major design and construction activity related to future expansion of the Manufacturing Divisions.

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POWER DIVISION
FEBRUARY 1949

GENERAL

All work was scheduled on a 40-hour work week basis throughout the month, all remaining overtime scheduling having been terminated in the previous month.

Continuation of extreme cold weather through the first days of the month resulted in further difficulties from freeze-ups. A large number of air vent traps on the export water system were broken, making it necessary to isolate the system in steps and make replacements. Minor ruptures in water lines at the 300 and White Bluffs Areas also occurred.

PERSONNEL AND ORGANIZATION

Number of employees on payroll	February
Beginning of month	458
End of month	<u>469</u>
Net Increase	11

The above increase resulted from the hiring of eight operators and the transfer into the Division of three operators.

The elimination of the shift river pump house operators in the 100 Areas was effected February 24, and a straight day operator was established. This change resulted in a reduction in the standard operating crew of nine operators. These people are being trained for use in the expansion program.

100 AREAS

In order to repair air vent traps on the export water system, which had become frozen during the recent severe cold weather period, sections of the main system, connected to the D Area and to the B Area were shut down for several hours on February 7 and 8. Similar repairs were made on a section between the D and F Areas during a planned shutdown on February 8 and 9 coincident with the installation of a "T" connection to the H Area export water system.

Re-use water recirculation was discontinued in the B and F Areas on February 21, but was continued in the D Area in order to further study the effect of higher water temperature on filtration.

In the F Area, the ash disposal line was returned to service on February 3, after a line stoppage was cleared.

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On February 6, the 10 million gallon side of the raw water reservoir in D Area was drained in order to clean screens and permit inspection of the filter plant supply pump suction flume.

Boiler inspections were made by a Traveler's Insurance Company inspector on No. 3 and No. 4 boilers in B Area, and No. 1 and No. 2 boilers in D Area on February 1 and 16, respectively. The inspector's reports indicated no unusual conditions.

The No. 8 filter plant supply pump in D Area, which had been out of service since January 15 for repairs to damaged impeller, was returned to service February 3.

200 AREAS

Performance and efficiency tests on the new No. 4 boiler in the West Area power house were completed February 4. Twenty-four hour capacity tests at 70,000 lb./hr. and at 80,000 lb./hr. were effected with satisfactory results. A furnace inspection made after completion of the tests revealed a faulty front baffle, which was subsequently repaired.

Inspections were made by the Traveler's Insurance inspector on the No. 3 boiler in the West Area on February 2, and the No. 1 boiler in the East Area on February 17. These units were reported to be in good condition.

Four air vent traps on the export water lines supplying the 200 East and West areas were frozen during the cold weather period. Repairs are awaiting receipt of replacement parts.

The new filtration plant addition in the West Area is virtually completed and ready for acceptance. Tests on the new service water and backwash pumps have been completed and the units are ready for acceptance.

Excavation has been completed for a new septic tank tile field near the Badge House and excavation has been started for a new tile field near the power house in the East Area.

Work is progressing on the conversion of the water softeners in the West Area power house from Zeo-Dur to Zeo-Carb in order to increase the water softening capacity, as required in the expansion of these facilities.

300 AREA

The Traveler's Insurance inspector made inspections of No. 1 and No. 2 boilers on February 2 and 17, respectively. No unusual con-

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ditions were reported, and a few minor repairs were recommended.

A transfer switch was installed on the emergency power circuit in the boiler house to facilitate operation of either the No. 3 boiler auxiliaries, or the No. 1 and No. 2 boiler auxiliaries simultaneously during emergency electrical outages.

WHITE BLUFFS

Operations were normal throughout the month.

At month's end 3,629,000 pounds of ice were in storage.

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POWER DIVISION STATISTICS

From February 1, 1949

Through February 28, 1949

A R E A S

		100-B	100-D	100-F
<u>RIVER PUMP HOUSE (Building 181)</u>				
	(max)	386.1	378.7	365.3
River stage	Feet above sea level (min)	385.1	378.3	364.6
	(avg)	385.6	378.5	364.8
River temperature	avg. °F.	35.8	36.5	36.7
Water pumped to Reservoir	gpm avg. rate	37088	39498	36950
Water pumped to Refg. Condensers	gpm avg. rate	0	0	0

RESERVOIR (Building 182)

Water pumped to Filger Plant	gpm avg. rate	33026	34794	32820
Water pumped to Condenser System	gpm avg. rate	2620	3289	3595
Water pumped to Export System	gpm avg. rate	1442	1415	535
	gpm normal rate	3392	3392	3392
Chlorine added at #1 inlet	pounds	10608	7100	4200

FILTER PLANT (Building 183)

Filtered water to Power House	gpm avg. rate	320	314	306
Filtered water to Process	gpm avg. rate	31619	29506	29112
Filtered water to Fire & Sanitary	gpm avg. rate	88	243	124
Chlorine used in Water Treatment	pounds	3112	3700	8800
	ppm avg.	1.13	.89	1.13
Lime used in Water Treatment	pounds	31794	18250	25000
	ppm avg.	2.8	1.6	2.3
Coagulant used in Water Treatment	pounds	124121	130525	145000
	ppm avg.	11.2	11.2	13.2
Raw Water pH	pH avg.	7.97	8.00	8.10
Finished Water pH	pH avg.	7.54	7.45	7.40
Alkalinity, M. O. - Raw	ppm avg.	63	64	59
Finished	ppm avg.	59	58	52
Residual Chlorine - Settled	ppm avg.	.21	.20	.20
Finished	ppm avg.	.12	.12	.15
Iron - Raw	ppm avg.	.33	.36	.27
North Clearwell	ppm avg.	.02	.02	.02
South Clearwell	ppm avg.	.02	.02	.02
Hardness - Finished	ppm avg.	82	72	72
Turbidity - Raw	ppm avg.	16.5	15.0	12.0
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.	-	-

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Power Division

From February 1, 1949

Through February 28, 1949

POWER HOUSE (Building 184)

Steam generated - Total	M pounds	101444	102691	104064
Average rate	lbs./hr.	150958	152814	154857
225 psi Steam to plant (est.)	M pounds	88095	89192	90811
15 psi Steam to plant (est.)	M pounds	1176	1176	765
Coal consumed	Tons	7570	9050	7652
Coal in storage (est.)	Tons	32930	39438	40475

DEAERATOR PLANT (Building 185)

Water flow	gpm avg. rate	31369	29256	28862
Chemicals consumed:				
Dichromate	pounds	19500	20200	20500
Sodium Silicate	pounds	109460	181579	174000
Chemical Analysis:				
pH	pH avg.	7.65	7.67	7.60
Dichromate	ppm avg.	1.9	1.9	2.0
Silica	ppm avg.	2.5	5.4	5.2
Dissolved Iron	ppm avg.	.02	.02	.02
Free Chlorine	ppm avg.	.09	.17	.16

PROCESS PUMP ROOM (Building 190)

Total Water pumped	gpm avg. rate	31194	29081	28687
	gpm normal rate	31797	31202	30972
Water temperature	avg. °F.	41.9	42.3	41.9

VALVE PIT (Building 105)

Chemicals consumed:					
Solids	pounds	5250	2000	1900	
Chemical analysis:					
A, B, C, & D Headers					
Standard limits					
pH		7.5-7.8			
	pH	(Max)	7.65	7.70	7.60
		(Min)	7.60	7.65	7.60
		(avg)	7.61	7.65	7.60
SiO ₂	ppm	(max)	3.0	6.0	6.0
		(min)	2.5	5.0	5.0
		(avg)	2.5	5.5	5.3
Na ₂ Cr ₂ O ₇ 1.8-212	ppm	(max)	2.0	2.0	2.0
		(min)	1.8	1.8	1.9
		(avg)	1.9	1.9	2.0
Iron	ppm	(max)	.03	.02	.03
		(min)	.01	.01	.01
		(avg)	.02	.02	.02
Chlorides	ppm avg.		1.6	1.6	1.5

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Power Division

From February 1, 1949

Through March 1, 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	1393	1998
<u>FILTER PLANT (Building 283)</u>			
Filtered Water pumped	gpm avg. rate	315.5	490
Chlorine Consumed	lb.	153	186
Alum Consumed	lb.	1525	1919
Chlorine Residual - Sanitary Water ppm		.7	.7
<u>POWER HOUSE (Building 284)</u>			
Steam Generated - Total	M lb.	25240	44583
Steam Generated - Ave. Rate	lb./hr.	37559	66344
Coal Consumed (Est.)	tons	1969	3144
Coal in Storage (Est.)	tons	14575	11103

300 A R E A

POWER HOUSE (Building 384)

Steam Generated - Total	M lb.	15,158
Steam Generated - Avg. Rate	lb./hr.	22,557
Coal Consumed - Total (Est.)	tons	1,075
Coal in Storage (Est.)	tons	1,830

SANITARY AND FIRE SYSTEM

Well Water Pumped - Total	gal.	25,838,100
Well Water Per Day	gal/day	922,789
Well Water	gpm avg. rate	640.8
Chlorine Residual	ppm	.54

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INSTRUMENT DIVISION

MONTHLY REPORT

FEBRUARY, 1949

GENERAL

The Instrument Division personnel assigned to follow construction work in the 100 Areas and to operation of the warehouse of White Bluffs were returned to five day week effective February 21, 1949.

100 AREAS (Reference Report HW-12610)

The acceptance tests on the DR addition to the 190-D Building have been completed. All instruments and controls are in good condition.

The No. 1 system to the P-10 Project at 106-B was placed in operation February 17, 1949, with all instruments and controls giving satisfactory service.

The Power Division has cancelled revisions to 185-B, D, and F instrument panels "R".

All strain gauge installations have been completed on the front and rear face of the 100-B unit.

During one 24 hour period, the 105-F unit was "scrammed" five times. Instrument failure was not responsible for any of these outages.

200 AREAS (Reference Report HW-12611)

Contamination difficulties necessitated the shutting down of Cell 4, 231-W. Instruments necessary to operate Cell 2 had been previously prepared for service with the exception of the G.E. photocell recorder which is still on order. An indicating micro-ammeter has been temporarily installed instead of the recorder.

Installation of all instruments has been completed in the mobile monitoring bus.

300 AREA (Reference Report HW-12612)

A new design for the 180 bent pencil probes has been approved by the Health Instrument Divisions.

Twelve Juno survey meters were received from Technical Associates.

Instruments necessary for Phase I, 234-5, are being pushed to completion.

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Instrument Division

700 AREA (Reference Report HW-12613)

An inventory of the instruments at Hanford Works has been completed. Of the original 150 missing instruments, 81 remain unlocated at the present time. It will be recommended that these instruments be dropped from the inventory.

Due to the extreme variance between the three G.E. type VGLA ion gauge and the arbitrarily selected "standard" Miller gauge, and due to lack of any information that would establish absolute accuracy of any of the gauges in question, it has been decided to use the Miller gauge as a plant standard. There is less variation between 19 Miller gauges than there is between the 3 VGLA ion gauges.

DESIGN AND CONSTRUCTION (Reference Report HW-12614)

Schenectady has been advised that no further work will be required of them on the feasibility study of a rapid scanning device for process tube exit temperature. It has been decided to authorize the Instrument Development group to proceed with an initial phase of this study.

A request was received from the "P" Division to install thermocouples on the outside of process tubes at the center of the unit for temperature measurements during rapid drying operations. It was decided to machine 16 gunbarrels of the 100-H unit, to permit this installation at a later date.

Two trips have been made to the Kellex New York office. At present, they are in the process of obtaining quotations on equipment. We have requested the opportunity of reviewing these bids with them and suggesting vendors on the basis of our experience.

Rala (Study GET 13) has been started to determine to what extent existing facilities in the 221-T Building can be used and what modifications will be necessary to adopt them for this new purpose.

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MAINTENANCE DIVISION

February, 1949

GENERAL

As of February 28 the total Maintenance Division backlog was 21,304 man days of work to be done, of which 13,410 man days was Minor Construction work. This represents a 19.8% decrease from the January backlog.

100 Areas

Process tube #2177 was replaced in the "D" Area pile with a type 72-S aluminum tube at the request of the Technical Division. In the "F" Area pile process tube #3169 was removed to permit inspection of the empty bore for water damage. This tube had developed a leak in October, 1948.

Due to corrosion, extensive replacements of vertical safety rods and rod guides were made this month. Thirty-eight chrome plated rod guides were installed and thirty-nine rods, of which nine were chrome plated rods and thirty were stainless steel. Installation was made in the following piles and positions:

<u>"B" Pile</u>			<u>"D" Pile</u>		
<u>Stainless</u>	<u>Chrome Plated</u>		<u>Stainless</u>	<u>Chrome Plated</u>	
<u>Position #</u>	<u>Position #</u>		<u>Position #</u>	<u>Position #</u>	
10	20	18	10	20	18
11	24	26	11	24	26
12	27	32	12	27	32
13	30		13	30	
14	34		14	34	
15	35		15	35	

<u>"F" Pile</u>		<u>Stainless</u>	<u>Chrome Plated</u>
<u>Position #</u>	<u>Position #</u>		
	12	25	23
	15	30	24
	16	34	31
	17	35 (Rod only)	
	21	36	

Due to distortion of the guide and thimble, it was necessary to machine additional clearance in the "A" horizontal safety rod guide in the "F" Area pile and to reduce the length of the #27 vertical safety rod in the "D" Area pile to forty-eight inches.

Because of movement of the shield of the "F" Area pile, 21 feet of neoprene seal was replaced on the rear face and 7 feet on the front face.

Construction work was completed on #1 and 2 lines in the P-10 Technical Laboratory, 108-B. Final designs for lines 3, 4, and 5 will be determined from operating experience.

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200 Areas

The 16-2 centrifuge in the "T" Canyon was removed from service due to failure of the skimmer. It was replaced with the 19-2 centrifuge which is equipped with reinforced skimmers.

The #3 boiler in the 200 West Area Boiler House was inspected by the State Boiler Inspector.

Twenty cell piping details were completed in the East Area shops for replacement of canyon cell piping. Also, two 15 HP cell agitators and one 40" centrifuge were completed for canyon installation when needed.

Two contaminated liquid waste disposal cribs were installed at 222-B laboratory to replace a dry well which had become stopped up. Also, a dry waste crib was installed at the 222-T Laboratory to replace a similar unit filled from use.

300 Area

Rehabilitation of the 321 Canyon Building has proceeded sufficiently to restore building wall and interior partition damage. The canyon roof was load tested to 93 pounds per square foot with a negligible deflection. Process equipment and piping is being restored, revised or removed, according to directions from the Technical Division.

Construction work has been started on Phase I of the ventilation facilities for 313 and 314 Buildings. This portion involves setting a temporary building with scale size sand filter equipment to be used for determining design data for full scale installation.

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ELECTRICAL DIVISION

FEBRUARY, 1949

GENERAL

The backlog of unfinished work as of February 28, 1949 is 11,235.5 mandays, a monthly decrease of 549.9 mandays. The reduction is mainly in the Distribution Section, but work released on the last day of the month, not yet tabulated, is expected to cancel this reduction. Because we have been unable to perform monthly routine work due to construction activity, approximately 800 mandays were cancelled out but will have to be reinstated later.

The attached load chart for the peak day of the month, February 2, shows a peak of 66,700 KW for the entire project with coincidental demand of the combined 66 KV and 115 KV systems (Richland, 300 Area and vicinity) of 31,100 KW. This is an overall reduction of 6 percent from January peak which is very likely the seasonal peak since warmer weather is now at hand. The new 115 KV system, now in partial operation reached a peak of 8560 KW on February 24 as load is gradually being transferred from the 66 KV system.

With the passing of the winter season, efforts to reduce power peaks throughout the Pacific Northwest have been relaxed. However, on February 18, due to heavy loading at coastal areas during storms, system frequency dropped to 59.38 cycles and the 220 KV system was placed under Critical Power, Grade "Y", conditions for a period of 36 minutes at 5:53 p.m., February 18.

The main activities of the Electrical Standards Committee related to the adoption of electrical symbol standards.

The total personnel for the Division for the month end was 286, a reduction of two from the previous month.

AREA ACTIVITIES

An Assistant Area Engineer, Mr. C. C. Hinson, has been placed in 100-H Area, as construction approaches completion, for the purpose of developing the electrical group in this section and for checking grounds, witnessing tests, making inspections, etc. Similar work is essentially complete in 105-DR Area, including all electrical ties to Building 190-D.

Preventive maintenance schedules in all 100 Areas have been revised so as to result in a net reduction of approximately one maintenance man per area. As of February 28, shift coverage in 100-F has been reduced to one man per shift, placing all areas on single coverage basis; this measure should reduce area maintenance cost by \$1,000 monthly. These moves should release men for accumulated project work, and will assist in providing manpower for the 100-H Area at a later date.

On February 13, a series of four unexplained scrams occurred in 100-F. This was repeated at 8:00 a.m. on February 14 when a switch in the safety supply circuit was found in the "off" position. The circuit remains under observation, with recording instruments to locate the possible trouble should it be repeated.

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Electrical Division

Lines 1 and 2, Project P-10, Conversion of Building 108-B, were turned over for operation on February 11, the remaining three lines held for design changes. The building has been cleared of electrical equipment for construction of associated Project P-10A.

A study was completed and recommendations made for storage of stainless steel in work areas or warehouse yards in a manner so as to minimize possibility of corrosion in storage. Cathodic protection was applied to stainless steel portion of 291-T sand filter.

The work of assembling and wiring process hoods for Building 234-5 is essentially complete. An Electrical Foreman and Electricians have been assigned to this area for final inspection, testing, and start-up.

It has been agreed with Village forces that the Electrical Division will be responsible for all Hospital X-Ray equipment maintenance.

Relative to the explosion which was reported last month in 321 (Semi-Torks) Building, 300 Area, a thorough inspection of thymotrol equipment indicated it was in good operating condition and was not the source of explosion. An agreement has now been reached that re-installation, started February 10, will be on Class I, Group D hazardous condition basis in the canyon which is to be separated by explosion proof wall from remainder of building as well as properly ventilated.

TRANSMISSION AND DISTRIBUTION

Briefly stated, this work continues with heavy backlog, some 75 percent related to expansion program in Village and work areas, and with heavy deferrment of normal maintenance.

On Project C-177 (115 KV system), the North (Stevens) Station in Richland is essentially complete with six Village feeders in service. Installation of electrical equipment in the South (Thayer) Station in Richland started on February 8 when structure and concrete work was accepted from Subcontractor.

At the request of the Village, a project proposal request has been made for intensifying Richland street lighting, but on selected arterial streets only.

MAJOR UNSCHEDULED ELECTRICAL POWER INTERRUPTIONS

<u>Date</u>	<u>Area</u>	<u>Circuit</u>	<u>Duration</u>	<u>Remarks</u>
<u>230 KV System</u>				
2-18	All	All - Critical "Y"	36 min.	Low BPA system frequency.
<u>66 KV System</u>				
2-27	300	Hanford - 300 Area	1 hr. 15 min.	Windstorm, 3 broken poles, defective switch.

TELEPHONE SYSTEM

Completion of Project C-138 (Richland Dial Exchange) will be further delayed because of slow deliveries from factory (North Electric) despite active expediting, and is now estimated for August, 1949.

Electrical Division

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Plans for the work area exchange system have been revised to permit a reduced rate of expenditure at this time. The 100-F Area trunk will remain tied directly to "BY" Tandem Station instead of to White Bluffs. Similarly, 200-W will remain tied to "BY" instead of the new East-West station. This requires complication of the plant numbering system and installation of additional equipment at "BY". The quality of service due to trunking bottlenecks will be reduced and 100-F services will be limited.

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POWER STATISTICS - ELECTRICAL DIVISION FOR MONTH ENDING FEBRUARY 28, 1949

ITEM	ENERGY - MW HRS.		MAX. DEMAND - KW		LOAD FACTOR - %	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
230 KV SYSTEM						
A-2 Out (100-B)	7,490	6,500	12,000	11,200	83.9	86.4
A-4 Out (100-D)	8,160	6,990	15,000	12,500	73.1	83.2
A-6 Out (100-F)	7,260	6,330	11,400	11,400	85.6	82.6
A-8 Out (200 Areas)	2,990	2,590	5,000	4,500	80.4	85.6
TOTAL OUT	25,900	22,410	43,400**	39,600**	-	84.2
MIDWAY IN	26,161	22,857	40,400*	38,000*	82.0	89.5
Transm. Loss	261	447	-	-	-	-
Percent Loss	1.0	2.0	-	-	-	-
66 KV SYSTEM						
B1-S1 Out (Richland)	6,774	4,561	12,600	10,200	72.5	66.5
B1-S3 Out "	3,280	2,072	6,900	5,600	63.9	55.1
B1-S2 Out "	2,078	1,066	4,624	3,584	60.4	44.3
B3-S4 Out (300 Area)	241	206	456	492	71.0	62.3
B3-S5 Out "	598	504	1,220	1,200	65.9	62.5
B1-S4 Out (N. Richland)	3,470	2,962	5,644	5,587	82.6	78.9
B7-S10 Out (W.B.)	495	474	1,192	1,373	55.8	51.4
B9-S11 Out (100-H)	413	451	1,200	1,320	46.3	50.8
Hanford Out	352	304	500	500	94.6	90.5
TOTAL OUT	17,701	12,600	34,336**	29,856**	62.9	62.8
Hanford In	9,601	8,217	19,300*	21,200*	66.9	57.7
Pasco In	8,283	4,429	19,200*	14,800*	58.0	44.5
TOTAL IN	17,884	12,646	43,300**	36,000**	57.3	52.3
Transm. Loss	183	46	-	-	-	-
Percent Loss	1.0	.04	-	-	-	-
115 KV SYSTEM						
BBI-S2 Out	570	2,442	4,680*	7,560*	16.4	48.1
Benton In	576	2,664	4,600* Est.	-8,560*	16.1	46.3
Transm. Loss	6.0	222	-	-	-	-
Percent Loss	1.0	8.3	-	-	-	-
PROJECT TOTAL						
230 KV	25,900	22,410	43,400**	39,600**	-	84.2
66 KV	17,701	12,600	34,336**	29,856**	62.9	62.8
115 KV	570	2,442	4,680*	7,560*	16.4	48.1
TOTAL OUT	44,171	37,452	82,416**	77,016**	72.0	72.4
230 KV	26,161	22,857	40,400*	38,000*	87.0	89.5
66 KV	17,884	12,646	43,300**	36,000**	-	52.3
115 KV	576	2,664	4,600* Est.	-8,560	16.1	46.3
TOTAL IN	44,621	38,167	70,800*	66,700*	84.7	85.2
Transm. Loss	450	715	-	-	-	-
Percent Loss	1.0	1.9	-	-	-	-

* Coincidental Demand

** Non-Coincidental Demand

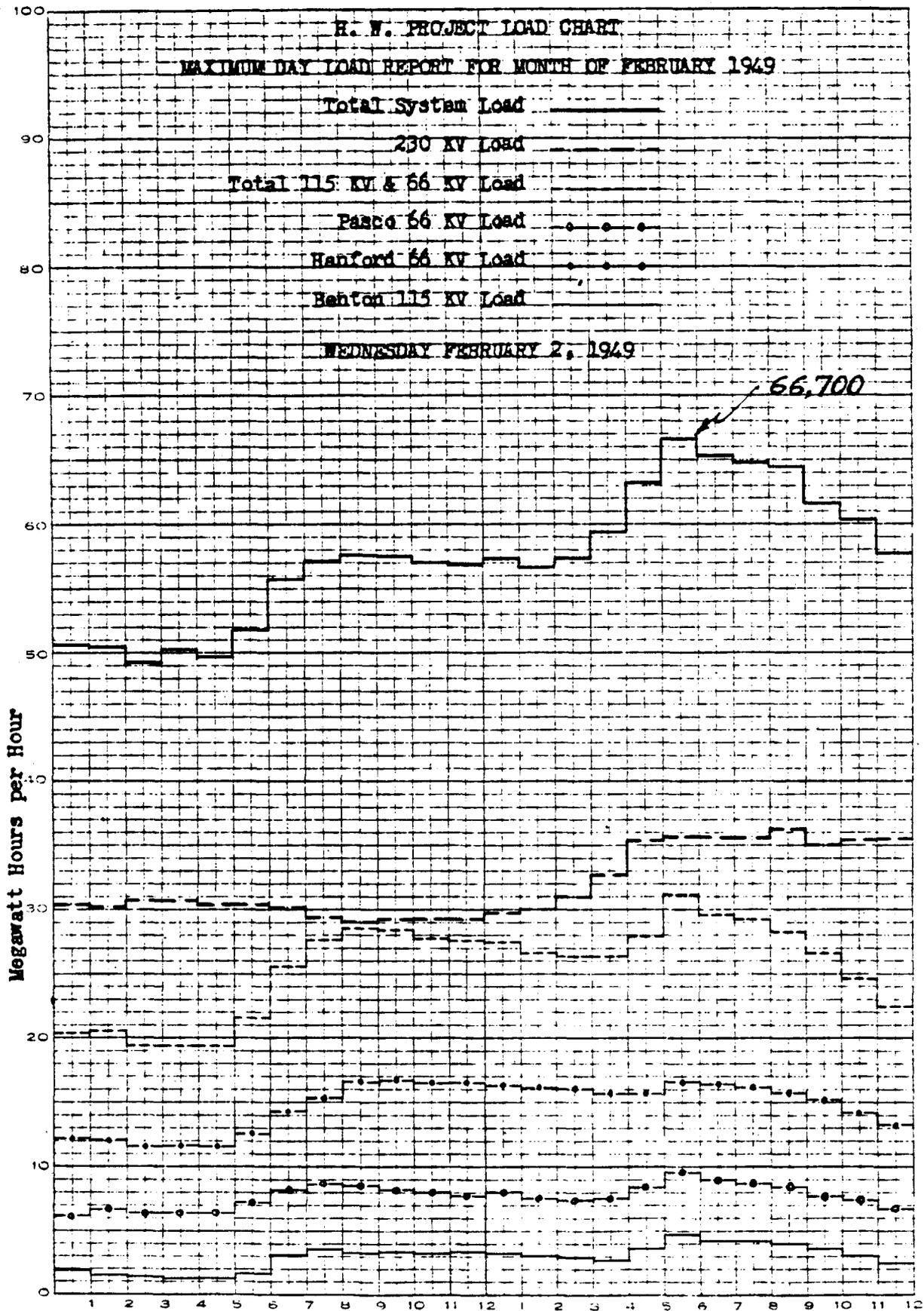
Average Power Factor--230 KV System--100

Average Power Factor--115 KV System--95.9

Average Power Factor - 66 KV System--95.6

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TRANSPORTATION DIVISION
MONTHLY REPORT
February 1949

Railroad Activities

Commercial tonnage decreased about 30% over January as main line operations were drastically impaired by prolonged severe weather conditions throughout the Northwest. Process service returned to a normal level after being somewhat high during the early part of the month.

Installation of radio equipment was completed on four 120-ton Diesel Electric locomotives. Eight of the ten locomotives are now radio equipped and operative. The remaining two will be completed early in March. Performance of this equipment already in service has been excellent.

Removed lease signs and repaired penalty defects on Milwaukee leased flat cars and gondolas.

Morrison-Knudsen, Track Maintenance Subcontractor, continued to make satisfactory progress on the Plant Railroad Rehabilitation Program. Their total force as of February 28 was 198 which is an increase of 12 over January.

Automotive Activities

Area and Village Local Bus Systems registered a combined decrease of 19,255 passengers over January.

Installation of "KIM" Hot Starts was completed in all GMC coaches and placed in operation to pre-heat these vehicles before the regular runs to and from Plant Areas. Results to date have been satisfactory.

Extensive major repairs were completed on the rock crusher which has been in operation for the past three years and it is now back in service.

Effective February 1, the Transportation Division Mechanical Section assumed responsibility for servicing and maintaining all Pasco Depot Warehouse equipment.

The Transportation Division Equipment Control Section is in the process of reducing the number of vehicles in the Excess Pool. This program will be expedited until all such units are excessed.

Construction and Labor Activities

The Transportation Division Labor Section completed their phase of protection for the Yakima River bridges on George Washington Way which had required blasting operations to free the channel from ice at various intervals from December 30, 1948 through February 18, 1949.

Labor and transportation facilities were supplied for Projects C-133, C-163 C-184, C-214, C-238, C-268, C-269, C-273, C-276, C-279, C-291, C-294, C-313 and Well Drilling Operations.

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Traffic

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 East Point, Georgia, to Hanford, Washington, effective March 15, 1949. This will result in a savings of 63 cents per cwt. or approximately \$756 per car on shipments in hopper cars from East Point.

The Interstate Commerce Commission granted rail carriers interim increases of 6% within and between Eastern and Southern territories, 5% within Zone 1 of Western Trunk Line territory and interterritorially except between Eastern and Southern territories, and 4% within Western territory, except Zone 1 which became effective January 11, 1949 on interstate traffic, and January 15, 1949 on Washington intrastate traffic.

The Interstate Commerce Commission suspended Service Order 68 effective 12:01 a.m. February 14, 1949 through 11:59 p.m. April 16, 1949. This will reinstate Rule 24 of the Classification which authorizes that the excess over quantity which can be loaded in or on one car can be loaded in or on a second car and charged at actual weight and at carload rate applicable on entire shipment; and Section 2 of Rule 34 of the Classification which provides that if a car of a certain length is ordered and a longer car furnished, the minimum weight shall be that fixed for the car ordered and that if carriers cannot furnish car of the length ordered two shorter cars can be furnished without penalty to the shipper.

The Office of Defense Transportation suspended ODT 18-A, effective 12:01 a.m. February 14 through 11:59 p.m. April 16, 1949, making it no longer necessary to load cars to full visible capacity or to secure special permits to ship cars not fully loaded.

As a result of rate reductions secured from the carriers, there was a total savings in freight charges for the month of February amounting to \$76,251.63.

Statistical information is attached to the file copies of this report.

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PROJECT ENGINEERING DIVISION

MONTHLY REPORT
February 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 and Deaerating Plants	15	8-19-47	\$ 486,000
C-184	Experimental Animal Farm	0	10-27-47	286,000
C-222	Dismantling Unoperated Equipment in 105 Valve Pits	18	2-10-48	4,000
C-238	Effluent Sewer Line 105-F to 107-F	97	3-26-48	207,000
C-269	Temporary Radio - Botany Lab. 100-F Area	83	7-28-48	29,600
C-290	Fabricate & Install Spectrometer	8	9-29-48	9,000
C-294	Mock-Up Facilities for Metallurgical Studies	65	10-22-48	47,700
C-306	Revised Pile Shielding - Front Face Shield Nozzle Caps	0	11-30-48	88,000
C-316	Special Technical Laboratory (P-10)	90	1-17-49	228,000
SC10239	Segmental Discharge Devices (Preliminary Program)	100	9-1-48	65,000
SC10243	Special Technical Melting & Casting Facilities P-10 Alloy	15	1-28-49	<u>250,000</u>
<u>TOTAL Estimated Cost 100 Area Projects</u>				\$1,700,300

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Project Engineering Division

PRESENT STATUS OF WORK

Projects, Suspense Codes Authorized and 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 and W	99	1-30-47	\$180,600
C-163	Additional Waste Storage and Tie Lines 200-W (G.E. Portion Only - Subcontract not Included)	79	7-25-47	600,000
C-273	Water Supply and Plumbing - Bldg. 622-A	85	8-4-48	13,500
C-313	Stack Filtration Facilities	92	1-17-49	864,000
C-298	Decontamination Stations for Small Equipment - 221 T-B	72	11-15-48	33,000
<u>TOTAL Estimated Cost 200 Area Projects</u>				<u>\$1,691,100</u>

300 AREA

C-189	Building 3745-A X-Ray Facility	92	8-20-47	\$ 33,000
C-219	Construction of Additional H.I. Instruments	65	1-27-48	97,200
C-220	Optical Instrument Bldg. and Elect. Shop 3708 - 300 Area	98	1-30-48	82,000
C-227	Conversion of Offices to Labs Bldg. 3706 & Construction of 3707-C Change House	86	3-15-48	429,000
C-287	Experimental Metallurgy Lab. Bldg. 3730	0	12-2-48	140,000
C-308	Process Development Lab. Bldg. 3732	0	1-17-49	50,000
C-317	New Retention Basin for 300 Area Process Water	100	1-3-49	62,000
SC 10241	Increased Ventilation 313 & 314 Buildings	0	9-24-48	200,000
SC 482000	Rehabilitation of Bldg. 321	35		<u>125,000</u>
<u>TOTAL Estimated Cost 300 Area Projects</u>				<u>\$1,218,200</u>

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Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
A-1004	Downcomer Design 105-F	20
A-1034	Alterations to Bldgs. 186 and 185	38
A-1044	Outlet Charging Device (through proposed Model III)	40
A-1059	Prepare Project for Steel Sewer Line at 100-B Area	45
A-1060	Increased Shielding of Front Nozzle Caps (Designs for Proj. C-306)	27
A-1062	Prepare Project for Mark II Machines	80
A-1063	Special Metal Splines	90
A-1064	Equipment Designs for Oxygen in Pile Atmosphere	10
A-1065	Equipment Designs for Large Scale CO ₂ Evaporator	100
A-1066	Mock-Up Facilities for Metallurgical Studies (Designs for Proj. C-294)	90
A-1067	Special Technical Laboratory (P-10)	95
A-1068	Design Special VSR - #27	95
A-1069	Prepare Project for Dismantling and Crating of York Refrigeration Units - 151, 181, & 189-D & F Buildings	5
A-1070	Prepare Project for Changes to Unit Motion Instruments	50
A-1071	Prepare Project "B" Hole Type Sample Loading Facilities	85
A-1072	Design Cask Storage Pad - 100F Area	0
A-1074	Design Moisture Extraction System for Gas System - 105 Building ^a	2
A-1075	Recommend Adequate Warehousing for 100 Areas	2
A-1076	Prepare Project to Replace V.S.R. and Guides in 105-B,D,F	100

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Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
A-1077	Prepare a project for P-10 Alloy Facilities	15
A-1078	Study Maximum Loading Conditions for 105F Experimental Level	100
A-1080	Thermocouple for 105 Process Tube	20
A-1081	Check Vertical Alignment of 184-H Stacks	5
A-1082	Survey Coal Pile 184 D	100
A-1083	Hot Thimble Mock-Up	25
A-1085	Prepare Project for Pile Operation with 100% CO ₂ Atmosphere, 100F Area	15
A-1086	High Tank Control Valves - 105 Area	0

200 AREAS

2279	Prepare Project for Regasketing Facilities - 221 T & B	85
2285	"B" Jet Assembly	75
2287	Study Rail Alignment of 200-N Cranes	75
2288	Special Test Wells - 200 E & W 70 Wells Complete	90
2327	Study Possibility & Redesigning Connector Head to Simplify Gasket Changing	100
2337R	Design Water Seal for Agitator Shaft	50
2355	TX Waste Storage (Field Engr. for Project C-163)	85
2378R	Reinforce Precipitator Tank Jackets	100
2381	Design Acid Supply Tanks & Piping for 222-B	100
2393	Steam Jet with Remotely Removable Features	100
2401	Maintenance Hoist for Cranes 212 N-P-R	100

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Project Engineering Division - Area Reports

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
2403	Revision of 222 T & B Control Labs	50
2421	Procure & Install Lab. Equip. in 271 T-U-B Central Labs.	65
2438	Design and Estimate Improved Well Sampling Device	100
2450	Design Disposal Sumps for 224-B Waste	25
2451	Check Crane Wheel Alignment - Bldg. 221-B	50
2456	Prepare New Map of Underground Water and Sewer Lines - 200 E & W	20
2457	Revise Piping Drawings for Cell #2, Bldg. 231	40
2458	Prepare Drawings for Conductivity Meter in Section 6R, Bldg. 221-B	100
2459	Design Facilities for Diluting Caustic Solution 221 Areas	50
2460	Design Filter for Dissolver Off Gas	65
2465	Design Jet Assembly for Cell 32 Bldg. 221	5
2466	Design Cribs for 222B Waste	100
2467	Engineering Contact on New Processes	0
2468	Bottle Gas Supply for 292-U	100
2469	24 Special Test Wells	75
2470	Design 100 gal. Shipping cask	100
2471	Design & Estimate Optical Block Bldg. 221	0
2472	Design Equip. for Radioactive Source Building 234-5	0

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Project Engineering Division - AREA REPORTS

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

300 AREA

<u>E. R. No.</u>		<u>% Engineering Complete</u>
A-3058	Design Air Conditioning System - Bldg. 321	4
A-3059	Evaluate Construction of "P" Div. Change House in the 303 Area	75
A-3060	Temporary Metal Melting & Fabrication Building	70
A-3061	Increased Ventilation - 313 & 314 Bldgs.	30
A-3062	Design & Estimate Cost of Installing 300 Area Rolling Mill	2
A-3063	Evaluate CO ₂ System for Rooms 4A and 6 - Building 3706	95
A-3066	Revise Maps - 300 Area Water and Sewer Systems	0
A-3067	Billet Lifting Tongs	5
A-3068	Automatic CO ₂ Fire Extinguishers - Bldg. 3706	0
A-3069	Solvents Storage - 3706 Building	0
A-3070	Study 3706 Ventilation Requirements to Provide 40% Humidity	20
A-3071	Design C.W.S. Filters and Hoods for Room 55, Bldg. 3706, Exhaust System	5
A-3073	Design Glass Shop Gas System	100
A-3075	Design for Nine Tube Mock-Up for 105 B-D-F Design	5
A-3076	Design Facilities for Chip and Bar Pickling and Metal Fines and Oxide Recovery	5
A-3077	Design Installation for Three Automatic Screw Machines 313 Building	27
A-3078	Design Storage Cabinets 305A Bldg.	100
A-3079	Prepare Project for Hot and Cold Exponential Experiments	15

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Project Engineering Division - AREA REPORTS

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
A-3080	Design and Estimate Loading Platform & Acid Storage Area, Bldg. 3706	0
<u>GENERAL PLANT AREAS</u>		
828	Bldg. 702 - Automatic Dial Exchange	100
872-R	Improvement to Area Admin. Bldgs.	100
941	Designs for Experimental Animal Farm - Project C-184	95
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	80
990-R	Fencing All Areas	90
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	45
A-464	Metering of Power - All Process Areas	70
A-492	Preparation of Project Additional Tel- ephone Cable - Richland to Kennewick Design Work Only	98
A-502	Prepare Project for Transportation Consolidation (Cancelled)	6
E-505	Electrical Standards	15
A-507	Design Work for Workshop Addition to 313 Bldg. (Proj. C-308)	60
A-509	Drafting for 300 Area Planning Committee	60
A-510	Badge House Addition - 300 Area	100
E-511	Prepare Project for Butt Treatment of Power Line Poles	100

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Project Engineering Division - AREA REPORTS

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

<u>E. R. No.</u>		<u>% Engineering Complete</u>
A-513	Study of Air Conditioning First Aid Bldgs. - 300 & 100B & F Areas	100
E-514	Prepare Project for Improvement to Area Fence Lighting	0
A-518	Partitioning of Manufacturing Division Offices - 703 Bldg.(Held Pending Decision)	90
A-519	Centerline Area Roads	20
A-523	Drafting for 300 Area Technical Div.	100
A-524	Design for Railroad-Redox Plant- 200 W Area	100
A-526	Field Information for 300 Area As-Builts	25
A-528	Design Work for Instrument Division Building Project - 300 Area	10
A-529	Recommendation for Dikes along Yakima River	50
E-401	Study and Recommendations for Extension of Induction Heating in 314 Bldg.	100
E-403	Install four traffic signals at Richland railroad crossings	50
E-406	Prepare Project - Additions to Village Distribution System	0
E-407	Prepare Project - Inst. Htrs. on Evacuation Busses & Service Facilities	0
E-408	Prepare Project - Village Street Ltg.	0
A-530	Design Work for Rehabilitation of Bldg. 321, Proj. S.C. 482000	30
A-531	Prepare Personnel Charts for Mfg. Divs.	100
A-532	Design Work for Project to Remove Equipment from Bldg. 108-F & Reinstall as Necessary	3
A-533	Hutment for H.I. Division near Bldg. 222U	50

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Project Engineering Division - AREA REPORTS

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

ENGINEERING STUDIES GROUP REPORT

Studies Completed This Month

<u>E. R. No.</u>		<u>Date Completed</u>
4318	Revision of Packing & Gasket Manual	1-15-49
4342	Analysis of Heavy Duty Lacquers	2-8-49
4358	100 Area Metal Handling	2-8-49
4344	Operating Standards for Hydrocranes	2-15-49
4352	Lubrication Survey 105 DR	2-8-49
4355	Operation, Inspection & Maintenance of Septic Tank Subsurface Irrigation Type Sewage Disposal Systems	2-15-49

Studies Added This Month

No new work was added during the period between January 21,
1949 and February 18, 1949.

Active Studies

<u>E. R. No.</u>		<u>% Complete</u>
4326	Use of Inhibited Oil in Turbines	99
4327	Maintenance of Pitched Roofs	50
4336	Review Oil Coding System	25
4346	Welding Line Analysis - 313 Bldg.	85
4347	Improved Frost Test Line - 313 Bldg.	85
4348	Soft Water System - Kadlec Hospital	90
4354	Bronze Furnace Heating - 313 Bldg.	70
4356	Project Engr. Division Procedure	80
4357	Lubrication Survey - Building 2345	30
4359	Concrete Placing Procedure	60

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Project Engineering Division - AREA REPORTS

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

BACKLOG SUMMARY

	<u>Work on Hand 1-31</u> <u>Estimated Man Days</u>	<u>Work on Hand 2-28</u> <u>Estimated Man Days</u>
Studies	204	141
Project & Design	9,189	9,690
	<hr/>	<hr/>
	9,393	9,831

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TECHNICAL DIVISIONS

February 1949

SUMMARY

Detailed studies of pile operation at higher powers continued, with the objective of evolving a specific program for taking one of the piles to higher power levels. Studies on the operation of the D and DR Piles also continued.

Improvements in graphite purity were obtained by the use of higher temperatures and more carbon tetrachloride. Changes in the nitrogen flushing cycle had little effect; increases in the amount of Freon had an adverse effect.

Test Pile results show that substitution of magnesium alloys for aluminum in the piles would produce a reactivity gain of the order of 500 inhours. With suitable control, it is expected that corrosion problems could be minimized; this aspect is being investigated.

Alpha-rolled, triple-dipped slugs continue to show satisfactory dimensional stability at exposures approaching 300 MD/ton.

Current laboratory experiments indicate that galvanized stainless steel nozzles should be a reasonably satisfactory, inexpensive method for alleviating corrosion of front Van Stone flanges, but that galvanized nozzles will be unsatisfactory at the rear face of the piles, especially at higher operating levels.

The carbon dioxide concentration in the F Pile atmosphere was increased to 40%. No conclusive effect on graphite expansion has been demonstrated.

Allocation of graphite to the H Pile has been completed. Purified graphite has been used in 56% of the pile as compared with only 17% in the DR Pile.

Separations Technology Division

During the month, it was necessary to rework approximately 175,000 lbs. of Canyon Sump Tank drainage water to recover a single run plutonium leakage of 20% at B-Plant. An increase in the scavenger weight in the first cycle by-product precipitation has regained the decontamination factor loss apparently caused by returning to the procedure of slurry agitation while centrifuging. Alternative methods of Concentration Building LaF₃ by-product waste rework are under current study. An apparent correlation between hot water and hot potassium hydroxide cake removal from the LaF₃ product centrifuge and lowered Isolation Process product recycle is being pursued further.

The plant ventilation air sand filters have continued to operate at previously quoted air flows, pressure drops, and activity removal efficiencies. Additional testing of a pilot bed of No. 55 fiberglass has continued to demonstrate filtering efficiencies superior to sand at equal pressure drops. Fiberglass filtration studies with dissolver off-gas have produced 99.9% beta-activity removal. Electrostatic precipitator runs have continued but have been hampered by electrical troubles. Assistance has been given the Project Engineering Division on the design of dissolver off-gas fiberglass filters.

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Los Alamos operations training has been completed for all Hanford Works 234-5 personnel scheduled. All hoods for the 234-5 RG Line and Recovery Area have been received in the 272-Z Shop and seventeen additional hoods were moved into the 234-5 Building for installation during the month. Preliminary inspections of auxiliary area facilities now completed have been carried out. Approximately 75% of 234-5 Building construction is estimated as completed at month-end. During the month, continuance of Phases II and III was directed to be suspended and postponed by A.E.C. Test precipitations of plutonium oxalate have been successfully carried out in the ten gram laboratory equipment. The enamel coating and strip film testing on hood surfaces has continued. Additional test reductions of uranium tetrafluoride as a stand-in for plutonium have produced up to 98% yields on ten gram charges.

Rehabilitation of the 321 Building Redox Semi-Works was virtually completed during the month. Agreed revision of the Canyon Area to provide isolation from the Service Area and venting of any future pressure deflagration is currently in progress. Further investigation of the cause of the IAX test stand explosion in January more positively points to vapor space ignition of hexone inside the drum because of pump drive-shaft bearing corrosion and seizure. Test studies of solvent vapor explosions and HNO_3 -hexone reactions are being continued both in the field and in the laboratory. The Demonstration Unit is being revised to increase capacity handling and to provide automatic feed control. The Scale-Up continuous hexone stripper has been completed and steps are being taken to provide an inert gas blanket on the Scale-Up Tank Farm.

In the research laboratory, HNO_3 -hexone reaction studies have been carried to the point where several reaction products have been synthesized, purified, and absorption spectra determined. Density-composition data have been extended for $\text{Al}(\text{NO}_3)_3$ Redox solutions. Small-scale packed column studies have been carried out to study effects of acid-pickling of packing, solvent phase continuous, sulfuric acid, and nitrogen gas bubbling on column H.E.T.S. valves. Ruthenium ozonization studies with IBP and ICU solutions have been extended to Hanford dissolver solution, with ca. 98.5% of the ruthenium volatilized in four hours at 75°C . Dissolver solution zirconium and columbium scavenging by glass wool adsorption has given lower removal than with previously tested metal solutions. Ozone oxidation of plutonium has been extended in study to Redox IAF solution. Studies of methods of preparation of solvent extraction feed from current and stored metal wastes have been initiated.

Metallurgy and Control Division

Arrangements were completed for the transfer of routine 100 Area water control laboratory operations from the Metallurgy and Control Division to the Power Division as soon as the Power operators involved can be trained in this work. This will allow the Technical force in these laboratories to be reduced to the few chemists required for certain special services and record analyses.

*A.B. Greeninger
by GHS*

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DECLASSIFIEDPILE TECHNOLOGY DIVISIONFEBRUARY, 1949

March 15, 1949

VISITORS AND BUSINESS TRIPS

Norman R. Chellew and William F. Olsen, Argonne National Laboratory, Chicago, Illinois, were here from February 14 through 18, 1949, to assist in initiating P-10 operations.

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

E. W. Ritchey visited Detroit, Michigan, for consultation with Giffels and Vallet on Water Plant Study. He was there February 21-22, 1949.

Messrs. P. F. Gast, J. M. West, F. E. Kruesi, and G. M. Muller, visited Los Alamos, New Mexico, February 2-11, for consultation on critical mass problems.

ORGANIZATION & PERSONNEL

	<u>January</u>	<u>February</u>
File Physics Section	39	43
File Engineering Section	22	22
P-10 Project	--	5
Administration	5	5
	<u>66</u>	<u>75</u>

During the month one Engineer (Assign.), one Chemical Engineer, one Technical Graduate, and three Lab. Assts. D were added; three Lab. Assts. D, one Lab. Asst. B, and one Chemist transferred into the Division from Metallurgy and Control; one Lab. Asst. D transferred out of the Division to Metallurgy and Control; and one Lab. Asst. B was terminated.

At month-end one Chemical Engineer, one Steno-Typist D, and one Lab. Asst. D were awaiting Q clearance.

PILE PHYSICSHigher Power Levels

Operation of the present piles at higher power levels would result in decreasing

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the reactivity available for Special Irradiations and for flattening the power distribution; in decreasing the time interval during which a pile can be started up, after a normal shutdown, without use of additional poison columns; and in increasing the outlet water temperatures, of central tubes, or the flow rates or both.

The reactivity used in flattening at D Pile, for example, would drop from 450 ih at the present level of 275 MW to 375 ih at 350 MW and to 285 ih at 450 MW. The increased neutron flux at the higher levels compensates for the reduced reactivity so that a small net increase occurs in the rate of neutron absorption by Special Request materials.

After a normal pile shutdown at present operating levels and with an atmosphere of 40% carbon dioxide there is an interval of 6 hours, starting 18 hours after shutdown, during which the pile may be started without the use of temporary poison columns. If the pile is operated at one-half of its normal power level for several hours after starting up, the length of this startup interval is extended to 11 hours. At higher power levels, the length of this interval is reduced. By using the reduced power startup technique a power level of 375 MW could be achieved. For levels of operation higher than this every shutdown would require the use of temporary poison columns.

Operation at levels above 350 MW would require changes in the orifice pattern and an increase in total water flow, if present water temperature limitations are maintained. The radioactivity of the water discharged to the river would present no serious problem at any of the power levels considered, and this problem would be further reduced by current studies aimed at reduction of sodium silicate feed.

Reduction in Size of D Pile

In the event that a permanent shutdown of D Pile and startup of DR Pile is required, the most economical use of metal might be obtained by reducing the number of loaded tubes in the D Pile gradually over a period of time. A recently completed study shows that a pile of 1700 tubes could be operated at the present power level of 275 MW and that a pile of only 1000 tubes could be operated at 125 MW. The permissible power level drops gradually from 275 MW to 125 MW as the number of loaded tubes decreases.

Graphite Development

Results on experimental heats of GEF graphite indicate that a significant improvement in purity can be obtained by purifying at a temperature of 2750°C. instead of 2500°C. Low quality bars continue to occur and investigation has shown that these are definitely associated with plugged orifices.

Experimental heats in which the amount of carbon tetrachloride was doubled are significantly better in purity than normal heats according to preliminary results obtained during the month. Preliminary results on heats which were not flushed with nitrogen during cooling indicated that they were no different from heats processed with nitrogen flushing. Heats in which the amount of Freon was doubled and in which there was no flushing were inferior to normal heats.

By processing molded graphite samples containing known amounts of rare earths it has been determined that one-half of the samarium, gadolinium, and dysprosium were removed by gas baking and graphitization. These samples will now be purified to

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study the removal of rare earths in purification.

Graphite Monitoring

Samples of previously exposed graphite which have been irradiated for 1.5 years in an empty process tube were found to recover 50% to 60% of the crystal expansion produced by the previous irradiation. Most of the recovery occurred during the first year and no significant additional recovery has been observed in the last six months. It thus appears that the ultimate recovery has been achieved at the present exposure temperatures and neutron fluxes. The percentage recovery which can be obtained decreases with the amount of previous exposure at low temperatures.

It has been found that the effects of irradiation can be accelerated by a factor of 5 by impregnating graphite with boron. The behavior of such samples when exposed in the piles will aid in predicting the ultimate fate of the graphite and possibly in forecasting the life of the piles.

Shielding

Filling two spiral grooves on the vertical rod guides for DR Pile with polythene reduced the fast neutron leakage by a factor of 20. Leakage of gamma rays was reduced by a factor of 3. These guides are now considered to be at least as good as those in the present piles from a shielding standpoint.

New Materials

Magnesium is attractive as a possible replacement for aluminum in both present and future piles. Recent measurements indicate that the neutron absorption cross-section of commercially pure magnesium is only one-fourth that of aluminum.

The induced radioactivity of titanium is such as to make it a possible structural material in control rods and other places where the total neutron absorption need not be kept small. Removal of manganese and copper impurities would make titanium considerably more attractive.

Reactivity

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

	<u>B Pile</u>	<u>D Pile</u>	<u>F Pile</u>
In rods	99 ih	71 ih	65 ih

In xenon	519	482	501
In over-all coefficient	-130	-161	-179
Total cold, clean reactivity	<u>808</u>	<u>872</u>	<u>790</u>

The B Pile gained 46 inhours, the D Pile 10 inhours, and the F Pile 19 inhours

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HW-12666-DEL

during the month. The large gain at the B File is due to relative small discharges of metal during the month and may also contain some errors arising from large changes in poison column loadings.

Status of Special Irradiations

The status of the Special Request program on February 28 is given below. Those items which were active during the month are marked with an asterisk. Items completed last month will receive no further mention. The number under P. T. indicates the Production Test, series 105-P. The letter suffix after a tube denotes the pile. Under "Quantity", the number of pieces, if given, will indicate that the material has been received. Under "Tube and Pile" the initials BTHD, BTHF, DTHF mean the piece is charged into the "B" test hole at the D or F File or into the "D" test hole at the F File. The suffix T will denote a tentative schedule which may be changed. The abbreviations ORNL and ANL after the request number refer to Oak Ridge National Laboratories and Argonne National Laboratories respectively; KAPL refers to the Knolls Atomic Power Laboratory; UCRL refers to the Radiation Laboratories at the University of California; GECL refers to the General Electric Consulting Laboratory.

Request No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Dis-charged	Shipped	P.T.	in ab-sorbed
12-B (UCRL)	Pu ²³⁹	1 slug	1 yr.	5/25/48	1769D			200	5**
**Tube 1769D also contains 1 pc. SR-64, 4 pcs. SR 63, UCRL-100-105, 1 pc. SR ANL-111, and 2 cobalt slugs.									
*13-5 (ORNL)	Be ₃ N ₂	38 slugs	6 mo.	6/6/48	3169D	12/3/48		70D	
		39 slugs	6 mo.	8/4/48	1569D	2/7/49			
		53 "	6 "	8/13/48	1579D	2/7/49			
*28-5 (ORNL)	Iron Enriched	1 casing	Indef.	4/4/48	BTHD	2/7/49	2/9/49	87C	
28-7-12 (ORNL)	Iron	6 casings	2 mo.	1 casing	BTHF			87D	0
				12/22/48					
29-5-10 (ORNL)	P ₂ O ₅	6 casings	60 da.	10/22/48	DTHF	(2 casings	(2 casings	96B	0
						(11/24/48	(11/26/48		
47 (ANL)	BeO	4 slugs	1-15 da.	12/21/47	3169D	1/6/48	1/14/48	127	
			1-30 da.						
			1-90 da.	12/23/47	2666F	4/4/48	4/14/48		
			1-180 da.	12/22/48	3476F				0
48 (ANL)	BEO	4 slugs	1-15 da.	12/21/47	3169D	1/6/48	1/14/48	128	
			1-30 da.						
			1-90 da.	12/23/47	2666F	4/4/48	4/14/48		
			1-180 da.	8/4/48	3876F				0

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Request

No. & Source Material Quantity Exposure Charged Tube & Dis-File charged Shipped P.T. ih ab-sorbed

Request No. & Source	Material	Quantity	Exposure	Charged	Tube & Dis-File	charged	Shipped	P.T.	ih ab-sorbed
49 (ANL)	Graphite-U Oxide	4 slugs	1-15 da. 1-30 da. 1-90 da. 1-180 da.	12/21/47 11/5/48 12/23/47	3169D 3166B 2666F	1/6/48 12/7/48 4/4/48	2/11/48 1/5/49 5/3/48	129	
*52 (ORNL)	Al-U ²³⁵ Alloy	95 slugs 21 slugs 25 slugs 25 slugs 26 slugs 26 slugs	100 da. 130 da. 160 da. 160 da. 160 da. 160 da.	7/30/48 7/27/48 7/27/48 7/27/48 7/27/48 7/27/48	100D 2072F 1983F 2770F 2778F 3469F	11/16/48 1/21/49 2/21/49 2/21/49 2/21/49 2/21/49		208	
*60 (ORNL)	KCl	1 casing 1 "	1 yr. 1 yr.	2/16/48 2/16/48	BTED BTED	2/7/49 2/22/49	2/9/49	140	
62 (ORNL)	Al-U ²³⁵ Stainless Be,U,Al	1 slug	5 mo.	11/5/48	3276B (pc.U-2)			145	5
*63 (ORNL)	Al-U ²³⁵ Alloy	7 slugs	120 mo.	(4)5/25/48 (1)11/5/48 (1)2/21/49	1769D 1882B 2974F				5 5
64 (ORNL)	Cu-Au Alloy	1 slug	300 da.	5/25/48	1769D				
*65 (ANL)	LiAl Alloy	15 19 30 30 38 30 31 24 24 24 24 29 34 33 9 9 9 15 42 42	2 mo. 3 mo.	10/27/48 10/27/48 11/19/48 11/19/48 11/23/48 11/23/48 12/6/48 12/6/48 12/6/48 12/6/48 12/6/48 12/3/48 12/3/48 12/3/48 1/5/49 1/5/49 1/5/49 1/5/49 1/5/49 1/4/49 1/4/49	3066D 2066D 3169B 1569B 1474D 2666D 2374F 1569F 1579F 3169F 3179F 2682D 3179D 3274D 1474F 2666F 3274F 2682F 2082D 2374D	12/22/48 2/7/49 2/2/49 2/2/49 2/22/49 2/22/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49 2/9/49	143A	29 29 25 25 29 29 25 25 27 30 30 13 13 13 18 33 33	

Request No. & Source Material	Quantity	Exposure	Charged	Tube & Dis-File	charged	Shipped	P.T.	in ab-scrbed	
*65 (ANL) LiAl Alloy	23	3 mo.	2/2/49	2682B				23	
	23	3 mo.	2/2/49	2082B				23	
	23	3 mo.	2/2/49	1569B				23	
	23	3 mo.	2/2/49	3169B				23	
	25	3 mo.	2/7/49	1569D				25	
	25	3 mo.	2/7/49	1579D				25	
	20	3 mo.	2/7/49	2066D				21	
	38	3 mo.	2/22/49	1474D				31	
79 (KAPL) U ²³⁵	Experiment is on a continuous basis								
				0865F					
				1481F			180	10	
80 (ORNL) HgO	4 slugs	3 mo.						243	
81 (ORNL) Zn	3 casings	1 yr.	4/25/48	DTHF				164 0	
82 (ORNL) Ni	1 casing	1 yr.	4/25/48	DTHF				165 0	
	1 casing	1 yr.	5/12/48	DTHF				0	
84 (ORNL) AgNO ₃	1 casing	1 yr.	4/25/48	DTHF				167 0	
85 (ORNL) Se	1 slug	6 mo.						243	
86 (ORNL) Tl(NO ₃) ₃	1 slug	6 mo.						243	
88 (ORNL) Sn	1 casing	1 yr.	4/25/48	DTHF				181 0	
ANL-100 Be	5 casings	6-12 mo.	3/24/48	BTHF	3 pcs. 9/13/48	3 pcs. 9/15/48		176	
ANL-101 U ²³⁸	1 recept.	4-6 mo.	11/12/48	2074B				177 0	
ANL-107 Bi	1 recept.	6 mo.	8/4/48	2173F				211 0	
ANL-108 ThO ₂	1 recept.	6 mo.	11/5/48	3271B				218 0	
*ANL-109 Pa ₂ O ₅	1 recept.	3 mo.	11/5/48	3378B	2/2/49			218	
*ANL-110 PuO ₂	1 slug	6 mo.	8/4/48	2974F	2/21/49			210	
ANL 111 PuO ₂	1 slug	1 yr.	5/25/48	1769D				200	

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Request No. & Source Material	Quantity	Exposure	Charged	Tube & Dis- Pile	charged	Shipped	P.T.	lb ab-sorbed
ANL-113 RaBr ₂	6 slugs	3 mo.	1/21/49	1482B			230	5
*ANL-114 ThO ₂	3 slugs	3 mo.	11/5/48	3378B	2/2/49	2/9/49	215	
	1 slug	6 mo.						
	1 slug	1 yr.	11/5/48	1882B				
ANL-115 Mo	2 slugs	6 mo.	11/5/48	3276B			215	
	2 slugs	1 yr.	11/5/48	1882B				
*ANL-116 Diamond, Be, C	1 casing	3 mo.	10/22/48	DTHF	1/28/49	2/9/49	211	
ANL-119 S.Steel	2 recept.	6 mo.	12/22/48	1866F			227	0
ANL-120 S.Steel	1 recept.	6 mo.	12/22/48	1866F			227	0
ANL-121 Nickel	1 recept.	6 mo.	12/22/48	1866F			227	0
ANL-122 Nickel	2 recept.	6 mo.	12/22/48	1866F			227	0
*ANL 124 Cobalt	1 slug	1 no.						
	1 slug	1 yr.	2/21/49	2974F			243	
GECL-100 Various, Non-metallic	10 slugs	3 no.						
UCRL-100 Pu	1 slug	1½-5 yr.	5/25/48	1769D			200	
UCRL-101 Pu	1 slug	1½-5 yr.	5/25/48	1769D			200	
UCRL-102 Pu	1 slug	1½-5 yr.	5/25/48	1769D			200	
UCRL-103 Am	1 slug	2 yrs.	5/25/48	1769D			200	
UCRL-104 Pu	1 slug	1-3 yr.	5/25/48	1769D			200	
UCRL-105 Am	1 slug	2 yrs.	5/25/48	1769D			200	
*UCRL-106 Tissue Ash	12 casings							
		2-3 wks.	1/21/49	BTHF	2/15/49	2/16/49	189	
*UCRL-107 Osmium	1 slug	1 mo.	12/22/48	3066D	2/7/49		229	
*UCRL-108 Tantalum	1 slug	1 mo.	12/22/48	3066D	2/7/49		229	
*UCRL-109 Phosphorus	1 slug	1 mo.	12/22/48	3066D	2/7/49		229	
*UCRL-110 Selenium	1 slug	1 mo.	12/22/48	3066D	2/7/49		229	
*UCRL-111 Palladium	1 slug	1 mo.	12/22/48	3066D	2/7/49		229	
*UCRL-112 Rhenium	1 slug	1 mo.	12/22/48	3066D	2/7/49		229	
*UCRL-113 Iridium	1 slug	1 mo.	12/22/48	3066D	2/7/49		229	
*UCRL-114 Tungsten	1 slug	1 mo.	12/22/48	3066D	2/7/49		229	
*UCRL-115 Am.Oxide	1 slug	2 yr.	2/21/49	2974F			229	
ORNL-100 CaCO ₃	8 casings	18 mo.	9/3/48	DTHF			182	0
ORNL-102 Zr	1 slug	6 mo.	8/4/48	3876F			204	
*ORNL-103 Be	5 slugs	6 mo.	10/22/48	2385F				1
	6 slugs	6 mo.	10/22/48	3473F				1
*ORNL 104 Metal	4 recept.	3 mo.	11/5/48	3378B	2/2/49		223	0
	4 recept.	6 mo.	12/22/48	3385F				0

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HW-12666 -DFC

File Technology Division

Request No. & Source Material	Quantity	Exposure	Charged	Tube & Dis- Pile	charged	Shipped	P.T.	in ab- sorbed
ORNL-105 NaCl	1 casing	6 mo.	10/22/48	DTHF			219	
	2 casings	1 yr.	10/22/48	DTHF				
ORNL-106 Th	1000 slugs	125 da.					228	
	40 slugs	125 da.	11/14/48	3179B				31
	40 slugs	125 da.	11/14/48	2374B				31
	40 slugs	125 da.	11/14/48	1579B				31
ORNL-108 Cu ₃ Au Alloy	2 slugs	1 mo.	12/13/48	1980F	1/21/49		232	
ORNL-110 Iron (Enriched)	6 slugs	3-6 mo.					232	
*ORNL-112 U (normal)	6 slugs	24 hr.	2/10/49	2271-F	2/11/49	2/11/49	239	

The following requests have been approved but the samples have not been received:

ANL-105, ANL 112, ANL-117, ORNL-101, ORNL-109, ORNL-111, UCRL-116

PILE ENGINEERING

Set off by asterisks is a portion of last month's report which was inadvertently omitted.

* * * * *

Corrosion and Blistering of Slugs

Examination of 141 alpha-rolled, triple-dipped, partially transformed slugs (Group 4 material) after an exposure of 280 MD/ton indicated that this type of metal is satisfactory for still higher exposure. Both diameter and length measurements approximated those of unexposed slugs so closely that no significant effect of exposure could be detected. Twelve per cent of these slugs showed no blistering, and 88 per cent showed blistering to a slight degree.

One tube of slugs of alpha-rolled, triple-dipped, completely transformed material (Group 5) at 200 MD/ton exposure showed a behavior comparable to Group 4 slugs.

Corrosion of Van Stone Flanges

Sixteen inlet galvanized nozzles and nineteen outlet galvanized nozzles were installed on the F Pile. These nozzles were located in both the 0.140 and the 0.240 orifice zones, and were placed on both new Van Stone flanges and old, pitted flanges. Four aluminum nozzles were also installed on old, pitted, outlet flanges.

Evaluation of the corrosion properties of zinc-coated stainless steel, aluminum-coated stainless steel, and various aluminum casting alloys is proceeding in flow cup cells in the flow laboratory. Also, corrosion current measurements and other

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tests are being conducted on galvanized stainless steel nozzles and on aluminum nozzles installed on flanges in the flow laboratory.

File Drying

An aluminum-jacketed thermocouple and accessory equipment has been fabricated and found to perform satisfactorily in tests conducted in the flow laboratory. Thermocouples of this type can be installed in process tubes under the slug train for the purpose of monitoring water temperature under no-flow conditions during the special procedure used for drying a pile by fission-product heating.

Assistance to New Construction

The first tests of the H Pile design in the nine tube mock-up were made in conjunction with the Design Division. Loading simulated conditions at the center of the pile, and the bowing was increased to a maximum of 4-1/2". Indications were found that there were possible vertical cleavage planes in the H design for graphite stacking. Even though the probability of opening vertical cracks would be unlikely, the arrangement of the filler blocks in the tube layers above Layer 40 was changed to give an overlapping structure.

Information is being collected concerning the applicability of bituminous materials as substitutes for the "Masonite" layer in the biological shield. For this purpose, an air-blown petroleum asphalt can be obtained with a melting point of approximately 400°F, a hydrogen content of 9-10%, and a specific gravity of 1.0 - 1.1. An advantage in fabrication is probable since such materials can be melted and poured into place.

* * * * *

Corrosion and Blistering of Slugs

Inspection results on alpha-rolled, triple-dipped, partially transformed slugs (Group 4) continue to be very favorable for higher exposures. This report includes slugs discharged at an average exposure of almost 300 MD/ton.

Two tubes of duplexed slugs were discharged at an exposure of 200 MD/ton. The lead-dipped duplexed slugs showed some very moderate blistering and were less stable dimensionally than triple-dipped slugs. No effect of variation in the amount of reduction by rolling was apparent. The remaining lead-dipped slugs are being discharged.

Flow Rates in Process Tubes

Tests in the flow laboratory indicate that omission of the front dummy pattern from a tube in the 0.240-inch orifice zone results in an increase in flow of from 0.7 to 1.0 g.p.m. and a reduction in Panellit pressure of about 10 p.s.i., with a header pressure of 350 p.s.i.

Corrosion of Van Stone Flanges

Seven aluminum nozzles made from Type 356 alloy were installed on badly corroded Van Stone flanges at the rear face of the F Pile.

Investigation of the use of sacrificial magnesium alloy slugs to span rear Van Stone

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HW-12666-DEL

flanges was concluded when excessive corrosion of the magnesium was encountered with a possibility of plugging the outlet pigtail. Tests with magnesium slugs spanning front Van Stone flanges are continuing.

Solution potential tests in the flow laboratory indicate that galvanized stainless steel will not inhibit corrosion of aluminum satisfactorily at temperatures above 50°C. Similar and more adverse results were obtained at high temperatures with stainless steel which had been pre-dipped in zinc and then coated with aluminum. The results on coatings developed to date indicate that solution to the problem of corrosion of rear face Van Stone flanges will require the expensive substitution of aluminum nozzles in place of inexpensive coating of existing stainless steel nozzles. Meantime, the hot flow laboratory at the rear of the D Pile is being reactivated to investigate the possibility that the presence of hydrogen peroxide in pile effluent water may still permit the use of galvanized rear face nozzles.

Magnesium Alloys for Pile Use

Test Pile results previously reported by the Physics Section show that reactivity gains amounting to around 500 inhours per pile could be achieved by substituting magnesium for aluminum in tubes and slug jackets. Literature studies indicate that magnesium has reasonable corrosion resistance in hot water provided impurity content is carefully controlled and galvanic effects are eliminated. Mechanical properties of magnesium appear satisfactory. This initial feasibility study is so encouraging that experimental corrosion studies are being planned.

Graphite Expansion

The concentration of carbon dioxide in the D Pile atmosphere has been maintained at 40% during the past six months. Unit Motion Measurements at the No. 1, 2, 3 and 4 micrometer brackets Wye Levels, and No. 18 Anes gage suggest that a slight shrinkage on the order of 0.05 inches in over-all dimension of the pile has occurred during the past four months.

The carbon dioxide in the F Pile atmosphere was increased from 25% to 40% during the month. A concentration of 25% was held at the B Pile. Unit Motion data are not sufficiently accurate to determine the effect of CO₂ on the rate of graphite expansion at this time. Thermal effects on the shielding have been negligible, as was expected from previous experience at the D Pile.

Two graphite rods which were stressed in order to investigate creep phenomena under pile irradiation conditions were discharged from a helium-filled process tube after an exposure of about a year. Both samples were broken. It cannot be determined whether rough handling or creep caused the failure.

Stress-strain tests were made of a mock-up of the angle iron which retains the face shields of the Hanford Piles. Failure occurred in the body of the angle with a load of about 20,000 pounds per foot of length. The tests demonstrate that failure of the angle is preceded by measurable strain in the angle.

Several methods of internally shielding the radiation beam escaping from the stepped joint between the top and far side biological shields were tried out on a mock up. These include canvas bags filled with paraffin or concrete; zig-zag strips of masonite, steel and plywood; and straight planks of masonite.

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Vertical Rod System

Initial tests on a more flexible "knuckle-jointed" safety rod, developed by an interdivisional committee, have been unsatisfactory.

Third Safety System

Design of the mock-up equipment for testing the operation of the third safety mechanism at temperatures currently prevailing in the pile is about 75% complete. Information is being developed by the Research Laboratory on high-boiling liquids to be used as third safety fluids.

Assistance to Construction

Design Division tests of "E" type graphite and gunbarrels in the nine-tube mock-up were observed by Technical personnel. When the slope of the tube entry blocks was set at 0.63 in/ft the condition of the assembly was reasonably satisfactory. With slopes in the range of 0.92 to 0.97 in/ft, considerable breakage of graphite blocks and the impracticability of tube replacement were evidenced, but a four-inch slug of 1.475-inch diameter could still be passed through the tube.

The allocation of graphite to the H Pile has been completed. Purified graphite was used in 56% of the pile as compared with 17% in the DR Pile. Plans are being formulated to segregate the graphite which is currently being received in such a fashion that allocation by specific heats will not be necessary for any subsequent units. The material will be segregated in six different diaphragm ranges and kept in the areas of the warehouse assigned to each zone.

D-DR Problem

Studies are in progress regarding the feasibility of operating the D and DR Piles simultaneously using the present 100-D water plant. Preliminary indications are that 175 to 200 MW could be obtained from each pile during equilibrium operation.

P-10 PROJECT

Two extraction runs were made on lithium fluoride slugs. The first extraction line operated satisfactorily; however, minor difficulties developed in the can opening equipment. The second line was completed and at the end of the month everything was in shape to proceed with extraction of fluoride slugs on two lines.

Results on alloy slugs continued to be very encouraging. Argonne has obtained a yield of 100% per cent was obtained. A maximum yield of 100% per cent was obtained. Visual examination of slugs irradiated for 10 months revealed no irregularities.

A total of 555 slugs were being irradiated at the end of the month. This total will be increased to 841 during the first week of March.

INVENTIONS

There were no inventions to report.

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SEPARATIONS TECHNOLOGY DIVISION

FEBRUARY, 1949

VISITORS & BUSINESS TRIPS

J. A. Ayres of the Knolls Atomic Power Laboratory visited the division from February 1 to 4 for a technical consultation on Redox aluminum nitrate recovery.

F. W. Hurd, D. M. Lang, R. Olson, and L. Waters visited this site from February 7 to 11 for a technical consultation on metal recovery.

L. B. Emler and J. Cox, from Oak Ridge National Laboratory, conferred with the Manufacturing and Separations Technology Divisions from February 7 to 9 on Rala, stack gas purification, and other 200 Area problems of joint interest to Hanford and Oak Ridge.

B. Weidenbaum visited the Los Alamos Scientific Laboratory for a critical mass consultation from February 2 to 4.

Two men visited the Los Alamos Scientific Laboratory for equipment checking and training in Operations at DP West, including Bldg. 5 -- J. J. Maucieri, from February 8 to 18, and L. I. Brecke, from February 14 to 18.

W. M. Harty visited the Oak Ridge National Laboratory from February 14 to 19 for a Rala process consultation and inspection of Bldg. 706-D. He also visited the Los Alamos Scientific Laboratory from February 21 to 25 for a consultation on Rala.

R. H. Beaton visited the Knolls Atomic Power Laboratory for a Redox Steering Committee Meeting and inspection of SPRU from February 22 to 24.

ORGANIZATION AND PERSONNEL

Effective February 1, 1949, R. E. Smith was appointed Technical Contact Engineer for Redox Design. In the Redox Development Section, effective February 1, 1949, G. C. Oberg was appointed Assistant Group Head of the Scale-Up Operations Group, J. G. Bradley was appointed Assistant Group Head of the Unit Operations Group, and N. G. Wittenbrock was appointed "B" Shift Supervisor of the Operating Group. Effective February 16, 1949, A. G. Blasewitz was appointed Assistant Group Head of the Stack Gas Disposal Group of the Process Section.

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Separations Technology Division

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

	<u>January</u>	<u>February</u>
Administration	2	2
Process Section	30	28
Development Section	95	95
Research Section	<u>29</u>	<u>30</u>
	156	155

One new hire, a Technical Graduate, was added to the Process Section.

One Chemist was transferred from the Metallurgy & Control Division to the Research Section. Two Chemical Engineers from the Process Section were transferred to the "S" Division. One Assistant Group Head in the Process Section was transferred to the Design Division. No employees were awaiting security clearance.

200 AREAS PLANT ASSISTANCE

Canyon Buildings

Much of the month at B-Plant was spent in overcoming difficulties originating with the leakage of approximately 20% of a run from Section 17 onto the cell floor. This material was mixed eventually with approximately 175,000 pounds of water and flushing acid in the 5-6 Sump Tank. Reworking of this material consumed several days and considerable metal waste storage space. Considerable line flushing and checking were carried out to determine if several other indicated leaks actually existed. Those leaks which were found were corrected and special reworks were made to recover product lost through such mechanisms as addition of excessive amounts of test water to a product solution heel in an oxidation tank. A suspected dissolver leak at B-Plant was proved not to exist after considerable checking had been carried out.

A number of other mechanical and operational difficulties were encountered during the month. These included failure of the skimmer in Centrifuge 16-2 at T-Plant and the discovery of defective gang valves in Section 14 at T-Plant and Section 8 at B-Plant. The centrifuge was replaced and the gang valves were repaired.

In attempting to regain the decontamination factor losses which resulted at T-Plant from abandoning the Section 13 by-product precipitation cake settling procedure in favor of the previously used procedure of centrifuging with agitation, the concentration of cerium and zirconium scavengers was increased. Decontamination factors promptly rose from the neighborhood of 4.0 to 4.2 to values in the vicinity of 4.5 to 4.7. The effect upon yield loss average had not yet been established at month-end, but individual values did not vary as widely as previously.

Hydrogen analyses have been completed on two samples of off-gas taken from bismuth dissolving. Values less than 1% by volume were found. Additional samples will be taken to check these values for the early course of the reaction and to obtain data for later periods of the dissolving.

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DECLASSIFIEDConcentration Building

The routine lanthanum fluoride by-product precipitation waste rework of Run B-9-01-B-29 was made without the addition of hydrofluoric acid prior to centrifugation in an investigation of alternative methods for processing the rework effluent. The waste loss for this run was nominal and further information is being gathered on the suggested process change which initiated this test; namely, that Cell D rework be recycled into Cell A for the bismuth phosphate by-product precipitation.

Further information has been obtained regarding the possible relationship between the lanthanum fluoride product precipitation cake removal procedure and the Isolation Building supernatant plutonium concentration. The use of hot water for removal of the lanthanum fluoride product precipitate from the centrifuge has shown promise of more efficient cake removal than the previously used cold water. This in turn has left less cake in the bowl for the hot 50% potassium hydroxide removal step and appears to correlate with a reduction in the amount of product recycled by the 231 Building steps. Further investigations will be made along these lines.

Isolation Building

In order to reduce the amount of water being sent to the Isolation Building sump tank and cribs, the head tank jets which have operated on water were being replaced with air jets during the month.

REDOX DEVELOPMENTRehabilitation of 321 Building

Rehabilitation of the entire 321 Building was carried essentially to completion during the month. The service-side (offices, locker rooms, wash rooms, etc.) portion has been redesigned to realize more efficient utilization of existing space and facilities. Internal concrete block partitions have been replaced for the most part by transite. The external walls have been provided with eight windows located at the top of the walls. These windows should provide a "weak link" for any future pressure build-up.

Meetings of a committee composed of representatives from Project Engineering, Electrical, Instrument, Design, and Technical Divisions have resulted in agreement with regard to 1) canyon revisions to realize more positive canyon-service side isolation, 2) electrical codes and practices, and 3) instrumentation codes and practices. Agreement has also been reached with regard to provision for added "weak link" venting of the canyon proper. Realizing the possibility of a serious weakening of the center roof structure, a load test was conducted on a 9 x 40 ft. section. The application of a 20 lb./sq.ft. live load produced a negligible deflection and the roof is considered safe.

Investigation of Solvent Explosion

Intensive investigation of the recent explosion originating in the 55-gal. submerged-pump test stand has continued. The chief evidence which appears to be leading to an explanation of the cause is tabulated below.

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1. The shaft bearings, which were purged with air to prevent solvent vapors from removing the sodium grease lubricant, show signs of corrosion and seizure. The top bearing had obviously parted from the shaft and produced high shaft wear by virtue of its operation as a sleeve bearing. At this particular point, the mild steel-to-stainless steel rubbing friction could have produced considerable sparking.

2. Pressure drop measurements of the flame check and vent system indicated partial plugging to the extent that the air manometer could have blown — thus by-passing air to the atmosphere rather than the torque tube containing the bearings. The cessation of the air supply to the bearings could have permitted solvent vapor to rise in the torque tube in explosive proportions and produced the situation described in (1) above.

3. Distinct charring on the inside of the torque tube just above the top bearing is further evidence that ignition could have taken place at that point. This heavy charring did not exist in the lower portion of the torque tube.

4. An analysis of a small amount of solvent recovered from the test stand indicated a final HNO_3 concentration of 1 g./l. versus the 30 g./l. originally present. This depletion was probably caused by a HNO_3 -hexone reaction to form dinitroisobutane and other oxidation products. This fact would appear to preclude the possibility of a violent HNO_3 -hexone reaction. It appears evident that the estimated final 2.8 M HNO_3 concentration did not prevail at the time of the explosion.

Ignition tests with IAX solution in stainless steel drums produced an explosion which did not rupture the drum. A slight bowing of the top cover was produced plus some soot formation released through the vent. Previous ignition tests described in the literature indicate such performance to be reasonable, since 90 p.s.i. (not sufficient to rupture a drum) has been found to be the maximum pressure possible under the temperature and pressure conditions employed. The phenomenon of "pressure piling" or "pressure heaping" (Reference: Bureau of Mines Bulletin 2974.) appears to be one plausible explanation of the greater than would be predicted violence in the explosion drum. It has been determined experimentally that an initial explosion within one of two connecting chambers, both containing an explosive mixture, can compress to a great degree the gases in the second chamber before flame propagation to the second chamber actually occurs. Such a condition, in its analogy to an internal combustion cylinder, has resulted in explosions in the second chamber 10 to 100 times more violent than those produced initially in the first chamber. The extent of increased violence in the second chamber appears to be a function of the geometry and dimensions of connecting link. The geometry and dimensions of the drum and torque tube involved in the recent explosion are such that this "pressure piling" effect could apply. Initial explosion within the torque tube could have produced gases which would enter the drum proper via the small air purge holes in the bottom of the torque tube and highly compress the explosive mixture within the drum vapor space prior to flame propagation to this point.

While the above explanation is as yet tentative, it appears to be the most plausible at the present time. Further ignition tests and chemical stability tests are under way to obtain knowledge regarding the unpredictable effects of other variables such as the effect of hexone oxidation and nitration products on explosive violence.

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Further, the mechanism and kinetics of the HNO_3 -hexone reaction are under study by this Section and the Chemical Research Section. A preliminary report of the progress of the explosion investigation to date will be issued shortly.

Equipment Development and Modifications

During the month, the Scale-Up hexone stripper (hexone removal from ICU and IAW) was completed. Following the removal of hexone via this method, the HNO_3 will be removed by batch distillation in AQ-8. A jet condenser is currently being fabricated to prevent atmospheric uranium and HNO_3 contamination. Following the HNO_3 removal, IAF will be prepared for Scale-Up compound column studies.

Steps are underway to provide an inert gas blanketing system for the Scale-Up tanks. Leakage tests on three tanks revealed leakage rates in the range of 0.58 to 0.83 cu.ft./hr. at a pressure of 3 inches of water. Thus excessive inert gas capacity will not be required.

Steps are being taken to bring the feed, receiver, and solvent storage capacity of the Demonstration Unit more in line with the capacity requirements during normal use. This will be achieved by the addition of 250-gallon storage tanks formerly employed in the building, the regrouping of presently available 55-gallon drums, and the use of direct automatic flow control rather than displacement pumping.

The SOD 1/100th-scale box mixer-settler unit has been assembled on C Balcony with its feed and receiver system provided with N_2 blanketing. The unit will be employed for the procurement of equilibrium data. It has been estimated that one set of equilibrium data may be obtained in about 5 hours by one man whereas it would require two laboratorians 2 weeks to obtain the same information in the laboratory.

The Scale-Up 7-stage Service Extraction Unit is being removed since it has shown that service runs may be conducted more easily in the 5-or 8-inch diameter columns. Some time in the future, it is planned to install a service column in the Service Extractor enclosure.

Miscellaneous

During the month, a method for HNO_3 removal from ICU by batch distillation was developed as an essential step toward the preparation of Scale-Up IAF. The time required to prepare ferrous sulfamate from powdered iron and sulfamic acid has been reduced from several days to a period less than 8 hours.

During the month, Redox Technical Data Studies No. 9 (HW-12350) and No. 10 (HW-12371), pertaining to IB equilibrium data and IA Column studies, respectively, were issued.

REDOX RESEARCH

Reaction of Nitric Acid and Hexone

Reaction of hexone at ca. 100° in the presence of aqueous HNO_3 solutions has been discussed in previous reports of this series (HW-9191C, HW-9595C, HW-9922C). In that work, dinitroisobutane, methyl isopropylidiketone, and organic acids were shown to be products of the reaction and the auto-catalytic nature of the reaction was shown to be related to nitrous acid formation.

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Experiments in which aqueous 1.3 M $\text{Al}(\text{NO}_3)_3$ solutions containing no free HNO_3 were refluxed in the hexone at ca. 100° have shown that hexone reacts with the HNO_3 formed by hydrolysis of $\text{Al}(\text{NO}_3)_3$. Water-washed raw hexone started to decompose after 30 minutes to four hours induction time. Nitrous acid was identified in the reaction mixtures at concentrations of 10^{-2} to 10^{-3} g/l, and the diketone was found in amounts of 1-5 g/l. No hydroxylamine was detected. Sulfamic acid inhibited the reaction until it was hydrolyzed but was also observed to yield an orange color at high temperatures, presumably due to formation of an addition compound with hexone.

In general, once the reaction was started, it continued to and beyond a pH where $\text{Al}(\text{OH})_3$ was precipitated. However, when NH_3 was added to the $\text{Al}(\text{NO}_3)_3$ solution to the point of initial $\text{Al}(\text{OH})_3$ precipitation before refluxing, no reaction of hexone occurred during a 48-hour refluxing period.

Absorption spectra measurements suggest that a blue intermediate in the reaction of hexone and nitric acid is a nitro-nitroso derivative of hexone.

Methyl isopropyl diketone and dinitroisobutane have been synthesized, purified, and their absorption spectra determined, thus establishing quantitative methods for analysis of these compounds.

Information on the room temperature reaction of HNO_3 and hexone has been obtained by the analysis of twenty Redox IAX solutions (0.5 M HNO_3 in hexone) which had been used for the corrosion testing of various stainless steels for periods up to 173 days. About three-fourths of the solutions contained only 0.5 to 3 g/l. of residual HNO_3 but also contained 2-12 g/l. of dinitro isobutane, 5-25 g/l. of organic acids (as acetic acid), 5-17 g/l. of diketone and ca. 1 g/l. of water. Other compounds were undoubtedly also present.

On the basis of experimental results and literature information, a tentative scheme for the mechanism of reaction of HNO_3 and hexone has been postulated. This scheme includes as products and intermediates the following compounds: methyl isopropyl diketone; 1-1, dinitro isobutane; a nitro-nitroso derivative of hexone; isobutyl nitrolic acid; isobutyric acid; acetic acid; an oxime derivative of hexone; hydroxyl amine; nitrous acid and oxides of nitrogen. With this scheme as a working hypothesis, determination of the overall mechanism of hexone decomposition is in progress. After determination of the mechanism, significant kinetic and catalytic studies can then be undertaken.

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

As a check on previously reported (HW-10714C) density-composition equations, density-composition data were obtained for a number of $\text{Al}(\text{NO}_3)_3$ solutions using several methods of aluminum analysis and exercising extreme care throughout. The two sets of data were in good agreement with each other and with data given in the International Critical Tables.

The solubility of water at 25°C in the systems: hexone- HNO_3 , hexone- $\text{UO}_2(\text{NO}_3)_2$, and hexone- $\text{UO}_2(\text{NO}_3)_2$ - HNO_3 - $\text{Al}(\text{NO}_3)_3$ was measured by a direct titration method (modified Karl Fischer) believed to be quite accurate. This work has served two purposes. Previous solubility data based on cloud point determinations were shown to be satisfactorily accurate and tentative values were obtained for the moles of

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water transferred to the hexone phase per (a) mole of nitric acid transferred and (b) mole of $\text{UO}_2(\text{NO}_3)_2$ transferred. The latter values were obtained after correcting for the solubility of hexone in water in the absence of other components. In simple three-component systems, moles $\text{H}_2\text{O}/\text{mole HNO}_3$ was 1.67%.02 over a range of 0 to 1.016 M HNO_3 and moles $\text{H}_2\text{O}/\text{mole UO}_2(\text{NO}_3)_2$ was 3.56%.03 over a range of 0 to 1.105 M $\text{UO}_2(\text{NO}_3)_2$.

The distribution of Pu(VI) in acid-deficient Redox systems was initiated following completion of the work on systems containing 0 to 1.0 M HNO_3 in the aqueous phase.

Packed Column Studies

Employing the 1-1/2-inch I.D. x 5-ft. glass column packed with 1/4-inch x 1/4-inch stainless steel Raschig rings, the following results were obtained under A.N.L. extraction section conditions:

1. Rings freshly pickled with hot HNO_3 gave high H.E.T.S. values compared to the same rings after contact with IAFS for a number of days. Chemical analysis of feed and effluent aqueous streams for Si, Cu, Sn, and Fe did not indicate absorption of these materials by the packing during the start-up period; however, the analyses may not have been sufficiently sensitive.
2. Operating at 600 gal/sq.ft./hr. total liquid flow, an H.E.T.S. of 1.25 ft. was obtained. At the same flow rate with the interface maintained at the bottom of the column, the H.E.T.S. was increased slightly to 1.50 ft.
3. The addition of sulfamic acid (5 g/l) to a normal IAFS run did not alter the H.E.T.S. However, inversion of the column (hexone continuous) in the presence of sulfamic acid increased the H.E.T.S. from 0.88 to 1.71 ft.
4. Nitrogen gas was metered into the bottom of a IAFS run in order to note the effect of non-condensables upon H.E.T.S. At a total liquid flow of 317 gal/sq.ft./hr., a decrease in H.E.T.S. from 0.9 to 0.7 ft. was observed as the nitrogen flow was increased from 0 to 20% of the liquid flow. Between 20% and 80% gas flow, H.E.T.S. was unchanged. At 80% gas flow, the column was near flooding at 317 gal/sq.ft./hr. At 20% gas flow, the H.E.T.S. was increased only 0.1 ft. when the column was inverted.

Ruthenium Investigations

Studies have indicated that the rate of RuO_4 distillation by ozone is about seven times faster for simulated IAF solutions (tracer Ru) than for simulated IBP solutions. To obtain ruthenium species that might be expected to exist in process IBP solutions, the synthetic IBP solution was prepared as follows: Four ml. of IAFS (1 M UNH, 0.15 M HNO_3 , 0.65 M ANN, 0.05 M $\text{Na}_2\text{Cr}_2\text{O}_7$, tracer Ru) was extracted twice with eight ml. of IAX (hexone 0.5 M HNO_3). The hexone extracts were combined and scrubbed once with IAS (1.3 M ANN). The hexone phase was then scrubbed twice with 1.5 ml. portions of IBX (1.3 M ANN, 0.05 M Fe(II), 0.12 M $\text{H}_2\text{NSO}_3\text{H}$). The latter combined aqueous phases were used as the synthetic IBP solutions.

Using a synthetic ICU solution prepared by extracting the final hexone phase above with five ml. of 0.1 M HNO_3 , the rate of RuO_4 removal was approximately the same as that from the synthetic IBP solution which may indicate that the same species of ruthenium exists in these two solutions.

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Incomplete data on the ozonation of a IBP solution obtained from ORNL Columns at 30% Hanford activity level also indicate the slower RuO_4 removal.

A much more favorable rate was observed in the first ozonation experiment conducted in this laboratory with Hanford dissolver solution. One part of dissolver solution was diluted with nine parts of 2.0 M UNH - 0.3 M HNO_3 solution and the mixture ozonized for four hours at 75°C with a 3½% ozone-oxygen stream. The residual ruthenium was estimated at 1.4% but the correct value may be somewhat higher or lower than this value because of analytical difficulties.

Various means of increasing the rate of distillation are being considered; in particular, an electrolyte ozonizer capable of giving up to 20% ozone is under construction.

Additional strip tests have shown that the pick-up of activity on gold from RuO_4 streams is low. If the gold strips are not kept clean, however, adsorption is increased. Gold strips which had picked up about 300 counts/minute on one distillation picked up about 3000 counts/minute on a similar distillation carried out after standing over the weekend. The increase in adsorption by the strip is attributed to dust contamination.

Additional investigations on isotopic dilution of ruthenium have failed to yield any conclusive evidence that interchange between the carrier and tracer ruthenium has been accomplished by either paraperiodic acid oxidation or by ferrous reduction. These results have served, however, to support the conclusions of the ORNL group; namely, (1) Ru(VIII) is highly extractable by hexone and is very unstable therein, and (2) Ru(III) is fairly soluble in hexone. The latter conclusion is based on the observations that Fe(II) reduces the intense brown color of the ruthenium "(IV)" nitrate carrier to a pale straw color and is accompanied by an increase in the E_{β}^{max} for the ruthenium tracer.

Head-end Scavenging Treatments

Glass-wood scavenging of plant dissolver (4-5-L) solutions continues to give much less removal of zirconium and gross gamma-activity than was observed in earlier work in the plant 4-8-MS (H_2SO_4 - free) and 8-1-MR solutions. However, this comparison is based upon adsorption contacts conducted at room temperature. Recent results obtained by contacting 4-5-L solution at ca. 100°C are decidedly more promising.

Preliminary data indicate that less than 0.5% of the ruthenium activity is adsorbed from 4-5-L solution by glass-wool.

Silica gel and Filtrol are being tested as scavenging agents for plant dissolver solution.

Zirconium Hydrolysis and Polymerization

Hydrolysis and polymerization of zirconium in HNO_3 systems is being studied by TTA methods. As a preliminary step in this work, the equilibrium constant for the reaction



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has been found to 1190 in 4 M HClO_4 and at zirconium concentrations up to 0.008 M . The measurements will be carried to higher zirconium concentrations and lower acidities where hydrolysis and polymerization are important.

Uranyl Polymerization

The observations have been made that (1) the extraction coefficient for Pu(VI) in low-acid systems decreases in the presence of the uranyl ion and (2) the coefficient approaches that of the uranium. Conversely, the distribution of uranium increases as the uranyl concentration decreases. These observations can be satisfactorily interpreted if it is assumed: (1) uranyl ion at low acidities goes through a partial polymerization and (2) rapid equilibrium is established between Pu(VI) and the polymeric uranium species.

Using a TTA extraction method, it was found that no polymerization of U(VI) occurred in solutions 0.1 M in HClO_4 and up to 0.0456 M in $\text{UO}_2(\text{ClO}_4)_2$, but this does not preclude polymerization at lower acidities or at higher uranium concentrations. However, the experimental difficulties encountered at 0.1 M HClO_4 are greatly magnified at lower acidities and, therefore, further investigation of this problem using the above technique has been discontinued.

Use of Ozone as an Oxidizing Agent for Plutonium

The stability under Column IIA conditions of Pu(VI) formed by ozone oxidation of IBP solution has been tested on a IBP solution from the column runs in progress at Oak Ridge. This material represented 30% Hanford level of activity. Following ozonization to 100% Pu(VI) , a series of extractions similar to those previously performed on a synthetic solution were carried out. After the fourth extraction, less than 0.05% of the original plutonium was left in the aqueous phase and E_a^D still favored the hexone. The results were in good agreement with those obtained with the synthetic solution. Studies on cerium decontamination are in progress.

Study of the use of ozone as a replacement for dichromate in Column IA operation have been continued and extended to acid-deficient systems and to solutions containing sulfamic acid and iron. Acid-deficient solutions were found to behave very similarly to those containing the normal concentration of HNO_3 , approximately 20% of the initial plutonium remaining after the sixth extraction due to partial reduction of the Pu(VI) during the contactings. Solutions containing 0.1 M sulfamic acid behaved similarly; however, A.N.L.-type IAFS fortified with both sulfamic acid and iron gave E_a^D values which held up fairly well under repeated contactings, the reduction not proceeding beyond the production of Pu(VI) . After six extractions employing a IAFS/hexone ratio of 1 : 2, less than 0.1% of the initial plutonium remained in the aqueous phase.

Preparation of Solvent Extraction Feed from Metal Wastes

Several precipitation methods are being investigated as to their feasibility for conversion of uranium in stored and current metal wastes to a concentrated UNH solution suitable for make-up as a solvent extraction feed. Detailed results will be reported at a later date.

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Spot check evaluation of the plant sand filters was continued at both plants during the month. Efficiencies, pressure drop, and air flow were comparable to values previously reported.

Tests of a 48-inch bed of No. 55 fiberglass in a density of three pounds per cubic foot have been made at a number of linear velocities with both up and down flow and with steam injections prior to the down flow. These results have continued to show superior filtering efficiency for the fiberglass over sand at equal pressure drops. The steam injection runs did not show significant improvement in contamination removal, but there was some doubt that saturation had been achieved. Further runs are planned.

One pilot plant filter run was made with dissolver off-gas during the month. In the six-inch diameter filter packed to a thirty inch height at a density of six pounds of fiberglass per cubic foot, a linear velocity of 22.9 feet per minute resulted in a "Cutie Pie" monitored beta efficiency greater than 99.9% with the laboratory-determined beta efficiency being 98.6%. Further runs are planned when dissolving is resumed at B-Plant.

Dissolver off-gas sampling for hydrogen was started. Four samples from one run, taken at various points in the metal dissolving cycle, showed no value greater than 1.2% hydrogen by volume. Additional samples will be taken to check these results.

Additional attempts were made to run the electrostatic precipitator unit with both wet and dry operation and at several voltages. Low efficiencies (ranging from 90 to 98.5%) and frequent interruptions due to shorting out of the electrical equipment continued to plague this work. Near the end of the month, it was decided to request a representative of the Western Precipitator Corp. to examine the unit, especially the newly installed rectifier.

Further assistance was given to the Project Engineering Division in their design of the plant scale fiberglass filters for dissolver off-gas. In connection with consideration of the possibility of flushing these fiberglass units and thus prolonging their useful life if partial plugging occurred, a study was made of the fiberglass wetting characteristics when the mineral oil binder had been removed by nitric acid. It was found that an appreciable quantity of water was retained after a water flush and a greatly increased pressure drop resulted. It was therefore recommended that the fiberglass unit not be provided with a means of water flushing.

234-5 PROJECTOperations Group

Four members of the section completed the training program in Operations at Los Alamos during February, marking the end of this training program. Six hoods for the rubber glove line were received into the 272-Z Shop, completing the requirements for the RG Line and the Recovery Area. Thirteen hoods, including two Recovery Area hoods, were inspected at 272-Z and accepted for installation in the building. During the month, fifteen RG Line hoods and two Recovery Area hoods were moved to the 234-5 Building and were in various stages of installation

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at month-end. One acceptance testing and inspection procedure was issued during the month, leaving the procedure for the alarm system the only one not yet complete. Operating procedures for the RG Line were completed and transmitted to P. E. Collins for review. Store orders and purchase requisitions were issued for miscellaneous additional operating supplies required for start-up.

During the month, initial and preliminary inspections were held on the 2704-Z, 2719-A, 283-W, and 284-W Buildings, and a number of items were listed as requiring correction. The final inspection was held for the 2719-A Building (First Aid).

Near the end of the month, a major change in the building program was initiated to comply with A.E.C. requirements. Phase I of the construction program was reviewed in great detail and several minor changes were made in order to reduce the amount of work required for initiation of operations. Completion of Phases II and III was postponed. At month-end, the 234-5 Technical Group estimated the 234-5 Building to be 75% complete with the Phase I portion approximately 78% complete.

Schenectady Liaison

Layout drawings for the ventilation system for the R.M. Line hoods were reviewed at Hanford during the week ending February 19 by a member of the Services and Facilities Group in the Design Division and by Technical personnel. An approval letter recommending a few minor changes was drafted.

A shot blasting procedure for Task VI cleaning was tried out experimentally at DP-West during the month. Results of the initial work were gratifying, but additional tests are required before the development can be considered satisfactory. Plans for R. T. Jesson, Assistant Maintenance Division Superintendent, and P. E. Collins to visit Schenectady February 28 to March 4, inclusive, and also the planned Hanford design program for Task VI to be headed by E. Long of the Schenectady group were cancelled, due to the postponement of Phase III.

Development Group

Four plutonium oxalate precipitations were carried out in the ten gram-scale laboratory equipment with satisfactory hazard control. Efficiencies of precipitation varied from 99.6 to 99.8%, with the plutonium concentration in the supernate being approximately half that obtained in the plant at Los Alamos. Variable volumes of precipitate after settling were noted in spite of rigidly controlled precipitation conditions.

The attempts to provide an enamel coating on the stainless steel hood surfaces in Room 38 where the Dry Chemistry and Reduction equipment was to be installed were only partially successful, due to difficulty in obtaining the proper temperatures to set the enamel at corners and edges of the hood. Of several types of strip films used on top of the Aultite enamel, Liquid Envelope appeared to be the most satisfactory. More complete information on the success of the strip film and enameling program must await the conclusion of the laboratory program, where the ease of decontamination of the hood will be studied.

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Stand-in runs of the hydrofluorination furnace have been made with cerous oxalate. Using the processing schedule specified for the corresponding plutonium compound, temperature control within two degrees was found possible over the entire heating cycle.

Additional reductions were made with uranium tetrafluoride as a stand-in material using the resistance furnace and varying the ratio of iodine to uranium. At optimum conditions, yields of 98% were obtained for the ten gram charge runs and 92% for an eight gram-scale run. These values compare favorably with yields at other laboratories for the respective weight of metal. Receipt of the 750-watt induction heater to be used in this reduction line made possible a single trial with an eight gram charge of uranium tetrafluoride. The yield was 91% despite the considerably longer time required to obtain the firing temperature than had been the case with the previously used resistance furnace. Further tests are planned, and as soon as the induction heater is installed in its permanent location plutonium runs will be started.

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INVENTION AND DISCOVERY STATEMENT

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

Inventor Title of Invention or Discovery

None

None

R. H. Beaton

R. H. Beaton, Head
Separations Technology Division

Date: March 10, 1949

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METALLURGY & CONTROL DIVISION

FEBRUARY 1949

VISITORS & BUSINESS TRIPS

E. J. Boyle of the Oak Ridge National Laboratory spent February 11 with the Metallurgy Laboratory Section discussing slug canning procedures.

C. F. Frederick and C. L. Burros of the Oak Ridge National Laboratory spent February 14-18 with the Analytical Section discussing Redox analytical procedures.

E. N. Holden of the Schenectady Research Laboratory spent February 21-22 with the Metallurgy Laboratory Section discussing physical properties and the effect of irradiation thereon.

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

A. C. Callen and C. E. Lacy attended the American Institute of Mining & Metallurgical Engineers Convention at San Francisco on February 14-16.

A. C. Callen spent February 17 at the Radiation Laboratory, University of California, discussing the handling of radioactive materials.

R. H. Padden followed the rolling of uranium rods for Hanford at Aliquippa, Pa., on February 14-23.

O. P. Anacker spent February 14-19 at the Oak Ridge National Laboratory investigating the analytical aspects of Rala production.

R. J. Schier visited the Puget Sound Naval Shipyard, Bremerton, Wash., on February 23 to make arrangements for experimental induction heating trials to be performed there for Hanford.

D. W. Pearce attended a meeting of the Fissionable Standards Committee at the Argonne National Laboratory on February 24.

E. W. Robel left on February 26 to attend a meeting of the American Society for Testing Materials in Chicago, Ill.

G. J. Alkire left on February 26 to attend an Analytical Symposium of the American Chemical Society at Baton Rouge, La.

ORGANIZATION & PERSONNEL

Effective February 1, A. H. Bushey was appointed an Assistant Section Chief of the Analytical Section. In this capacity, Dr. Bushey will supervise all research and development work on analytical methods.

Early in the month, O. P. Amacker was relieved of his duties as Senior Supervisor of the T Plant Control Laboratory, Analytical Section, and was placed on full-time special assignment in connection with the Rala Project. R. B. Abrams was placed in charge of the T Plant Laboratory.

Personnel totals in the several subdivisions are summarized below:

	<u>January 31</u>	<u>February 28</u>
300 Area Plant Assistance Group	12	12
Metallurgy Laboratory Section	19	20
Analytical Section	430	425
Statistics Group	10	11
Information Group	54	53
Administrative	<u>3</u>	<u>3</u>
Totals	528	524

One weekly-roll chemist and one instrument maker were employed by the Analytical Section. This Section transferred the following: One exempt chemist and three laboratory assistants to the Pile Technology Division, and one weekly-roll chemist to Separations Technology. Transfers into this Section were as follows: Two clerical personnel from the Design and Construction Divisions, one laboratory assistant from the Pile Technology Division, and one instrument maker from the Maintenance Division. The Metallurgy Laboratory Section employed one weekly-roll chemical engineer. The Statistics Group employed one engineer (assignment). The Information Group employed two non-exempt Files personnel. There were a total of five terminations; one engineer (assignment) and four non-exempt personnel.

At month-end, this Division had four non-exempt personnel on the rolls awaiting security clearance for classified work. One of these was a non-exempt chemist, two were laboratory assistants in the Analytical Section, and the other one was a Files employee.

300 AREA PLANT ASSISTANCE

Uranium Rolling

Production rolling of uranium billets for Hanford was done at the Vulcan Crucible Steel Company in Aliquippa, Pa., on Feb. 14-23, under the supervision of 300 Area Plant Assistance personnel. Word was received from the AEC that this fabricator will assume responsibility for the technical supervision of uranium rolling performed by them, starting with the March production run. Simonds (at Lockport, N. Y.) assumed this responsibility in February. Both suppliers have agreed to advise Hanford of the identity of any rods fabricated out-of-process.

Chemical analyses of casting heats prepared from sections of four rods which were rolled from lead preheated billets at Lockport in January showed that the lead contents of the two billets produced were satisfactorily low (less than 5 ppm).

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Metallurgy & Control Division

HW-12666-DEU

Slug Canning

Results of canning trials (under PT 314-60-11) with slugs turned from rolled rods that were specially finished at temperatures both less than and greater than normal indicated that the current diameter expansion of about 0.007" with attendant shrinkage in length of about 0.040" was obtained with uranium finished in the range of 950° F to 1100° F (1050° F + 50° F is normal). Rods finished at 1250° F and hotter were coarse grained, and although this structure was refined during triple-dip canning, these slugs did not change dimensionally. Slugs turned from rods finished between 1100° F - 1250° F showed about one-half the dimensional change of standard alpha rolled uranium (1050° F finishing temperature). Failure of slugs to change dimensionally the full amount calculated for normal finished alpha rolled uranium probably would not affect canned slug quality. This lesser dimensional change could result in lower canned slug reactivity, however, and this is being checked in the Test File.

Checks made to determine whether fluctuating line voltage on the canning bath electrical heating elements affected slug canning (during the period Jan. 3 to Feb. 18) indicated that fluctuations did not have any appreciable effect on the incidence of non-seat canning rejects with FI slugs. Moreover, the electrical elements required power for only 25% to 33% of the time even when the line voltage dropped as much as 14%.

Macroscopic examination of three bare, gamma extruded uranium slugs that were cycled from one to three times by induction heating into the beta phase and water quenching showed a progressively greater grain refinement with the increased number of cycles. The macro-structure of the gamma uranium cycled three times had a grain size appearing as fine as that of alpha uranium that had been water quenched after heating into the beta phase either by induction heating or in the bronze bath during triple-dip canning. Subsequently, six more FI slugs were triple-cycled by induction heating and water quenching to prepare metal for metallurgical examination. Dimensional checks on these slugs showed that they expanded about 0.1" in length with an attendant diameter contraction of about 0.010" over the central portion of the slug. However, for a distance of $\frac{1}{2}$ " to $\frac{3}{4}$ " from each end, these slugs expanded about 0.010" in diameter. This unusual behavior is believed to have been caused by a non-uniform temperature along the length of these slugs, due to the heating characteristics of this induction coil and the method of operation. Mechanical slug feed equipment is being constructed to permit greater precision in these induction heating trials, and tests with both gamma extruded and alpha rolled uranium will be continued when this equipment is ready.

Arrangements were made with the Puget Sound Naval Shipyard in Bremerton to use their 960-cycle motor-generator set for induction heating trials with uranium slugs (at Bremerton) to compare the heating characteristics of this current frequency with the frequency available at Hanford (3000 cycles per second).

Final reports were issued for P.T. 314-51-11, and Supplements A and B (Doc. HW-12051) covering the investigation of alpha phase extrusion with the 300 Area press, for P.T. 314-52-11 (Doc. HW-12502) covering an attempt to gamma phase extrude billets completely using graphite inserts, and for P.T. 314-55-11 (Doc. HW-12527) relating to the fabrication of duplexed metal

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slugs for pile evaluation.

P-10 Alloy

Design work and operational planning for the melting and casting facilities for preparing lithium-aluminum alloy were continued. The removal of excess Power Division equipment from Bldg. 108-B has been completed, and work on the installation of the alloy melting facilities is to be started immediately.

METALLURGY LABORATORY

Uranium Alloys

The following uranium alloy rods were received from Battelle: (A) Binary alloys having a nominal composition of 1.0 atomic percent each of gallium, tellurium, and lithium, and 0.5 atomic percent each of silicon and zirconium; (B) one ternary alloy containing a nominal 0.01 atomic percent zirconium and 1.0 atomic percent silicon; and (C) two quaternary alloys, the first having a nominal composition of 1.0 atomic percent zirconium, 1.0 atomic percent silicon and 0.1 atomic percent chromium, and the second, 0.01 zirconium, 0.05 silicon, and 0.1 chromium.

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

X-Ray Crystallography

All laboratory work was suspended due to extensive laboratory alterations and construction. Data on all the work done previous to these alterations have been assembled and reports written.

Irradiated Materials

Conversion of Bldg. 111-B was carried to about 75 percent completion (Project C-294). Construction of the different component parts of the hot cells to be installed in this building are in various stages of completion. Rules and regulations for the operation of the building are being drafted.

The irradiated wafers previously cut and stored at the North area in Bldg. 212-N were removed from their underwater holders and placed in lead casks. Studies on methods of electrolytically macro-etching these and other wafers removed from irradiated uranium pieces are in progress.

One pair of mechanical hands of Schenectady design to be used in wooden mock-up studies of hot metallurgical cell design were received from KAPL.

The Rotobin is under construction. Designs of the Cut-off Box, Dutch Oven, Rockwell Table, and Macro-Etching Equipment are complete except for a few small details on each item.

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Dilatometry

Like other phases of metallurgy laboratory work, dilatometric experiments have been drastically curtailed by lack of laboratory facilities during the space rearrangement program. Reports are in progress to cover all phases of the work done to date.

Redox Corrosion Testing

Stainless steels of types 304 and 347 showed no significant changes after an exposure of 3 months in IAW solutions neutralized to a pH of 0, 2, and 10. Welded SAE-1020 steel in this same solution neutralized to a pH of 10 showed only slight rust formation. Corrosion tests on hand-arc-welded 304 and 347 type stainless steels were started on the 90-day exposure period; no significant changes have been observed to date. Stainless steels 309 SCb, 347, 316 ELC and 318 have completed their second 90-day test period in Redox solution IAS. No significant weight changes were measured and no change in appearance was observed.

Miscellaneous

When the Hanford Branch of the Research Laboratory was discontinued, it was agreed that some of the work under way on beryllium would be continued by the Metallurgy Laboratory. Of the work that had been planned, only some creep work was continued. This involved irradiating a few stressed beryllium samples in the pile and making strain measurements before and after irradiation. The status of this work was reexamined during the month, and it was decided that the work should continue since Schenectady is still interested in creep data, and since the tests would provide additional experience in handling irradiated materials without the high level radiation problems involved in working with uranium.

Beryllium creep samples are in the process of being checked after an additional 31-day exposure to stress. All specimens are now being given an equal exposure time in order to eliminate this variable between individual samples. Results from these checks are not yet available.

It was previously reported that temperatures of 450° C caused some liquation in small segregated areas in 10% aluminum-magnesium alloys. It now has been shown that sixteen hours at 450° C will remove all but slight widely separated areas. The presence of these spots indicates that the original rods were not completely homogenized during manufacture. Ten samples of these alloys were heat-treated at 450° C for 22½ hours and quenched in water prior to age-hardening treatments. The age-hardening characteristics of these alloys are following results on similar alloys published by other investigators.

Service Work

There are indications that satisfactory service for HNO₃-HF pickling solution steam coils in the 200 Areas can be expected from Karbate 20, Durinect 20, and 309 SCb stainless steel, provided special precautions are observed.

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Metallurgy & Control Division

HW-12666-DEL

Strain measurements and tests to failure were made on a pile angle mock-up for the File Technology Division.

Brass parts were hard chrome plated for the 300 Area Maintenance Division.

ANALYTICAL LABORATORIES

Work Volume Statistics

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

	<u>January</u>		<u>February</u>	
	<u>Samples</u>	<u>Determinations</u>	<u>Samples</u>	<u>Determinations</u>
Routine Control - 200	3196	5176	2259	4069
Routine Control - 300	484	1645	396	980
Water Control - 100, 700	13512	25562	12272	23640
Redox Control	1991	7754	673	2734
Process Reagents	1497	2838	994	1718
Essential Materials	138	741	141	691
Special Samples	3571	6423	4536	8638
Stack Gas Filters	<u>126</u>	<u>182</u>	<u>148</u>	<u>287</u>
Totals	24515	50321	21419	42757

100 Area Process Control

Arrangements were completed for the Power Division to take over most of the routine analytical control responsibilities in the 100 Area water laboratories, and the necessary training of Power operators in this work was scheduled to start early in March.

200 Area Process Control

Ten samples of various metal dissolver solutions (3-5-RMS and 4-5-IMS) were analyzed for hydrogen ion concentration at the request of the Separations Technology Division. These samples are the first of a series designed to check the hydrogen ion concentration of the various process solutions.

The training of control personnel in the Isolation Bldg. Laboratory on the available 234-5 procedures was started during the month.

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)	50.53	109
T Plant (222-T)	50.49	91
Isolation Bldg. (231)	50.50	50

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Metallurgy & Control Division

HW-12666 *DEL*

The precision of the analytical results of the 221-T canyon starting solution (8-1-MR), the 221-B 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>Period Ending January 31</u>		<u>Period Ending February 28</u>	
	<u>Precision (+%)</u>	<u>Weeks Covered</u>	<u>Precision (+%)</u>	<u>Weeks Covered</u>
8-1-MR	1.39	24	1.43	26
*6-3-MR	-	-	1.28	2
P-1	2.64	30	2.14	32
AT	2.02	30	2.10	32

*The 8-1-MR samples were discontinued in the 221-B canyon with run B9-1-D30. The 6-3-MR sample is now being used in this plant as a basis for material balance control.

Since the precision of the analytical results during the past few months has been consistent, the Statistics Group has discontinued the practice of accumulating precision data in order to establish a definite precision figure. As of February 11, the precision of all 8-1-MR and 6-3-MR radioassays is based on the precision calculations of the 8-1-MR for August 29, 1948. Precision of the P-1 and AT chemical assays is now based on November 25, 1948 calculations.

The precision of the analytical results of the above analyses, since the establishment of the expected precision figures, may be summarized as follows:

<u>Sample</u>	<u>Expected Precision</u>	<u>Ave. February Precision</u>	<u>Weeks Covered</u>
8-1-MR	1.43	1.49	2
6-3-MR	1.43	1.36	2
P-1	2.39	2.51	2
AT	1.98	1.74	2

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

<u>Month</u>	<u>Laboratory</u>	<u>Ave. Results ($\times 10^6$)</u>	<u>No. assays</u>	<u>% Recovery</u>
January	222-B	2.015	11	98.5
	222-T	2.058	17	98.1
February	222-B	2.064	14	99.4
	222-T	2.065	13	99.4

The standard iron solution used in the Isolation Bldg. Laboratory to check the chemical titration of plutonium was analyzed a total of 64 times during the month. There were 55, 9, and 0 results inside $\pm 1\%$, $\pm 2\%$, and outside $\pm 2\%$ of the assay value, respectively. The average precision for duplicate titrations was ± 2.37 as compared to ± 2.06 for January.

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<u>Assay Value</u>	<u>Group Ave.</u>	<u>% Diff.</u>	<u>No. Determinations</u>	<u>Precision (\pm%)</u>	
				<u>Single</u>	<u>Duplicate</u>
12.65	12.71	+ 0.47	12	3.86	2.73
14.96	14.93	-0.20	16	3.69	2.61
10.79	10.74	-0.46	20	2.73	1.93
11.06	11.08	+ 0.18	16	3.10	2.19

300 Area and Essential Material ControlGeneral

A spectrochemical procedure for the determination of tin in the Al-Si dip pot was perfected and was placed in use on February 6. A similar procedure for the analysis of 2S aluminum is nearing completion.

A series of uranium oxide samples is being analyzed for boron, halogens, molybdenum, phosphorus and total rare earths in an attempt to establish the purity of various scrap materials.

Redox Process Control

At month end, there were 95 people assigned to the Redox program, 88 of whom were permanently assigned to the 3706 Building. The remaining 7 are in training in the 100 Area Laboratories.

As a result of the reduced sample load from Bldg. 321, this group has concentrated on the analysis of standard samples for statistical purposes. A total of 1,127 such determinations was made during this period.

Methods Adaptation

The control laboratory's Sargent polarograph has been recalibrated in the ranges of 0.2 to 7.0 and 10.0 to 100 g/l of UNH. To date, routine analyses have not been satisfactory.

A spectrophotometric method which is applicable to solutions containing nitrate ion has been developed for the determination of mesityl oxide in synthetic hexone mixtures. However, difficulty was encountered in obtaining satisfactory recoveries when this procedure was applied to column samples. Further study of the system is in progress.

The acidimetric determination of aluminum and the ferric sulfate titration of UNH are being adapted to the analysis of active samples on a micro scale. In both cases preliminary results are very promising.

Miscellaneous Analyses

Several samples of irradiated graphite were analyzed for their heating value. No difficulty was encountered in adapting standard techniques to this problem.

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Analysis of a series of hexone derivatives for carbon, hydrogen and nitrogen is proceeding. Operating difficulties were experienced with the micro hydrogen train but these have been eliminated.

Procedures have been developed and successfully applied for the determination of oxides of nitrogen and hydrogen in dissolver off-gases.

Several samples of human tissue were analyzed for organic chlorides, heavy metals and alkaloids at the request of the Medical Division.

Experimental Shop

The duplex carbon and hydrogen combustion train was completed and placed in service. Performance on initial runs was excellent.

The graphite ashing furnace was also placed in service, but considerable repair work has been required in order to maintain continuous operation. All the difficulties experienced to date are the result of the high operating temperatures required for the reaction.

A special mixer has been fabricated which will duplicate careful hand shaking. This unit is being used in the study of phase separation intervals.

Special Hazard Control

On February 10, construction of the two new contaminated liquid waste disposal cribs for the 222-B Laboratory in 200 East Area was completed and they were put into service as of that date.

Analytical Research and Development

The lanthanum fluoride carrying technique has been applied in the determination of one part of plutonium in 10^8 parts of uranium; efforts have continued to obtain the maximum sensitivity of the procedure.

A polarographic procedure has been developed for the determination of aluminum and has been turned over to the methods adaptation group. The method is suitable for analysis of active LLW Redox solutions in that only a 10 lambda sample is required. It has shown a precision of about 4%.

Mandelic acid was found to precipitate completely both zirconium and columbium; no major components of Redox solutions interfere.

A coulometric titration procedure for determination of weak acids was found to be very sensitive. The method was applied to the determination of such acids after their distillation from Redox solutions. The acid is dissolved in a water-alcohol solution that is saturated with lithium chloride; this is electrolyzed between a platinum and a silver-silver chloride electrode, thus causing liberation of hydrogen and chlorine. Measurement of the quantity of electricity passed provides a quantitative measure of the acid decomposed, and pH measurements serve to detect the end point.

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Metallurgy & Control Division

HW-12666-DEL

In the 234-5 program, investigations continued on a procedure for determining impurities in plutonium whereby plutonium cupferride is extracted from the sample solution and the impurities remaining are determined spectrographically. One group of five impurities was found to be recovered to the extent of 75 to 100% by this technique; spectrographic standards were prepared for another group. In treating 50 μ g of plutonium according to the extraction procedure, 99% separation was effected; similarly, 99.8% efficiency was obtained with a 5 ng. sample. A colorimetric determination of fluoride was found to be applicable in the range 0.5 to 8 μ g.

A sample of graphite was found to contain 0.18 ppm of samarium by a radio-activation method. A similar technique applied to the determination of gadolinium failed because of samarium impurity in the standard gadolinium employed; the indication is, however, that the activation cross-section of gadolinium is so small that this method is unsatisfactory. A sample of europium oxide was irradiated with neutrons and found to produce the 9.2 hour europium and no other rare earth activity; this indicates high purity of the material.

The first gaseous sample from the P-10 process was analyzed in multiple with satisfactory agreement.

STATISTICAL STUDIES

Slug Distortion

From data submitted by the 300 Area Plant Assistance Group, a study of dimensional changes during canning revealed pertinent information relative to the effect of rolling temperatures and difference between rolling mills. This study was made because statistical analysis of previous data from slugs exposed in the 100 Area piles indicated that such an effect might be present.

300 Area Statistical Control Program

Improvements in individual reject causes connected with the 300 Area statistical quality control program inaugurated late in November culminated in a February yield 5% higher than the 1948 average. The state of control for both individual reject causes and yield was excellent throughout the month. The problem now is to maintain the state of control that has been achieved.

Graphite Quality

A statistical analysis of Test Pile results of G.B.F. graphite heats revealed significant differences between heats, but no significant differences between positions within heats or between lots of graphite comprising several heats. This suggests that differences between heats were due to operating variables. A significant multiple correlation indicated that four operating variables, on which data were available, caused 25% of the variations in quality of graphite from the heats.

Hanford-Los Alamos Differences

A significant correlation was found to exist between (1) Los Alamos-Hanford product measurement differences, and (2) the difference between Hanford chemical assay and Hanford assay predicted statistically from ΔT specific gravity. This means that the statistical procedure put into effect recently, in which the actual assay is controlled within the limits forecast in the statistically predicted assay, will bring Los Alamos-Hanford differences under better control.

Analytical Precision and Accuracy Studies

A statistical study of the analysis of synthetic 8-1-MR samples revealed significant differences in accuracy between the results from Laboratories 222-T and 222-B. During November, December, and January, there has been a significant downward trend in the percent plutonium recovery in the analyses from Bldg. 222-B. All chemists were found to follow the same trend, indicating that the cause is independent of them.

A comparison of the direct evaporation method and the lanthanum fluoride precipitation method for 8-1-MR analyses revealed no significant difference in precision. Both methods must be corrected for accuracy; the precipitation method giving consistently low results, and the direct evaporation method consistently high results.

In cooperation with the Analytical Section during the forced shutdown of Redox operations in Bldg. 321, an intensive program to study the accuracy of Redox analyses was undertaken.

LIBRARY AND FILESGeneral

The first of a planned series of in-service training classes on technical phases of plant operation was held. Fifteen key staff members of the Information Group heard a talk on the 300 Area processes and made a guided tour of the Area. It is the intent of this and further classes to compensate for the lack of technical training which is a real handicap to the Files personnel handling technical material. In this connection, a study was undertaken, to continue for four weeks, of the various reference questions asked the Classified Files. This listing of requests will be used to guide the in-service training program.

Plant Library

Daily work on the acquisition, cataloging, and circulation of books proceeded without incident. The book collection was expanded by the receipt, from the book binders, of runs of the following periodicals: "Acta Radiologica", "Engineering News Records", and "Waterworks Engineering". The number of literature searches requested from the Library has steadily increased. Those undertaken this month included, among others, one on the thermodynamic properties of CO_2 ; natural radioactivity; K-40; maintenance of steam turbines; new electronic symbols; and composition, properties and available forms of

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the plastic Formex.

Library statistics were as follows:

(Note: Previous circulation figures did not include the number of MDCC and other unclassified reports circulated which will be included in this and future reports).

	<u>January</u>	<u>February</u>
Number of books on order received	92	161
Number of books fully cataloged	174	205
Number of bound periodicals processed but not fully cataloged	274	152
Pamphlets added to pamphlet file	53	26
Miscellaneous material received, processed, and routed (Included maps, photostats, patents, etc.)	55	53
Books and periodicals circulated	1104	1065
Unclassified reports circulated	(No record kept)	156
Reference services rendered	1008	953

	<u>Main Library</u>	<u>W-10 Branch</u>	<u>Total</u>
Number of books	3896	1494	5395
Number of bound periodicals	2928	100	3028

Classified Files

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

The final draft of a proposed Instructions Letter covering the handling of classified mail was forwarded for review and comment to all Works personnel directly concerned.

In connection with the summary report to the Atomic Energy Commission on the results of the recently completed inventory of classified documents, file copies of missing documents were submitted to the respective Divisions for review and evaluation.

A meeting was held with the local du Pont representative to review the present status of the transfer of the classified du Pont records to Wilmington. It was agreed that it probably would not be possible to complete the Files work involved in this special assignment before June 30, 1949.

An experienced operator of duplicating equipment was added to the Files Assistance Unit, which has been transferred to the direction of the 300 Area Classified Files supervisor with the resignation of its former supervisor.

In line with Security recommendations, a policy of supplying issuing offices with the exact number of copies of a report called for by its distribution list was instituted. Insofar as limited staff permits, this policy will be

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Metallurgy & Control Division

HW-12666 -DEL

implemented by assembling the documents in the Unit.

Work statistics for the Classified Files were as follows:

	<u>January</u>	<u>February</u>
Documents routed	11,375	12,043
Documents issued	5,200	6,607
Reference services rendered	5,591	4,245

Files Assistance Unit statistics were as follows:

(Note: Volume of mail handled appears for the first time, and will be included in future reports).

	<u>January</u>	<u>February</u>
Ditto masters run	853	848
Mineograph stencils run	483	515
Ditto master copies prepared	44,362	42,412
Mineographed copies prepared	23,225	26,527
Volume of mail handled	(No record kept)	13,060

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.

<u>Inventor(s)</u>	<u>Item</u>
T. J. Birchill	Ground Stopper Bottle Mixer
S. A. Hays	Multiple Stopcock
A. C. Weyerts	Autobalance
J. V. McMaster	A process for coating Type 18-8 stainless steel with 2S aluminum and aluminum-silicon alloy.

Signed T. W. Hauff
T. W. Hauff,
Division Head.

TWH:mcs

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FEBRUARY 1949

General

The Medical Division roll dropped by two to 520.

Industrial

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

Employee physical examinations increased from 3,648 to 4,971, due chiefly to an increase in termination examinations. First aid treatments decreased by 1,003 to 16,803.

Total absenteeism increased to 3.20%, largely due to increase in sickness absenteeism from 1.85% to 2.29%.

20 Major and 48 sub-major injuries were treated. Of these, one major and 7 sub-majors were sustained by G. E. employees.

"The Value of Periodic Medical Examination" was the health topic for discussion at the Safety-Health meetings.

Two industrial physicians accompanied legal and insurance representatives in a visit to the State Dept. of Labor & Industries to meet the new administrators of this department and to discuss common problems.

Communities - Hospitals & Clinics

The average daily hospital census was 127, a new peak. The North Richland Hospital contributed 19% of this total. Average daily clinic visits also reached a new high of 409. 29% of this total was treated at the North Richland Medical Center.

Dental clinic visits increased slightly to 3,336 for the month.

Public Health

Communicable disease remained about the same with chickenpox contributing 96 of the 168 total cases reported. Two cases of meningitis occurred at North Richland.

Costs (January)

Net cost of operation of the Medical Division (before assessments) to other divisions was \$135,199., a decrease of \$3,551. This was due to a large decrease in direct expense which more than offset a drop in revenue and an increase in transferred expense.

The net expense of hospitals and clinics was \$9,363., as compared to \$9,956. for December. This expense was made up of hospitals \$14,490., while the clinics operated at a profit of \$5,127.

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MEDICAL DIVISION

FEBRUARY 1949

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Plant Medical Section

General

The number of examinations increased from 3,648 in January to 4,971 in February. The increase was due chiefly to termination examinations. First aid treatments decreased from 17,806 to 16,803. One General Electric major injury and seven sub-major injuries were treated during the month. Sub-contractor major injuries numbered 19, and sub-major 41.

The Health Activities Committee met on February 16th and the health topic for the month of March entitled "Your Periodic Physical Examination" was presented to the group in preparation for the coming months program.

The program of the monthly Industrial physicians meeting was given by Dr. S. T. Cantril, who discussed radiation protection problems as met with at the beginning of the project as compared to present problems.

Two industrial physicians visited the Washington State Department of Labor and Industries offices in Olympia, for the purpose of meeting the new administrators of this department and discussion of common problems. The new Rehabilitation Center sponsored by the Department of Labor was also visited. Contact was also made with a prominent cardiologist of Seattle in an effort to establish and present evidence to the Department of Labor in regard to the relationship of exertion and coronary thrombosis.

<u>Physical Examinations</u>	<u>Jan. 1949</u>	<u>Feb. 1949</u>	<u>Year to Date</u>
Pre-employment (G.E.).....	199	99	298
Annual.....	486	466	952
Sub-contractors & food handlers.....	2012	3407	5419
Rechecks.....	423	376	799
Interval Rechecks (Area).....	435	519	954
Terminations & Transfers (G.E.).....	90	96	186
Army & Government.....	3	8	11
Assist to A & H Ins., Clinic, Etc.....	0	0	0
Total.....	3648	4971	8619

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MEDICAL DIVISION

FEBRUARY 1949

<u>Laboratory Examinations</u>	<u>Jan.1949</u>	<u>Feb.1949</u>	<u>Year to Date</u>
<u>Clinical Laboratory</u>			
Government.....	7	28	35
Pre-employment, terminations, transfers.....	7894	6342	14236
Annual.....	2961	2892	5853
Rechecks.....	2386	2800	5186
First Aid.....	46	69	115
Plant Visitors.....	0	0	0
Clinic.....	3691	4127	7818
Hospital.....	4013	4206	8219
Public Health (Inc. food handlers).....	604	517	1121
Total.....	21602	20981	42583
 <u>X-Ray</u>			
Government.....	3	9	12
Pre-employment, terminations, transfers.....	1328	1076	2404
Annual.....	501	479	980
First Aid.....	316	394	710
Clinic.....	416	449	865
Hospital.....	361	362	723
Public Health (Inc. food handlers).....	116	99	215
Total.....	3041	2868	5909
 <u>Electrocardiographs</u>			
Industrial.....	210	176	386
Clinic.....	22	17	39
Hospital.....	38	38	76
Total.....	270	231	501
 <u>Allergy</u>			
Skin Tests.....	46	85	131
 <u>First Aid Treatments</u>			
Occupational Treatments.....	2345	2198	4543
Occupational Retreatments.....	8030	8121	16151
Non-occupational Treatments.....	7431	6484	13915
Total.....	17806	16803	34609
 <u>Major Injuries</u>			
General Electric.....	2	1	3
Sub-contractors.....	12	19	31
Total.....	14	20	34

MEDICAL DIVISION

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FEBRUARY 1949

<u>Sub-major Injuries</u>	<u>Jan. 1949</u>	<u>Feb. 1949</u>	<u>Year to Date</u>
General Electric.....	5	7	12
Sub-contractors.....	70	41	111
Total.....	75	48	123

Absenteeism

Weekly employees, all causes.....	2.81%	3.20%	3.00%
Weekly employees, sickness only.....	1.85%	2.29%	2.07%
Total days lost by males due to sickness.....	1982	1898	3880
Total days lost by females due to sickness.....	1204	1270	2474
Total days lost due to sickness.....	3186	3168	6354
<u>Investigation:</u>			
Total calls requested.....	36	27	63
Total calls made.....	36	27	63
No. absent due to illness in family.....	0	0	0
No. not at home when call was made.....	2	0	2

Village Medical Section

General

The average daily hospital census was 127, a new peak. This was 10% increase over January and a 19% increase over February, 1948. The average daily census at the North Richland Hospital was 24.1 (19% of the total 127).

Clinic visits decreased slightly from 10,071 to 9,803. This is 80% higher than February, 1948. 29.3% of this total was treated in the North Richland Medical Center.

The net expense of the community medical program was \$9,363., as compared to \$9,956. for December. This expense was made up of Kadlec Hospital expense of \$14,490., a \$600. increase, while the clinic operated at a profit of \$5,127., which was \$1,203. less than the previous month's profit.

The net expense of North Richland Hospital decreased by \$351. to \$731.

The net expense of North Richland Clinic was \$2,021., a decrease of \$4,941. over December. This was due to an increase in income of about \$2,000., reduction of intra-division cost transfers, and an increase in direct expense.

<u>Clinic Visits</u>	<u>Jan. 1949</u>	<u>Feb. 1949</u>	<u>Year to Date</u>
Medical.....	2134	2015	4149
Pediatrics.....	934	847	1781
Well Babies.....	292	195	487
Surgical.....	876	881	1757
Gynecological.....	555	692	1247

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MEDICAL DIVISION

FEBRUARY 1949

	<u>Jan. 1949</u>	<u>Feb. 1949</u>	<u>Year to Date</u>
<u>Clinic Visits Continued</u>			
Obstetrics (New).....	103	127	230
Obstetrics (Recheck).....	853	862	1715
Venereal Disease.....	320	389	709
Ear, Nose & Throat.....	584	535	1119
Eye.....	162	284	446
Visits handled by nurses.....	2120	2172	4292
Night clinic visits.....	<u>1138</u>	<u>804</u>	<u>1942</u>
Total.....	10071	9803	19874
Average clinic visits per day.....	388	409	399
<u>Home Visits</u>			
Doctors.....	488	413	901
Nurses.....	<u>826</u>	<u>694</u>	<u>1520</u>
Total.....	1314	1107	2421
<u>Kodlec Hospital</u>			
<u>Census</u>			
Admissions.....	644	609	1253
Discharges:			
Surgical.....	115	114	229
Medical.....	163	173	336
Obstetric & Gynecologic.....	117	135	252
Eye, Ear, Nose, Throat.....	62	57	119
Pediatrics:			
Children.....	81	69	150
Newborn.....	73	77	150
Total Discharges.....	611	625	1236
Patient Days.....	3553	3568	7121
Average Stay.....	5.5	5.8	5.7
Average Daily Census.....	<u>114.6</u>	<u>127.4</u>	<u>121.0</u>
Discharged against advice.....	3	2	5
One-day cases.....	92	80	172
<u>Operations</u>			
Transfusions.....	53	28	81
Eye, Ear, Nose, Throat.....	44	49	93
Dental.....	3	0	3
Casts.....	20	30	50
Minors.....	61	77	138
Majors.....	57	63	120
<u>Vital Statistics</u>			
Deaths.....	11	5	16
Deliveries.....	77	80	157
Stillborn.....	0	1	1

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MEDICAL DIVISION

FEBRUARY 1949

	<u>Jan. 1949</u>	<u>Feb. 1949</u>	<u>Year to Date</u>
<u>Physiotherapy Treatments</u>			
Clinic.....	136	117	253
Hospital.....	71	59	130
Industrial:			
Plant.....	325	403	728
Personal.....	<u>52</u>	<u>57</u>	<u>109</u>
Total.....	584	636	1220
 <u>Pharmacy</u>			
Number of prescriptions filled.....	4505	4318	8823
 <u>Patient Meals</u>			
Regulars.....	5292	5611	10903
Lights.....	185	163	348
Softs.....	1938	1738	3676
Surgical Liquids.....	149	89	238
Tonsils & Adenoids.....	111	111	222
Specials.....	1035	1056	2091
Liquids.....	<u>310</u>	<u>275</u>	<u>585</u>
Total.....	9020	9043	18063
 <u>Cafeteria Meals</u>			
Breakfast.....	0	0	0
Noon.....	2720	2481	5201
Night.....	<u>322</u>	<u>307</u>	<u>629</u>
Total.....	3042	2788	5830
 <u>Nursing Personnel</u>			
First Aid Nurses.....	54	52	
Clinic Nurses.....	16	19	
Public Health Nurses.....	13	13	
Hospital General Nurses.....	82	82	
Aides & Orderlies.....	<u>58</u>	<u>57</u>	
Total.....	223	223	

Public Health Section

General

Communicable disease remains at about the same level. Two cases of Meningitis in North Richland were reported too late to be put on this report but did occur this month. The epidemiological investigation revealed there is no connection between the two cases, therefore, no epidemic is anticipated.

The Richland Community Health Council will act as the sponsoring agency for the X-ray Survey Program which will be held in the spring.

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111

MEDICAL DIVISION

FEBRUARY 1949

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General (continued)

Three areas were surveyed and baited for rodents. The results did not indicate an infestation of any great magnitude. Reinspections will be made and if the need is indicated, additional control measures will be effected.

This Department is cooperating with the Village Administration personnel with regards to developing specific ordinances with the necessary enforcement clauses for the control of food handling establishments, garbage disposal and dogs.

<u>Administration</u>	<u>Jan.1949</u>	<u>Feb.1949</u>	<u>Year to Date</u>
Newspaper Articles.....	28	18	46
Committee Meetings.....	15	15	30
Attendance.....	200	200	400
Staff Meetings.....	3	3	6
Lectures & Talks.....	0	0	0
Conferences.....	36	36	72
Attendance.....	150	150	300
 <u>Immunizations</u>			
Cholera.....	0	1	1
Diphtheria.....	89	72	161
Influenza.....	5	0	5
Smallpox.....	39	29	68
Tetanus.....	2	1	3
Typhoid.....	1	1	2
Whooping Cough.....	1	0	1
Total.....	137	104	241
 <u>Social Service</u>			
Cases Carried over.....	82	74	156
New cases admitted.....	16	27	43
Total.....	98	101	199
Cases closed.....	24	24	48
Remaining case load.....	74	77	151
 Sources of referral:			
Public Health.....	3	9	12
Doctors.....	9	11	20
Interested Person.....	0	1	1
School.....	0	1	1
Personal application.....	4	3	7
Miscellaneous.....	0	2	2
Total.....	16	27	43

7

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MEDICAL DIVISION

FEBRUARY 1949

<u>Sanitation</u>	<u>Jan.1949</u>	<u>Feb.1949</u>	<u>Year to Date</u>
Inspections made.....	376	389	765
 <u>Bacteriological Laboratory</u>			
Treated Water Samples.....	186	198	384
Milk Samples (Inc. cream and ice cream).....	106	101	207
Other bacteriological tests.....	<u>384</u>	<u>338</u>	<u>722</u>
Total.....	676	637	1313
 <u>Communicable Diseases</u>			
Chickenpox.....	127	96	223
German Measles.....	13	11	24
Gonorrhoea.....	8	6	14
Impetigo.....	2	0	2
Influenza.....	2	4	6
Measles.....	8	0	8
Mumps.....	2	9	11
Pediculosis.....	1	1	2
Pinkeye.....	5	10	15
Ringworm.....	5	2	7
Scabies.....	5	2	7
Scarlet Fever.....	3	2	5
Syphilis.....	15	25	40
Vincent's Infection.....	<u>1</u>	<u>0</u>	<u>1</u>
Total.....	197	168	365
 Total No. Nursing Field Visits.....	 1754	 1653	 3407

Dental Section

General

The number of dental patients treated was 3.7% higher than the previous month and 46.8% higher than a year ago.

Patients treated	3218	3336	6554
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MEDICAL DIVISION PERSONNEL SUMMARY

February 28, 1949

AREAS	Physicians	Dentists	Nurses	Aides & Orderlies	Technicians	Office Workers	Others
100-DR			1				
100-H			4			1	
234-5			4				
White Bluffs			2				
101			1				
3000	12	2	16	10	6	29	14
100-B			5			1	
100-D					2*		
100-F					2*		
200-E					2*	2	
200-W					2**		
300					2***	1	
Plant General	7		18				
700-1100	20	9	105	47	28	80	83
Total	39	11	166	57	36	114	97

Grand Total: 520

No. of employees
on payroll:
Beginning of month 522
End of month 520
Net decrease 2

9

* One day per week
** Two days per week

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HEALTH INSTRUMENT DIVISIONS

FEBRUARY 1949

Summary

The force increased by three. Four Class I Special Hazards Incidents were reported. In none of these was there serious exposure of personnel.

In the Operational Division, increased canyon maintenance work placed a heavy monitoring load on the Survey Group. Hazardous conditions in some instances were aggravated by apparent haste in various phases of maintenance and operations.

In the Control and Development Division, analytical results on samples of water air and vegetation followed the normal pattern. Special tests were continued on the Bicassay procedure for plutonium analyses to determine and eliminate the troublesome low yield problem. Fluorophotometer analyses showed a maximum content of 51 μg of uranium in the urine of 300 Area workers.

Work in establishing the Biology Division Botany Experimental Farm progressed satisfactorily. Electrostatic precipitators were installed and collection of active particles began.

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DECLASSIFIEDHEALTH INSTRUMENT DIVISIONSFEBRUARY 1949Organization

The composition and distribution of the force as of 2/28/49 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	17	6	0	39
Engineers	4	4	8	15	14	8	1	1	55
Clerical	0	0	2	1	1	4	5	0	13
Others	11	14	21	65	38	60	11	6	226
Total	16	19	34	89	56	89	23	7	333

<u>Number of Employees on Payroll</u>	<u>February 1949</u>
Beginning of month	330
End of month	<u>333</u>
Net increase	3

Additions to the roll were one technical graduate, five laboratory assistants, three general clerks and one steno-typist. One technical graduate and one laboratory assistant transferred to other divisions. One general clerk and one steno-typist terminated. Three persons were removed from the payroll, due to prolonged absence.

General

The previously mentioned discrepancy between air filtration and catching frame deposition results continued. In view of the reasonably certain interpretation of the filter readings, and the grave complications from free fall velocity of different size particles onto the frames, the latter method was abandoned. By the filter method, the air contamination is now about 100 to 300 times less than it was prior to the sand filter observation. This is in reasonable agreement with expectation from sand filter performance data with allowance for the dissolver off-gas side stream. The progressive improvement since October, now apparently completed, may or may not have been due to self cleaning of the stacks and ducts beyond the filters.

C. C. Gamertsfelder visited Los Alamos, and counseled the Special Weapons Project at Eniwetok. He also visited the Radiation Laboratories, Berkeley. H. J. Paas attended a conference on air contamination in Washington D.C.

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Health Instrument Divisions

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with a view to establishing coordination without duplication, between the Air Forces and the Hanford Works programs. G. H. Whipple, Jr. attended the Subcommittee meeting on heavy particles of the National Protection Committee. This brings to four the number of positions on these subcommittees held by Health Instrument Divisions personnel.

Four Class I Special Hazards Incidents were investigated. In one case, canyon coll blocks were removed with personnel still on the crane; dissolver coll blocks were raised at an improper time in another case; a third incident arose from air-contamination when a ring-balance was opened; glove contamination and failure to follow Special Hazards Bulletin #5 caused the last case. In none of these was there serious exposure of personnel.

National committees continue to discuss new permissible exposure rules, without publishing formal recommendations.

It is the policy of the Health Instrument Divisions to move in the direction of such changes as are more conservative than present practice ahead of their formal adoption. Rather than to confuse the local issue by reflecting the various impending changes and their modifications, it has been decided to make no overall statements of exposure levels until the new levels become "official". To prevent confusion in the records it has become necessary to modify dose reports. Thus all reports of fast neutron dose rate will now be given in terms of rom per unit time and of estimated neutron flux. The primary measurement is made in rep. The present scale of relation for fast neutrons is 1 rep = 10 rem. The estimated flux is written down on the naive assumption that all measured fast neutrons have energy close to 2 Mev.

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>
S. R. Smith	Soft Beta Survey Instrument
M. Wilhelmsen	Electrostatic Precipitator

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DECLASSIFIEDOPERATIONAL DIVISION100 AreasGeneral Statistics

	<u>January</u>				<u>February</u>				<u>1949</u>
	<u>B</u>	<u>D</u>	<u>F</u>	<u>Total</u>	<u>B</u>	<u>D</u>	<u>F</u>	<u>Total</u>	<u>To Date</u>
Special Work Permits	607	751	779	2137	651	490	801	1942	4,079
Routine & Special Surveys	482	477	677	1636	582	437	822	1841	3,477
107 Effluent Surveys	98	90	93	281	88	85	81	254	535
Air Monitoring Samples	123	131	146	400	119	52	95	266	666

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)	0.8	0.7	1.0
Average gamma dosage rate (mr/hr)	1.8	1.9	2.2
Average total dosage rate (mrep/hr)	2.6	2.6	3.2
Average integrated dose in 24 hours (mrep)	62	62	77
Maximum integrated dose in 24 hours (mrep)	84	91	86
Maximum integrated dose in 24 hours (mrep) 1949	84	94	94

Several warm springs, supporting algae growth, were observed along the Columbia River below the 100-B Area retention basin. A sample of the water showed beta activity of 4×10^{-3} $\mu\text{c}/\text{liter}$. Several leaks in the walls of the north basin were also observed.

100-B Area

During the installation of brackets for motion measurements, a pig-tail on the discharge face was inadvertently touched by the welding torch. Three men were sprayed with water from the hole made in the pig-tail and their outer coveralls became contaminated up to 800 c/m. No skin contamination was found.

The program of replacing vertical safety rods and guides with stainless steel equipment was started. Dosage rates of 50 mr/hr were encountered when work was started immediately following a shutdown of the pile and resulted from the improper purging of the third safety device headers. The rod tips and guides, when removed from the pile, were placed in vertical lengths of iron pipe capped at the bottom and supported in a lead shield.

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After a few days decay, they were lowered from the top of the pile to the dummy cart in the work area and transported to the burial ground.

A BF₃ survey made around the rod enclosure after rod replacements showed a maximum slow neutron flux of 6.5 mrem/hr (780 N/cm²/sec.). A fast neutron survey at the bumper plate of VSR #37 indicated a flux of 190 mrem/hr (1520 N/cm²/sec.). A survey on the winch level over 10 rods revealed a maximum fast neutron flux of about 30 mrem/hr (250 N/cm²/sec.).

The removal of all the aluminum spacers from the "B" experimental hole was completed. The tip of one spacer, just removed from the pile and visible at the front of the loading mechanism, showed a dosage rate of 7 rep/hr at 2 inches including 250 mr/hr at 4 inches. Each spacer was stored in the loading mechanism for at least one week's decay, after which it was taken to the burial trench. Contamination for all phases of the work was well controlled, but gloves showed dosage rates as high as 120 mrep/hr.

Numerous slightly contaminated articles of S.W.P. clothing were found in the Maintenance Change House. One maintenance man was wearing contaminated S.W.P. rubbers for personal use. The clothing was confiscated and the condition called to the attention of the Operating Division.

Water found leaking from the #7 and #8 exhaust air ducts in the fan coils showed beta contamination of 2.3×10^{-2} µc/liter. Water in the stack air Kanne chamber system made it inoperable for a time and showed 3.7×10^{-2} µc/liter. The source of this water is not definitely known.

Air-borne contamination was still prevalent during this period in the machinery room and transfer area.

Contamination of the transfer area floor was noticed and was attributed to the washing of transfer cars. The Operating Division has discontinued this washing operation.

P-10 Operations - 108 Building

The initial operation of this building was started February 16, 1949, to accommodate visitors from Chicago. Five pieces of the oldest of the backlog material were opened without appreciable exposure to personnel. The LiF pellets were found to be radioactive and in some cases somewhat powdered. During the initial extraction run the following dosage rates due to product were encountered:

<u>Operation</u>	<u>Reading</u>	<u>Detecting Device</u>
Initial heating and outgasing	4.4×10^{-13} amp	Exhaust Kanne Chamber
Replacing vacuum pump	< 1 mrep/hr	Zeuto
Furnace outgasing	1.4×10^{-12} amp	Exhaust Kanne Chamber
Evacuation of Helium by-product	2.04×10^{-12} amp	Exhaust Kanne Chamber
Hood process operations	max. 0.3×10^{-13} amp	Room Air Kanne Chamber
Sealing off product & sample flasks	< 1 mrep/hr	Zeuto

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Permissible concentration for breathing is calculated as 5 mrep/hr with Zeuto or 1.2×10^{-12} amp on the Kanne Chamber or Vac Sniff.

Following the initial run, operations were discontinued to make needed adjustment and repairs to the can opening equipment.

100-D Area

A tip-off used for the discharge of process tube #1971 on the shutdown of February 16th was discovered to have a dosage rate of 22 rep/hr at surface. A smear taken from the tip-off was sent to the Methods and Control laboratory for analysis, and a preliminary report from this group showed 15,500 d/m for alpha with 100% of activity due to Po. Analysis of beta emitters indicated that 18% of this activity was due to the rare earths, notably cerium and lanthanum. The remainder of the activity was attributed to calcium, iron, strontium, etc. The process tube had been charged with "B" metal. The cause of high activity was not determined.

One of two samples removed from the "B" experimental hole into the loading mechanism proved to be a special request piece in a pyrex container, rather than a graphite sample as expected. A dosage rate of 500 mr/hr through the side of the loading mechanism and an uncorrected beam reading of 600 mr/hr through the end of the gun were observed. The activity was largely due to the Na^{24} in the pyrex container. The sample was replaced in the biological shield for further decay. No undue exposure resulted.

On shutdown of February 22nd, the water in the storage basin was pumped down for the purpose of inspecting the discharge area chute liners. At 4:30 p.m. the dosage-rate from the chutes was 100 mr/hr at arms length beneath the rear elevator at the zero foot level. Pumping was supposedly stopped and the inspections made. Later, after completing work on tube #3762, the 4-12 shift observed that dosage-rates on the elevator increased rather rapidly as the elevator descended. Personnel moved to the far end of the elevator while a survey was made to determine the location of the activity. It was determined that the activity was in the form of a "flat beam" coming up through the elevator from the discharge chutes. A maximum dosage rate of 600 mr/hr was observed at the center of the elevator at the 10 foot level. Personnel had been exposed for a short period to a maximum of 400 mr/hr, and were evacuated from the discharge area.

Following a routine shutdown it was observed that process tube #2186 had no flange, nozzle or shield. An immediate survey for neutrons indicated a maximum slow neutron flux of 2.4 mrem/hr ($690 \text{ N/cm}^2/\text{sec.}$). The maximum gamma dosage rate was 13 mr/hr. The tube was immediately capped and shielded, and all readings were reduced to < 1 mrem/hr. All elevator work done since the shutdown was under S.W.P. conditions, with personnel confined to the far edge of the elevator while going past the tubes. No undue exposure resulted.

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Health Instrument Divisions

Considerable contamination was found in the transfer area and dosage rates up to 180 mrep/hr at surface were observed on the floor. It is believed that the contamination is washed off the transfer cars after they are loaded. Checks of several cars indicated dosage rates up to 75 mrep/hr at surface with the entire top surfaces of the cars being contaminated.

Upon opening cask #57 (received last year) a dosage rate of 500 mr/hr over the top of the cask was observed. This increased to 1.3 r/hr at approximately one inch from the bottom. The activity was derived from a dried putty-like material found in the bottom of the cask. The material has not been completely analyzed as yet.

Surveys in the beam at the top, far edge of the pile indicated that there have been no significant changes over last month.

100-F Area

Repairs to the chute liners were attempted when it was discovered that many metal pieces were becoming lodged under the liners. The work was done under adverse contamination conditions and protective clothing became generally contaminated. No personnel contamination was reported, however.

To alleviate the binding of horizontal rods on the top "kick-plate" as the rods travel into the pile, a portion of three of the plates was removed by the use of a remote cutting device. Exposure rates were very low because of the efficiency of the remote cutter.

The program of replacing the vertical rod guides and rods with stainless steel equipment is in progress. Sixteen assemblies have been replaced at nominal exposure rates, although at one time removal of rust with the vacuuming system resulted in a dosage rate of 5 roentgens/hr at one foot and 30 roentgens/hr at one inch from the separator.

Testing of new rod guide designs in the "A" experimental hole continued during this period. The latest design reduced the fast neutron dosage rate from 1.5 rem/hr (12,000 N.V.) in the beam to 63 mrem/hr (504 N.V.)

A potentially contaminated wound sustained on the charging device was investigated and no contamination detected.

Special request pieces were loaded into the small Phoenix cask for immediate shipment by plane to Oak Ridge. When the cask was removed from the storage basin it showed a dosage rate of 500 mr/hr, but by the time of off-plant shipment, the exposure rate was less than 200 mr/hr. The bed of the truck used to carry the cask was found to have alpha contamination as high as 50,000 d/m but this contamination was thought to be from a previous cask shipment rather than from the small Phoenix inasmuch as the contamination was found several feet from the location of the cask during transfer.

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Although no over-exposure resulted, exposure rates as high as 4.5 roentgens/hr were encountered during removal by the Technical Physics Group of samples from "B" experimental hole. A sample was dropped out of the cask when the cask was inadvertently placed backwards to the loading mechanism.

The only significant change noted in the dosage rates in the beam from the top far side was an apparent increase in fast neutron activity to 270 mrem/hr.

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200 Areas, T and B PlantsGeneral Statistics

	<u>January</u>			<u>February</u>			<u>1949</u> <u>To Date</u>
	<u>T</u>	<u>B</u>	<u>Total</u>	<u>T</u>	<u>B</u>	<u>Total</u>	
Special Work Permits	349	495	844	385	392	777	1621
Routine & Special Surveys	533	309	842	551	526	1077	1919
Air Monitoring Samples	507	591	1098	512	764	1276	2374
Thyroid Checks	74	73	147	125	104	229	376

Canyon Buildings

In the T Plant, an Instrument Mechanic opened the door of the 14-1 ring balance instrument in the Operating Gallery, noticed nitric fumes blow out of the instrument and closed the door immediately. An air sample started shortly thereafter showed 2.1×10^{-6} $\mu\text{c f.p./liter}$, and masks were worn in the upper half of the operating and pipe galleries for about four hours until air samples showed a reduction to normal low level. The incident was caused by a plugged dip tube which had caused a rubber tubing connection in the instrument case to rupture. No contamination was found on the mechanic's person, and urine samples showed no detectable activity. The incident was formally investigated. Without obtaining permission to open a cell, the crane operator removed the cell blocks from the 3R dissolver and lifted the lid from the dissolver tank. As the dissolver was in operation at the time, fumes were immediately visible and the lid was replaced within about 30 seconds. An air sample set up shortly thereafter at Section 4 showed 2.1×10^{-6} $\mu\text{c f.p./liter}$. No personnel were in the canyon at the time, although preparation to enter the canyon on another job was in progress. This incident was formally investigated. The 7-3 sparger was on for a few minutes while the cell was open and the 7-3 to 9-1 jet assembly was being replaced. A 660 cubic foot air sample showed a surface dosage rate of 55 mrep/hr and the canyon was closed to entry until the air concentration was reduced to mask level, a period of about twelve hours. A doorstop containing a 13-4 sample showed a dosage rate of 300 mr/hr at 2", and the trombone used showed a surface dosage rate of 16 rep per hour; the maximum exposure rate during the handling and decontamination of equipment was 300 mrep/hr. A partial survey of the head end T-A cell showed a dosage rate of 100 mr/hr at 2" on the dissolver, and 200 mrep/hr surface including 10 mr/hr at 2" on the centrifuge top. Smears showed both alpha and beta contamination. There were 87 canyon air samples which showed significant concentrations, and eleven of these were without known cause.

In the B Plant, considerable cell inspection and observed jetting was done to detect process leaks. The 10-3 and 16-1 tanks were interchanged, and the 10-3 tank showed a dosage rate of 1.5 rep per hour surface including

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103

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100 mr/hr at 2". Connectors from Sections 16, 17, and 18 were regasketted with maximum exposure rates of 450 mrep/hr. Crancway floor sweepings showed surface dosage rates of up to 75 mrep/hr and it is proposed to clean this area with a vacuum cleaner. A doorstop containing a 13-4 sample showed a dosage rate of 1.2 roentgens per hour and was moved to the laboratory with a maximum exposure rate of 250 mr/hr. Five men were on the crane bridge when the key block was removed from the 3L dissolver cell. As the exposure time was not more than five minutes, and as the dosage rate at the point of exposure was 20 mr/hr, no overexposure occurred. This incident was formally investigated. Steam was observed issuing from the 8L cell block cracks. An air sample taken an hour later at Section 10 showed 2×10^{-5} μ c f.p./liter. A total of 47 canyon air samples showed significant concentrations, with the maximum of 10^{-4} μ c f.p./liter noted when cell 12R was opened.

Control Laboratories

In the T Plant, 153 items, not regulated with respect to handling, were found contaminated on surveys by Technical and Health Instrument Division personnel. In addition, 52 contaminated floor locations were reported. Four cases of product and four cases of fission product hand contamination were reported and all were successfully cleaned. Fourteen unwrapped doorstops, previously used to transfer samples to 300 Area, were returned in the trunk of a sedan. Leather gloves worn by the employee caused the frisker unit in the laboratory hallway to trip, and further investigation showed a surface dosage rate of 2.5 rop per hour including 14 mr/hr at 2" uncorrected for source size on one glove. Hands showed about 4000 c/m and were cleaned. An overcoat, suitcoat, pants, and shirt showed up to 1000 c/m and were returned to 300 Area under Special Hazards Bulletin #5 for cleaning. The incident was formally investigated by 300 Area supervision concerned.

In the B Plant, 223 items, not regulated with respect to handling, were found contaminated on surveys by Technical and Health Instrument Division personnel. In addition, 23 contaminated floor locations were reported. Only three cases of fission product hand contamination were reported and all were successfully cleaned. A laboratorian working at the clerks' desk in the hallway showed contamination of the forehead, nose, and hands of 300 to 900 c/m. All was cleaned except about 400 c/m on the forehead, when cleaning was stopped due to tender skin conditions. The next day the forehead showed less than 100 c/m, and a facial tissue used by the employee showed about 300 c/m. The contamination probably originated from a brass hose clamp which the employee had handled, but which was cleaned before the skin contamination was detected. Surveys by H.I. showed bench waste cartons with dosage rates of up to 3.5 rop per hour surface, which were disposed of upon discovery. The tie-in of the liquid waste line to the new disposal crib was done with a maximum exposure rate of 75 mrep/hr. The 13-4 sample showing high level activity as reported under Canyon above,

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was disposed of with a maximum exposure rate of 2 rep per hour at a distance of two feet. An acid burn to the lip and chin showed about 500 to 800 c/m, which was reduced to background with careful cleaning over a five day period.

Concentration Buildings

In the T Plant, spread of product contamination occurred during the loading of a PR container and subsequent decontamination efforts made before supervision and H.I. were notified. Fifty-four floor spots mostly outside of the chained area resulted and showed an average reading of 1000 d/m each. Two poppy probes showed about 50,000 d/m each. Decontamination was effective. Supervision attributed the incident to poor technique and insufficient survey during the course of the loading operation. The bowl sprays of the B-2 and E-2 centrifuges were changed and the anticipated gross glove contamination was well controlled. Contamination of 1000 d/m was discovered on the chin of one employee and was cleaned. Routine cell surveys by H.I. showed the following contamination:

<u>Cell</u>	<u>Estimated $\mu\text{g Pu}$</u>	<u>Location of Maximum</u>
A	30	Top of A-1 tank
B	7	B-2 centrifuge
C	10-	C-8 tank
E	15	Steel waste drum
F	12	Floor around tanks

In the B Plant, a reading of 200,000 d/m was noted on the B-2 to B-4 jet flange and was cleaned. No contamination above 10,000 d/m was detected on other surveys of sample rooms and cells.

Stack Areas

In the T Plant, surveys made preliminary to flange bolt tightening at the inlet to the fans showed surface dosage rates of 10.5 and 1.2 rep per hour.

In the B Plant, fluid was again noted leaking from the outlet flange of the #3 fan, and the joint was caulked. A maximum exposure rate of 1 rep per hour was reported. The decontamination of an area of about 50 square feet around the fans was completed. A survey of the test fiberglas filter showed a dosage rate of 500 mrep/hr surface with 15 mr/hr at 2 inches.

Waste Disposal Areas

In the T Plant, eight metal waste samples were placed on one container for shipment. Individual sample cups showed dosage rates of up to 3.8 roentgens per hour, and sampling equipment used showed surface dosage rates of 3.4 rep per hour. The shipping cask showed a dosage rate of 120 mr/hr through

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its wall, and was placed in a box which reduced the possible exposure rate during shipment to 20 mr/hr at 2 inches.

North Areas

Active slug wafer transfer operations from underwater storage to transfer casks were performed with a maximum exposure rate of 2 rep per hour at 30 inches. The casks containing the wafers then showed dosage rates of less than 5 mr/hr at 2 inches. Surveys of well cars showed maximum contamination of 170 mrop/hr surface on locking nuts and hook bars. Surveys of well lids and car decks showed 3000 to 15,000 c/m. A study of remedies for well car contamination is in progress.

Construction Areas

In the 241-BY Area, three X-ray units of 200 and 250 KV are in use. Beams from the units extend for considerable distances outside of the tanks, with dosage rates of 400 mr/hr at 50 feet and 100 mr/hr at 100 feet recorded. A conference was held with supervision concerned to adequately restrict the hazardous areas.

Plant Laundry

A survey made on a Saturday when the washer area had dried, showed a spot in front of a washer of about 10^6 d/m, and other spots of 20,000 to 50,000 d/m. Decontamination reduced readings to a maximum of 2000 d/m. Analysis of a smear showing about 10,000 d/m indicated that the contaminant was plutonium.

A total of 40 spot air samples and 33 continuous Big Sucker samples was taken during plant laundry operations. The maximum concentration, calculated as uranium, was 3.6×10^{-5} $\mu\text{g U/cc}$, during the washing of clothing from 300 Area Operations.

General

All thyroid checks were below the warning level.

In the T Plant, radioautographs of 36 Dustloc respirator filters showed one particle. Radioautographs of air sample filters from the process buildings showed the following particle concentrations:

<u>Building</u>	<u>Approximate Cubic Feet of Air Sampled</u>	<u>Particles</u>	<u>Cubic Feet of Air/Particle</u>
221-T, Canyon	23,000	371	62
221-T, Oper. Gall.	11,000	9	1220
221-T, Pipe Gall.	20,000	150	130
224-T, F-10 Room	33,000	58	570
224-T, Pipe Gall.	20,000	1	20,000
222-T, Room 7	54,000	348	155

In the B Plant, radioautographs of 164 Dustloc filters showed 42 particles.

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The Isolation Building

General Statistics

	<u>January</u>	<u>February</u>	<u>1949 to Date</u>
Special Work Permits	37	46	83
Routine and Special Surveys	262	260	522
Air Monitoring Samples	321	417	738

Air Monitoring

There were 275 spot air samples taken, of which nine were above 10^{-11} μg Pu/cc. Seven of these were taken in Cell #4 before the cell was shut down and showed a maximum of 10^{-10} μg Pu/cc. Assault masks were worn during this period, except during the first instance of significant contamination when a maximum concentration of 9×10^{-11} μg Pu/cc was recorded. Samples of the greenhouse air after cell shutdown showed a reduction to 10^{-11} μg Pu/cc in four days. Other positive samples occurred in Room 6C during slurping of samples where assault masks are worn, and in Room 35 during an analysis when masks are not worn, with a concentration of 1.1×10^{-11} μg Pu/cc recorded.

The recording manometer on the Cell #4 greenhouse has shown no significant losses of pressure differential except during the testing of the standby steam engine driven fan, which was believed due to belt slippage. No significant air samples have been obtained in Cell #2 since operation started on the 15th of the month.

There were 77 continuous Little Sucker samples taken, and all five of the significant results were obtained during the period of operation in Cell #4. A maximum concentration of 6×10^{-11} μg Pu/cc was recorded and verified the spot sample results. Eleven samples of the 903 exhaust system air showed 4.5×10^{-12} μg Pu/cc as a maximum concentration.

Surface Contamination

A total of 265 items, not regulated with respect to handling, was found contaminated on surveys by Technical and Health Instrument Division personnel. Twenty-one items above 20,000 d/m were reported, and of these five were above 80,000 d/m. A total of eight incidents of floor contamination occurred, seven of which originated in the laboratories and one of which originated in the operating cells. The maximum amount reported was about 0.25 μg Pu in Room #38.

All five of the product skin contamination cases were successfully cleaned. The maximum individual amount involved was about 0.03 μg Pu.

Gamma Radiation

P.R. Container	14 mr/hr (maximum)
Process Hood	3 mr/hr (maximum)
S.C.	4.2 mr/hr (maximum)

DECLASSIFIEDThe 300 AreaGeneral Statistics

	<u>January</u>	<u>February</u>	<u>1949 To Date</u>
Special Work Permits	138	142	280
Routine and Special Surveys	121	138	259
Air Monitoring Samples	149	63	212

Metal Fabrication Plant

Eighteen of 28 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 (314)	8	8	6.7×10^{-3}	At operators position
Main Room (314)	3	3	3.5×10^{-3}	Center of rm. sweeping in progress
Chip Recovery	17	7	1.4×10^{-3}	Normal operation.

A check of leather gloves used in Melt Plant operations showed an average surface dosage-rate of 120 mrep/hr after 4 hours usage. In some operations it will probably be necessary to increase the frequency of glove changes in order to keep hand exposures below tolerance.

Technical Building

The Pile Technology group encountered dosage-rates as high as 1.1 rep/hr, including 160 mr/hr at 18 inches, while removing a sample of radioactive iron from its cadmium capsule. There was no overexposure, however.

Two of 31 air samples taken were above 2×10^{-11} $\mu\text{g Pu/cc}$. Both samples were obtained in room 57 where uranium as well as plutonium contamination is possible and the maximum concentration was 2×10^{-10} $\mu\text{g Pu/cc}$. One of the samples analyzed by the Methods Laboratory showed the contaminating material to be uranium.

Radiation levels as high as 1.25 rep/hr, including 5 mr/hr at 2 inches, were observed during work with irradiated carbon in room 34. Respiratory protection was required during all phases of the work.

During a routine survey of room 98, a general radiation level of 210 mrep/hr was observed near hood #6. Investigation showed that items of contaminated equipment stored in the hood showed dosage-rates as high as 7 rep/hr. During the subsequent cleanup of this hood, a research chemist removed some non-regulated "doorstops" to 222-T. Upon arrival his personal clothing and regulated gloves were found contaminated. The incident was investigated under the conditions of Special Hazards Bulletin No.6.

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Cold Semi-Works Building

One of 3 air samples taken showed a concentration greater than 5×10^{-5} μg U/cc. This sample was taken during cleanup work in the operating gallery, and showed 2.7×10^{-4} μg U/cc.

Plant General

A total of 88 frames exposed on the reservation, Benton City, and Pasco, showed a deposition rate of 1.6×10^{10} particles per month. Frame studies completed in the 200 Areas during the month indicated deposition rates of 4.4×10^7 particles per month in 200 West, and 1.3×10^8 particles per month in 200-East.

Particle traps exposed inside buildings in the 200 Areas showed the following:

<u>Building</u>	<u>Deposition -particles/ft²/month</u>	
	<u>200-East</u>	<u>200-West</u>
2701	1	1
272	1	3
2704	2	1
224	2	1
271	1	2

No Off-project particle traps were changed this month.

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

<u>Location</u>	<u>Inhalation rate particles per month</u>	
	<u>January</u>	<u>February</u>
200-E Area Gatehouse (outside)	0.1	0.1
200-E Area Gatehouse (inside)	0.3	0.1
B Plant Excl.Gatehouse (outside)	0.5	0.2
200-W Area Gatehouse (inside)	0.4	0.4
200-W Area Gatehouse (outside)	0.4	0.9
T Plant Excl.Gatehouse(outside)	0.3	0.3
3 ft. level meteorology tower	0.1	0.1
150 ft. " " "	0.3	0.1
250 ft. " " "	0.2	0.1
400 ft. " " "	0.3	(filter disintegrated by wind)

15-

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(Continued) <u>Location</u>	<u>Inhalation rate particles per month</u>	
	<u>January</u>	<u>February</u>
100-F Area	none	0.1
100-D Area	0.1	0.1
100-B Area	0.1	0.1
Benton City	0.1	none
Richland	0.1	0.1

Air samples taken inside various 200 Area buildings showed the following estimated inhalation rates as compared with January results:

<u>Location</u>	<u>Inhalation rate particles per month</u>	
	<u>January</u>	<u>February</u>
2707 EA Site Survey	0.1	0.1
East Area Maintenance Shop	0.1	0.1
West Area Maintenance Shop	0.4	0.7
222-T Hall	5.0	3.0
224-T Air Conditioning room	0.3	0.2
622 Meteorology Building	none	0.1
2704 E Administration Bldg.	0.3	0.2
222-B Hall	4.0	1.0
"B" Plant Operating Gallery Sec. II	1.0	0.9
West Area Garage	0.1	0.5

Off-area filters failed to show detectable particles except Spokane, Washington which showed one particle per 142,000 cubic feet of air. Based on the inhalation rate of man this would be 0.18 particles per month.

A comparison of vertical versus horizontal filters showed no significant difference in particle collection.

On February 5, 1949, ten samples of fresh snow were collected, evaporated, and filmed. The sample of snow collected was about 17 in. x 14 in. x 1 in. A two-mile-an-hour wind from the north was reported for this period. Results using the 200-East stack as a hub are as follows:

<u>Distance (ft.)</u>	<u>Direction</u>	<u>Number of Particles</u>
120	S	117
960 *	SSE	0
1040	SE	3
1000	ENE	10
6440	ENE	2
1000	NE	0
2500	NNE	0
5300	NNE	7
300 *	NNW	400
7400	NW	2

* Top of Canyon Building

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Hand Score Summary

A total of 36,073 alpha and 45,090 beta hand scores was recorded. About 0.06% of the alpha and about 0.08% of the beta scores recorded were high. No recorded attempt at reduction was made in one case of alpha and 15 cases of beta contamination. Decontamination was effective in all cases where attempted.

PERSONNEL METERS

<u>Pencils</u>	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>E&N</u>			<u>Total</u>	<u>1949</u>
				<u>200</u>	<u>200-W</u>	<u>300</u>		<u>To Date</u>
Pencils read	11,973	11,256	14,225	29,615	46,125	39,917	153,111	318,012
Single Readings (100 - 280 mr)	17	20	23	50	109	72	291	650
Paired Readings (100 - 280 mr)	0	0	0	1	1	1	3	3
Single Readings (Over 280 mr)	15	11	15	40	71	80	232	513
Paired Readings (Over 280 mr)	1	0	0	0	2	0	3	8
Paired Readings Lost	0	0	1	0	3	4	8	15

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

Badge Resume, Construction Areas

	<u>105-DR</u>	<u>241-TX</u>	<u>384</u>		<u>200-W</u>	<u>Total</u>	<u>1949</u>
			<u>115-KV</u>	<u>241-BY</u>			<u>To Date</u>
Badges Processed	3,508	4,446	469	1,303	3,112	12,838	27,708
No. of Readings (100 - 500 mrep)	10	11	0	23	1	45	96
No. of Readings (Over 500 mrep)	0	0	0	5	0	5	7
Lost Readings	2	2	0	0	0	4	8

The five readings of over 500 mrep were all X-ray exposures associated with inspection work. Four of the five were 1 roentgen or lower for the two weeks period; but the other was above 2 roentgens, the limit of sensitivity. The amount of exposure is therefore not known.

Lost readings were occasioned as follows:

Lost badge	2
Lost in Processing	1
Stuck Film	1

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<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>Total</u>	<u>1949</u>
					<u>200-N</u>	<u>200-W</u>	<u>300</u>	<u>To Date</u>	
Badges Processed	1,918	2,150	2,248	2,531	489	3,825	6,561	19,722	39,415
Number Readings (100 - 500 mrep)	8	4	29	12	1	15	231	300	624
Number Readings (Over 500 mrep)	0	0	0	0	0	0	0	0	1
Lost Readings	0	4	3	0	0	2	3	12	24

Lost readings were accounted for as follows:

Overdeveloped	5
Badge lost in Area	3
Dropped in Water	1
Packet lost in Area	1
Lost in processing	1
Faulty badge*-open window exposed to X-ray	1

* Shielded portion read 0.

Investigation where required showed no possibility of an overexposure.

Badges processed, 1949	Operations	39,415
Badges processed, 1949	Construction	27,708
	Total	67,123

In addition, 2,199 items of non-routine nature were processed. The 1949 total to date is 4,751.

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132

DECLASSIFIEDCONTROL AND DEVELOPMENT DIVISIONWater Monitoring

One hundred and eighty-eight 500 ml. samples and forty-five 12-liter samples of drinking water were analyzed for radioactive contamination during the month. The maximum alpha activity detected in any drinking water sample was 44 dis/min/liter from the Benton City Chevron Station. The alpha activity (believed to be largely due to natural uranium) found in representative wells is given in the following table:

ALPHA ACTIVITY IN DRINKING WATER

<u>Location</u>	<u>Alpha Activity -dis/min/liter</u>		<u>Uranium -dis/min/liter</u>	
	<u>Maximum</u>	<u>Average</u>	<u>Maximum *</u>	<u>Average</u>
Hanford #7	22	6	4	3
3000 Area A	8	< 6	5	5
Richland #15	27	20	21	18
Benton City Chevron Sta. 44	44	33	--	--
Benton City Water Co.	32	28	36	27
Pasco	10	< 6	--	--

*These samples are spot checks of routine samples, and the maxima do not conform to the same samples on ether extractions.

The 12-liter samples, in general, show smaller amounts of alpha activity than the 500 ml. samples, doubtless because of the increased sensitivity and the resulting decreased effect of small errors or contamination. The same ratios between water sources as with the smaller samples appear to be evident. The beta activity in all samples was less than 50 micromicrocuries per liter except for the Kennewick 614 Building, the Kennewick Standard Station, Pasco, and 100-H sanitary water, which had maximum values of 130, 120, 97, and 120 micromicrocuries/liter, respectively. All of these sources gave average values greater than 50 micromicrocuries/liter for the month. The positive activity is undoubtedly due to the low water in the Columbia River with consequent increased specific activity.

Forty-one test well samples, ten of which were 12-liter, were taken during the month. The maximum alpha activity was from 300 Area Well No.4, which gave an average of 80 dis/min/liter with a maximum of 89 dis/min/liter. The two other wells in the 300 Area averaged 6 and 14 dis/min/liter, while the two wells in White Bluffs gave 12 and 16 dis/min/liter. There was no beta activity as great as 50 micromicrocuries/liter in any test well sample.

Fifty-two river samples were obtained from the Columbia River, The alpha activity in all samples was less than 6 dis/min/liter. The maximum beta activity was 2600 micromicrocuries/liter from an individual sample at the

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south bank at Hanford. The average contamination below 100-B Area varied from 160 micromicrocuries/liter at Pasco, to 1900 micromicrocuries/liter at Hanford. Six samples were taken from the Yakima River. Only one sample showed a positive alpha result of 8 dis/min/liter. No sample was as high as 50 micromicrocuries/liter in beta activity.

Sixty-two mud samples were obtained from the banks of the Columbia River, The average uranium activity as determined by fluorophotometer analyses ranged from 300 to 1600 µg/kg of mud, with occasional fliers between 3000 and 5000 µg/kg. The beta activities, not corrected for selfabsorption in the one-gram sample, varied from 8 millimicrocuries/kg to 180 millimicrocuries/kg in a random fashion.

Atmospheric Monitoring

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

<u>Location</u>	<u>Integrans (mrep/24 hrs.)</u>		<u>C Chambers (mrep/24 hrs.)</u>	
	<u>January</u>	<u>February</u>	<u>January</u>	<u>February</u>
100-B Area	<0.1	0.3	0.3	0.3
100-D Area	0.3	<0.1	0.4	0.4
100-F Area	0.4	0.8	0.4	0.4
200-West Area	0.2	0.2	0.4	0.7
200-East Area	0.2	0.2	0.5	0.5
Riverland	0.1	0.5	-	-
Hanford	1.7 *	2.0 *	-	-
300 Area	0.6	0.4	-	0.6
700 Area	0.2	0.4	-	-
Kennewick	0.1	<0.1	-	-
Pasco	<0.1	0.7	-	-
Benton City	<0.2	<0.1	-	-
3000 Area	--	--	-	0.4

*These results were not confirmed by detachable chambers which gave 0.54 and 0.82 in mrep/24 hrs., for the two months.

Detachables chambers at Hanford, 105-DR, White Bluffs, the 234-5 Area, and at the 200 Areas batch plant, averaged 0.55, 0.59, 0.54, 0.65, and 0.44 mrep/24 hrs respectively. The maximum eight-hour reading on a constant air monitor was 2×10^{-7} microcurie/liter in the 200-East Area. All air filters averaged between 9×10^{-11} and 9×10^{-10} microcurie/liter of material other than natural short-lived activities. Seventy-eight rain samples were collected, with a maximum value of 22 millimicrocuries/liter from a sample in the 200-West Area. The maximum Off-area rain sample was 1.4 millimicrocuries/liter from the 700 Area. The average activity in rain samples ranged from 0.1 to 4.7 millimicrocuries/liter.

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The Mount Rainier monitoring station has not reported during the month, presumably due to bad weather. The data from the Mullen Pass Station has been normal with very little or no long-lived activity present.

Land and Vegetation Contamination

The average activity measured in vegetation samples during January was:

¹³¹I CONTAMINATION IN VEGETATION

Location	$\mu\text{c } ^{131}\text{I}/\text{kg}$		
	Feb. Average	Feb. Maximum	Jan. Average
North of 200 Areas	0.004	0.011	0.005
Near the 200 Areas	0.009	0.047	0.041
Rt. 3 & Met. Twr.	0.17	1.2	0.066
200-West Gate	0.53	1.6	0.32
South of 200 Areas	0.006	0.038	0.004
Richland	0.003	0.009	<0.002
Pasco	0.002	0.004	<0.002
Kennewick	0.002	0.007	<0.002
Benton City	0.003	0.006	0.003
Richland Y	0.002	0.004	0.002
Hanford	0.004	0.016	0.003
Ringold to Pasco	0.003	0.005	<0.002
Wahluke Slope	0.003	0.005	<0.002

NON-VOLATILE OTHER BETA ACTIVITY IN VEGETATION

Location	$\mu\text{c}/\text{kg}$		
	Feb. Average	Feb. Maximum	Jan. Average
North of 200 Areas	0.013	0.023	0.014
Near the 200 Areas	0.024	0.15	0.055
Rt. 3 & Met. Twr.	0.087	0.60	0.086
200-West Gate	0.22	0.28	0.26
South of 200 Areas	0.013	0.048	0.014
Richland	0.010	0.032	0.009 *
Pasco	0.010	0.015	0.007 *
Kennewick	0.011	0.026	0.007 *
Benton City	0.012	0.025	0.012
Richland Y	0.016	0.029	0.009 *
Hanford	0.013	0.018	0.008 *
Ringold to Pasco	<0.010	0.017	0.008 *
Wahluke Slope	<0.010	0.004	0.012

*The limit of 0.010 $\mu\text{c}/\text{kg}$ was determined by analysis of preceding data this month, and by K^{40} analyses.

HW-12666-DEL

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DECLASSIFIEDGeology

The average contamination in the water samples taken during February from the wells in the 361-B Area showed significant contamination as follows:

<u>Well</u>	<u>micromicrocurie/liter</u> (fission products)	<u>dis/min/liter</u> (alpha activity)
361-B-1	1060	130
361-B-3	50	not significant
361-B-9	1400	258

The activity in Wells 361-B-1 and 361-B-3 is decreasing along the determined trends or curves of activity previously reported. Projection of these trends indicates that dilution of the contaminated zone and the half-life decay will reduce the activity of the water in well 361-B-3 to below the significant level by July 1949, and that the water in well 361-B-1 will not be free of significant activity until at least July 1950. Samples from well 361-B-9 show a considerable variation in both alpha and beta-gamma activity, and no trend can be clearly defined. Presumably contamination trends will parallel those of well 361-B-1. This variation or apparent fluctuation is due at least in part to the large amount of rust in the water in this well.

The fission products activity in the rust from a 4-gallon water sample from well 361-B-9 analyzed 1.2×10^{-2} $\mu\text{c}/\text{gram}$. A determination of the fission products present in the rust is being made, and to date 20 percent of the activity has been determined as due to ruthenium. A fission products determination made on a water sample from well 361-B-1 in May 1948 showed 63 percent of the activity as due to ruthenium.

No significant contamination was found in the sediment samples obtained from the bottom of 3 of the 4 test holes drilled in the 5-6 tile field area. About 1,800,000 gallons of waste have been discharged into this crib and tile field since it was first put into service in August 1948.

The results of the analyses of two samples obtained from the laterals of the H.I. Shaft on completion of jecting from the 106-B tank are as follows:

<u>Sample 10 feet below crib</u>		<u>Sample 20 feet below crib</u>	
<u>microcurie/liter</u>	<u>dis/min/liter</u>	<u>microcurie/liter</u>	<u>dis/min/liter</u>
0.27	not significant	0.35	not significant

About 1,800,000 gallons of waste have been discharged into the second cycle crib from the 112-B, 104-B, 105-B, and 106-B tanks. No waste is being discharged into the crib at present.

No significant contamination was detected in the sediment samples from the bottom of 4 test holes drilled for checking the drainage of the 241-B (second cycle) tile field. About 700,000 gallons of waste have been jected into the crib since overflowing into the tile field was permitted. No significant alpha or beta-gamma contamination was detected by the analysis of two 500-milliliter water samples from well 224-B-4.

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Geology - 200-West Area

An analysis of the sediment samples from the 22-ft. level of wells 361-T-3 and 361-T-6 was made to determine what percentage of the alpha activity was due to plutonium and what percentage was due to uranium. The results are as follows:

	<u>Ether Extraction</u> <u>dis/min/kg</u>	<u>TTA Analysis</u> <u>dis/min/kg</u>	<u>Fluorophotometer</u> <u>dis/min/kg</u>
361-T-3	296,000	159,000	578
361-T-6	281,000	98,000	875

Well 361-T-3 is 18 feet from the center of the No. 1 crib, and well 361-T-6 is 28 feet from the center of the No. 1 crib.

The results to date of a fission products analysis decay curve for the sediment sample from the 22 ft. level of well 361-T-6 shows that the half-life of the activity is about 400 days.

Six of the nine 150-ft. test wells scheduled for drilling for the "S" Division in the 241-TX Area have been completed; another has been drilled to a depth of 105 feet; and another to a depth of 55 feet. Drilling in this area was stopped for a period of eight days while the drilling rigs moved to the 100-B Area to drill the three 108-B crib wells. The silt and claybed encountered beneath the 241-T, the 361-T, and the 231 Areas, was encountered exactly as predicted beneath the 241-TX Area, in all the wells completed to date.

No significant alpha or beta-gamma contamination was detected by the analysis of two 500-milliliter water samples from well 231-2.

100-B Area

The three wells scheduled for drilling to water adjacent to the 108-B crib were completed at a depth of 90 feet each. Two of the wells were perforated, one is still to be perforated. Cross-sections of the crib area are yet to be made.

300 Area

The average of the analyses of water samples from the wells between the 300 waste ponds and the river are as follows:

<u>Well</u>	<u>Beta-gamma contamination</u> <u>microcurie/liter</u>	<u>Alpha contamination</u> <u>dis/min/liter(ether extraction)</u>
303-1	not significant	not significant
303-2	not significant	340
303-3	not significant	42

The sample from well 303-3, between the new pond and the river, indicated that contamination is present in the ground water, and may be escaping into the river.

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DECLASSIFIEDGeology-General

Well CC-133 (for Biology Division tract house north of Hanford) was spudded in on 2/9/49, and was stopped at a depth of 243 feet when available funds were spent. The volume of water desired has not been obtained to date. Samples of the sediments were obtained at regular intervals. Lack of information on previous wells drilled makes determination of depth to sufficient water difficult.

Meteorology

8-hour Production Forecasts: eighty-four were made. The average accuracy was 80.3%

24-Hour General Forecasts: fifty-six were made. The average accuracy was 78.9%

Special Forecasts: eighteen were made. Sixteen were correct for an average of 88.9%.

The weather for February 1949 was featured by: (1) the low temperatures which occurred during the first 5 days and again from the 11th to the 14th; (2) the high winds which occurred on the 10th, 16th, and 17th; and (3) the unusually large amount of snow left on the ground following the storms of the 2nd, 3rd, and 4th.

Mean temperature for the month was 31.9, and this was 3.7 degrees below the February normal. The lowest temperature for the month was 3 degrees on the 13th, but this set no record as a mark of 1 degree was recorded on the 3rd in 1948. During the period of weather records at Hanford (1912-1944) an extreme February low of -19 occurred in 1929.

Total precipitation for the month was 0.68 of an inch. Although this was very close to the normal amount of 0.63, snowfall for the month totaled 6.9 inches and this was considerably above the normal amount of 2.9 inches. Melted snow accounted for 0.43 of an inch of precipitation. This was 63% of the total precipitation for the month. The maximum depth of snow on the ground at any one time was 5.6 inches on the morning of the 4th. This was the greatest depth yet recorded at 622 Building, although twice previously (Nov. 22, 1946 and Feb. 1, 1948), the total depth exceeded 5 inches.

The windiest of the three windy days mentioned above was the 16th, when the average speed at the 50 ft. level was 20.5 mph. The strongest gusts, however, occurred on the 10th when 56 mph was recorded at the 50 ft. level, and 70 mph recorded at the 400-ft. level. These were new high wind marks for the month of February.

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DECLASSIFIEDBioassay

Five hundred and thirty-five samples were analyzed for plutonium during the month. Three hundred and thirteen special process checks were made in an attempt to determine the cause of the difficulties encountered during recent operations. The average yield on spiked samples was 79% with an extremely high blank sample average of 0.48 d/m. The yield on spiked samples was very non-consistent with numerous low returns. These factors combined to give 85 samples with results greater than 0.65 d/m; 65 of these samples were due to low yields. An apparent correlation exists between yield and color of the TTA solution after extraction. This is believed to be due to complexing of iron which would normally extract along with the plutonium. Special tests to determine complexing agents and their elimination are underway.

One hundred and thirty-five samples were analyzed on the fluorophotometer. The uranium measured on these samples is given below:

<u>Job</u>	<u>µg U/liter Urine</u>	
	<u>Maximum</u>	<u>Average</u>
Melt Plant	51	27
Material Handling	13	6
Machining	16	4
Canning and Dipping	8	3
Inspection	10	2
305 Building	2	0.7

A special sample from a man exposed to contaminated nitric mist in the 200 Areas indicated less than 1×10^{-5} µc of Ca and Sr, Group III elements, or ruthenium. Six special samples from men working on the rear face of the 10C-F pile during a high air contamination condition were analyzed for Ca and Fe. All of these samples indicated less than 10^{-5} µc of Ca or Fe. One sample on the routine analysis indicated a positive result for beta emitters, and the man has been resampled.

Methods Development

The Simpson proportional counter for alpha counting has been put into operation for experimental work in measuring radon. Dry nitrogen was tried as a counter gas but failed to give good operation. Argon and Argon - CO₂ gave large pulses which blocked the amplifier. A 320 ml. chamber was constructed to use for counting radon samples preferably with an argon filling. The vibrating reed electrometer has been set up as a counting instrument to be used with the two-liter glass chamber for measuring alpha particles from radon. The background is $1.02 \pm [0.05]$ c/m, and the counting efficiency as compared to the standard alpha and LBA sets appears to be 100%. Apparatus for the separation of radon from water samples is in process of construction. A bibliography of 78 references to radon and radon measurements has been prepared.

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140

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The TWG GM tube mounted for emergency use in counting of water samples has been calibrated for a $1\frac{1}{2}$ inch plate. Results obtained are higher than from a mica window tube, because of uncalibrated differences in backscatter, spreading of sample and absorption through the counter wall. The coincidence losses for a standard alpha set have been measured as $2 \pm 0.2\%$ per 1000 c/m. The RaD sources which have been calibrated on standard alpha counters have been compared again with the Bureau of Standards source, making all known corrections. The control sources give geometries on the beta sets from 3 to 10% higher than those for the Bureau of Standards sources. This difference is now believed to be due to a small amount of selfabsorption in the control standards.

A study of various spreading agents for uniform distribution on a counting plate has given little hope in improving the uniformity of deposition. By heating only the rim of the plate, more reproducible results may be obtained, but the values are low and radioautographs reveal that most of the activity is spread around the rim of the plate.

Studies on the TTA procedure have been intensified. Some losses have been shown to be possible due to carrying of SO_4^{2-} and PO_4^{3-} ions on the lanthanum precipitate. The acidity of the $\text{Al}(\text{NO}_3)_3$ solution now in use for the extraction was confirmed. Attempts to use other salts such as $\text{Al}(\text{Cl})_3$, NaNO_3 , $\text{Ca}(\text{NO}_3)_2$ indicate that the $\text{Al}(\text{NO}_3)_3$ is best. The normality of the $\text{Al}(\text{NO}_3)_3$ is shown to be non-critical above 3^3N . Uranium carries through the process to an extent of only 1.2%, and the amount of natural uranium in urine salts was measured as $0.4 \mu\text{g}/20 \text{ gms.}$ of salt. Attempts to find an agent for the specific re-extraction of Pu from the TTA have not been promising. Lanthanum purification is being attempted both by TTA extraction and by a resin column method which has shown promise in the past. A quantitative analysis of urine salts and investigations into the effect of salts is now under way.

The electrostatic precipitator unit designed for the Biology Division has been installed on the stack, and appears to be collecting material satisfactorily. The cages for exposing animals to stack gases are nearly completed.

Methods Control

Studies of gas flaming versus oven heating for fluorophotometer plates are in progress. Two thousand, six hundred and seventy-one measurements were made for alpha emitters, and three thousand, six hundred and seventy-three measurements were made for beta emitters for a total of six thousand, three hundred and forty-four measurements. In addition, two hundred and thirty-one points on decay curves, one thousand, two hundred and thirty-three control points, one hundred and seventy-three calibration points, and seven absorption curves were run. Two hundred and two samples were analyzed on the fluorophotometer for uranium.

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The polonium sources have been checked again for surface contamination and total flux. Both sources were smeared and neither showed any detectable contamination. The flux values as determined with indium foils in the calibration pile referred to the two Ra-Be neutron "standards" are tabulated below with the total flux values calculated from the earlier determinations, assuming a 140-day half-life for polonium.

<u>Source</u>	<u>Material</u>	<u>First Determination</u>	
		<u>Date</u>	<u>Total Flux</u>
Pb 106	Po-Be	12/16/48	2.08 $\left[\begin{smallmatrix} \pm \\ \pm \end{smallmatrix} 0.14 \right] \times 10^7$
Pb 107	Po-B	12/15/48	1.72 $\left[\begin{smallmatrix} \pm \\ \pm \end{smallmatrix} 0.09 \right] \times 10^7$

Second Determination

<u>Source</u>	<u>Material</u>	<u>Date</u>	<u>Total Flux</u>	
			<u>Measured</u>	<u>Calculated</u>
Pb 106	Po-Be	2/21/49	1.47 $\left[\begin{smallmatrix} \pm \\ \pm \end{smallmatrix} 0.07 \right] \times 10^7$	1.50 $\left[\begin{smallmatrix} \pm \\ \pm \end{smallmatrix} 0.1 \right] \times 10^7$
Pb 107	Po-B	2/22/49	1.13 $\left[\begin{smallmatrix} \pm \\ \pm \end{smallmatrix} 0.06 \right] \times 10^7$	1.22 $\left[\begin{smallmatrix} \pm \\ \pm \end{smallmatrix} 0.06 \right] \times 10^7$

The agreement between the measured and calculated values is within the limits of experimental error, although the agreement for Pb 107 is close enough to the limits to make the next determination of some interest.

An investigation is under way to determine the potentialities of a recoil proportional counter for fast neutron survey application.

Two lines of approach to a fast neutron counter have been followed. Hydrogen radiators have been placed in front of a mica window GM tube, operated in the proportional region. It was hoped that this would be a convenient arrangement in which to compare radiators of various materials and various thicknesses, and to estimate the energy distribution of the recoil protons by placing aluminum absorbers between the radiator and the counter. It developed, however, that the efficiencies of the arrangement were so low, less than 0.05%, that the counting rates obtainable with the available laboratory sources were too small to yield very much information.

The second line of approach was to use a large proportional counter, filled with methane at atmospheric pressure. This counter demonstrates some interesting characteristics. When the voltage and counting circuit are adjusted so that a 100 r per hour gamma field produces no significant count above the background count of 1 to 2 per minute, the counter has an efficiency of about

23

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0.1%, which indicates that 20 to 40% of all the recoils produced are counted. The net result is that with the particular counter being used, effective diameter 5.25 cm, effective length, 23 cm, a flux density of 100 neutrons per second per square centimeter from a Po-Be neutron source gives a counting rate of about 100 counts per minute. Under these operating conditions, the efficiency of the counter changes about 5% per 15 volt change in counter voltage.

The characteristics of this counter will be investigated when it is filled with a longer chain hydro-carbon, e.g., propane or butane, and also when it is fitted with an internal solid hydrogen radiator and filled with argon.

An investigation is under way to determine the fast neutron sensitivity of a C.P. ionization chamber. Three chambers conforming to the dimensions of the C.P. chamber have been constructed so that they may be used with a vibrating reed electrometer. The first chamber is an exact duplicate of the standard C.P. chamber; the second chamber has the conventional bakelite walls, but has been lined with fluorothene-A, a non-hydrogenous plastic; and the last chamber is made entirely of aluminum. The relative sensitivities of these chambers to gamma and fast neutron radiation will be measured. The equipment is set up, and is now being tested.

Instrument Development

The improved electrostatic precipitator project is about 75% complete.

The laboratory pulse generator construction was completed. Some design changes will be required to give the operating range required.

Beta sample changer design was completed.

A new low noise level proamplifier was designed and constructed for the pulse analyzer.

A special high-range probe type C.P. for under water use by the 100 Area H. I. Operational Division has been designed.

The atmospheric pressure soft beta counter is now being used by the Operational Division on a test basis. Considerable additional work directed toward stabilizing operation and improving sensitivity will be needed.

A five-fold hand counter was obtained for converting to a combination alpha and beta hand counter. The work is about 20% complete.

A dry voltaic pile was assembled for possible use in explosion-proof instruments and/or portable counters as the source of high voltage. The first pile which was 1-3/8 inches in diameter, and consisted of a stack of discs 3/8 inches high, gave about 136 volts with an internal resistance of 10^9 ohms.

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Health Instrument Divisions

A nuclear Instrument and Chemical "Q"-Gas counter was tested and found to give an apparent geometry of about 75% for alpha particles. The cause is periodic bursts of 2 or 3 pulses, which occur for alpha and beta particles under all operating conditions investigated.

A test hole probe for the portable scaler was designed. The work is about 50% complete.

Design work on new high-scale calibration equipment was started.

Calibrations

The routine calibrations were:

	<u>Number of Calibrations</u>	
<u>RADIUM CALIBRATIONS</u>	<u>January</u>	<u>February</u>
Fixed Instruments		
Gamma	<u>623</u>	<u>567</u>
Portable Instruments:		
Alpha	37	240
Beta	175	320
Gamma (Radium)	683	2,937
X-ray Scanning	0	41
Neutron	<u>10</u>	<u>30</u>
Total	<u>905</u>	<u>3,568</u>
Personnel Meters:		
Beta	1,120	1,142
Gamma (Radium)	7,401	9,075
X-ray	371	6,298
Neutron	<u>0</u>	<u>0</u>
Total	<u>8,892</u>	<u>16,515</u>
GRAND TOTAL	<u>10,420</u>	<u>20,650</u>

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144

DECLASSIFIEDBIOLOGY DIVISIONAquatic Biology1. Effect of Pile Effluent on Aquatic Life

The young chinook salmon in the monitoring test continue to react about as anticipated from similar studies in previous years. In undiluted pile effluent all of the fry died before completely absorbing their yolk sac. Death of fry in pre-pile process water is following a similar pattern but here the fish have been able to survive about three weeks longer. In 20 per cent strength area effluent virtually all of the fry died at about the time their yolk was completely absorbed. At strengths of 5 per cent or less, the area effluent seemingly has not affected the young salmon.

Beta activities in the salmon fry held in undiluted pile effluent amounted to about 4 $\mu\text{c}/\text{kg}$ at the time of hatching, but subsequently decreased in the moribund fish to about 1.5 $\mu\text{c}/\text{kg}$. The activity of the yolk remained less than that of the water.

Studies are being continued on the accumulation of activity in caddis fly larvae.

2. Biological Chains

With continuing cold water temperatures during the first part of the month, metabolism of the fish remained slow and they took food only sparingly, resulting generally in a loss of activity. Water temperatures increased slightly during the latter part of the month which improved the appetites of the fish, resulting in an appreciable increase in accumulated activity. An activity of 23 $\mu\text{c}/\text{kg}$ was found in the bile-filled gall bladder of a carp reared in undiluted effluent water. Algae from the 107 basin, used in feeding, had 430 $\mu\text{c}/\text{kg}$. Ninety-four tissues and 55 water samples were counted during the month for this study.

3. Radiobiological Survey

The activity of the aquatic life of the river is practically the same as reported last month. Activity of the plankton is now being measured and showed nearly 3 $\mu\text{c}/\text{kg}$ in the vicinity of Hanford. Bottom algae at Hanford was 0.7 $\mu\text{c}/\text{kg}$ wet weight (1.3 $\mu\text{c}/\text{kg}$ dry weight), and fish (sucker) tissues were 0.2 $\mu\text{c}/\text{kg}$, or less. During the month 224 samples were counted.

Plankton samples are now being collected each week from the 100-B, 100-D, and 100-F Areas, and some samples have also been collected at Hanford.

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Health Instrument Divisions

A cursory survey of the activity in the lower Columbia River was made as far downstream as Vancouver, Washington. Unfavorable collecting conditions resulted in meager samples; although active materials were definitely present in some samples, the amounts present were rather negligible at this time of year.

Zoology

1. Chronic Toxicology of I¹³¹ in Stock Animals

One sheep and two rabbits on chronic feeding of I¹³¹ at the rate of 10 μ c/day for nearly 200 days have been studied histologically. Thyroids indicate atrophy and follicle degeneration as compared to inadequate numbers of semi-controls available. Thyroids of the rabbits are estimated to have received about 20,000 to 30,000 rep total. The sheep gland probably received about 2,000 to 50,000 rep. Kidney and ovary of the sheep also indicated pathology. Lower level feeding of three rabbits has been resumed.

2. Biological Monitoring

The remaining rats (38) in the effluent water monitoring study were assayed for beta emitters after 500 days. Very few values definitely above that of controls were noted except in the highest group. The highest levels in livers and kidneys of animals on straight effluent (107 basin discharge) were about 0.03 μ c/kg. This radioactivity decayed at the rate of less than 5-day half-life. Alpha analyses were only slightly above background for 3 out of 4 rats assayed for plutonium. The fourth animal had no alpha activity.

Wildlife assayed included 5 coyotes, a porcupine, a muskrat, a goose, a duck, a pheasant, and 2 quails. Only the thyroids of one coyote and the pheasant, and moist tissues of the duck, were in excess of 1/10th the new permissible deposition value. These tissues, however, were less than half this new limiting value.

Botany

1. Agronomy

Crested wheat grass has been seeded in the 200-West Area plots. Other work of this group has been greatly retarded because of unusual snow and cold weather.

2. Botanical Monitoring

Work in establishing the Botany Experimental Farm is progressing nicely. Orchards have been pruned and removal of weeds and trash is nearing completion. An irrigation well has been drilled to 225 feet, which is expected to produce sufficient water to meet the requirements of the control plot for the season.

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Health Instrument Divisions

3. Plant Toxicology

The Temporary Botany Laboratory is approaching completion. It is hoped the laboratory will be available for work soon.

Biochemistry

1. Collection of Active Particles

With the cooperation of F. E. Adley, Industrial Hygienist, H.I. Development Division, a bank of ten electrostatic precipitators has been set up ahead of the sand filter in 200-E, and collection has begun.

2. Exposure of Rabbits to Active Particles

Chambers, gloved box, transfer boxes, rabbit holders, etc., are being fabricated locally. Exposure will begin at 200-W at the influent side of the sand filter when equipment is available.

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GENERAL ACCOUNTING DIVISIONS

FEBRUARY 1949

GENERAL

January Financial Statements for Hanford Works and Nucleonics Department were issued on February 28, 1949. Operating Reports for the month of January were issued on February 24, 1949.

Budgeted amounts were entered on Operating Reports (except Medical Division) for the first time this month, and for the most part compared favorably with operating costs. Total applied labor and material for all General Divisions amounted to \$550 303 as compared with the budgeted amount of \$582 331. The total Within-Division Expenses for all General Divisions amounted to \$549 641 as compared with the budgeted amount of \$564 626.

Following is a comparison of unreimbursed expenditures as of January 31, 1949 and February 28, 1949:

	<u>January 31, 1949</u>	<u>February 28, 1949</u>
Billed on Public Vouchers	\$ 5 026 544	\$ 8 348 321
Submitted on Pre-Billing Audit Vouchers	5 938 914	3 508 956
Unbilled	<u>6 291 671</u>	<u>6 169 755</u>
Total	<u>\$17 257 129</u>	<u>\$18 027 032</u>

The above figures reflect a reduction in unaudited expenditures both in the AEC Audit Branch and in the General Electric Accounting Divisions. Amount billed on public vouchers shows a substantial increase but this balance is liquidated through receipt of U. S. Treasury checks usually within one week's time.

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148

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STATISTICS

<u>Employees and Payroll</u>	<u>Total</u>	<u>Monthly Payroll</u>	<u>Weekly Payroll</u>			
Employees on Payroll at beginning of month	8 694	1 757	6 937			
Additions and transfers in	106	10	96			
Removals and transfers out	(114)	(18)	(96)			
Transfers from Weekly to Monthly Payroll	--	12	(12)			
Transfers from Monthly to Weekly Payroll	--	(1)	1			
Employees on Payroll at end of month	<u>8 686</u>	<u>1 760</u>	<u>6 926</u>			
<u>Employees on Payroll at end of month</u>	<u>January</u>	<u>February</u>				
Manufacturing	3 212	3 251				
Design and Construction	1 178	1 127				
Community	965	973				
Other	3 339	3 335				
Total	<u>8 694</u>	<u>8 686</u>				
<u>Overtime Payments</u>						
Weekly Paid Employees	\$ 81 547	\$ 79 647				
Monthly Paid Employees	26 652	26 793				
Total	<u>\$108 199</u>	<u>\$106 440</u>				
<u>Number of changes in Salary Rates and Job Classifications</u>	850	823				
<u>Gross Amount of Payroll</u>						
Manufacturing	\$1 090 528	\$1 087 508				
Design and Construction	413 790	417 039				
Community	292 454	289 119				
Other	966 174	978 433				
Total	<u>\$2 762 946*</u>	<u>\$2 772 099*</u>				
<u>Annual Going Rate of Payroll</u>						
Manufacturing	\$13 862 261	\$13 855 729				
Design and Construction	5 229 947	4 720 847				
Community	3 759 507	3 661 357				
Other	12 249 129	12 385 051				
Total	<u>\$35 100 844</u>	<u>\$34 622 984</u>				
<u>Average Salary Rate Per Hour</u>	<u>January</u>			<u>February</u>		
	<u>Weekly</u>	<u>Monthly</u>	<u>Total</u>	<u>Weekly</u>	<u>Monthly</u>	<u>Total</u>
Manufacturing	\$1.930	\$2.585	\$2.034	\$1.925	\$2.576	\$2.031
Design and Construction	1.472	2.594	1.807	1.475	2.595	1.828
Community	1.716	2.255	1.808	1.715	2.252	1.808
Other	1.544	2.477	1.731	1.548	2.471	1.733
Total	<u>\$1.702</u>	<u>\$2.514</u>	<u>\$1.861</u>	<u>\$1.704</u>	<u>\$2.508</u>	<u>\$1.864</u>

*Includes four weeks in case of weekly paid employees.

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General Accounting Division

Employee Plans

Pension Plan

	<u>January</u>	<u>February</u>
Number participating at beginning of month	5 960	6 128
New participants and transfers in	193	150
Removals and transfers out	(25)	(33)
Number participating at end of month	<u>6 128</u>	<u>6 245</u>
% of eligible employees participating	94.9%	94.4%

	<u>February</u>	<u>Total to Date</u>
Employees Retired	4	47
Number		
Aggregate Annual Pensions including Supplemental Payments	\$904	\$8 848
Amounts contributed by employees retired	\$556	\$3 136

Group Life Insurance

	<u>January</u>	<u>February</u>
Number participating at beginning of month	6 271	6 459
New participants and transfers in	247	143
Cancellations	(20)	(35)
Removals and transfers out	(39)	(39)
Number participating at end of month	<u>6 459</u>	<u>6 528</u>
% of eligible employees participating	78.3%	78.0%

Insurance Claims

	<u>February</u>	<u>Total to Date</u>
Number of deaths	2	23
Amount of insurance	\$9 660	\$118 068
Premiums paid by employees who died	\$ 151	\$ 1 346

Group Disability Insurance - Personal

	<u>January</u>	<u>February</u>
Number participating at beginning of month	7 179	7 239
New participants and transfers in	145	201
Cancellations	(13)	(11)
Removals and transfers out	(72)	(62)
Number participating at end of month	<u>7 239</u>	<u>7 367</u>
% of eligible employees participating	88.3%	88.7%

Group Disability Insurance - Dependent

Number participating at beginning of month	4 319	4 338
Additions and transfers in	56	90
Cancellations	(17)	(16)
Removals and transfers out	(20)	(23)
Number participating at end of month	<u>4 338</u>	<u>4 389</u>

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General Accounting Division

Employee Plans (continued)

<u>Group Disability Claims</u>	<u>January</u>	<u>February</u>
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	93	103
Daily Hospital Expense Benefits	111	95
Special Hospital Services	94	80
Surgical Operations Benefits	66	49
Dependent Benefits Paid		
Daily Hospital Expense Benefits	134	101
Special Hospital Services	130	98
Amount of claims paid by insurance company:		
Employee Benefits	\$11 722	\$8 015
Dependent Benefits	4 742	3 231
Total	<u>\$16 464</u>	<u>\$11 246</u>

<u>Group Disability Insurance - Premiums</u>		
Personal - Employee Portion	\$12 451	\$12 442
- Company Portion	7 252	7 567
- Total	<u>\$19 703</u>	<u>\$20 009</u>
Dependent- Employee Portion	\$ 3 961	\$ 3 933
- Company Portion	362	436
- Total	<u>\$ 4 323</u>	<u>\$ 4 369</u>
Grand Total	<u>\$24 026</u>	<u>\$24 378</u>

<u>Annuity Certificates (For du Pont Service)</u>	<u>February</u>	<u>Total to Date</u>
Number issued	1	56

<u>U. S. Savings Bonds</u>	<u>Mfg.</u>	<u>D & C</u>	<u>Comm'y</u>	<u>Other</u>	<u>Total</u>
Number participating at beginning of month	2 076	528	465	1 647	4 716
New Authorizations	29	10	7	50	96
Voluntary Cancellations	(66)	(11)	(13)	(48)	(138)
Removals and Transfers out	(1)	(3)	(1)	(8)	(13)
Transfers in	3	-	-	-	3
Number participating at month end	2 041	524	458	1 641	4 664
% participating	62.8%	47.1%	47.1%	49.2%	53.8%
Bonds issued					
Maturity Value	\$129 625	\$29 850	\$25 225	\$91 250	\$275 950
Number	2 248	526	470	1 661	4 905
Refunds issued	47	17	9	43	116
Revisions in authorizations	56	10	9	48	123
Annual going rate of deductions					
New Plan	\$ 858 663	\$198 865	\$181 254	\$657 269	\$1 896 051
Old Plan	254 663	55 159	33 413	158 859	502 094
Total	<u>\$1 113 326</u>	<u>\$254 024</u>	<u>\$214 667</u>	<u>\$816 128</u>	<u>\$2 398 145</u>

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General Accounting Division

Employee Plans (continued)

<u>Suggestion Awards</u>	<u>February</u>	<u>Total to Date</u>
Number of Awards	17	298
Total Amount of Awards	\$250	\$3 080

Employee Sales Plan

	<u>February</u>	
	<u>Total</u>	<u>Major Traffic Appliances</u>
Certificates Issued	257	40 217
Certificates Voided	9	1 3

Salary Checks Deposited

	<u>January</u>	<u>February</u>
Monthly	894	903
Weekly	1 072	1 038
Total	<u>1 966</u>	<u>1 941</u>

Special Absence Allowance Requests

Number submitted to Pension Board	10	5
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Absenteeism (Weekly Paid Employees)

January 1 to February 20	1948 2.73%	1949 3.19%
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PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING

	<u>January</u>	<u>February</u>
Number of Employees		
On payroll at beginning of month	180	181
Removals and transfers out	(4)	(4)
Additions and transfers in	5	5
Number at end of month	<u>181</u>	<u>182</u>
Net increase during month	1	1
% of terminations and transfers out	2.2%	2.2%
% of absenteeism	4.1%	4.7%

Changes by division in number of Accounting Division employees during February were as follows:

General Accounting - General: No change

Accounts Payable: Decrease of two employees

One new hire
One on Leave of Absence
Two transfers to Cost

Cost: Increase of two employees

Two transfers from Accounts Payable

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General Accounting Division

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING (continued)

General Accounts: No change

Property Accounting: Increase of one employee

One new hire

Weekly Payroll: Decrease of one employee

One new hire

One transfer to Monthly Payroll

One termination

Monthly Payroll: No change

One new hire

One transfer from Weekly Payroll

One transfer to Manufacturing Division

One termination

Special Assignments: Increase of one employee

One transfer from Construction

<u>Injuries</u>	<u>January</u>	<u>February</u>
Major	0	0
Sub-major	0	0
Minor	1	0

Number of Accounting Division employees as of February 28, 1949, were as follows:

	<u>Number of Employees</u>		
	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Total</u>
General Accounting - General	3	3	6
Accounts Payable	25	1	26
Cost	10	1	11
General Accounts	17	1	18
Property Accounting	20	3	23
Weekly Payroll	74	5	79
Monthly Payroll	13	1	14
Special Assignments	1	4	5
Total	<u>163</u>	<u>19</u>	<u>182</u>

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General Accounting Divisions

	<u>January</u>	<u>February</u>
<u>Accounts Payable*</u>		
Balance at Beginning of Month	\$ 2 981 Dr.	\$ 4 965 Cr.
Vouchers Entered	1 164 031	2 115 249
Cash Disbursements	1 250 647 Dr.	2 226 769 Dr.
Cash Receipts	19 835	53 811
Miscellaneous Credits	74 727	93 483
Balance at End of Month	\$ <u>4 965 Cr.</u>	\$ <u>40 739 Cr.</u>
Number of Vouchers Entered	2 142	2 081
Number of Checks Issued	1 653	1 538
Number of Freight Bills Paid	289	271
Amount of Freight Bills Paid	\$ 6 016	\$ 6 948
Number of Purchase Orders Received	867	1 148
Value of Purchase Orders Received	\$ 212 026	\$ 236 885

Public Vouchers (1034) Submitted to AEC

Not Reimbursed at Beginning of Month	\$ 1 937 078	\$ 5 026 544
Submitted During the Month	16 097 562	17 667 329
Sub Total	18 034 640	22 693 873
Reimbursements During the Month	13 008 096	14 345 552
Not Reimbursed at End of Month	\$ <u>5 026 544</u>	\$ <u>8 348 321</u>

Public Vouchers (1034) Submitted to AEC

Not Reimbursed at Beginning of Month	114	150
Submitted During the Month	478	423
Sub Total	592	573
Reimbursements During the Month	442	364
Not Reimbursed at End of Month	<u>150</u>	<u>209</u>

* General Divisions Only.

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General Accounting Divisions

	<u>January</u>	<u>February</u>
<u>Pre-Audit Vouchers (1035) Submitted to AEC</u>		
<u>Not Yet Approved</u>		
Community	\$ 28 314	\$ 80 935
Design and Construction	3 931 332	1 296 434
General	1 951 504	2 128 321
Manufacturing	<u>27 764</u>	<u>3 266</u>
Sub Total	<u>\$ 5 938 914</u>	<u>\$ 3 508 956</u>
<u>Not Submitted to AEC on Pre-Audit Vouchers-</u>		
Community	18 163 Cr.	153 167 Cr.
Design and Construction	4 118 617	4 514 812
General	1 447 634	1 146 761
Manufacturing	<u>743 583</u>	<u>661 215</u>
Sub Total	<u>\$ 6 291 671</u>	<u>\$ 6 169 621</u>
Total Unbilled Items	<u>\$12 230 585</u>	<u>\$ 9 678 577</u>
<u>Bank Balances at End of Month</u>		
Chemical Bank & Trust Co.,		
Contract Account	\$ 3 985 809	\$ 2 754 322
Seattle 1st National Bank - Richland		
Contract Account	1 705 034	2 201 828
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
U. S. Savings Bonds Account	245 221	187 263
Seattle 1st National Bank - Seattle		
Salary Account No. 3	<u>5 000</u>	<u>5 000</u>
	<u>\$ 5 991 064</u>	<u>\$ 5 198 413</u>
<u>Cash Disbursements</u>		
Community	\$ 136 157	\$ 240 453
Design and Construction	11 795 626	10 304 305
General	3 221 755	4 179 770
Manufacturing	<u>882 773</u>	<u>789 092</u>
Total	<u>\$16 036 311</u>	<u>\$15 513 621</u>
Accounts Payable	\$13 821 977	\$13 400 957
Payrolls (Net)	1 971 109	1 953 001
U. S. Savings Bonds	<u>243 225</u>	<u>159 663</u>
Total	<u>\$16 036 311</u>	<u>\$15 513 621</u>

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General Accounting Divisions

	<u>January</u>	<u>February</u>
<u>Number of Checks Written</u>		
Community	231	229
Design and Construction	1 372	1 284
General	1 653	1 538
Manufacturing	<u>541</u>	<u>598</u>
Total	<u>3 797</u>	<u>3 649</u>
 <u>Cash Receipts</u>		
Community	\$ 156 431	\$ 99 947
Design and Construction	279 430	112 657
General	13 108 423	14 495 259
Manufacturing	<u>12 219</u>	<u>13 107</u>
	<u>\$13 556 503</u>	<u>\$14 720 970</u>
 <u>Detail of Cash Receipts*</u>		
U. S. Government	\$13 008 096	\$14 345 552
Hospital	74 667	91 242
Scrap Sales	225	22 148
Miscellaneous Accounts Receivable	533	429
Educational Program	2 149	3 870
Employee Sales	791	1 406
Refunds from Vendors	16 631	26 379
All Other	<u>5 331</u>	<u>4 233</u>
	<u>\$13 108 423</u>	<u>\$14 495 259</u>
 <u>Travel Advances and Expense Accounts</u>		
Cash advance balance at end of month	\$ 10 105*	\$ 15 291*
Cash advance balance Outstanding over one month	496*	835*
Traveling and Living Expenses:		
Paid Employees	14 065	7 361
Billed to Government	14 441	7 567
Balance in Variation Account at end of month	2 340 Cr.	2 778 Cr.
 <u>Hospital Accounting</u>		
Balance at Beginning of Month	\$ 77 484	\$ 94 700
Invoices Issued	117 351	122 970
Refunds	401	642
Cash Receipts	(74 667)	(91 358)
Payroll Deductions	(25 859)	(22 672)
Miscellaneous Journal Entries	<u>(10)</u>	<u>(973)</u>
Balance at End of Month	<u>\$ 94 700</u>	<u>\$ 103 309</u>

* General Divisions Only

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General Accounting Divisions

	<u>January</u>	<u>February</u>
<u>PROPERTY</u>		
Number of Transfer Notices Received	608	674
Number of Items Affected	2 184	2 528
Number of Receiving Reports Classified	8 407	7 336
Number of Items Tagged at beginning of month	90 642	90 865
Number of Items Tagged this Month--Metal	1 759	829
Number of Tagged Items dropped from record	<u>(1 536)</u>	<u>(36)</u>
Total Tagged Items Recorded	<u>90 865</u>	<u>91 658</u>
Number of Items Recorded in quantity only at beginning of month	13 816	13 533
Items added to record during month	58	-0-
Dropped from record during month	<u>(341)</u>	<u>-0-</u>
Total Items Recorded in Quantity	<u>13 533</u>	<u>13 533</u>
Total Items on Record	<u>104 398</u>	<u>105 191</u>

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General Accounting Divisions

ACCOUNTS PAYABLE

Vouchers entered in accounts payable during February numbered 2 081 and totaled \$2 115 249. Accounts payable expenditures totaled \$2 226 769 representing the issuance of 1 538 checks

At the end of the month, there were 763 accounts payable invoices on hand totaling \$229 379 which required additional supporting data before billing for reimbursement could be made; 379 of these were unpaid and totaled \$40 739.

Unbilled accounts payable vouchers including items billed on Pre-Billing Audit vouchers total \$403 837.

New purchase orders received during the month numbered 1 148 and represent a commitment of \$236 885, as compared with 867 totaling \$212 026 in January.

COST

January Operating Reports were completed and distributed on February 24, 1949.

As a result of continued studies in connection with liquidating General Divisions operating costs, changes were made in the method of assessment of 700 Area and Purchasing and Stores costs. Additional changes in policy resulted in the discontinuance of assessments between the General Administrative, Accountability, General Accounting, Law, Purchasing and Stores, Surplus, Salvage and Scrap, Industrial Medical, and Employee and Community Relations Divisions.

Since the compilation of data for February reports was begun earlier than usual, and since indications are that final closing entries will be received earlier, it is expected that February reports will be issued earlier than any previous month.

GENERAL ACCOUNTS

Final closing entries for January were received on February 25, and Hanford Works and Departmental Financial Statements were completed on February 28.

As of February 28, there was an increase of \$3 321 777 in the amount of unreimbursed Public Vouchers (Form 1034) and a decrease of \$2 429 958 in the amount of Pre-Billing Audit Vouchers on hand in the AEC Audit Branch.

There was a total decrease in unbilled (both submitted and not submitted on 1035) amounting to \$2 551 874. This decrease applied to all accounting divisions.

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General Accounting Divisions

GENERAL ACCOUNTS (Cont'd)

Unbilled expenditures on the General Accounting Divisions books may be segregated as follows: (Includes items submitted on Pre-Billing Audit Vouchers)

Salaries	\$ 2 119 522
Continuity of Service (Includes payment to Pension Trust)	1 042 038
Accounts Payable	403 838
Accounts Receivable	292 231 CR
Freight	31 605
Payroll Deductions	28 111 CR
All Other	<u>1 579 CR</u>
	<u>\$ 3 275 082</u>

Average daily receipts amounted to \$736 170 and average daily disbursements were \$797.916. Average bank balances were \$2 746 512 in the Richland Bank and \$3 291 236 in the Chemical Bank.

MEDICAL ACCOUNTING SECTION

In February, total invoices issued amounted to \$122 970 which was an increase of \$5 619 over the amount issued in January. Cash receipts increased by \$16 691 to \$91 358. The decrease in payroll deductions in the amount of \$3 187 was due to one less payroll being journalized in February than in January. The accounts receivable balance of \$103 309 represents an increase of \$8 609. Charges to subcontractors in the amount of \$15 618 which will be paid in full early in March are included in this total.

Considerable time was spent during the month in revising operating cost reports and in the preparation of operating reports for the month of January under the new basis.

SPECIAL ASSIGNMENTS

Work accomplished during February by employees handling special assignments consisted of:

1. Assistance to the Design and Construction Accounting Division in their Cost Section.
2. The preparation of and indexing of 28 new forms bringing the total indexed forms to date to 2 195.
3. The development of a tentative accounting procedure in connection with the proposed incentive plan for reimbursing medical doctors.
4. A review of the methods of liquidating General Divisions' costs which will result in revisions of methods in subsequent months operating reports.

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General Accounting Divisions

PLANT ACCOUNTING

The appraisal of Government owned plant and equipment at Hanford Works, under the direction of consulting engineers which have been retained by AEC, proceeded throughout the month.

Plant accounting personnel were engaged in two separate phases of this work; namely, that of assisting with the inventory of plant facilities in the areas, and the listing for inventory purposes of all Class "B" Property on the Plant Accounting Records.

The same Property Accounting procedures are still in effect and no changes in the present method of recording and accounting for Class "B" Property are contemplated until such time as new plant accounting procedures now under consideration are fully developed and installed.

Two new people were added to the section in anticipation of additional work under the new procedures. Four men were transferred to the section on a temporary basis to assist with the field work in connection with the appraisal.

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General Accounting Divisions

PAYROLLS

In view of the anticipated group lay off, a study was made of our routine with respect to employees "checking out" and revisions were made to effect a speed up of the "checking out" procedure. As a result, it is expected that large groups of employees reaching payroll at one time will be "paid off" with a minimum of delay and confusion.

During the four payroll weeks ended in February, there were 203 time cards received late in Payroll. The highest number received late in one week was 83 and the lowest was 16. The Medical Division was responsible for 139 of the 203 late cards during February.

U. S. Savings Bonds and Custody Receipts for U. S. Savings Bonds purchased by employees through payroll deductions in December 1948 were distributed to the divisions on Monday, February 7, 1949 for delivery to employees. There were 888 Bonds and 4 315 Custody Receipts delivered.

Annual Statements of Account issued to employees who were participating in the G. E. Employees Savings and Stock Bonus Plan at December 31, 1948 were delivered to weekly paid employees on February 25, 1949 and to monthly paid employees on February 28, 1949. The Statements were attached to Salary Checks.

Approval was received from the AEC to a revision in overtime payment policy effective October 18, 1948 for non-exempt employees to conform with new interpretations to be enforced by the Wage and Hour Division as a result of the Supreme Court's decision in the Bay Ridge Case. Overtime payments were calculated on the revised basis beginning with the payroll week ended February 13, 1949 (paid on Friday, February 18, 1949). Retroactive overtime adjustments covering the 16 week period from October 18, 1948 to February 6, 1949 inclusive, were included in salary checks distributed on Friday, February 25, 1949. There were 954 retroactive payments totaling \$662.26.

In addition to regular payroll addressograph work, the following addressograph jobs were completed during February:

1. Preparation of approximately 1 200 addressograph plates showing Name, Payroll Number, and Office Address of supervisory employees for use in mailing material to supervisors by Office Service Division.
2. Addressograph list of all employees, weekly paid and monthly paid, was prepared for the Atomic Energy Commission, Office of Organization and Personnel. The list was segregated by divisions, showing name, job code, and salary rate of each employee.
3. Addressograph list of all monthly paid employees was prepared for use by Employee and Community Relations Division in connection with the G. E. 9-point program.
4. Addressograph list of all weekly paid employees was prepared for use of Employee and Community Relations Division in connection with reductions in force.

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General Accounting Divisions

PAYROLLS (CONT.)

5. Approximately 5 000 envelopes were addressographed for use in mailing letters relative to driveways and parking on lawns. The letter was mailed only to employees who occupy houses in Richland.
6. Approximately 8 600 envelopes were addressographed for use of Employee and Community Relations Division to mail Mr. Prout's letter dated February 7, 1949 with respect to the Union Election.
7. Approximately 8 600 envelopes were addressographed for use in mailing letter concerning the Blood Donor Campaign.

In answer to a subpoena in the case of United States vs. Frank W. Long, I. D. Behymer testified on February 9, 1949 in the Yakima District Court of the United States that Company Payroll records indicate one Frank W. Long was employed by General Electric Company during the period February 20, 1948 to February 26, 1948 inclusive. He presented Company records substantiating his testimony.

Weekly Payrolls have been billed to the Government through the week ended February 20, 1949 and Monthly Payrolls have been billed through the month of January, 1949.

Weekly Payrolls have been reimbursed by the Government through the week ended January 30, 1949 and Monthly Payrolls have been reimbursed through the month of December, 1948.

No errors were reported by the AEC audit section in connection with their audit of Weekly Payrolls for January, 1949. Audit of the Monthly Payrolls for November and December, 1948 revealed that a note of explanation was typed incorrectly on the payroll in one instance.

At the present time, salary checks are distributed to weekly paid employees by various methods. For example, approximately 46% of the checks distributed each week are distributed through supervision in Richland, approximately 34% are distributed to employees at the Bus Terminal, approximately 15% are deposited to the accounts of employees in the Richland and North Richland banks, and 5% are delivered to supervisors in the Areas in those cases of employees who live outside of Richland and do not pass the Bus Terminal in going to or from the Areas.

A detailed study was made in February of the present methods of distributing weekly salary checks for the purpose of recommending a change in procedure which would permit distribution of salary checks to employees through supervision during normal working hours. Such a procedure would conform with normal General Electric policy in other locations.

Approximately 40 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.

In connection with Income Tax Returns to the various states, there were 27 employees for whom it was necessary to file Returns of Information at the Source to nine different states. Non-resident Returns of Information at the Source were filed for four individuals in New York State.

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162

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SERVICE DIVISIONS

SUMMARY - FEBRUARY 1949

PLANT SECURITY AND SERVICES DIVISION

There was one Major Injury in February bringing the total for the year-to-date to three and resulting in a cumulative frequency rate of 1.02.

There were six fires during the month resulting in a loss of \$17,500. Official estimates of the fire loss due to the 300 Area explosion in January has been set at \$26,520. Additional losses attributed as a direct result of the explosion was \$98,700.

Three carloads of duPont records have been shipped to Willmington. The one remaining carload is scheduled for shipment early in March.

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PURCHASING AND STORES DIVISION
FEBRUARY, 1949

GENERAL

Purchasing

The work load remained stable throughout the month. 1,435 purchase requisitions were placed as compared to 1,425 placed in January. 2,159 purchase requisitions were received as compared to 2,246 received during January. Requisitions on hand at month end totaled 614 as compared with 678 at the end of the previous month.

During the month ten additional orders were placed for Project P-10 and fifteen orders were placed for Project P-10-A. The Project Engineering Division advises that deliveries are proceeding satisfactorily on both projects.

At the request of the Commission a detailed report was prepared of all our purchase orders and supply contracts with a value of \$25,000 or more executed during the period 1-1-47 through 1-31-49. In addition to the commodity, value, and period covered, a list of the three lowest bidders, amounts bid, reason for placing the order or contract, etc. was furnished.

A review and revision of the Purchasing Division Manual of Standard Practice was completed during the month, but actual printing is being held up until a later date.

At the request of Management, a careful survey was made near the end of the month to determine where costs could be reduced and the expenditures of new monies curtailed. Our study indicated a saving could be effected by a reduction in personnel and in reduced use of long distant telephone calls and telegrams. By reducing inventories of essential materials to an approximate two months instead of a six months' level, a reduction of expenditures of approximately \$300,000 per month could be effected during the next four months.

Stores

As mentioned in the report for January, listings of non-moving Stores materials were transmitted to various division heads for their review. This study is essential in determining which items could safely be declared excess and removed from the project. At this date there have been no appreciable results, since replies have been received from only one or two divisions. The Transportation Division is currently allocating two employees who are aiding in the study of automotive parts and equipment. It is expected that several hundred items will be excessed from this category.

Considerable emphasis is being placed on cost reduction, both of a temporary and a permanent nature. Quantities reflected on purchase requisitions for replenishment of Stores stock were being drastically cut, and new Stores Stock Requests were being analyzed, to insure their propriety. Through the medium of minor excessing activity and sales to Construction units, the over-all inventory valuation at month end showed a net decrease of \$50,960.03.

About thirty days ago, Division Managers were furnished lists of their employees who were authorized at this time to withdraw materials from Stores stock. It was requested that the Managers review these lists, with the objective of reducing to a minimum the number of authorized persons. The response from all divisions was

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PURCHASING AND STORES DIVISION

GENERAL (Cont.)

Stores

splendid. The authority for effecting withdrawals was cancelled for many employees and restricted in many other instances to bare essentials. In our next report, we will advise the number of such cancellations which appear at this time to run well over one hundred.

Saturday overtime was discontinued, and emergency calls for disbursing or receiving will be handled by the Stores Supervisor on call.

Surplus, Salvage & Scrap

Excess Lists No.'s 54 through 59 were transmitted to the Atomic Energy Commission during the month. Twelve field lists were circulated throughout the project but only five were approved as excess at month end. Fifty 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.

A stockroom keeper was assigned to each warehouse at the Pasco General Depot. This will enable us to maintain a better control.

Material valued at \$64,091.25 was disbursed from the Pasco warehouses prior to declaration as excess. This represents considerable man-hours expended, and as a result the actual listing of excess material was somewhat curtailed. It is felt that the number of excess lists transmitted during the month to the Atomic Energy Commission is not as great as we should reasonably expect, but since disbursements to the various divisions continue at the tempo noted above we can only assume that the total materials so disbursed were of more benefit to the project as a whole than if more material had been listed as excess.

In line with the current retrenchment program, the Surplus, Salvage and Scrap Division has discontinued the use of eight laborers. Personnel at its present level will be capable of continuing the disposal of excess material. Every effort will be made to efficiently cope with any accelerated program of excessing materials that the various divisions or subcontractors may choose to follow. Saturday overtime was discontinued.

PERSONNEL

<u>Administrative Supervision</u>	1
<u>Purchasing</u>	
Employees Exempt	8
Employees Non-Exempt	26
<u>Stores</u>	
Employees Exempt	8
Employees Non-Exempt	107
<u>Surplus, Salvage & Scrap</u>	
Employees Exempt	8
Employees Non-Exempt	47
TOTAL:	<u>205</u>

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PURCHASING AND STORES DIVISION

SAFETY AND SECURITY

Purchasing

Safety and Security Meetings Scheduled	1
Number of Employees attending	34

Stores

Safety and Security Meetings Scheduled	6
Number of Employees attending	113
Minor Injuries	2

Surplus, Salvage & Scrap

Safety and Security Meetings Scheduled	12
Number of Employees attending	55

STATISTICS

Purchasing

Requisitions on hand 2-1-49 (includes 59 assigned to Govt.)	678
Requisitions received during February	2,159
Requisitions placed during February	2,223
Requisitions on hand 2-28-49 (includes 58 assigned to Govt.)	614
HW Orders placed	1,455
TPS Orders placed	151
M.O.'s placed	0
O.R.'s placed	9
Alterations issued	134
Orders Expedited	186

Stores

Number of items added to Stores stock	222
Number of items deleted from Stores stock	20
Items in Stores stock at month end	49,992
Receiving Reports issued	3,872
Store Orders filled	22,634
Emergency Store Orders filled	2
Returnable containers on hand at month end	5,729
Returnable containers on hand over six months	1,314
Shipments processed (containers and material) during the month	151
Inventory valuation (903 - all captions, 906 and 912) Stores at month end	\$2,947,617.02
Inventory valuation (Spare Parts) at month end	1,540,267.52
Total value inventories at month end, including Spare Parts	4,487,884.54
Value of Disbursements, not including cash sale items	252,955.69*
Value of transfers from Surplus, Salvage & Scrap to Stores	1,891.95
Value of materials declared excess and removed from Stores stock	10,464.11

*Includes \$22,196.69 disbursed to Construction and CPFF subcontractors

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PURCHASING AND STORES DIVISION

STATISTICS (Cont.)

Surplus, Salvage & Scrap

Excess Account #10.10 Balance 1-25-49 \$2,509,280.77

Receipts 1-26-49 to 2-25-49

Automotive Equipment	\$168,438.13	
Machine tools and equipment	5,161.25	
Office Furniture, machines, etc.	10,023.77	
Material and Supplies	551,523.70	
Lumber	2,610.57	
Miscellaneous Equipment	18,400.73	
	<u>756,158.15</u>	756,158.15
		<u>\$3,265,438.92</u>

Disbursements 1-26-49 to 2-25-49

On Project:

Automotive Equipment	1,941.50
Machine tools and equipment	2,491.25
Office furniture, machines, etc.	51.45
Household furniture, etc.	44.09
Material and Supplies	5,241.43
Lumber	53.17
Miscellaneous Equipment	3,264.50

Off Project:

Automotive Equipment	21,080.64
Office furniture, machines, etc.	1,874.96
Household furniture, etc.	34,741.37
Material and Supplies	1,643.16
Miscellaneous Equipment	3,623.76
	<u>76,051.28</u>

Balance of Account #10.10 as of 2-25-49

(See attached list for breakdown of Matls.
in this account by classifications)

76,051.28
\$3,189,387.64

Value of Excess Lists to AEC

Machine tools and equipment	1,250.00	
Material and Supplies	9,093.96	
Miscellaneous Equipment	975.00	
	<u>\$11,318.96</u>	\$ 11,318.96

Receiving Reports (HW 1.54A) issued
(3,605 Items)

Store Orders processed	171
Shipping Orders processed	55
Handling charges billed	6,194.66
Lists transmitted to AEC	5
Purchase requisitions screened	3,880
Scrap Sales completed	6
Value received from Scrap sold	22,147.50
Scrap sales pending - approved	9
Scrap sales pending - not approved	3

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PURCHASING AND STORES DIVISION

STATISTICS (Cont.)

Surplus, Salvage & Scrap

Salvage Material disbursed prior to Excessing

Richland Salvage Yard

Number of Store Orders

197

Total Value

\$3,748.73

Loazer Spur Salvage Yard

Number of Store Orders

23

Total Value

\$ 766.07

Total of Salvage Material disbursed

\$4,514.80

Pasco Depot Material disbursed prior to Excess

Number of Items

965

Total Value

\$64,091.25

\$64,091.25

Total Receipts to date

\$3,739,268.74

Total Disbursements to date

549,881.10

Percentage of Turnover

.068

PURCHASING AND STORES DIVISION
 RECAPITULATION BY MATERIAL CLASSIFICATIONS OF ACCOUNT 10.10

Class	Description	Monetary Value
5	Flags, bunting, pennants, etc.	\$ 1.00
7	Fuel	10.34
8	Motor vehicles: Electric trucks, tires, tubes	58,843.53
10	Outboard motors and all accessories	243.00
11	Pumps and Pump parts	69,223.75
12	Marine hardware	174.72
13	Engine and fireroom fittings	33.20
14	Lubricants	789.44
15	Electric Cable and insulated wire	3,628.37
16	Radio and sound signal apparatus	9,088.35
17	Electric apparatus	645,170.33
18	Instruments of precision and photographic equipment	15,409.32
19	Blocks (tackle)	10.00
21	Cordage: Hemp, jute, oakum, twine, etc.	82.59
22	Wire Rope, bare wire, etc.	672.23
24	Canvas, duck, tentage, etc.	49.00
26	Furniture	100,547.91
27	Textiles: Thread, findings, floor coverings	22,577.01
29	Toilet articles	24.38
30	Bathroom and toilet fixtures	4,643.84
31	Non-Electric lighting apparatus	2.40
32	Fire-Surfacing and heat insulating materials	3,644.63
33	Gaskets, hose, packing, sheet and strip rubber, hose fittings, flexible tubing, etc.	457.99
37	Special wearing apparel and athletic equipment	1,633.89
38	Brooms and brushes	3.00
39	Lumber	1,533,519.01
40	Machine tools	27,986.23
41	Hand tools	5,333.77
42	Builders and general hardware	11,586.93
43	Bolts, nuts, rivets, screws, washers, etc.	2,308.50
44	Pipe and non-flexible tubes and tubing	47,538.56
45	Pipe fittings	32,254.52
46	Metal in bars: including flat, hexagon, octagon, round and square shapes, etc.	50.09
47	Metal in plates and sheets	5,113.07
51	Acids, chemicals, etc.	5,555.73
52	Paints and paint ingredients	70,725.31
53	Pens, pencils, paper, drafting room and printers' supplies	977.29
54	Office equipment	16,215.50
55	Clothing	153.63
57	Laboratory equipment	247.55
58	Fire fighting apparatus: railway equipment, prefabricating buildings, etc.	77,544.50
59	Building materials: Asphalt, brick, etc.	1,550.05
60	Boilers and power plants	686.45
63	Tableware	12,290.87
64	Kitchen utensils and apparatus	35,809.11
65	Ovens, ranges, stoves, etc.	32,691.85
66	Machinery: Pneumatic tools, etc.	52,014.23
69	Animal and hand-drawn vehicles	3,990.03
70	Agricultural implements	2,479.07
73	Caps, hats, gloves, etc.	17.85
78	Motorized equipment and heavy construction equipment	273,783.72

Total Account 10.10 \$3,189,387.64

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PLANT SECURITY AND SERVICES DIVISION

MONTHLY REPORT - FEBRUARY - 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	2	3	1 (a)	
Patrol and Security	705	713	8 (b)	
Safety & Fire Protection	189	190	1 (c)	
Office Services (General & Clerical)	<u>315</u>	<u>317</u>	<u>2 (d)</u>	
TOTAL	1211	1223	12	

NET INCREASE - 12

- (a) - 1 - Transferred from Safety & Fire to Special Assignment
- (b) - 3 - New Hires (Patrol)
9 - Transfers from Community (Patrol)
3 - Terminations (2 Patrol - 1 Security, Clerical)
1 - Removal from roll due to Leave of Absence (Patrol)
- (c) - 2 - New Hires (Firemen)
1 - Transfer from another plant
1 - Termination
1 - Transfer to Special Assignment
- (d) - 6 - New Hires (5 Clerical - 1 General)
5 - Returned from Leave of Absence (3 Clerical - 2 General)
1 - Transferred from Purchasing & Stores Division (Clerical)
6 - Terminations (4 Clerical - 2 General)
1 - Removed from roll due to Leave of Absence (Clerical)
3 - Transferred to other Divisions (Clerical)

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Service Divisions
Plant Security and Services

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SAFETY AND FIRE PROTECTION

Plant Safety Record - 12 days

Injury Statistics

	<u>January</u>	<u>February</u>	<u>Year to date</u>
Major Injuries	2	1	3
Non-Tabulatable Major Injuries	0	0	0
Sub-Major Injuries	5	3	8
Minor Injuries	444	419	863

Cumulative 1949

<u>Exposure Hours</u>	<u>Major F/R</u>	<u>Major Severity</u>	<u>Minor F/R</u>
2,930,223	1.02	0.012	2.95

Major Injury No. 61

February 16, 1949 at approximately 3:00 p.m., _____, an employee of the Transportation Division in the 1100 Area incurred a fracture of the radius, mid portion, and chip fracture lower end of ulna of the right arm. Injured and L. D. Kron, W-9977-MT, were removing excess cable from the power unit controlling Bull Dozer blade. While pulling the cable off the drum, injured gave instructions to helper to pull the clutch lever to further disengage the clutch. He should have instructed helper to push the lever. The sudden unexpected winding action of drum pulled Hillman's right hand between drum and guard--resulting in injury.

Sub-Major Injury No. 137

February 1, 1949 at approximately 12:35 p.m., _____, an employee of the Maintenance Division, 100-D Area, incurred an Oblique Fracture right thumb when it was caught between the release pin head and the frame of a compressor tongue. An air master compressor had been hooked to the back of a truck to be moved. In attempting to raise the dolly wheel, which hinges to the tongue and is locked in either the raised or lowered position by a spring loaded locking pin, injured's right thumb was caught in a hidden pinch point formed by the members mentioned above. X-Ray taken revealed the bone injury.

Sub-Major Injury No. 138

February 2, 1949 at approximately 2:30 p.m., _____, an employee of the Electrical Division, 200-East Area, incurred a tuft fracture to the distal phalanx of the left ring finger when it was caught between the handle of a 90# jack-hammer and the side of an excavation where frozen ground was being broken. The outside line group was using the jack-hammer to break up frozen ground where a 70' power pole was to be erected. Injured was working in a hole approximately 3' in diameter and 3' deep as it was too deep to handle the jack-hammer from the surface. While working in this position the finger was caught between the jack-hammer handle and the wall of the hole.

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Sub-Major Injury No. 139

February 20, 1949 at approximately 4:45 p.m., an employee of the 100-F Area "P" Division, caught his finger between the plunger and nozzle of a charging machine; fracturing the tip of the right index finger. The injured had been assigned to check the charging machine and had the apparatus set up on a dummy nozzle. He had placed a metal piece in the feed trough and it rolled down into position--striking the micro-switch--which should cause the machine to operate, but did not. BonDurant walked around to the right side of the machine, closed the air valve, opened the guard over the plunger, and removed the metal piece. He then took the micro-switch off the machine and examined it. Injured repositioned the micro-switch and stated that his right hand was resting on the nozzle and over a cap screw and "T" screw, when he opened the air valve. As the air pressure came on, it actuated the plunger, which shot out and caught the end of employee's gloved index finger between it and the nozzle port. BonDurant had not closed the guard as operating instructions specifically require.

Safety Meetings

There were 714 safety meetings held during the period of February 1 through February 28, 1949, with a total attendance of 8,570.

Safety Spectacles

There were 105 pairs of prescription safety spectacles ordered during the period of February 1 through February 28, 1949; 82 pairs of prescription safety spectacles were checked, received, and fitted; and 230 adjustments and repairs were made to all types of safety spectacles.

100 Areas Activities

Three special investigations were held during the month: Sub-Major, Maintenance Division, 100-D Area; Sub-Major, "P" Division, 100-F Area; Near-Serious Accident Investigation, Maintenance Division, 100-F Area.

A safety shoe, which an employee of the 100-B Area Maintenance Division was wearing at the time a falling object struck it, was obtained and a display made up for use in the Areas.

Partial acceptance and start-up of operations of the 108-B Building occurred in the early part of February. Most of the hazards involved have been considered and corrective action taken.

A new hopper-type R.R. Car is being used to deliver materials to the Power Division in the 100 Areas. Several unsafe practices and conditions were observed and a Committee of the Power Division and the Safety Engineer made a study of the job and agreed on proper safeguards.

The Safety Slogan Contest in 100-B Area has been completed and prizes awarded to the winners. Results were favorable.

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200 Areas Activities

One Sub-Major Injury investigation was held in the 200 East Area.

Three safety films were shown in the 200 East Area.

Orientation was held for seven new employees in the 200-West Area.

300 Area Activities

Served as a witness in the case of Ivan Nagle versus General Electric Company Civil suit.

Observation made and suggestions offered relative to a Static Load Roof Test, 321 Building.

Special inspection of the Minor Construction yards was made.

Obtained action from the Technical Division relative to the correction of the lock situation on Dry Ice Storage Box.

700-1100 Areas Activities

Work is being done in preparation of procuring a suitable portable platform to be used by electricians in relamping large buildings.

Study is underway to assure safe working conditions of Stores employees assigned to branding rubber goods with electric iron.

Assisted in redesign of a guard for burring machine in Instrument Laboratory. Set up procedures and protective needs to the burring machine.

Established protective and procedure measures for safe operation of new saw repair installation in the 700 Carpenter Shop.

A complete check of floor loads throughout the 700 and 1100 Areas is now underway.

A check and inspection was made of several pieces of new equipment before being placed in service. Necessary recommendations for changes were given.

The method of coal handling at 700 Area Power House is being studied for the purpose of establishing safe methods and ease of car moving.

Safety publicity is being cleaned up in all buildings.

Manifold installation for welding shop in the 722 hanger is being completed as requested by the Safety Engineer sometime past.

Assistance is being given to Dr. Wood of the Medical Division in familiarization with all industrial procedures so he will have a better understanding of job situations when injuries are reported to him.

The 700 Area performance award was successfully completed. Cooperation in the undertaking was excellent on the part of all persons involved.

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Service Divisions
Plant Security and Services

General

A revised plant statistic sheet covering injury experience has been prepared with closing periods ending at the end of each month. The forms of the above statistics will be used throughout the future.

The Safety Division has been asked to contribute suitable safety slogans for fill-in material in connection with the National Dog Show to be held in Richland

An inventory has been taken of the office safety equipment in the 770 Building.

The property damage loss by explosion of the 300 Area has been set up separate from loss by fire.

FIRE PROTECTION

	<u>Number of Fires</u>		<u>Estimated Damage</u>	
	<u>January</u>	<u>February</u>	<u>January</u>	<u>February</u>
Plant Area	3	6	\$26,520.00	\$ 17.50
Miscellaneous	0	0	No Damage	No Damage
Construction Fires	19	14	\$ 150.00	\$ 475.00
Property Damage Loss by Explosion	1	0	98,700.00	No Damage
A.E.C. Fires	0	2	No Damage	1450.00

Routine Duties

Fire Extinguishers

Inspected	2,941
Installed and Relocated	68
Refilled	27
Resealed and Repaired	45
Winterized	3
Salvage	8

Gas Masks

Inspected	91
Serviced	15

Fire Drills and Lectures

Outside	20
Inside	125
Auxiliary Brigade	24
Safety Meetings	37

All fire alarm boxes in the Industrial Areas were tested.

All fire hose houses, hydrants, and lines in Plant Areas were inspected.

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SAFETY DIVISION - INJURY AND ACTIVITY STATISTICS

	300 Area	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	700-1100 Area	Misc. Area	3000 Area	Pasco Area	TOTAL
Minor Injuries	90	28	16	44	41	79	77	15	26	3	419
Sub-Major Injuries	0	0	1	1	0	1	0	0	0	0	3
Major Injuries	0	0	0	0	0	0	1	0	0	0	1
Days since last Tabulatable Major Injury	36	278	46	70	473	206	12	102	168	578	
Days since last Sub-Major Injury	43	241	27	8	446	26	51	144	113	46	
Days without a Minor Injury	6	13	16	11	11	3	6	20	13	25	714
Safety Meetings Conducted	68	59	63	54	103	152	157	18	20	20	8570
Number in Attendance	804	418	502	538	1302	1787	2399	192	523	105	
Safety Spectacles Delivered	18	4	13	14	5	9	19	0	0	0	82
Safety Spectacles Serviced	20	35	35	50	30	35	25	0	0	0	230

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MONTHLY INJURY ANALYSIS

Period - January 16, 1949 through February 15, 1949

Minor Injuries

	Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Blisters	Unclassified	TOTAL	
											FEBRUARY	LAST MONTH
GENERAL	1	1	0	0	0	0	0	0	0	0	2	0
"P" DIVISION	3	4	1	4	0	0	5	0	1	2	20	36
"S" DIVISION	5	3	1	2	0	1	4	0	0	1	17	19
POWER	0	1	2	1	0	0	5	3	1	2	15	13
MAINTENANCE	14	21	21	26	10	8	4	7	1	3	115	118
PROJECT ENGINEERING	0	0	0	0	0	0	0	0	0	0	0	0
ELECTRICAL	2	8	2	7	1	2	0	1	0	1	24	29
INSTRUMENT	1	5	1	5	2	3	0	1	1	1	20	16
TRANSPORTATION	0	7	9	5	2	1	7	0	3	1	35	33
COMMUNITY	1	7	3	15	2	6	3	5	0	1	43	42
ACCOUNTING	0	0	0	1	0	0	0	0	0	0	1	2
TECHNICAL	8	16	3	17	4	3	2	2	1	2	58	52
MEDICAL	2	0	2	2	7	1	1	0	2	1	18	19
HEALTH INSTRUMENT	1	5	0	4	2	1	4	0	0	0	17	13
SERVICE	2	17	3	4	3	2	4	2	0	2	39	32
EMPLOYEE AND COMMUNITY RELATIONS	0	0	0	0	1	0	0	0	0	0	1	0
DESIGN AND CONSTRUCTION	3	2	7	5	1	3	1	0	0	1	23	24
TOTAL	43	97	55	98	35	31	40	21	10	18	448	
LAST MONTH	51	94	51	90	44	42	21	19	7	29		448

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Service Divisions
Plant Security and Services

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OFFICE SERVICES DIVISION

General Services

Laundering volumes were as follows:

	<u>January</u>	<u>February</u>
<u>Plant Laundry (Building 2723)</u>		
Coveralls - Pieces	29,532	29,148
Towels - Pieces	6,916	5,727
Miscellaneous - Pieces	<u>59,782</u>	<u>58,015</u>
Total Pieces	96,230	92,890
Total Dry Weight - Lbs.	130,504	132,513
<u>Richland Laundry (Building 723)</u>		
Flatwork - Pieces	136,960	142,051
Rough Dry - Pieces	32,300	33,463
Finished - Pieces	<u>5,097</u>	<u>5,249</u>
Total Pieces	174,357	180,763
Total Dry Weight - Lbs.	113,132	117,496
<u>Monitoring Section (Building 2723-W)</u>		
Poppy Check - Pieces	50,293	62,673
Sealer Check - Pieces	<u>88,366</u>	<u>97,786</u>
Total Pieces	138,659	160,459

Clerical Services

Telephone

A new two-position switchboard was installed in the Hospital this month. We now have 16 two-way trunks between the plant board and the Hospital system. This should alleviate traffic problems on this phase of our operation.

It will be necessary to issue mimeograph supplements to the directory at the time some of the stations are cut over. Complete new directories will not be issued until the main cut-over in September or October.

Line distribution of the Telephone Exchange is as follows:

	<u>January</u>	<u>February</u>
Lines working as 1 - 0 Lines	642	643
Lines working as 2 - 0 Lines	62	57
Lines working as 0 - PBX Lines	24	31

Service Divisions
Plant Security and Services

	<u>January</u>	<u>February</u>
Lines working as 1 - N Lines	24	25
Lines working as 2 - N Lines	2	2
Lines working as 2-0-R Combination Lines	<u>1</u>	<u>1</u>
Total Official Lines	755	759
Lines working as 1 - F Lines	92	94
Lines working as 2 - F Lines	22	24
Lines working as F - FBX Lines	4	4
Lines working as 1 - R Lines	8	8
Lines working as 2 - R Lines	1199	1187
Lines working as 2 - RF Lines	85	85
Lines working as 3 - RF Lines	<u>2</u>	<u>2</u>
Total Non-official Lines	1412	1404
Vacant Lines	<u>33</u>	<u>37</u>
Total Lines in Multiple Bank	2200	2200

Mail Room

Volume has been very heavy during the past month due to the large number of employee letters being sent out. To date, 80,000 letters to plant employees have been distributed.

	<u>January</u>	<u>February</u>
Pieces of First Class mail received	28,206	27,956
Pieces of Parcel Post mail received	1,527	1,371
Pieces of Registered mail received	392	360
Pieces of Insured mail received	198	235
Pieces of Special Delivery mail received	<u>302</u>	<u>222</u>
	30,625	30,144
Pieces of mail sent out	40,737	49,453
Amount of money used in Postage Meter	\$1,808.54	\$1,905.28
Teletypes sent out	1,705	1,227
Teletypes received	<u>1,581</u>	<u>1,324</u>
Total Teletypes	3,286	2,551

Office Equipment

Arrangements have been made to store a working stock of office equipment in hutment 712-B.

	<u>January</u>	<u>February</u>
Machines repaired in shop	243	198
Service calls	<u>213</u>	<u>229</u>
Total machines serviced	456	427

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Service Divisions
Plant Security and Services

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Printing

Printing volume continues to be heavy. This is due to the large number of employee letters issued during the month.

	<u>January</u>	<u>February</u>
Multilith Orders received	159	142
Multilith Orders completed	167	155
Multilith Orders on hand at month end	23	18
Mimeograph Orders processed	2122	2152
Ditto Orders processed	3038	2933

Records Service Center

Three carloads of duPont records have been shipped to Wilmington, with the last one scheduled to be shipped the first week in March.

The Atomic Energy Commission has moved most of their records from hutment 712-B and will move the balance sometime in March.

	<u>January</u>	<u>February</u>
Cartons of records received for storage	165	79
Cartons of records processed	137	79
Cartons of records shipped (duPont)	0	2839
Persons viewing files	133	140

Stenographic Services Section

Work has been very heavy in this section during the month and our usual number of transfers to other Divisions were made.

PATROL AND SECURITY

General

Effective February 1, a receptionist was on duty in the 761 building Monday through Saturday from 8:00 a.m. to 4:45 p.m. Starting February 26, this receptionist will not work on Saturdays and the patrol will lock the door. Anyone desiring entrance will use the rear door.

One patrolman was stationed within the 321 building on February 1, the post to be manned from 7:00 a.m. to 5:00 p.m. daily.

Effective 12:01 a.m., February 4, the west construction gate (#15) into the 100-D operations area was discontinued.

Effective 12:01 a.m., February 7, the entire 105-DR area was placed in the "exclusion" category. All temporary posts in the 105-DR building proper, including doors 1, 2, 3, 4, 5, 6, 7 and 8 were discontinued. The 105-DR

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Service Divisions
Plant Security and Services

"exclusion" area badge house and main gate were manned by one patrolman twenty-four hours daily. One patrolman was posted at the east railroad gate in the 105-DR Area from 7:40 a.m. to 4:15 p.m. daily, Monday through Saturday.

On February 8, a memorandum was issued by the Security Section to all Division Heads entitled "Accountability of Classified Documents".

A procedure was issued to all Division Heads by the Security Section entitled "105-H Construction Area", on February 8, for badging personnel after February 14. The 105-H "controlled" construction area and the 105-H Building "exclusion" area were established at 12:01 a.m., Monday, February 14.

One patrolman each shift will be posted at room #221, door #271, in the 234-5 area at 8:00 a.m. February 16.

Patrol radio station WGMB-13 (Pasco area) was transferred from the Pasco Patrol Headquarters to the Pasco Fire Station on February 16. Operation and maintenance will henceforth be the responsibility of the Fire Division.

On February 19, at 12:01 a.m., one patrolman was posted at the west door and one patrolman at the east door of the 105-H "exclusion" work area. Both posts will be manned twenty-four hours to control entrance and exit of personnel to the 105-H restricted area.

Effective 12:01 a.m., February 22, one patrolman was posted at Door #99, 105-H "exclusion" area. This post will be manned twenty-four hours daily, or when work is in progress to control entrance and exit of personnel to the 105-H restricted area.

Telephones were installed in the 100-H Area Patrol Captain's office and in the 105-H "exclusion" area badge house on February 13.

Patrol posts #639 and #625, controlling entrance to the Operations area from the redox and 234-5 construction areas, were discontinued February 21.

Effective February 21, a new post was established at Gate #622 at the intersection of 4th and "A" Street controlling the entrance to the Operations Area from the Redox and 234-5 Construction areas. This post will be manned by one patrolman twenty-four hours daily.

HW Instructions Letter #81, Supplement #3, entitled "Procedures for Processing Classified Matter", was issued by G. G. Lail. This letter pertains to the stamping of documents and is dated February 28.

PATROL

The 200 Areas handled 86 process escorts between the areas.

Requests handled totaled 571, mainly consisting of opening doors, gates and escorts for employees of other departments.

A total of 37 construction employees were escorted into areas for First Aid treatment.

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Patrol supervision treated three cases for first aid while nurses were away from areas.

There were 152 unusual incident reports received, consisting mainly of contraband picked up at barricades, lost badges, pencils, traffic violations and fires.

There were 18 classified escorts handled during the month.

Practice evacuations were held as follows:

2/1/49	200-E	2:23 a.m.
2/1/49	100-B	10:44 a.m.
2/2/49	200-E	10:30 a.m.
2/3/49	200-E	8:15 p.m.
2/5/49	200-E	1:20 p.m.
2/15/49	100-H	12:31 p.m.
2/16/49	White Bluffs	11:35 a.m.
2/17/49	100-F	2:35 p.m.
2/22/49	100-B	12:45 p.m.

Arrest Summary

	<u>January</u>	<u>February</u>
Citation tickets issued	19	9
Number of violations	23	9
Continued from January		7
Cases cleared	16	16
Cases pending	7	0
Fined	15	16
Juiled	0	0
Dismissed	1	0
Total amount of fines	\$145.00	\$ 217.50
Operators License revoked	-	-

Accident Summary

Total accidents	20	17
Government permits revoked	2	1
Warning tickets issued	2	2
Verbal warnings given	86	44
Citation tickets issued (traffic only)	19	9

Training

Basic and advanced training at the patrol small arms range was continued.

Twenty 30-cal. machine guns were received complete with covers, tripods and necessary cleaning equipment. After cleaning and testing they will be issued to the plant areas.

The twelve Garand M-1 Rifles have been issued to the plant areas.

Service Divisions
Plant Security and Services

Classes were held on report writing and the importance of good reports was stressed during this period.

The following topics were included this month:

- Safety: "The Company's Responsibility for Safety"
- Security: "Pass Procedure"
- Health: "Give Your Heart A Break"

SECURITY

Operations Section

There were 349 Security Meetings held and attended by 5,833 General Electric employees.

Security Education talks - 36 meetings - 845 attendance.

There were 80 Security posters posted in the project busses. The posters beared the inscription "Looking for the Loose Line, Hold Onto Your Badge".

Employee Clearance

Class "Q" clearances received on old employees this month	16
Class "Q" clearance received on old employees to date	4,415
Class "Q" clearances received on new employees this month	119
Class "Q" clearances received on new employees to date	5,736
Class "Q" clearances received on both old and new employees since February 17, 1947:	10,151
Formal "P" clearances awaiting change to "Q"	99
Authorization clearances issued this month to employees	65

Statistical Summary of Outstanding Area Badges

	January				February				
	A	B	C	Total	A	B	C	Total	
100-B	719	1514	654	2887	100-B	711	1588	636	2935
100-D	798	1546	634	2978	100-D	800	1610	608	3018
100-F	753	1551	633	2937	100-F	751	1609	608	2968
200-E	1114	1624	489	3227*	200-E	1107	1652	497	3256*
200-W	1392	1670	479	3541	200-W	1395	1692	490	3577
200-N	42	843	169	1054	200-N	43	862	166	1071
300	1460	1628	364	3442	300	1455	1660	361	3476
100-DR	4997	494		5491	100-DR	5002	182		5384
234-5	3089	322		3411	234-5	3080	306		3386
241-BY	324	124		448	Redox	1218	93		1311
					241-BY	323	112		435

* Includes 50 "A" badges at Riverland Yards

Service Divisions
Plant Security and Services

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Visitors or Temporary Badges

<u>Area</u>	<u>January</u>	<u>February</u>
100-B	216	276
100-D	368	420
100-F	437	517
200-E	351	409
200-W	592	691
200-N	211	227
300	749	837
100-DR	489	554
234-5	285	83
241-BY	62	45
Redox	<u>19</u>	<u>310</u>
Total	3779	4369

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:	12	Personnel:	27
Total companies forwarded to AEC to date:	184		1,997
Total companies cleared for restricted data this month:	29		108
Total companies cleared for restricted data last month:	18		137

Six new companies were forwarded to the AEC this month:

Arthur Forsythe Company 3150 Elliott Avenue Seattle, Washington	North Equipment Company Erie, Pennsylvania
Corning Glass Works 1355 Market Street San Francisco, California	Pacific Bridge Company 333 Kearney Street San Francisco 8, California
The Dorr Company 570 Lexington Avenue New York 22, New York	Travelers Insurance Company 1511 - 3rd street Seattle, Washington

Number and type of clearance granted by the Atomic Energy Commission this month to vendors and consultants:

Formal "Q"	35
Formal "P"	63
Emergency "Q"	9

Emergency clearances requested this month for General Electric employees:	2
Emergency clearances received this month for General Electric employees:	2
"Q"- "R" clearance requested this month for General Electric employees:	1
Emergency "Q" clearances received this month for vendors and consultants:	3
Emergency clearances for GE employees requested to date:	161
Emergency clearances for GE employees received to date:	1203

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HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING FEBRUARY 28, 1949

Restricted Data
Classified Unclassified

<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. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Medical consultation	W. D. Norwood, M.D.	2-21-49	2-22-49	X
CONSTRUCTION DIVISION					
I. Visitors to this Works					
S. P. Blakeman Houghton Elevator Company Philadelphia, Pennsylvania	Review subcontract G-165 and routine check of job.	L. S. Grogan A. G. Cervi	2-2-49	2-7-49	X
G. Angle Allis Chalmers Company Seattle, Washington	Inspect and install equipment	G. E. Hotaling	2-1-49	2-4-49	X
S. D. Peterson Johnson Service Company Seattle, Washington	Check damper control equipment	G. E. Hotaling	2-4-49	2-6-49	X
R. D. Morris American Blower Company Seattle, Washington	Check fans	G. E. Hotaling	2-4-49	2-6-49	X
S. Thomas Johnson Service Company Seattle, Washington	Check equipment furnished by his company	G. E. Hotaling	2-4-49	2-6-49	X



Restricted Data
Classified Unclassified

Name - Organization Purpose of Visit Person Contacted Arrival Departure

A. N. Mohr
American Blower Company
Seattle, Washington Check fans G. E. Hotaling 2-19-49 2-23-49 X

J. E. Weaver
Whiting Corporation
Harvey, Illinois Engineering problems G. E. Hotaling 2-21-49 2-23-49 X

J. Culos
Terry Steam Turbine Company
Hartford, Connecticut Inspect operation of
two Terry Steam turbines G. E. Hotaling 2-21-49 Indefinitely X

W. B. Clements
American District Telephone & Telegraph
Detroit, Michigan Telephone installations G. E. Hotaling 2-23-49 2-25-49 X

II. Visits to other Installations
H. A. Hauser
to: Puget Sound Naval Shipyard
Bremerton, Washington Regarding re-work of
gun barrels and process
lubing S. F. Allison 2-14-49 2-16-49

DESIGN DIVISION

I. Visitors to this Works
K. D. Greenhalgh
General Electric Company
Schenectady, New York Design inspection F. W. Wilson 1-10-49 3-20-49 X

C. E. Lapple
E. I. du Pont de Nemours & Co.
Wilmington, Delaware Contamination and filter
200-Areas' Production
Division F. R. Creedon
G. P. Church 1-10-49 2-11-49 X

W. F. Mahlenmaier
Fiarbanks Morse Company
Portland, Oregon Discuss emergency diesel
generators R. R. Henderson 2-1-49 2-3-49 X

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Restricted Data
Classified Unclassified

<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>
M. Kramer Albina Engine Company Portland, Oregon	Discuss installation of new boilers	G. K. Hosack	2-1-49	2-3-49	X
O. H. Rosentreter National Engineering Company Chicago, Illinois	Discuss equipment furnished in 234-5 Building	W. W. McIntosh	2-2-49	2-4-49	X
W. H. McPhco Products Research Company Glendale, California	Discuss procurement of special cratings	W. W. McIntosh	2-8-49	2-9-49	X
R. Iverson Jensen Manufacturing Company Oakland, California	Discuss design of equipment	A. J. Karnie	2-9-49	2-11-49	X
A. V. Osborne Jensen Manufacturing Company Oakland, California	Discuss design of equipment	A. J. Karnie	2-9-49	2-11-49	X
S. H. Kelleran American Standard Company Seattle, Washington	Discussion of heating equipment	B. O. Shaver	2-11-49	2-12-49	X
R. G. Davis Master Builders Company Gleveland, Ohio	Discuss concrete design	F. W. Wilson W. C. Royce	2-11-49	2-12-49	X
R. P. Genereaux E. I. du Pont de Nemours & Co. Wilmington, Delaware	Design consultation	F. W. Wilson V. D. Nixon	1-21-49	2-5-49	X
G. R. Rede General Electric Company Schonectady, New York	Design consultation	F. R. Creedon	2-16-49	2-23-49	X
C. D. Greentree General Electric Company Schonectady, New York	Design consultation	F. R. Creedon D. D. Streid	2-16-49	2-23-49	X

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Classified Unclassified</u>
L. G. Gitzendanner General Electric Company Schenectady, New York	Design consultation	F. R. Creedon	2-16-49	2-23-49	X
W. Cook General Electric Company Schenectady, New York	Design consultation	V. D. Nixon	2-18-49	3-19-49	X
C. Hulsart C. C. Moore & Company San Francisco, California	Technical consultation	F. R. Creedon	2-18-49	2-20-49	X
P. T. Morgenthaler C. C. Moore & Company San Francisco, California	Technical consultation	F. R. Creedon	2-18-49	2-20-49	X
D. D. Schaefer Westinghouse Electric Company Portland, Oregon	Inspection of switchgear for 234-5 Building	J. A. Carlon	2-21-49	2-23-49	
R. D. Dobberpuhl Standard Pressed Steel Company Oakland, California	Discuss concrete pipe	O. H. Pilkey R. F. Klein	2-21-49	2-23-49	
R. Jackson Chicago Bridge & Iron Company San Francisco, California	Discuss Redox waste storage	O. H. Pilkey	2-22-49	2-24-49	X
E. Long General Electric Company Schenectady, New York	Technical consultation on 234-5 Building Program	D. D. Streid	2-24-49	2-26-49	X
E. E. Vozoy General Electric Company Schenectady, New York	Consultation on dolly	C. A. Evans	2-23-49	3-31-49	X
W. F. Wahlenmaier Fairbanks Morse Company Portland, Oregon	Discuss diesel driven generators	R. R. Henderson J. R. Thayer	2-24-49	2-5-49	X

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>	
					<u>Classified</u>	<u>Unclassified</u>
C. O. Clemetson to: Kellex Corporation New York, New York	Expedite instrument design information to architectural engineer	J. D. Hagy J. Shilane	1-28-49	2-4-49	X	
R. C. Hollingbhead to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Discuss design on DP-West M. Roy		1-30-49	2-5-49	X	
C. A. Evans to: General Engineering & Consulting Schenectady, New York	Technical consultation	C. D. Greentree M. M. Boring	2-1-49	2-18-49	X	
D. L. Peterson to: General Engineering & Consulting Schenectady, New York	Technical consultation	C. D. Greentree	2-1-49	2-13-49	X	
D. L. Peterson to: Giffels & Vallet Detroit, Michigan	Technical consultation	C. J. Steigleder	2-1-49	2-13-49	X	
W. B. Webster to: Arcos Corporation Philadelphia, Pennsylvania	Technical consultation	D. Thomas, Jr.	2-2-49	2-12-49		X
W. B. Webster to: Kellex Corporation New York, New York	Technical consultation	W. J. Mundt J. T. Wilson	2-2-49	2-12-49	X	
W. B. Webster to: Lincoln Welding Company Cleveland, Ohio	Technical consultation	W. R. Persons	2-2-49	2-12-49		X
P. P. Smith to: Peters Company Portland, Oregon	Engineering conference	V. L. Colt C. V. Willock J. C. Brockway	2-10-49	2-12-49		X

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Classified Unclassified</u>
J. L. Smith to: Cascade Manufacturing Co. Portland, Oregon	Inspection	J. Kierulff	2-9-49	2-12-49	X
J. B. Medlin to: Puget Sound Naval Shipyard Bremerton, Washington	Consultation	S. F. Allison	2-13-49	2-15-49	X
R. T. Jaske to: Oak Ridge National Laboratory Oak Ridge, Tennessee	Inspection	T. Rockwell	2-17-49	2-28-49	X
J. W. Conloy to: Giffels & Vallet Detroit, Michigan	Conference on water plant studies	M. M. Bush, Jr.	2-21-49	2-22-49	X
C. O. Clemetson to: Kellex Corporation New York, New York	Expedite instrument de- sign	J. Shilane	2-23-49	Still gone	X
E. P. Peabody to: Kellex Corporation New York, New York	Work out details on sub- stations	K. C. Vint	2-25-49	Still gone	X
E. P. Peabody to: General Electric Company Schenectady, New York	Work out details on sub- stations	- - -	2-25-49	Still gone	X
E. P. Peabody to: General Electric Company Philadelphia, Pennsylvania	Work out details on sub- stations	- - -	2-25-49	Still gone	X
M. J. Rutherford to: Arcos Corporation Philadelphia, Pennsylvania	Engineering study on stainless steel welding methods	H. Campbell R. D. Thomas	2-4-49	2-18-49	X
M. J. Rutherford to: Heintz Manufacturing Company Philadelphia, Pennsylvania	Engineering study and consultation	J. M. Ward	2-4-49	2-18-49	X

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Classified Unclassified

<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>
M. J. Rutherford to: Kellex Corporation New York, New York	Engineering study and consultation on design of steel tanks	W. J. Mundt J. T. Wilson	2-4-49	2-18-49	X
M. J. Rutherford to: Linde Air Products Corp. New York, New York	Engineering study and consultation	W. B. Miller	2-4-49	2-18-49	X
M. J. Rutherford to: Airco Company New York, New York	Engineering study and consultation	A. N. Kugler G. E. Bellew	2-4-49	2-18-49	X
M. J. Rutherford to: Union Carbide & Carbon Research Laboratory Niagara Falls, New York	Engineering study and consultation	F. A. Clapp	2-4-49	2-18-49	X
M. J. Rutherford to: Lincoln Welding Company Cleveland, Ohio	Engineering study and consultation	R. W. Persons	2-4-49	2-18-49	X
HEALTH INSTRUMENT DIVISION					
I. Visitors to this Works					
W. H. Truran General Electric Company Schenectady, New York	Health Instrument prob- lems	H. M. Parker	2-7-49	2-11-49	X
II. Visits to other Installations					
C. C. Gamertsfelder to: Los Alamos Scientific Laboratory Los Alamos, New Mexico	Technical consultation	N. E. Bradbury	1-30-49	2-4-49	X
C. C. Gamertsfelder to: Hawaii	Technical consultation on orders from Colonel Cooney, Washington, D. C.	- -	2-9-49	3-4-49	X

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Classified</u> <u>Unclassified</u>
R. F. Foster to: Vancouver, Washington	Health Instrument survey	- -	2-8-49	2-10-49	X
J. J. Davis to: Vancouver, Washington	Health Instrument survey	- -	2-8-49	2-10-49	X
R. W. Coopey to: Vancouver, Washington	Health Instrument survey	- -	2-8-49	2-10-49	X
H. J. Paas to: Atomic Energy Commission Washington, D. C.	Progress of Air Force Special Weapons Squad	W. D. Urry	2-15-49	2-20-49	X
G. H. Whipple to: Department of Terrestrial Magnetism Carnegie Institute Washington, D. C.	National Protection Comm- D. D. Cowie ittee Meeting		2-27-49	3-3-49	X
INSTRUMENT DIVISION					
I. Visitors to this Works					
R. H. Rudolph General Electric Company Syracuse, New York	Instrument consultation	W. M. Mathis	2-9-49	2-11-49	X
W. H. Hall General Electric Company Syracuse, New York	Instrument consultation	W. M. Mathis	2-9-49	2-11-49	X
PROJECT ENGINEERING DIVISION					
I. Visits to other Installations					
R. Overson to: Oak Ridge National Lab. Oak Ridge, Tennessee	Consultation and in- spection of Building 706-D	M. D. Peterson L. B. Emlet	2-14-49	2-19-49	X

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Name - Organization

P. J. O'Neill
to: General Electric Company
Schenectady, New York

MANAGEMENT

I. Visitors to this Work

G. E. McCullough
Knolls Atomic Power Laboratory
Schenectady, New York

R. J. Simon
Knolls Atomic Power Laboratory
Schenectady, New York

W. J. Cooley
Knolls Atomic Power Laboratory
Schenectady, New York

A. M. Holzberg
Knolls Atomic Power Laboratory
Schenectady, New York

E. F. Palmer
Knolls Atomic Power Laboratory
Schenectady, New York

C. J. Paurowski
Knolls Atomic Power Laboratory
Schenectady, New York

J. W. Gorman
Knolls Atomic Power Laboratory
Schenectady, New York

Purpose of Visit

Regarding rolling mill
R. S. Neblett
R. E. Marrs

Concerning the handling
of radioactive materials
in order to operate SPRU

Concerning the handling
of radioactive materials
in order to operate SPRU

Concerning the handling
of radioactive materials
in order to operate SPRU

Concerning the handling
of radioactive materials
in order to operate SPRU

Concerning the handling
of radioactive materials
in order to operate SPRU

Concerning the handling
of radioactive materials
in order to operate SPRU

Concerning the handling
of radioactive materials
in order to operate SPRU

Person Contacted

2-28-49

1-21-49

1-21-49

1-21-49

1-21-49

1-21-49

1-21-49

1-21-49

Departure

Still gone

2-4-49

2-4-49

2-4-49

2-4-49

2-4-49

2-4-49

2-4-49

Restricted Data
Classified
Unclassified

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Restricted Data
Classified Unclassified

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Classified</u>	<u>Unclassified</u>
D. M. Lewis Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	1-31-49	2-11-49	X	
V. G. Anderson Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	2-7-49	2-11-49		X
J. R. Gould Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	2-7-49	2-11-49	X	
R. Oldaker Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	2-7-49	2-11-49	X	
J. K. Davidson Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	2-7-49	2-18-49	X	
R. E. Larson Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	2-7-49	2-11-49	X	
H. W. Reynolds Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	2-7-49	2-11-49	X	
W. H. Truran Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	2-7-49	2-18-49	X	
T. C. Swartz Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	2-14-49	2-18-49	X	

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Classified</u>	<u>Restricted Data</u>
P. E. Decker Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	2-14-49	2-18-49	X	X
T. M. Shepherd Knolls Atomic Power Laboratory Schenectady, New York	Concerning the handling of radioactive materials in order to operate SPRU	W. I. Patnode	2-14-49	2-18-49	X	X
II. Visits to other Installations						
D. W. McLonegan to: General Electric Company Schenectady, New York	Technical recruiting of personnel	R. S. Neblett	2-4-49	2-22-49	X	X
G. R. Prout to: General Electric Company Schenectady, New York	Administrative and general consultations	H. A. Winne	2-14-49	2-23-49	X	X
G. R. Prout to: Atomic Energy Commission Washington, D. C.	Budget matters with GE and AEC officials	F. C. Schlemmer	2-16-49	2-16-49	X	X
G. R. Prout to: Kellogg Corporation New York, New York	General consultation on HW contract	A. L. Baker	2-17-49	2-19-49	X	X
W. I. Patnode to: General Electric Company Schenectady, New York	Inspection purpose	R. S. Neblett	2-28-49	3-4-49	X	X
POWER DIVISION						
I. Visitors to this Works						
A. H. Y. Hedner Traveler's Insurance Company Seattle, Washington	Boiler inspector work	H. F. Measley H. F. Measley	2-1-49 2-16-49	2-4-49 2-18-49	X X	X X

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Name - Organization Purpose of Visit Person Contacted Arrival Departure

II. Visits to other Installations

H. F. Measley to: Giffels & Vallet Detroit, Michigan	Regarding 100 Area de- sign	M. M. Bush, Jr.	2-18-49	2-24-49	X
W. R. Conley, Jr. to: Giffels & Vallet Detroit, Michigan	Regarding 100 Area de-	M. M. Bush, Jr.	2-18-49	2-24-49	X

TRANSPORTATION DIVISION

I. Visitors to this Works

A. Thomson Pacific Car and Foundry Portland, Oregon	Consultant in investiga- tion of a well car derail- ment. No specific recommenda- tions or criticism in regard to operational or mechanical defects in method of handling car at time of accident. Requested technical in- formation on car structure and loads to check for possible design correction of these cars	R. T. Cooke	2-8-49	2-10-49	
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"P" DIVISION

I. Visits to other Installations

W. A. Blanton to: Scovill Manufacturing Co. Waterbury, Connecticut	Inspection of aluminum can manufacturing process		2-18-49	2-26-49	X
H. T. Wells to: Giffels & Vallet Detroit, Michigan	Conference on Water-Area design	M. M. Bush, Jr.	2-18-49	2-25-49	X

"S" DIVISION

I. Visits to other Installations

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Classified</u>	<u>Restricted Data</u> <u>Unclassified</u>
O. V. Smiset to: Oak Ridge National Lab. Oak Ridge, Tennessee	Consultation and inspection of Building 706-D	M. D. Peterson L. B. Emllet	2-14-49	2-19-49	X	X
D. McDonald to: Oak Ridge National Lab. Oak Ridge, Tennessee	Consultation and inspection of Building 706-D	M. D. Peterson	2-14-49	2-19-49	X	X
J. A. Ayres Knolls Atomic Power Laboratory Schenectady, New York	Technical consultation	R. H. Beaton	2-1-49	2-4-49	X	X
F. W. Hurd Oak Ridge National Lab. Oak Ridge, Tennessee	Technical consultation on metal recovery	R. H. Beaton	2-7-49	2-11-49	X	X
D. M. Lang Oak Ridge National Lab. Oak Ridge, Tennessee	Technical consultation on metal recovery	R. H. Beaton	2-7-49	2-11-49	X	X
R. Olson Oak Ridge National Lab. Oak Ridge, Tennessee	Technical consultation on metal recovery	R. H. Beaton	2-7-49	2-11-49	X	X
L. Waters Oak Ridge National Lab. Oak Ridge, Tennessee	Technical consultation on metal recovery	R. H. Beaton	2-7-49	2-11-49	X	X
L. B. Emllet Oak Ridge National Lab. Oak Ridge, Tennessee	Technical consultation	R. H. Beaton	2-7-49	2-9-49	X	X
H. G. Hicks, Jr. Radiation Laboratory Berkeley, California	Employment interview	F. W. Albaugh	2-8-49	2-8-49	X	X

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TECHNICAL DIVISION

I. Visitors to this Works

J. A. Ayres
Knolls Atomic Power Laboratory
Schenectady, New York

F. W. Hurd
Oak Ridge National Lab.
Oak Ridge, Tennessee

D. M. Lang
Oak Ridge National Lab.
Oak Ridge, Tennessee

R. Olson
Oak Ridge National Lab.
Oak Ridge, Tennessee

L. Waters
Oak Ridge National Lab.
Oak Ridge, Tennessee

L. B. Emllet
Oak Ridge National Lab.
Oak Ridge, Tennessee

H. G. Hicks, Jr.
Radiation Laboratory
Berkeley, California

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Classified</u>	<u>Restricted Data Unclassified</u>
H. H. Hopkins Radiation Laboratory Berkeley, California	Employment interview	F. W. Albaugh	2-8-49	2-8-49	X	X
K. Street, Jr. Radiation Laboratory Berkeley, California	Employment interview	F. W. Albaugh	2-8-49	2-8-49	X	X
J. Cox Oak Ridge National Laboratory Oak Ridge, Tennessee	Technical consultation	R. H. Beaton	2-8-49	2-9-49	X	X
N. R. Chellew Argonne National Laboratory Chicago, Illinois	Assist in initiating P-10 Project	A. A. Johnson	2-14-49	2-18-49	X	X
W. F. Olsen Argonne National Laboratory Chicago, Illinois	Assist in initiating P-10 Project	A. A. Johnson	2-14-49	2-18-49	X	X
E. J. Boyle Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss metallurgical problems	R. Ward	2-11-49	2-12-49	X	X
E. J. Frederick Oak Ridge National Laboratory Oak Ridge, Tennessee	Inspect analytical methods	D. F. Shepard	2-14-49	2-18-49	X	X
C. L. Burros Oak Ridge National Laboratory Oak Ridge, Tennessee	Inspect analytical methods	D. F. Shepard	2-14-49	2-16-49	X	X
E. N. Holden Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss metallurgical problems	R. Ward	2-21-49	2-22-49	X	X
J. G. Brown General Electric Company Schenectady, New York	Technical consultation on Redox	P. E. Collins	2-17-49	2-19-49	X	X

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Classified Unclassified</u>
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II. Visits to other Installations

P. F. Gast to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Consultation on technical problems	N. E. Bradbury	2-2-49	2-11-49	X
J. M. West to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Consultation on technical problems	N. E. Bradbury	2-2-49	2-11-49	X
F. E. Kruesi to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Consultation on technical problems	N. E. Bradbury	2-2-49	2-11-49	X
G. M. Muller to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Consultation on technical problems	N. E. Bradbury	2-2-49	2-11-49	X
B. Weidenbaum to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Technical consultation	N. E. Bradbury	2-2-49	2-4-49	X
J. J. Maucieri to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Equipment checking and training in operations at DP West, including Bldg. 5	E. R. Jetter I. B. Venable R. D. Baker	2-8-49	2-18-49	X
L. I. Brecke to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Equipment checking and training in operations at DP West, including Bldg. 5	E. R. Jette. I. B. Venable R. D. Baker	2-14-49	2-18-49	X
W. M. Harty to: Oak Ridge National Lab. Oak Ridge, Tennessee	Consultation and inspection of Bldg. 706-D	M. D. Peterson L. B. Emlet J. A. Lane	2-14-49	2-19-49	X
O. P. Amacker to: Oak Ridge National Lab. Oak Ridge, Tennessee	Analytical consultation	E. I. Wyatt S. A. Reynolds H. Blauer E. J. Witkowski	2-14-49	2-19-49	X

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Restricted Data
Classified Unclassified

<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. W. Ritchey to: Giffels & Vallet Detroit, Michigan	Consultation on design study GED-13	C. J. Steigleder	2-18-49	2-25-49	X
W. M. Harty to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Rala consultation	N. E. Bradbury	2-21-49	2-25-49	X
R. H. Beaton to: Knolls Atomic Power Lab Schenectady, New York	Redox consultation	J. Marsden	2-22-49	2-24-49	X
D. W. Pearce to: Argonne National Laboratory Chicago, Illinois	Attend meeting of the Fissionable Standards Samples Committee	C. D. W. Thornton	2-24-49	2-5-49	X
E. W. Rebol to: Argonne National Laboratory Chicago Illinois	Attend meeting of Ameri- can Society of Testing Materials	- -	2-28-49	3-4-49	X
G. J. Alkiro to: Baton Rouge, Louisiana	Analytical symposium	- -	2-28-49	3-4-49	X
R. T. Jessen to: General Eng. & Consulting Schenectady, New York	Technical consultation Lab. regarding 234-5 Project	D. H. Marquis	2-28-49	3-5-49	X
P. E. Collins to: General Eng. & Consulting Schenectady, New York	Technical consultation Lab regarding 234-5 Project	D. H. Marquis	2-28-49	3-5-49	X
F. B. Quinlan to: Research Laboratory Schenectady, New York	Technical consultation on manipulators, shielding and ultra centrifuge tests	H. H. Zornig	2-7-49	2-11-49	X
F. B. Quinlan to: Knolls Atomic Power Lab. Schenectady, New York	Technical consultation on shielding technique	J. Payne K. McMahon	2-7-49	2-11-49	X

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Classified Unclassified

Person Contacted

Arrival

Departure

Purpose of Visit

Name - Organization

R. M. Padden
to: Vulcan Crucible Steel Co.
Aliquippa, Pennsylvania

2-10-49

2-26-49

J. Flower

Supervise production
rolling

X

R. J. Schier
to: Puget Sound Naval Shipyard
Bremerton, Washington

2-23-49

2-24-49

L. McKee

Inspect induction heat-
ing facilities

X

C. E. Lacy
to: San Francisco, California

2-14-49

2-16-49

- -

Attend AIME Meeting

X

A. C. Callen
to: San Francisco, California

2-14-49

2-16-49

- -

Attend AIME Meeting

X

A. C. Callen
to: Radiation Laboratory
Berkeley, California

2-17-49

2-18-49

N. Garden

Metallurgical consul-
tation

X

O. H. Greager
to: Research Laboratory
Schenectady, New York

2-22-49

2-25-49

J. Marsden

Redox consultation

X

CONSULTANT - Technical Divisions

G. L. Schuyler
Atomic Energy Commission
Washington, D. C.

1-27-49

2-2-49

R. H. Beaton

Technical consultation
on buildings in 300 Technical
Bldgs.

X

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EMPLOYEE AND COMMUNITY RELATIONS DIVISION

SUMMARY - FEBRUARY, 1949

One set of questions and answers ~~was~~ distributed to all supervisors participating in the Nine-Point Job Improvement Program. The instructors of this Program were sent questionnaires for distribution to the supervisors upon the completion of their meetings in order to obtain information on which future training programs can be based. Also a sound, slide film entitled, "This is Our Problem", was issued to the instructors for use in connection with the economic sessions in this Program.

Open requisitions for additional personnel decreased from 262 at the beginning of the month, to 29 at the end of February. This decrease was due to an announced overall reduction of force at this Works. Total plant roll decreased during February by 10 employees.

Employee Services Counselors made 2,009 contacts during February. Two employees retired, and two employee deaths occurred during February. Eighteen suggestion awards, totaling \$260.00, were granted during the month. A conference between representatives of the General Electric Company and the Washington State Department of Labor and Industries was held at Olympia, Washington.

Preliminary announcements of the reduction in forces were issued through a variety of media during the latter part of February.

Assistance was given to the Richland Chamber of Commerce in entertaining representatives from the Portland Chamber of Commerce in the nature of a tour of Richland and North Richland as well as making arrangements for speakers to describe what was being shown to the people making the tour.

Arrangements were completed for the procurement of 1,800 "G-E News Digest" for supervisors, Richland community thought leaders, and business men.

Informative newspaper releases were made to the local list of newspapers as well as to several radio stations. News releases were also sent to the leading newspapers in the Pacific Northwest on a variety of subjects.

Booklets entitled, "Northwest Industries", published by the Seattle First National Bank, were distributed to employees and also placed in information racks in the 700 and 1100 Areas.

1219977

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201

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Employee and Community Relations Division

Assistance was given in the preparation of a program for recording the ceremony of the first visit of the Yakima Bloodmobile to Richland. The program was rebroadcast several times during the week.

Posters were prepared for the 700 Area Safety Celebration and souvenir programs were distributed at the celebration.

The power conservation program continued during the month of February and included a movie slide trailer which was used in the local theaters.

Members of the Division prepared several letters during the month to employees concerning the National Labor Relations Board election which was held on February 8 and 9.

Letters were prepared and sent to business leaders throughout the Pacific Northwest enclosing a copy of the G-E COMMENTATOR "How Would You Revise Our Labor Laws?" explaining the urgent need for adequate labor legislation.

The beginning and brush-up shorthand courses, which had met for fifteen weeks, were completed during the month. Ten girls completed the brush-up course, and seven girls completed the beginning course; and letters were sent to the girls' supervisors informing them of the employees' achievement.

An election was held on February 8 and 9 to determine whether certain employees in the Hanford Works wanted to be represented by the Atomic Metal Trades Council. This election was supervised by the N.L.R.B. field representatives.

Official notice of certification was received from the N.L.R.B. on February 24, which authorized the Atomic Metal Trades Council as the bargaining agent for employees included in the bargaining unit.

Several meetings were held with the Company's negotiating committee to discuss anticipated demands from the Union and compare these anticipated demands with existing Company and Hanford Works policies.

Meetings were held with supervisors to better acquaint them with some of the union relations problems.

A general review of all wage rate classifications was completed in several of the divisions during the month, and general discussions were held with the Division Heads.

A wage rate survey of eleven enterprises engaged in office machine repair work in the surrounding communities was made for the purpose of checking the relationship of wages paid at the Hanford Works for this type of work with those paid in the surrounding communities.

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Several talks were given to supervisory groups on the history, mechanics and administrative policies of our wage rate structure.

Studies were made at the request of the Community Division to change the Fire Department from a three-shift to a platoon system.

1219979

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203

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EMPLOYEE AND COMMUNITY RELATIONS DIVISION

FEBRUARY, 1949

ORGANIZATION AND PERSONNEL

Employee Relations

Employment:

Effective February 18, 1949, a General Clerk C, assigned to the Procurement Group, terminated voluntarily.

Effective February 25, 1949, a General Clerk D, assigned to the Procurement Group terminated voluntarily.

Effective February 25, 1949, a Steno Typist D, assigned to the Investigation and Files Group, was transferred to the H. I. Division.

Effective February 28, 1949, a Steno Typist D, assigned to the Procurement Group, was transferred to the Medical Division.

Effective February 28, 1949, a Steno Typist B, assigned to the Investigation and Files Group, was transferred to the "P" Division.

Employee Services:

There was no change in the organization of this Section during February.

Community Relations

One General Clerk B was removed on the basis of a medical examination.

Labor Relations and Wage Rates

No organization changes were made during the month of February.

Number of Employees on Payroll	<u>February, 1949</u>
Beginning of month	92
End of month	<u>86</u>
Net decrease	6

This loss was due to a decrease in activities in procurement of personnel.

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204

Employee and Community Relations Division

ACTIVITIES

Employee Relations

General

One set of questions and answers were distributed to the supervisors participating in the 9-Point Job Improvement Program during February.

The Instructors of the 9-Point Job Improvement Program were forwarded questionnaires, to be distributed to the participating supervisors, upon completion of their meetings, for comments on this Program.

During the past month, a sound, slide film, entitled, "This Is Our Problem", was obtained for use by the Instructors of the 9-Point Job Improvement Program in connection with the economic sessions.

Employment

The volume of applicants interviewed decreased during the month.

	<u>January, 1949</u>	<u>February, 1949</u>
Applicants interviewed	1,565	1,423
Open requisitions	<u>January, 1949</u>	<u>February, 1949</u>
Exempt	11	4
Non-exempt	<u>251</u>	<u>25</u>
Total	262	29

Of the non-exempt open requisitions at the beginning of February, 139 were covered by interim commitments, and of the 11 individuals on exempt requisitions, 10 had accepted offers, and one had been made an offer but had not accepted. At the end of the month, there were 25 open requisitions for non-exempt personnel, 13 of which were covered by interim commitments, and 4 open requisitions for exempt personnel, all of which had accepted offers. This sharp drop in open requisitions is accountable to the fact that a number of open requisitions were canceled in line with an announced overall reduction in the Hanford Works force.

	<u>January, 1949</u>	<u>February, 1949</u>
Employees added to the rolls	177	109
Employees removed from the rolls	<u>117</u>	<u>119</u>
Net Gain	60	-10

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Employee and Community Relations Division

During the month of February, 29 new requests for inter-Divisional transfers were received and reviewed by the Employment Group. As a result of these requests, 24 of these employees were interviewed, with 2 transfers effected from these interviews.

In February, the Employment Group was informed that lack of work layoff notices had been given to 136 non-exempt employees and 22 exempt employees. These people were employed in the Public Works Division, Maintenance Division, Construction Division, Community Housing Division, Construction Procurement Division, and the Employee and Community Relations Division. Payroll classifications included carpenters, riggers, upholsterers, electricians, upholsterer-handymen, carpenter-handymen, transitmen, chain and rod men, axemen, engineers, inspectors, party chiefs, vendor inspectors, investigators, and clerical employees. 21 of these employees, who were given layoff notices due to lack of work, were transferred to other Divisions through arrangements made by the Employment Group.

Employee Services

During the month of February, there were a total of 2,009 contacts made by the Employee Services Counselors. These contacts resulted in 2,185 inquiries. 1,098 of these inquiries were attributed directly to income tax questions. 271 of these inquiries were made by exempt employees. Of this number, 78 inquiries were on Company policy, and 68 on Group Disability Insurance Plan; the majority of these inquiries were made by exempt employees in the "P" Division, Plant Services and Security Division, and the Construction Division. 616 of the total number of inquiries were made by non-exempt employees. 127 of these inquiries were regarding Company policies, and 108 Group Life Insurance, and 99 Group Disability Insurance.

Exit interviews were given 97 terminating employees. 94 new employees were given orientation. Of the latter number, 77% elected to participate in the Group Life Insurance Plan, and 78% elected to participate in the Group Disability Insurance Plan.

Employee Services Counselors attended five Area Council Meetings during February. These meetings had a total of 76 employees in attendance.

One meeting was conducted by the Employee Services Group, with a total of 35 employees in attendance. This meeting covered information on the Pension Plan.

A representative of this Group spent one-half day in explaining and answering questions on Company Benefit Plans at the Manufacturing Division's Supervisory Training Program for new supervisors.

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Employee and Community Relations Division

The following employees retired during the month of February:

Edwin E. Olson, Plant Services and Security Division;
Archie Pierce, Manufacturing Divisions--Electrical.

Both employees were participating in the Pension Plan, and both were optional retirements. These employees were interviewed prior to their retirement, and fully informed as to the benefits each would receive under this Plan.

Two employee deaths occurred during February, namely:

Construction Accounting Division;
, Manufacturing Divisions--"S".

In each of these cases, the employee's families were contacted by an Employee Services Counselor, 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 given to their families.

One contact with an employee absent because of illness was made by an Employee Services Counselor during February.

The Employee Services Group was again assigned the responsibility of organizing the annual Red Cross Drive conducted throughout this Works. Considerable time was spent in obtaining the various division chairmen and distributing the necessary materials for this Drive.

From February 7, through February 18, two representatives from the Pasco Office of the Department of Revenue were at this Works aiding the Employee Services Group in assisting employees in completing their income tax returns. The 354 employees helped by these men were not included in the total number of contacts previously given.

Arrangements were made during the past month for the distribution of the rating sheets for exempt personnel to the various divisions.

Suggestion System

At the end of February, the volume of work in the Office of the Secretary of the Suggestion System was as follows:

	<u>January, 1949</u>	<u>February, 1949</u>	<u>Total since July 15, 1947</u>
Suggestions received and acknowledged	174	141	3,285
Investigation reports completed	158	197	2,992
Awards granted by Sugges- tion Committee	23	18	301
Cash awards	\$ 280	\$ 260	\$ 3,090

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207

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Employee and Community Relations Division

Employee Relations

STATISTICS

<u>Number of employees on rolls</u>	<u>1-31-1949</u>	<u>2-28-1949</u>
Exempt	1,734	1,742
Non-Exempt	<u>6,944</u>	<u>6,926</u>
Totals	8,678	8,668

ADDITIONS

	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
New Hires	9	81	90
Re-engaged	0	0	0
Re-activations	1	16	17
Transfers from other plants	<u>1</u>	<u>1</u>	<u>2</u>
Actual Additions	11	98	109
Payroll Exchanges	<u>12*</u>	<u>1**</u>	<u>13</u>
Gross Additions	23	99	122

TERMINATIONS

Actual Terminations	13	79	92
Removals From Roll	1	26	27
Payroll Exchanges	<u>1***</u>	<u>12****</u>	<u>13</u>
Gross Terminations	15	117	132

Approximately 80% of all terminations were on a voluntary basis, and most of these were for the following reasons: (a) Another job, (b) Personal Reasons, (c) To return or remain home.

- * Transferred from Weekly Salary Roll.
- ** Transferred from Monthly Salary Roll
- *** Transferred to Weekly Salary Roll
- **** Transferred to Monthly Salary Roll

GENERAL

	<u>1-1949</u>	<u>2-1949</u>
Applicants interviewed	1,565	1,423
Photographs processed	3,987	4,840
Fingerprint impressions taken (in duplicate)	398	224
Procurement Letters written	806	1,397

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Employee and Community Relations Division

ABSENTEEISM STATISTICS (Weekly Salary Roll)*

	<u>1-1949</u>	<u>2-1949</u>
Male	2.71%	2.85%
Female	4.77%	4.85%
Total plant average	3.26%	3.20%

INVESTIGATIONS STATISTICS

Cases pending at beginning of month	1,330	1,340
Cases received during the month	261	158
Cases closed	349	292
Cases pending at month end	1,340	1,206
Number found satisfactory for employment	172	101
Number found unsatisfactory for employment	10	9
Cases closed before investigation completed	15	17
Special investigations conducted	56	17

Compensation and Insurance

CLAIMS

	<u>Reported in</u> <u>February, 1949</u>	<u>Reported in</u> <u>January, 1949</u>	<u>Total since</u> <u>Sept. 1, 1946</u>
Workmen's Compensation	157**	133	2,180
Liability	15	10	290

COMPENSATION PAYMENTS APPROVED--Department of Labor Industries

	<u>January</u>		<u>December</u>		<u>Total since</u> <u>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	51	\$2,691.79	43	\$ 784.51	\$ 19,210.45
Accident Fund	96	8,489.06***	142	12,665.48	127,097.46
Pension	29	1,294.82	29	1,305.32	40,118.69

* Statistics furnished by Weekly Payroll Division

** This total includes 31 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.

LIABILITY PAYMENTS APPROVED--Travelers Insurance Company

	<u>January, 1949</u>	<u>Total amount paid</u> <u>out since Sept. 1,</u> <u>1946</u>
Bodily Injury-excluding auto	\$ 24.21	\$ 67,448.51
Bodily Injury-auto	406.38	
Property Damage-excluding auto (credit)	323.56	
Property Damage-auto	97.19	

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The Secretary of the Suggestion System discussed the Suggestion System operation before two groups of the Community Patrol Division, and one group of the Manufacturing Divisions, supervisors participating in the 9 Point Job Improvement Program.

The Hanford Works News carried articles on suggestion award winners during the month of February.

Insurance and Compensation**INSURANCE COVERAGE -- Public Liability**

This case was tried at the Superior Court in Prosser, Washington, on February 15, 16, and 17. As the result of this trial, a verdict was returned in favor of the plaintiff in the amount of \$ 12,869.50. The attorney for the defendant entered a motion for a judgment not withstanding the verdict, and also a motion for a new trial in the event the first motion was not granted. In the event these motions are denied an appeal will be made to the Supreme Court.

-- No trial has been set for this case, however, it will probably be heard during this term of the Superior Court.

-- The trial for this case has been set for March 10, and the attorney for the Travelers Insurance Company who is defending this suit is presently preparing the defense. There is a possibility that settlement will be made in an amount less than \$ 5,000.

LIFE INSURANCE

Code information for use by the insurance companies in issuing insurance to employees of this Works, was furnished to 29 insurance companies and investigation agencies during February.

COMPENSATION

A member of the Insurance And Compensation Group attended a conference held in Olympia, Washington, on February 23 and 24, which was also attended by members of the Medical Division, Legal Division, and the Washington State Department of Labor and Industries. The primary purpose of this conference was to become acquainted with the new administration of the Department of Labor and Industries, and also to determine what procedure should be followed relative to the repair of eye glasses

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Employee and Community Relations Division

broken during work. The Department of Labor and Industries' representative advised that within the immediate future instructions would be issued by that organization to the effect that injury must occur in connection with the breakage of eye glasses, before replacement of such glasses will be approved. It is estimated that this procedure will reduce the number of claims for eye glasses by approximately 75%.

-- a Cardiologist in Seattle, Washington, was interviewed on February 25, concerning the death of the above individual. The cause of death in this case was listed as "probably coronary thrombosis". Based on this cause, stated that in his opinion muscular strain or effort on the part of the decedent immediately prior to his death would have no effect on the cause of death, and that in all probability had the decedent participated in no muscular activity prior to his death, it would still have occurred.

-- Objection was made to the Pension Order entered in this case by the Department of Labor and Industries for total and permanent disability. Upon receipt of the reasons justifying the objection the order was withdrawn, and the claimant requested to submit to an additional medical examination. The objection was made on the basis of information to the effect that the claimant was a maligner and further that there is a possibility that he has been gainfully employed during the past 2 1/2 years since the accident, which occurred while he was working for the E. I. du Pont de Nemours and Company on this Project in June, 1945.

LIBERTY MUTUAL BLANKET FIDELITY BOND

Forgery policy No. FB 43584 has been re-instated effective December 1, 1948.

GENERAL

Three meetings of supervisors in the 9-Point Job Improvement Program were attended by a member of the Insurance and Compensation Group, at which time compensation and liability insurance of the General Electric Company at this Works were explained.

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Employee and Community Relations Division

Community Relations

Preliminary announcements of the reduction in forces to be made among G-E personnel were issued through a variety of media during the latter part of the month of February and a considerable amount of work on these was required by Community Relations personnel.

Specifically in the field of community relations, as recognized by General Electric in its various plant cities, the work during the month of February was primarily with the Chamber of Commerce in the carrying forward of its program for stimulating interest in Richland as "A good place to live and buy." Informative publications concerning Richland and Hanford Works were made available to the Chamber of Commerce for its first official organizing dinner held at the Desert Inn on Tuesday, February 22 beginning at 7:30 p.m.

On Thursday, February 24, the Richland Chamber of Commerce entertained representatives of the Portland Chamber of Commerce, and assistance was given the local Chamber as part of our community relations work. Activities connected with this event included the planning of the tour route followed in showing Richland and North Richland to the visitors. Some 35 executives of Portland business firms made the trip from Portland to the Tri-City Area and were escorted on the tour which followed the noontime luncheon held at the Recreation Hall. Arrangements were made for speakers to describe what was being shown to the group when they toured North Richland through Design and Construction's Realty Division at North Richland.

Informative literature was furnished to the Chamber of Commerce and the material was in turn delivered to each of the visitors in order that they might have the information to take with them back to Portland. A news release was prepared and furnished to radio station KWIE for broadcast at 12:30 as part of the C. C. Anderson sponsored news broadcast, and arrangements were made for a radio receiving set to be installed at the luncheon so that visitors could hear the event described by the local radio station.

Arrangements were completed during the month for receipt of 1,500 copies of each issue of "G-E News Digest." The copies of this publication will be distributed to the supervisors' list within Hanford Works and also to our list of Richland community thought leaders and to Richland businessmen. This publication has been selected for addition to the items of information which are currently being distributed because of the wide coverage it gives of current events in General Electric Company. The objective sought through its distribution is to further acquaint G-E supervisors at Hanford Works with their Company, and to introduce the Company more fully to Richland community thought leaders and businessmen.

Speakers Bureau activities during the month included a talk by Winton Patnode before the Seattle Chamber of Commerce on February 11. The part played by Community Relations in this was to supply photographs, biographical information, and a news story quoting from Mr. Patnode's talk for publication in the Seattle daily newspapers. The SEATTLE DAILY JOURNAL OF COMMERCE ran the news release in its entirety.

Arrangements were made during the month for speakers to appear before the Wenatchee Chamber of Commerce, the University of Portland Annual Science Teachers Meeting, and the 4th Annual Conference of the Greater Portland

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Employee and Community Relations Division

Management Club. These will be discussed in greater detail in the report for the months during which the talks are actually given.

The Richland community thought leaders list was used during the month of February to distribute the "G-E Commentator," entitled "How Would YOU Revise Our Labor Laws." In addition, copies of the same publication were sent during the month to all publishers of daily newspapers, and to all publishers of weekly newspapers in the State of Washington. Publishers of daily newspapers in Montana, Idaho, and Oregon also were sent copies of the "G-E Commentator." Letters accompanied each copy of the publication sent out discussing its content and explaining the reason for its distribution.

Requests for information received from public sources totaled four during the month and material sent out included the "Adventures Inside the Atom," and "Northwest Industries" booklets, and a reprint of a talk by C. P. Cabell entitled "Eight Hours a Day with the Atom."

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: (KWIE in Kennewick is a new addition to this list. Their cooperation to date has been excellent. Most of the releases sent to them have been read verbatim over their news broadcasts. Cooperation of KPKW has also improved since KWIE began operation.)

- 2/3 Announcement was made of the voting arrangements for the election on February 8 and 9 to determine if the AMTC (AFL) would represent eligible persons in their bargainings with the Company.
- 2/3 Locations of the polling places, the hours they would be open and other details for voting in the above election in all Areas here were announced.
- 2/3 Two photos showing the installation of the dial telephone system were given with captions to four papers on the "Local List."
- 2/3 It was announced that G-E people, sub-contractors, and residents could receive free assistance for making out income tax returns from the Employee Services Division.
- 2/3 Announcement that a 6-hour power outage, previously scheduled for the preceeding Sunday, would occur on the coming Sunday. An appeal was made to Richland residents that unless 40 per cent of the normal power used were conserved, half the town would be without electricity.
- 2/5 An additional story to daily papers on the "local List" urged Richlanders to cooperate with the 6-hour outage scheduled for the following day.

Employee and Community Relations Division

- 2/8 Three courses offered by Columbia High School's Adult Evening School that had not been filled to capacity were described in detail with the hope of attracting additional enrollees.
- 2/8 A three and one-half hour power outage was announced for the following day.
- 2/10 Three photos showing local Boy Scouts preparing to deliver a letter for the Safety Division to every house in town were distributed. This was during National Boy Scout Week.
- 2/10 The availability of supplemental telephone listings was announced. The release was based on information supplied by the Accounting Division.
- 2/10 A release in which the Electrical Division Superintendent thanked residents for their cooperation during the 6-hour power outage on the previous Sunday was issued.
- 2/17 Three power outages were announced for various areas of Richland during the coming week.
- 2/17 Initial announcement was made by the Community Manager that village bus services would be extended and fare raised to ten cents.
- 2/17 The plant chairman was quoted concerning procedure to be followed in the Hanford Works portion of the National Blood Program of the Red Cross.
- 2/17 A photo was distributed showing the presentation of an award to the winners in a safety contest participated in by sub-contractors in North Richland.
- 2/24 Photographs were distributed of Georgia Tyner, well-known "Voice" of Tenant Service, who was taking a leave of absence.
- 2/24 Three electrical interruptions were announced for the following week.
- 2/24 Additional details concerning the extended bus service and facts behind the increased fare were released by Richmond.
- 2/24 A complete description of the new bus routes was released both in story form and on an appropriately marked map of Richland.
- 2/24 Photos of Richland Boy Scouts temporarily replacing the Community Council as part of their observance of National Boy Scout week were released.
- 2/24 The Red Cross Drive Plant Chairman announced that the Drive would begin in Hanford Works on March 1. The method with which the drive would be conducted was explained.

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:

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Employee and Community Relations Division

- 2/3 Rear Admiral (Rtd) G. L. Schuyler investigated the explosion that occurred at Hanford Works recently. An informative release stated that he was attempting to determine the cause and suggest measures to prevent similar future occurrences.
- 2/3 Announcement was made that ground leases had been awarded for boys and men's wear store, a shoe store, two women's apparel shops, and a sporting goods store. The five new businesses are to be built in the new business district. This story was also sent to all weekly papers on the G. E. Nucleonics Dept. News Bureau list.
- 2/4 Charles A. Coffin awards were presented to 55 employees, two of whom are employed in Hanford Works. Photographs were sent to 12 of the newspapers which received this release. This story also was sent to all weekly papers.
- 2/10 Announcement that the AMTC (AFL) was the official bargaining agent for eligible employees was sent out for immediate release as soon as the results of the election were available. The story was wired to AP, UP, and INS press associations, phoned to radio stations, and sent to the complete lists of daily and weekly papers.
- 2/11 A photograph taken on the occasion of the first visit of the Yakima Bloodmobile to Richland was sent to 16 daily papers. Hanford Works officials were featured in the photo. A news story describing the occasion was sent to daily and weekly newspapers.
- 2/11 Twelve prints of photographs taken in the ranch-type house district showing frost on trees in the area were sent to selected daily papers.
- 2/11 An informative release was prepared from the text of the speech Dr. W. I. Patnode delivered before the Seattle Chamber of Commerce on the subject of the role businesses should play in the atomic energy program. Advance copies of this release were sent to Seattle for distribution by the Chamber of Commerce for all papers there. The story also was sent to daily and weekly lists. Portraits of Patnode were also sent to Seattle.
- 2/24 A detailed feature story describing Carmichael Junior High School was sent with photos and captions to the VILLAGER. A general release was prepared from the feature story announcing the beginning of classes in the school on February 28, and was sent out with photos.
- 2/25 A story was sent out for immediate release announcing that reductions were being made in the forces of General Electric and its sub-contractors at Hanford Works. In the release the Nucleonics Department General Manager was quoted as stating the reason why the reductions were necessary. This story was given to the TRI-CITY HERALD with the understanding that they send it along to AP and UP. The AEC's Office of Information Control furnished the story to INS in Seattle and it was sent by mail to all weekly and daily newspapers on our lists. The story was wired to the General News Bureau in Schenectady and to R. W. Jaakson, the Company's Advertising and Publicity representative in San Francisco.

DECLASSIFIED

1219991

215

DECLASSIFIED

Employee and Community Relations Division

A substantial portion of the 16,000 reprints made here of the Seattle First National Bank's "Northwest Industries" booklet were distributed during the month. Five hundred were sent to the Bank's headquarters in Seattle and 500 more were sent a branch bank in Spokane. The Commercial Facilities Division received 2,000 copies and 9,000 copies were distributed to all Hanford Works employees with the Works NEWS. The publication also is being distributed through our information racks.

A supply of envelopes bearing the wording "NEWS--PLEASE DO NOT DELAY" has been obtained in which news releases or photographs are now mailed from this office. Better acceptance of releases by newspapers, and more rapid handling by Post Office, and mail sorting offices in the various newspaper plants and press associations is accomplished through use of the new envelopes.

A script was written and details arranged for the preparation of a 15 minute recording of the ceremony marking the first visit of Yakima's Bloodmobile to Richland. Walter Mott, from KPKW, made the recording and played it over that station once in the morning and once in the evening later in the same week.

A letter was prepared at the request of Community Councilman Don Seidel urging Richland residents not to park their automobiles on their lawns. The letter listed the required specifications for building driveways and parking strips. This was sent to every home in Richland.

C. P. Cabell's most recent speech entitled "Eight Hours a Day with the Atom" was reproduced with Mr. Cabell's permission. Three hundred mimeographed copies will be used for distribution to persons writing in for information of that type.

A feature story about security at Hanford Works written by Mrs. Dorothy Kinkaid for the Christian Science Monitor was cleared by this office.

A story of the Hanford Works Suggestion System was written and supplied to the "National Association of Suggestion Systems Quarterly." Photographs and captions were sent with the story.

Information and photographs to be used in the preparation of an article for FACTORY magazine about Hanford Works were sent to Ted Palmer of McGraw-Hill News Bureau in San Francisco at the suggestion of R. W. Jackson.

Howard Hold, a representative of the YAKIMA MORNING HERALD was escorted on a tour of Richland and North Richland by a member of this office. He prepared a general story on North Richland which he cleared with this office.

The film "Clean Waters" was obtained from the Portland office for showing at a meeting of the Benton-Franklin District Health Department in Pasco.

The Portland office on another occasion notified us that the Benton County REA needed a film for a meeting in Prosser which couldn't be supplied from Portland. Arrangements were made through Columbia High School's Visual Aid Department to obtain a film which was sent to Prosser for the occasion.

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DECLASSIFIED

Employee and Community Relations Division

Several other films were procured from the Portland office at the request of local groups during the month.

Employee Information - Special Programs

To help publicize the 700 Area Safety Celebration, fifty posters were prepared for distribution throughout the 700 Area. The posters urged all persons in the Area to attend the celebration. An appropriate safety message was prepared for souvenir programs which were distributed at the celebration. The committee in charge of the celebration was assisted in planning the function. (Two members of this division participated in the celebration program.)

The power conservation campaign in Richland during February included the showing of a power conservation sound movie slide trailer in the two Richland theaters and in the North Richland theater; and the distribution of power conservation buttons and light switch reminder cards to all school children in the two towns. The one minute movie trailer was prepared by this Division and produced by a commercial film company. Preparation involved writing the script and photographing staged situations to effectively demonstrate the need for conserving power. Art work was also prepared by this division for incorporation in the film. The film was shown over a two-week period in the three theaters.

The power conservation campaign in Richland schools included orienting teachers with the problem, and distributing power conservation buttons and light switch reminder cards to Richland school children. The "campaign button" type pins, which are approximately 1½" in diameter with celluloid cover and safety clasp, were produced by a New York firm. The pins show a light switch being turned off, and read, "Junior LIGHT Saver. . . Lights Out When You're Out. . . Help Conserve Power. . . Richland, Washington." They were designed by the artist in this Division. Mimeographed information sheets giving the background of the power shortage and the need for conservation were distributed to teachers for discussion with pupils prior to the distribution of the pins and light switch reminder cards. Distribution and arrangements were made through the Community Activities Division.

Members of this division prepared three letters which were mailed to employees concerning the election held by the National Labor Relations Board on February 8 and 9 to determine whether or not employees in the bargaining unit wanted the Hanford Atomic Metal Trades Council to represent them in collective bargaining matters with the Company. One letter urged employees to vote and explained that all persons in the unit were eligible to vote whether they had signed a Union card or not. A succeeding letter suggested that all employees who were eligible to vote should consider, calmly and carefully, just how the election would affect them personally before deciding which way they would vote. This letter again urged employees to vote. The effectiveness of these letters is reflected to some degree in the fact that more than 99 per cent of those in the unit voted. The third letter, which was sent to all employees after the election, gave the results of the election and explained that the Company wants each employee to receive fair treatment in his job.

A member of this division participated as a Company observer at the counting of the ballots after the election and assisted in the tabulation

1219993

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DECLASSIFIED

Employee and Community Relations Division

of the votes.

A letter explaining the status of Union Shop Stewards prior to official certification of the Union by the NLRB was prepared and mailed to all supervisors after the election.

Concerning the G-E COMMENTATOR entitled, "How Would YOU Revise Our Labor Laws," letters explaining the urgent need for adequate labor legislation and copies of this "COMMENTATOR" were sent to personnel supervisors in industry throughout the Northwest, to Richland spiritual and educational leaders, to publishers of daily and weekly newspapers in the Northwest, and to members of the Nucleonics Dept. General Manager's staff, consisting of all Assistant Superintendents, and above. In addition, a letter was sent to all Hanford Works supervisors informing them of a broadcast by Fulton Lewis, Jr. during which questions included in the "COMMENTATOR" were presented to the listening audience for action.

To inform the public of changes in the Village Bus System routes, service and fares, appropriate news releases and other materials were prepared and released.

It was necessary to inform Richland residents that 30 minute service on all Village bus routes was not possible without increasing the fare to ten cents. In addition to news releases, car cards for area buses and small announcement cards for Village buses were prepared. These cards announced that thirty minute service and ten cent fare would go into effect March 8.

The following personnel recruiting advertisements were placed:

Mechanical Designers:

ENGINEERING NEWS RECORD Magazine - February 3 and 10 issues.

Instrument Mechanics:

INSTRUMENTS Magazine. - February 15 issue.

Stenographers:

ARKANSAS GAZETTE and ARKANSAS DEMOCRAT - Little Rock, Arkansas

SOUTHWEST TIMES-RECORD - Ft. Smith, Arkansas

TULSA WORKD, Tulsa Oklahoma

THE OKLAHOMAN, Oklahoma City, Oklahoma

MUSKOGEE PHOENIX, Muskogee, Oklahoma

A classified advertisement for stenographers appeared in the above papers on February 6.

Employee Information - Works NEWS

Four issues of the Works NEWS were published during the month of February. "Candid Camera" was inserted in the February 25 issue.

Announcement was made in the February 4 issue of the Works NEWS of two Nucleonics Department people receiving the Coffin Award, the Company's highest recognition of their employees. Information pertaining to the

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Employee and Community Relations Division

Coffin Award presentation came well in advance from Schenectady so that full preparation for front-page prominence could be given the story. In the same issue an announcement was made in a front page story that those Hanford Works people eligible to belong in the bargaining unit would decide the union question on February 8 and 9. Location of voting places, hours, and all arrangements for union election were explained in detail. A full-page mat was placed on Page 6 duplicating the National Labor Relations Board notice of election, including a sample ballot which would be used during the time of the election.

The February 11 issue contained a full-page mat on "How Would YOU Revise Our Labor Laws." which was sent from Schenectady. Since this time the content of this mat has received national recognition and numerous requests have been received for additional copies of this issue.

An announcement was made in the February 18 issue of the new improved bus system which would provide 30-minute service on all bus routes. The story revealed that the new bus system would go into effect on March 3 and that the fare would be raised to 10 cents.

Another Boulware ad entitled "A Report on Pay" was run on Page 6. The insert included with this issue entitled "Pacific Northwest Industries" was received throughout Hanford Works with tremendous enthusiasm. Numerous requests came in for more copies which in most cases were met as long as the supply for extra copies lasted. It is felt that more inserts of this type would be highly desirable for future issues of the Works NEWS.

The February 25 issue included the first revelation of force reductions to take place in G. E. and among the sub-contractor personnel. In this same issue a complete pictorial review was given of the 700 Area Safety Ceremony. Another story which will be supplemented in several future issue was introduced at this time of President Wilson's testimony before the Senate Labor Committee in Washington, D.C. On Page 6 a complete map of the new bus service and description of each of the routes was included.

During the entire month appropriate news coverage and publicity was given to the opening of the Red Cross Drive and was continued in each issue as space would allow.

Employee Information - Women's Activities

The beginning and brush-up shorthand courses which met two nights a week for 15 weeks were completed on February 15. Ten girls completed the brush-up course, 7 girls completed the beginning course. Letters were sent to supervisors of the girls completing the course to inform them of the girls' achievement. The girls completing the brush-up course were given proficiency cards as a certificate.

Because of the many requests for the classes to be offered again, the possibility of conducting the classes again was investigated. It was decided that the responsibility of the shorthand courses should be offered to the director of the night school at Columbia High School in line with their other adult training courses. It has been set up in this manner and brush-up shorthand will begin on March 15. Beginning

1219995

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shorthand will not be offered until fall.

Work has been started on a booklet for the next women's training program. A summary of each topic will be presented to the girls attending the program. The art work involved will be done by multilith. The topics for the next 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

Work is being continued on reading over the Supervisors Handbook with attention to clarity, readability, style, and errors.

Daily orientation talks were given to a total of 30 women coming to work for General Electric. The purpose of this discussion is to introduce these new employees to G. E., the Village of Richland, the educational opportunities, clubs in Richland, security and dormitory regulations and accommodations.

During the month of February a 1,200 word article was prepared on the babies in Richland for the SEATTLE TIMES. Nine pictures were sent along with the story which were taken under the direction of this office.

One hundred eighty-two (182) calls were received to locate rides and riders for various points in Washington, as well as a few out-of-state destinations. Such destinations included Spokane, Portland, Seattle, Tollgate, Pullman, Moscow, Boise, San Francisco, Baker, Hermiston, Texas, and Los Angeles.

During the month of February the Women's Page did not appear in the Hanford Works NEWS. The space was given to three mats concerning labor and a picture of the local bus routes showing changes which will be effective in the near future.

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LABOR RELATIONS AND WAGE PATES

FEBRUARY, 1949

ORGANIZATION AND PERSONNEL

No organization changes were made in this group in February:

Number of employees on payroll	<u>February</u>
Beginning of Month	10
End of Month	<u>10</u>
No Change	0

ACTIVITIES

Labor Relations

The principal activity of this division relative to labor relations has been directed to the conducting of the NLRB consent election and to interim arrangements with the union prior to the negotiation of formal agreement.

On February 1 final details of the consent election were completed and official election notices were received from NLRB. These notices were distributed to all divisions and posted in all areas. Meetings were held on February 2 with the officials of the Hanford Atomic Metal Trades Council for the purpose of discussing eligibility lists for the consent election. Payroll period ending January 23 was decided as the official payroll date for eligibility. The final eligibility list was drafted on February 4. On February 7 the NLRB Field Examiner and union officials held a meeting for the purpose of checking the eligibility lists. All lists were approved at this time by the company and the union.

The consent election was conducted on February 8 and 9. Official election observers appointed by the company and the union were instructed as to the election procedure by representatives of the NLRB. The results of the election were tallied the following day with results as follows:

Number of employees eligible to vote	3,248
Number of employees who voted	3,220
Number of votes for union representation . . .	2,138
Number of votes against union representation .	1,082

A memorandum was distributed to all supervisors which contained the above election results prior to the general release.

Official notice of certification was received from the National Labor Relations Board which authorized the Hanford Atomic Metal Trades Council as official bargaining agent for Hanford Works employees contained in the bargaining unit.

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The first meeting was held with the negotiating committee (composed of H. E. Miller, J. E. Maider, T. B. Pugh and H. D. Middel). Mr. C. N. Gross was present at this particular meeting. Matters pertaining to the following points were discussed:

- (1) Anticipated demands.
- (2) Company policy as reflected in the UE - CIO contract
- (3) Hanford Works policy

During the week ending February 25 a series of meetings was held with approximately 600 supervisors of those divisions which employ people who are in the bargaining unit. Union relations problems relative to grievances and relations with union stewards were discussed.

The latter part of the month was spent primarily in dealing with the development of layoff procedure for the purpose of negotiating an interim procedure with the union prior to the negotiation of the contract. The problem of layoff became important at this time due to the decision to reduce the working force by eight to ten percent. Several meetings were held with the negotiating committee in regard to the above.

A representative of this division met with the instructors of the 9-Point training program for the purpose of discussing union relations.

Wage Rates

A general review of all classifications was completed by members of this division in Manufacturing Power, Community Labor and Community Engineering divisions. Results of the review completed in the Manufacturing "P" and "S" divisions were discussed with the superintendents involved. General reviews are in the process of being completed in other Community divisions which have not been previously reviewed.

Studies have been made in the manufacturing maintenance and Electrical divisions for the purpose of uniformly applying the preferential rate structure to certain classifications of personnel who have previously established preferential rates.

Wage rate survey of eleven enterprises engaged in office machine repair work in the surrounding communities (Seattle, Portland, Spokane and Yakima) was made for the purpose of checking the relationship of wages paid at the Hanford Works for this type of work with those paid in the community.

Several talks were given by members of this division to supervisory personnel of the 9-Point training program regarding the history, mechanics and administrative policies of wage rate structure.

A number of meetings have been held with members of the various divisions containing employees who are in the bargaining unit for the purpose of studying

1219996

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the existing wage rate system in view of determining the feasibility of changes in light of pending negotiations.

Reimbursement authorization was requested from the AEC for an additional classification covering certain types of work performed in the laundry.

In compliance with the desire of the Community Division to change the current Fire Department working arrangement from a three shift to a two or three platoon system, additional studies relative to the development of a feasible wage rate for firemen have been made.

In addition to the above a large portion of the work performed by this division continues to be day to day dealings with supervision on labor relations and wage rate problems.

STATISTICS

Transfers from Weekly to Monthly Payroll	9
Transfers Approved	50
Job Reclassifications Approved	158
Automatic Increases	464
Merit Increases	131

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COMMUNITY DIVISIONS

SUMMARY-FEBRUARY, 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	558	564
Community Safety	2	2
Community Commercial Facilities	17	18
Community Housing	43	42
Community Fire	154	153
Community Patrol	146	137
Community Activities	13	12
	<u>967.</u>	<u>962 -</u>

GENERAL

The proposal for revision of the Community bus system was approved by the Atomic Energy Commission, including increase in fares from five cents to ten cents; institution of thirty minute service; and extension of routes to serve the new ranch house area.

COMMUNITY SAFETY

Richland submitted their 1948 Traffic Contest entry to the National Safety Council.

COMMUNITY COMMERCIAL FACILITIES

The sale of basic food items indicate a downward trend.

Invitations to Bid were mailed on the following prospective facilities to be established in Richland:

Combination Fountain Lunch & Smoke Shop
Drive-In Restaurant

Bids were received on the following facilities and it is anticipated that lessees will be selected in the near future:

Optical Shop
Auto Supply Store
Fuel Delivery

COMMUNITY HOUSING

The final appraisal report of Messers. Barrett and Wheeler was submitted February 15, 1949.

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COMMUNITY DIVISIONS SUMMARY

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COMMUNITY HOUSING (Continued)

There were 86 Ranch type houses accepted during the month of February: 78 Y, three bedroom type; and 8 Z, four bedroom type. This makes a total of 889 Ranch type houses, that are being constructed by the Nettleton Sound Company which have been accepted to date.

COMMUNITY FIRE

Fourteen alarms in Richland and twenty-four in North Richland were answered. These fires resulted in damage of \$75.00 in Richland and \$102.00 in North Richland to project property and \$86.73 in Richland and \$795.75 in North Richland to personal property.

A total of 811 fire prevention inspections were made during the month.

COMMUNITY ACTIVITIES

On February 28, first student groups officially occupied Carmichael Junior High School. The estimated number of students making the move was 550.

The Community Activities Division, through the County Prosecutor, made arrangements for the use of thirty polling booths for use in Union Elections on February 8 and 9.

COMMUNITY PATROL

Beginning February 28, 1949, all emergency maintenance calls coming in between the hours of 11:00 PM and 7:00 AM, will be taken by Patrol and forwarded to the proper authorities.

One hundred and six prisoners were processed through the Richland Jail during the month.

Records show a total of twenty-nine traffic accidents reported in Richland during the month of February.

A total of 154 Unusual Incident Reports was received, which consisted mainly of Accidents, Traffic Violations, and Intoxications.

COMMUNITY PUBLIC WORKS

Effective February 28, 1949, two shift foremen of the Maintenance Section were relieved of their responsibility in connection with shift coverage, and their duties were transferred to the Shift Supervisors of the Utilities Section. This will tend to centralize responsibility on off shift hours.

The plan for enlarging the steam plant in the 700 area was abandoned on February 11, 1949.

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COMMUNITY DIVISIONS SUMMARY

COMMUNITY PUBLIC WORKS (Continued)

It was decided to hold up further action regarding the construction of additional apartment dwelling units.

During the month fifty-one renovations were completed.

On February 7, 1949, the Utilities Section took over operation of the multiple apartment boiler plant. The plant was in good condition. Operations have been normal and maintenance work of only a routine nature has been necessary.

Final acceptance of box culvert and sewer line in North Commercial Area was made.

Fuel deliveries have declined some since January, and it is expected a reduction in deliveries and crews will be forthcoming in the very near future.

COMMUNITY ACCOUNTING

Rental revenue during the month of February was comparable to that of the month of January.

The government owned equipment in Ganzel's Barber Shop, Columbia Service, Garmo's Grocery, and the Style Center was purchased by the respective facility during the month of February.

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COMMUNITY DIVISIONS
PUBLIC WORKS DIVISION
FEBRUARY 1949

ORGANIZATION & PERSONNEL

Number of employees on payroll:	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
January 31, 1949	66	492	558
February 28, 1949	67	497	564

Personnel changes made during the month of February:

New Employees	1		
Terminations		3	
Transfers:			
To Maintenance Division	1		
From Construction Divn.	1	7	
Returned from sick leave		1	

GENERAL:

Effective February 28, 1949, two shift foremen of the Maintenance Section were relieved of their responsibility in connection with shift coverage, and their duties were transferred to the Shift Supervisors of the Utilities Section. This will result in a savings of \$10,200.00 per year. The shift supervisor in the Utilities Section will be responsible for any emergency condition arising in the Public Works Division during off shift hours. A radio equipped truck has been made available for the use of the shift supervisor so that emergency contact can be made with him in the field. This will tend to centralize responsibility on off shift hours, in addition to reducing cost, as indicated above.

The first meeting of the recently organized Village Coordinating Committee will be held the second week in March. Membership of this committee consists of two representatives from the Atomic Energy Commission, two from the Design & Construction Divisions, and two from the Community Divisions. Its responsibility will be to coordinate and discuss matters pertaining to the village in relation to its development.

PROJECTS

GES-7 - 700 AREA STEAM PLANT ADDITION. The plan for enlarging the steam plant in the 700 area was abandoned on February 11, 1949. It was concluded that no other buildings would be added to the existing steam system, and that steps be taken to decrease the steam load on the system by encouraging commercial operators to supply steam from separate boiler plants in connection with their facilities. While the existing boilers are approximately 50 years old it is conceivable that they may be operable for several more years. During extremely cold periods it may become necessary to remove some of the steam loads from the system, since the load would exceed the maximum capacity of the boilers.

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Community Public Works Division

PROJECTS (Continued)

C-134 - RICHLAND VILLAGE DUST CONTROL AND LANDSCAPING. Tree planting was retarded considerably due to adverse weather conditions, frozen ground, etc. Some ornamental trees were relocated, however work in general was held to a minimum. Planting of inner block areas will be resumed next month by Puyallup Gardens. Domestic rye seeding was resumed February 24. A total of about 60 acres is involved in the present planting, and the work can be completed about March 15.

C-146 - IRRIGATION EXTENSIONS Work is progressing on irrigation layout plans and material take off of Marcus Whitman School Irrigation.

C-203 - WATER SUPPLY & DISTRIBUTION It is anticipated that the domestic water consumption for the coming year will reach approximately 18 million gallons per day. At the present time the Design Division is making negotiations with Alvord, Burdick and Howson, Consulting Engineers, regarding the most desirable ways in which to obtain this desired volume. It is expected by the Design Division that a representative of this company will be on the project in the very near future to negotiate a contract relative to this work.

C-253 - NORTH STORAGE RESERVOIR - ROOF REPLACEMENT Due to the excessive cost of removing the existing reservoir roof and replacing it with a new metal roof, it was decided to operate the system without covering the reservoir. Checks were made with the State Health Department and it was agreed that there was no objection to such an arrangement from a health standpoint. The old roof has been removed and arrangements are being made whereby chlorine will be added to the water discharging from the open reservoir into the closed reservoir. The open reservoir will then operate as a storage reservoir only. A protective fence will be constructed around the open reservoir.

GES-46 & 52 - ONE AND TWO BEDROOM APARTMENTS It was decided to hold up further action regarding the construction of additional apartment dwelling units. All work in connection with these studies has been cancelled.

MAINTENANCE SECTION

Organization & Personnel

Number of employees on payroll:	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
January 31, 1949	25	274	299
February 28, 1949	24	273	297

During the month the following personnel changes were made:

Terminations		2
Transfers: To Maint. Division	1	
Returned from sick leave		1

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Community Public Works Division

MAINTENANCE SECTION (Continued)

General

During the month 51 renovations were completed of which 22 were permanent type houses, 27 were prefabs, and 2 were apartments. Ten of the permanent type houses were complete paint jobs, 5 were partially painted, and 7 were cleaned only. Of the prefab renovations 12 were complete paint jobs, 8 were partially painted, and 7 were cleaned only. There were on hand at the end of the month 18 orders for renovations not completed.

The interiors of 98 conventional type units were completed and an additional 36 bath rooms were also enameled. The inside painting in Division 2 is complete. A chart is now being prepared on long range reciprocal planning for both inside and outside painting. This program will soon be in readiness for approvals and the necessary preparations to begin the summer painting program; which is expected will be the outside painting of permanent houses in Division 7, facilities, churches, and school buildings.

Laundry tubs were replaced in 14 conventional type houses, kitchen sinks in 11, water heaters in 5, kitchen faucets in 140, and toilets in 10.

Replacement was made of frozen pipes which had broken in 10 ranch houses. This required removing laundry trays, a section of the wall, replacing wall, painting and replacing laundry trays. This was caused by the contractor not having blown out the hot water line which is trapped when homes are winterized.

Thawing operations are now considered through for this year and repairs are progressing on some lines that had been burst.

The plumbing work in change house and office huts, in the Labor Group, is now completed.

There were 588 oil burner service calls made during a month's time ending February 15. Of those calls, 321 were for plugged nozzles. De-sludging oil was added for experiment to several fuel tanks in the "A" Area during the past three weeks and preliminary results are encouraging. Installation of the Sunbeam oil furnaces at the AEC Airport and Warehouse #6 is complete.

Installation of domestic water to Tract House K-777 is now under way and is 50% complete.

A total of 1802 electrical patrol order calls were made. There were 207 calls on hot water heaters, 27 AB ranges were rebuilt, 93 range hook-ups for ranch houses, 165 prefab fire inspection repairs, 730 prefab heaters cleaned out, and new cords installed where necessary. Calls were made to repair 45 refrigerators during the month.

The removal of the roof on the north reservoir at the 1182 pump house has been completed.

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Community Public Works Division

MAINTENANCE SECTION (Continued)

The summary of work performed in the furniture and upholstery shop is as follows: 25 mattresses, 5 davenos, 22 rockers, 183 drapes rescued, 68 chairs, 73 box springs, 53 tables, 8 desks, 51 bed ends, 26 cushions recovered.

During the month the 703 building floor tile job was completed. The repairs to fire damage at 618 Cottonwood was completed.

Entrance and fire exit doors were checked and necessary repairs made in all M and W dormitories. The upper plywood panel was removed and glass installed in doors at the head of stair well in all dorms to eliminate a safety hazard.

Garmo's Grocery Store - Asphalt floor tile was completed, however, due to inferior quality tile, the job was unsuccessful. Corrections are pending an adjustment by the tile vendor.

Acoustical tile was installed in the walls and ceilings in the radio control room at 760 Patrol Building.

Floors were repaired in the 720 building where flooring and joist rotted from steam condensate. The trim and casing was removed and truss bolts inspected and tightened at the Richland Theater.

There have been 700,000 board feet of lumber banded and prepared for shipment at North Richland for excess. The remaining stacks of lumber were tied securely with wire to prevent high winds from scattering them.

The loading docks at the Pasco Warehouses were redecked in front of 35 side loading doors. Also, 11 cars of excess materials, equipment and furniture were shored for shipment. One car of duPont records from the 700 Area was loaded and prepared for shipment.

During the month 39 utility closets were lined with celotex to prevent freezing and sweating. 122 minor roof repairs were completed.

Sink tops were repaired in 60 conventional houses, 41 prefab houses, linoleum was replaced on 10 kitchen floors and 12 bath room floors.

Housekeeping inspections by committee under each general foreman have been conducted and items noted have been handled.

UTILITIES SECTION

Organization & Personnel

Number of employees on payroll	Exempt	Non-exempt	Total
January 31, 1949	9	62	71
February 28, 1949	9	66	75
Transfers - from Labor Section		4	

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Community Public Works Division

UTILITIES SECTION (Continued)

General

Steam facility operations at the 784 boiler house were normal throughout the month. The steam load dropped off sufficiently to allow one boiler to be removed from service on Feb. 23, 1949.

During the week ending Feb. 27, all water softener units were opened up and inspected. Minor repairs were made and Zeo Karb replaced as necessary to bring the filter bed up to the desired level.

Operations were normal at the 1131 garage boiler house. The steam load had dropped sufficiently so that it is only necessary to operate with one boiler.

On Feb. 7, the Utilities Section took over operation of the multiple apartment boiler plant. The plant was in good condition. Operations have been normal and maintenance work of only a routine nature has been necessary.

Domestic water operations were normal throughout the month. Installation of water meters on discharge lines at Consumers Pump Station is about ninety percent complete. It has been necessary to repair several leaks in water lines where lines have been damaged by the frost.

Well pumps "A" and "B", 3000 area, were pulled and inspected. "B" well pump was overhauled and re-installed. Overhaul work on "A" well pump has not been completed as yet. The one million gallon storage reservoir was inspected while necessarily empty to facilitate maintenance work on inlet valve. It was found that approximately fifteen yards of sand had been pumped into the reservoir from the wells. The reservoir was completely cleaned before being returned to service.

Operations at the sewage disposal plant were somewhat abnormal. It was necessary, due to the increased sewage flow, to continue operation with only a small amount of recirculation.

The burner control units on gas furnaces at the disposal plant have been replaced with an improved type control.

The electrical switch gear for pumps at the sewage lift station is in the process of being revamped. The job is about 50% complete.

Operations were normal throughout the month at the Pasco Warehouse Area. Necessary repairs were made to water lines at several locations where lines had been damaged by frost. Maintenance Section replaced motor on the boiler feed pump at the Transportation Garage.

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HANFORD WORKS
HANFORD WORKS
MONTHLY REPORT OF UTILITY OPERATIONS
700, 1100 AREAS & NORTH RICHLAND

Period from 2-1-49 To 2-28-49, Incl.

STEAM

784 Building	Total M. Gal.	Total M. Lbs.	Rate	Unit
Water Softened	4123.5	34,390.	102.27	G.P.M.
Steam to Auxiliaries		4,913.	7311	Lbs./Hr.
Boiler Feedwater		39,203.	58487	"
Steam Generated		34,264.	50988	"
Blowdown		5,039.	12.82	Percent
Steam Leaving Plant		29,351.	43677	Lbs./Hr.
Coal Consumed		5,215.	7760	"
Coal Received		6,768.1		
Coal in Storage		11,141.6		
<hr/>				
B.T.U./Lv. Dry Coal		11,902		
Evaporation/Lb. Coal		6.57		
Average CO ₂ - %		7.6		
Salt Used, Lbs.		3,125		
Sulphuric Acid Used, Lbs.		11,708		
Phosphate Used, Lbs.		232		
Sulphite Used, Lbs.		220		

WATER ANALYSIS - PPM

	Raw Avg.	Soft Avg.	Boiler	
			Maximum	Minimum
Phenolphthalein Alkalinity	0		190	110
Methyl Orange Alkalinity	188	20	274	140
Chlorides	20	21	265	130
Hardness	132			
Phosphate			80	0
Sulphite			37	0

RICHLAND AND NORTH RICHLAND DOMESTIC WATER (PRODUCTION)

	Richland	North Richland	Combined
Total Pumpage, Million Gals.	71.9915	95.0372	167.0278
Avg. Daily Flor, Million G.P.D.	2.571	3.394	5.965
Rate of Flow, G.P.M.	1786.	2357.	4143.
Chlorine Used, Lbs.	422.		
Avg. Chlorine Residual, PPM	0.25	0.5	
Water to 300 Area -----	26.101 Million Gallons		

SEWAGE DISPOSAL PLANT

Sewage Flow: 117.000	Million Gals. Total.	4.179	Million G.P.D. Avg.
Sewage Flow: 2,902	G.P.M. Average		
Chlorine Used 7,144	Lbs. Lime Used	1400	Lbs.
Average B.O.D: 222	Raw Sewage.	73	Final Effluent.
Average Suspended Solids: 166	Raw Sewage	55	Final Effluent.

/s/ Harold N. Petty
Supervisor

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Community Public Works Division

ENGINEERING SECTION

Organization & Personnel

Number of employees on payroll:	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
January 31, 1949	16	12	28
February 28, 1949	17	12	29
Transferred from Constn. Divn.	1		

General

On February 16 an acceptance tour was made on the repair of the irrigation canal five miles northwest of Richland.

A report on the history of Richland Water Supply is in preparation, and will be complete March 2, 1949.

A tabulatory report is being prepared on all type "A" work authorities pertaining to the Village of Richland. This report is for the purpose of supplying the Public Works Division with up-to-date information on all its work authorities.

Final acceptance of box culvert and sewer line in North Commercial area was made.

A project covering Irrigation Extension, Richland Community, 1950 has also been studied.

This group was represented at the meeting of the Electrical Standards Committee.

A total of 13 back charge estimates were prepared during the month of February.

The financial status report for the periods ending 1-16, 1-25 and 2-13, the mid-monthly report for project status, and the CEV for the month of January were compiled and issued.

Routine items handled by the Material Control Section during February:

Requisitions	40
Store Stock Requests	26
Store Stock Adjustments	20
Purchase Orders Expedited	18

During the month 8046 sq. ft. of asphalt tile, purchased for the Grocery Stores and Drug Center, was received, and after installation was begun this material was found to be of inferior quality due to its advanced stage of oxidation. Arrangements were made with Vendor to supply fresh stock, which has been promised for shipment by March 1, from Seattle.

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Community Englic Works Division

ENGINEERING SECTION (Continued)

The following plans and specifications for new construction were submitted for review:

- a. Preliminary Plans
 - 1. Mobilgas - Approved
 - 2. Shell - Approved
 - 3. Barr's Appurell - Approved
 - 4. Davis Furniture - To be checked

- b. Detail Plans and Specifications
 - 1. Anderson Garage - to be checked
 - 2. Standard Oil Station Alteration - Approved
 - 3. Sewells - Not approved.
 - 4. Dawson & Richards - Tentative approval
 - 5. Yakima Tent & Awning - Tentative approval.

Building alterations were completed and inspected at the following facilities during the month:

- a. Columbia high school - Library changes
- b. American Red Cross - six changes were made within this building.

Technical information and instructions were furnished prospective facility operators:

- a. J. Nance - Prospective coal operator
- b. Dry Cleaning Plant
- c. Washeteria - Joseph & Cannon
- d. Curtis Sand & Gravel
- e. Blcck's Shoe Store, Inc.
- f. Morning Sun Dairy
- g. Drug Warehouse - Morgan
- h. Rollor Skating Rink
- i. Moving Picture Theater
- j. Dining Facilities - Densow's Drug
- k. Service Station - Gerdes

Technical information and instructions were furnished to the following Churches prior to preparation of detailed working drawings and specifications:

- a. Church of Christ
- b. Church of Nazarene
- c. Latter Day Saints Reorganized.

Work Authorities were prepared for developing the following areas:

- a. Swift-Wright Neighborhood Areas
- b. Cahoon Motors Site - Light Industrial Area

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Community Public Works Division

ENGINEERING SECTION (Continued)

The north, south, east and west wing, only, of Carmichael Junior high school were inspected and accepted with exceptions. The exceptions which were noted will be corrected.

Facility Sponsored Construction approximates the following schedule:

<u>Facility</u>	<u>Const. Started</u>	<u>% Complete</u>	<u>Est. Date of Completion</u>	<u>Remarks</u>
Cahoon Motors	11-29-48	98	3- 9-49	
Richland Electric	9-27-48	99		Awaiting window Repair
Richland Supply	12- 6-48	99		Waiting for good weather
Richland Laundry (Sign)		100		Final Inspection
Desert Inn (Banquet Room)	2-14-49	20	3-20-49	Plans not comp.

Community Activities Construction approximates the following schedule:

South Side U.P. Church	11- 5-48	70	4- 1-49	Awaiting good Weather
Baptist Church	11-27-48	70	4- 1-49	"
L.D.S.	2- 5-49	3	1950	

Plans for the alterations to the Richland and North Richland fire stations were started as requested by the Fire Division.

Leased area plot plans were completed for the Shell Service Station, Plot #14, Drawing No. H-11-1232

The inspection and acceptance of new houses is as follows:

Y, Y-1, Z, and Z-1 - Ranch Type.	
Previously accepted	803
Accepted during Feb.	86
Total accepted	889

Twelve ranch type houses were inspected and not accepted, making a total of 111 houses inspected and not accepted. Total houses inspected, 1001.

A total of 65 alteration permits were inspected during the month for the Housing Division.

Arrangements for the painting of a prefab, located at 1407 Perkins, were made with Sherwin-Williams Paint Company. The paint is prepared especially for exterior application on plywood. The date for painting is March 21, weather permitting.

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Community Public Works Division

ENGINEERING SECTION (Continued)

JOB. NO.	DESCRIPTION	PERCENT COMPLETE	COMPLETION DATE OR REMARKS
PROJECT PROPOSALS			
11	Hourwatt Metering - Richland	90	Rough draft completed. Submitted & ret'd. for comments.
60	Cover of outside of Adm. Bldg.	100	Final draft completed for approval signatures.
74	Recreational Facilities, Equipment for schools and public parks	10	Held up for other work.
75	Proposed renovations to south end of recreation hall.	15	Held up for other work.
STUDIES & SPECIFICATIONS:			
18	Painting Exterior of Commercial Facilities.	100	Job closed as complete 2-17-49. Work to be done by GE forces.
22	Condition of roof and roof framing	95	Maint. forces completed cost example-job inspection, and analysis as to procedure required for completion.
29	Excavation Procedure	90	Waiting for comments.
35	Roof specifications-Commercial facilities.	75	Rough draft ready for checking
37	Tenant Installation of Linoleum and Tile Board	100	Lin. 2-24-49 Tile Board - 12-20-48
42	Tenant Service Obligations	100	Comp. 2-9-49
44	Governors, Roll-up Fire doors, Columbia & Jefferson schools	75	Held for information from Manufacturer.
74	Recreational facilities	25	
92	Spaulding School, Landscape Plan	35	
94	Designing of building site for club Organizations.	15	
95	High school area improvement	50	
107	Study of emergency batteries, Kadlec Hospital	100	Comp. 2-24-49
116	Structural Defect-Richland Theater	100	Comp. 2-15-49
141	Cost estimate for water line connection and sewage problem	15	
143	Park Wading Pool	5	

COST ESTIMATED AND/OR DRAWINGS:

17 Renovation of Tract House NN-1040 75

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Community Public Works Division

ENGINEERING SECTION (Continued)

<u>JOB. NO.</u>	<u>DESCRIPTION</u>	<u>PERCENT COMPLETE</u>	<u>COMPLETION DATE OR REMARKS</u>
20	As-built drawings - water &	60	Sewer drawing comp. Comp. 2-22-49
48	Fire door & window - Marcus Whitman & Jefferson	100	
51	Additions & alterations Bldg. 1182	90	Comments on preliminary plans not recd.
56	Municipal Bldg., alterations to house tenant services.	75	75
58	Repair, reconditioning, enlargement of air conditioning (703 Bldg.)	10	Held for more urgent work.
61	Paint & re-roof Bldg. 723	100	Comp. 2-1-49
64	Lighting study - 720 Bldg.	100	Comp. 2-20-49
70	Fire Alarm Systems, Jefferson & Sncajuwea,	97	
71	Painting all school exteriors	80	A cost estimate for foundation & building move was completed.
76	Proposed Youth Activities Bldg.	50	
80	Relocation of Masonic Temple	5	
81	Relocation of Castle Club	5	
82	Map of Richland showing all bldgs.	10	
83	Painting high school football bleachers	100	Comp. 2-8-49
86	Water shut-off valves & sewer clean- outs under U & V type houses.	5	
87	Installing dishwasher in L&C school	85	
91	Heat for Jefferson grade school kitchen	10	
106	Revisions to Eutment 722-J for Labor Section.	100	Drawing completed
109	Mattress drawing to accompany inven- tion report.	100	Comp. 2-11-49
129	Fire hydrant installation	30	
136	North storage reservoir fence location & new chlorine injection.	50	

LABOR SECTION

Organization & Personnel

Number of employees on payroll:	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
January 31, 1949	13	142	155
February 28, 1949	14	144	158
New Employees	1		
Terminations		1	
Transfers: From Construction Divn.		7	
To Utilities Section		4	

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Community Public Works Division

LABOR SECTION (Continued)

General

Cleaning of the canal is progressing favorably. A clam-shell is being used to remove blow sand from the lower sections. It has been difficult to keep a constant flow of water to the 3000 area well fields due to the abnormal temperatures and icing conditions.

Garbage and trash was collected on a five day schedule throughout the residential area, the commercial area requiring six day coverage.

A total of 129 refrigerators and 129 electric ranges were delivered to new homes. 16 personal moves were accomplished during the month.

A street maintenance foreman was assigned to the labor section during the month. Procurement of equipment and materials is now in progress, and it is expected that the responsibility for street and road maintenance in the village will be transferred to this section March 7, 1949.

A total of 55 excavations were completed for the maintenance section to repair frozen water lines.

Fuel deliveries have declined some since January, and it is expected a reduction in deliveries and crews will be forthcoming in the very near future. There has been some damage to walks and lawns due to frost conditions, however every precaution is being exercised to eliminate unnecessary damage to properties.

FUEL INVENTORY

Coal

Beginning Inventory		3,376,300
Receipts		35,874,500
Consumed in Village	12,320,000	
3000 Area	16,481,700	
101 Area	3,902,600	
White Bluffs	1,980,700	
Lewis & Clark	166,000	
Marcus Whitman	216,000	
Sacajawea	140,000	
Spaulding	300,000	
American Legion	30,000	
Drug Center	16,000	
Pennywise	16,000	
Garnes	20,000	
Groceteria	20,000	
Village Food Store	18,000	
United Protestant Church	28,000	
Catholic Church	34,000	
700 Area	1,038,000	
Columbia Camp	640,000	

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Community Public Works Division

LABOR SECTION (Continued)

Heavy Duty Engineers Garage	8,000
1131 Garage	240,000
Prosser Barricade	8,000
1125 Warehouse	6,000
#6 Warehouse	12,000
Automotive Warehouse	3,000
Electrical Distribution	3,800
#2 Fire Station	8,000
Pasco T-131 Garage	108,000
Pasco Patrol Headquarters	4,000
Pasco Fire Station	2,000
Pasco T-201	6,000
Morris Knudson	31,000
J. A. Terteling	36,000
1182 Power	12,000
White Bluffs Fire Station	12,000
1125-2 Warehouse	2,000
	<hr/>
	37,880,000

AMOUNT ON HAND 3-1-49

1,370,800

Oil

Beginning Inventory		63,982
Receipts		290,128
Houses	216,502	
J. A. Terteling	4,625	
Jefferson School	8,829	
G. E. Engineers	92	
North Richland	5,725	
Warehouse #6	384	
Castle Club	16	
Apartment Boiler House	6,783	
AEC Airport	237	
700 Area Maintenance	275	
Pasco Heat Plant	43,278	
A&J Serv. Station - Equip.	4,000	
	<hr/>	

GALLONS ON HAND 3-1-49

63,364

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COMMUNITY DIVISIONS

COMMUNITY ADMINISTRATION

FEBRUARY, 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	<u>February</u>
Beginning of month	6
End of month	6

GENERAL

The following requests for appropriations were approved by the Appropriations and Budget Committee during the month of February, 1949:

- (1) Emergency Warning Signals for Richland and North Pichland.
- (2) Architect-Engineer Services for Commercial Facilities.
- (3) Lighted Softball Park, (Part II of project C-153).

Requests for type A work authorities were issued for the following:

- (1) Additional Grade School.
- (2) Architect-Engineer Services for all village work not already included in projects.

The proposal for revision of the community bus system was approved by the Atomic Energy Commission, including increase in fares from five cents to ten cents; institution of thirty minute service; and extension of routes to serve the new ranch house area.

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COMMUNITY COMMERCIAL FACILITIES DIVISION

February 1949

ORGANIZATION AND PERSONNEL

FEBRUARY

Number of employees on payroll:

Beginning of month	17
End of month	18
Net Increase	1

COMMERCIAL FACILITIES

The following figures indicate trends in commercial activities as related to various basic items:

	<u>JANUARY</u>	<u>FEBRUARY</u>
Cafeteria meal customers	77,456	68,570
Percent of room-day occupancy - Desert Inn	96%	97%
Gallons of ice cream sold	5,228	5,819
Carnation milk and cream deliveries	98,308	93,251
Darigold milk & cream deliveries (wholesale only)	7,867	6,680
Theater customer count	62,829	62,857
Gallons of gasoline sold	179,832	146,198

Total number of Commercial Facility Operators' employees, full and part-time, as of February 28, 1949, is 1,067.

Arctic Fur Company's display room, which was located in the Desert Inn, closed on February 26, 1949.

The Desert Inn was issued an alteration permit and construction has been started on a new dining room and service bar. They are also making extensive rearrangements of kitchen, bakery, and dishwashing equipment.

Richland Supply Company completed interior redecoration. The Operator provided the labor and the Project furnished the paint.

Campbell's Food Market completed interior redecoration. The labor was provided by the Operator and the paint by the Project.

C. C. Anderson Store completed, at Operator's expense, minor interior alterations to improve appearance and increase floor space.

New tile was laid in Garmo's Grocery at the expense of the Project.

Campbell's Food Market was issued an alteration permit to remove existing meat cases and walk-in refrigerators, to make space available for the installation of self-service meat cases.

Richland Thrifty Drug was issued an alteration permit to install neon signs on the building, at the expense of the Operator.

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Richland Laundry was issued an alteration permit to install a sign on the roof of the building, at the expense of the Operator.

INVENTORY AND PROPERTY

Final inventories of equipment were taken in the following facilities:

Mickey's Shoe Renewing
Siler's Beauty Salon
Binyon Optometrists

The sale of Project-owned equipment and fixtures has been completed for the following facilities:

Style Center	2-28-49
Ganzel's Barber Shop	2--9-49
Garmo's Grocery Store	2-24-49
Columbia Service	2-21-49

CONTRACTS AND NEGOTIATIONS

A Lease dated January 31, 1949, was entered into by and between General Electric Company and P. G. Wascher, covering the construction and operation of an automotive service station in Richland.

An Assignment and Acceptance of Contract dated February 4, 1949, was entered into by and between General Electric Company and K. T. Campbell and F. G. Campbell and R. W. Carriger, covering the operation of Campbell's Food Store.

Supplemental Agreement No. I dated February 4, 1949, was entered into by and between General Electric Company and Fred R. Stipe, covering the alterations and modernization of The Village Pharmacy.

A Theater location was awarded to Midstate Amusement Corporation, 231 South La Salle Street, Chicago 4, Illinois, who will construct its own building.

A Ready-Mix Concrete Plant location was awarded to Curtis Sand and Gravel Company of Spokane, whose address is P. O. Box 1237, Richland, Washington, and who will construct their own building.

Invitations to Bid were mailed on the following prospective facilities to be established in Richland:

Combination Fountain Lunch & Smoke Shop
Drive-In Restaurant

Bids were received on the following facilities and it is anticipated that lessees will be selected in the near future:

Optical Shop
Auto Supply Store
Fuel Delivery

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COMMUNITY COMMERCIAL FACILITIES DIVISION

It is anticipated that invitations to bid for additional facilities to be established in the new commercial area will be sent out during March.

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:

Auto Accessories	Optometrist
Auto Agency	Photographic Studio
Auto Service	Plumbing
Bakery	Radio Shop
Barber Shop	Radio Station
Beauty Shop	Recreation
Cafe	Restaurant
Cigar Stand	Service Station
Delicatessen	Sewing Center
Dog Pound	Shoe Repair
Drugstore	Sporting Goods
Electric Appliance Shop	Tavern
Florist Shop	Taxicab Service
Food Store	Variety Store
Fountain Lunch	Women's Specialty Store
Fruit & Produce Store	<u>Miscellaneous:</u>
Fuel Delivery	Builder's Supply
General Contractor (Lumber)	Facilities Maintenance
General Merchandise	General Business
Infants & Children's Wear	Landscaping Service
Jewelry Store	Linen Store
Serve-yourself Laundry	Miniature Railroad for Children
Luggage Shop	Newspaper (Daily)
Lumber & Building Material	Pony Ring for Children
Men's Clothing	Popcorn Stand
Multiple Business Building	Used Car Lot
Music Store	Veterinarian Service - Cat & Dog Hospital

Written permission was granted to twelve (12) Richland residents to conduct the following part-time businesses in their homes:

- Sell Childcraft Program
- Sell hand-painted ceramics and textiles
- Represent State Farm Mutual Insurance Company
- Conduct Addressograph Service (2)
- Conduct a Fire Protection Service
- Teach Ballroom Dancing
- Fill Orders for Ladies & Men's Custom-Tailored Clothing
- Sell Needlecraft, art and handwork Supplies
- Conduct Bridge Classes
- Sell Rexair Humidifiers
- Sell Rexair Appliances

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COMMUNITY COMMERCIAL FACILITIES DIVISION

Written permission was granted six (6) individuals living outside of Richmond to contact residents, on an appointment basis only, on the following business matters:

Represent Inter-Ocean Insurance Company of America
Sell & Service Hoover Vacuum Cleaners
Pick-up and Delivery Laundry and Dry Cleaning
Take Portraits in the Home (2)
Represent the Novel Photo Company

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COMMUNITY DIVISIONS

COMMUNITY HOUSING DIVISION

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	<u>February</u>
Beginning of month	43
End of Month	<u>42</u>
Net Decrease	1

RICHLAND HOUSING

Housing Utilization as of Month End

<u>Houses Occupied by Family Groups</u>	<u>Conven-</u>	<u>Block T</u>	<u>Pre-</u>	<u>Ranch</u>	<u>Pre-</u>	<u>Ants.</u>	<u>Tract</u>	<u>Total</u>
	<u>tional</u>	<u>cut</u>	<u>cut</u>	<u>fab</u>	<u>fab</u>			
Operations	2191	257	373	769	1098	62	38	4788
Facilities	146	4	18	26	119	3	9	325
Government	99	30	14	18	36	4	7	208
Kellex Corporation	1	7	7		3	1		19
Morrison-Knudsen	4		1	2		1		8
Atkinson-Jones	25	24	23	24	21	2		118
J. Gordon Turnbull	1	2	3	3	17			26
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
C. C. Moore Co.		1						1
P. S. Lord Co.	<u>1</u>							<u>1</u>
TOTAL HOUSES OCCUPIED	<u>2477</u>	<u>328</u>	<u>10</u>	<u>448</u>	<u>852</u>	<u>1315</u>	<u>74</u> * <u>67</u>	<u>5571</u>
Houses utilized for special purp.							1	1
Houses assigned (leases written)	7	2		19	5			33
Houses assigned - awaiting tenants	16	3		2	18	12		51
Government houses - unassigned							** <u>38</u>	<u>38</u>
TOTAL HOUSES	<u>2500</u>	<u>333</u>	<u>10</u>	<u>450</u>	<u>889</u>	<u>1332</u>	<u>74</u> <u>106</u>	<u>5694</u>

* Occupancy figure includes 4 houses occupied by Bonnerville Power in Priest Rapids and White Bluffs.

** This includes 31 Tract Houses boarded up for salvage.

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COMMUNITY HOUSING DIVISION

Housing Turnover During Month	<u>Begin Month</u>	<u>Moved In</u>	<u>Moved Out</u>	<u>Month End</u>	<u>Diff-erence</u>
Conventional Type	2476	43	42	2477	Plus 1
Block Type	331	5	8	328	Minus 3
T Type	10	0	0	10	None
Precut Type	445	9	6	448	Plus 3
Ranch Type	708	163	19	852	Plus 144
Prefab Type	1307	42	34	1315	Plus 8
Apartment Type	70	5	1	74	Plus 4
Tract	69	0	2	67	Minus 2
Total	5416	267	112	5571	Plus 155

Dormitory Statistics

<u>Dormitories</u>	<u>Occupants</u>	<u>Vacancies</u>	<u>Total Beds</u>
Men - Occupied	14	552	4
Men - Unoccupied			556
Women - Occupied	14	581	* 11
Women - Unoccupied			592

Women's Dormitories Occupied by:

G. E. Office	1
Education	1
Apartment	1
	<u>31</u>

* This space includes 6 beds in W-9 being used for Supply Rooms and Dormitory Offices.

GENERAL

There were 86 Ranch type houses accepted during the month of February; 78 Y, three bedroom type and 8 Z, four bedroom type. This makes a total of 899 Ranch type houses, that are being constructed by the Nettleton Sound Co., accepted to date.

The final appraisal report of Messers. Barrett and Wheeler was submitted February 15, 1949.

Upon the request of the A.E.C. the appraisers were asked for a regrouping of houses in various zones. This was completed by the appraisers and submitted February 17, 1949.

At the request of the A. E. C. a list of all lease holders in Richland showing their name, address, type house, number in family, job title and employer was compiled. This list was submitted to the office of Community Management February 28, 1949.

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TENANT RELATIONS

The processing of Patrol Orders and Work Orders during the month is as follows:

	<u>Incomplete</u> <u>1-31-49</u>	<u>Issued Dur.</u> <u>February</u>	<u>Incomplete</u> <u>2-28-49</u>	<u>Issued Prev.</u> <u>Month</u>
Patrol Orders - Days	1219	3576	891	3963
<u>Maintenance & Electrical</u>				
Patrol (Off Shift-Elect.)	0	531	0	562
Patrol (Off Shift-Maint.)	0	424	0	570
Regular Work Orders	309	199	503	167
Backcharges	10	54	9	41

- 0 Scrap Lumber Permits issued during the month of February as compared to 3 during the previous month.
- 110 Conventional type houses were painted by Project Forces as compared to 126 during the previous month. (Interiors).
- 348 Home Fire Inspections were reported and processed. 571 homes were visited. 253 Home Fire Inspections in January and 528 homes were visited.

<u>Items of Interest</u>	<u>Total</u> <u>Outstanding</u>	<u>Outstanding</u> <u>In February</u>	<u>Outstanding Prev.</u> <u>Month</u>
Window Glass Replacements	127	100	71 (/ 29)
Sink Linoleum Replacements	69	38	44 (- 6)
Bathroom Painting	78	149	60 (/ 89)
Miscellaneous	517	407	639 (- 232)

Alteration Permits issued during the month of February 1949, amounted to 84 as compared to 51 issued during the month of January. Permits were issued as follows:

Basement Excavations	18
Humidifiers	5
Automatic Washers	13
Refinish Floors	10
Partition in Basements	6
Install back door in Pre-fab	1
Air Conditioners	5
Installation of shelves above laundry trays in utility room	1
Lattice work between dining room and living room	1
Radio Atonna	1
Install linoleum behind kitchen range	1
Install Driveways	4
Change location of stove and refrigerator	1

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TENANT RELATIONS

Removal of section of cupboard in Kitchen	1
Glaze in sunporchs	2
Fences	10
Reverse front and back doors	3
Install dishwasher	<u>1</u>

ALTERATIONS FOR THE MONTH OF FEBRUARY, 1949-TOTAL 84

Inspection Information:

720 Inspections were made during the month of February. A breakdown of the inspections shows the following distribution:

a. Window Shade Inspections	107
b. Wall Inspections	105
c. Linoleum Inspections	55
d. Floor Board Inspections	35
e. Recaulk Bathtub Inspections	34
f. Lot Line Inspections	30
g. Sidewalks Inspections	27
h. Top Soil Inspections	17
i. Leaking Basements Inspections	9
j. Miscellaneous	<u>301</u>
	720

M. S. WAREHOUSE MONTHLY REPORT FOR FEBRUARY, 1949.

Orders handled for February, 1949

		<u>Items</u>
Recall Orders	13	137
Delivery Orders	23	135
Range & Refrigerators Orders to New Houses	129	258
Dormitory Exchange Orders	<u>66</u>	231
Total Orders	231	
Received from Maintenance		308
Sent to Maintenance		268
Three-burner Ranges Exchanged in Village		14
Refrigerators Exchanged in Village		9

Trips to Pasco 15

Tenant Relations Stores:

Orders Disbursed	780
Items Disbursed	1310
Value	\$ 4,754.84
*Items Received	3005
Value	\$ 5,421.63

TOTAL M. S. WAREHOUSE INVENTORY \$83,573.04

4. * Items received include memo charge of grass seed recently priced.

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TENANT RELATIONS

General Changes in Policy and Improvement in Operations:

- a. Dormitory Furniture repairs have been reduced 65%.
- b. Paint inventory reduction will affect the color choice on the inside painting program done by the tenant.
- c. Reduction of force by one man will affect the cleaning program by one-half.
- d. Addition of printing and stationery supplies to Kardex system with an automatic ordering system.
- e. Preparation to vacate 108X and move cleaning functions to M. S. Warehouse.
- f. Grass seed sacking is to be started immediately for disbursement by the fifteenth of March. Additional labor may be required for this purpose.

GENERAL

Dormitory Progress Report for Month of February, 1949.

- a. Installation of gratings in Dormitories M-9 through M-14 is now complete.
- b. Several buildings were damaged by the recent high winds requiring extra maintenance work on roofs and exit doors.
- c. All Dormitory stairways and landings are being repaired.
- d. All activities concerning Air Conditioning Controls and Redecorating Program has been discontinued for the present.
- e. Exchanged 208 pieces of furniture during this month.
- f. In line with the Project cost reducing program, this Section has taken immediate steps to bring Dormitory Unit Costs to a minimum.

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**COMMUNITY SAFETY DIVISION
FEBRUARY, 1949**

ORGANIZATION AND PERSONNEL

Number of employees on Payroll:	<u>February</u>
Beginning of month	2
End of month	2

GENERAL

Appropriations have been asked for in the next fiscal budget for chain link fence to be installed on the west side of the Lewis and Clark School on Cullum Avenue for the protection of the school children.

Richland submitted their 1948 Traffic Contest entry to the National Safety Council.

This office inspected plans and specifications for fire and safety features on three proposed churches, two filling stations, one hall addition and five business houses.

The survey was completed on the heating units in the ranch type houses and recommendations made. A trial unit with the recommended conversion will be built and tested.

A student court has been established in the high school and is functioning very well. There has been elected, by the student body, a Chief Justice, four Court Judges, Prosecuting Attorneys, etc. There has been appointed seventy patrolmen, twenty on duty each day, with the authority of the general student body to present any student with a citation to appear before the court and judges to stand trial when caught damaging any property; littering up the halls; creating any type of fire hazard; or running, scuffling or fighting in the halls; or doing anything that would create a physical hazard. The purpose is to promote safety in an accepted manner. The program, as it is set up now, is very successfully accomplishing this purpose. There are no monetary fines, all fines are of a constructive, educational nature such as requiring an essay regarding the violation committed from the offender.

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Community Fire Division

February 1949

Organization and Personnel

	<u>February</u>		
Number of employees on payroll			
Beginning of the month	154		
End of the month	<u>153</u>		
Terminations	2		
New employees	1		
		<u>Richland</u>	<u>North Richland</u>
Response to alarms	14		24
Fire loss (estimated)			
Hanford Works	\$ 75.00		\$ 102.00
Personal	86.73		795.75
Investigation of minor fires and incidents	9		3
Safety Meetings	17		8
Inside Drills	77		45
Outside Drills	14		13
Alarm Boxes tested	135		72

Richland Fire Prevention Activities

1. Fire Inspections:		
700 Area buildings	133	
1100 Area buildings	176	
Commercial Facilities	104	
Schools, churches, clubs	50	
Homes	<u>348</u>	
Total	811	
2. Fire Extinguishers:		
Inspected	1420	
Installed	18	
Recharged	30	
Removed	4	

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Community Fire Division

(Continued)

3. Obtained a 40-gallon wheel-type foam fire extinguisher from Atkinson-Jones Company to replace the damaged 40-gallon soda-acid extinguisher at the Government Airport. Replacement extinguisher given static test, recharged and placed in service.

4. Sprinkler systems in the Kadlec Hospital, Public Health and 703 buildings were inspected weekly during the month. Three of the hospital systems contained low air pressure which had to be raised. Otherwise all systems, including post indicator valves, were in good condition.

5. The Desert Inn fire alarm system was tested on the second and fourth Fridays of the month, testing satisfactorily.

6. On February 7, 1949, the Community assumed responsibility for operating the temporary boiler house west of the apartment buildings. Fire extinguishers were installed on this date.

7. Home fire inspectors were detailed for 9 man-days to inspect and recharge fire extinguishers during severe weather.

8. Requested a map be erected beside the fire alarm enunciator panel in the Lewis and Clark School, this map to be marked as a fire alarm guide.

9. A complete report was sent to the Commercial Facilities Division of numerous fire hazards encountered at the Desert Inn.

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COMMUNITY DIVISIONS

COMMUNITY PATROL

FEBRUARY 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	<u>February</u>
Beginning of month	146
End of month	<u>137</u>
Net Decrease for Month	9

Reason: 9 Transfers to Industrial Patrol
Reduction in force in Community Patrol

GENERAL

On March 1, 1948, the Richland Jail was opened, and through and including February 28, 1949, a total of 1,232 prisoners were processed through the jail. No prisoners were injured while in the jail, and they were processed with a minimum of trouble. All prisoners were fingerprinted, and fingerprint cards were forwarded to the Federal Bureau of Investigation in Washington, D. C. for classification and previous records. All information received or returned by the FBI relative to these prisoners was recorded in the Reports and Records Section as a permanent record.

On February 15, 1949, Judge E. W. Brown made arrangements with the Industrial Patrol to handle their court hearings of cases originating within the barricated area on Wednesday nights at 7 P. M. instead of Friday nights as in the past. Judge Brown also arranged with the Community Patrol Division to have all their continued cases tried on Wednesday nights also. The foregoing was necessary due to the increased number of court cases during the month.

Beginning February 28, 1949, all emergency maintenance calls coming in between the hours of 11 P. M. and 7 A. M. will be taken by Patrol and forwarded to the proper authorities.

The new uniforms which have been on order for several weeks were received during the month. At the present time men are being fitted, and it is expected that they will be worn on or about March 21, 1949.

During the month the picking up of stray dogs was continued; 20 dogs were picked up in Richland and 25 in North Richland. These dogs were turned over to the Dog Pound for proper disposition.

During the month four patrolmen were provided the local school district for basketball games at the high school; one man on February 4, one man on February 16, one man on February 25, and one man on February 26.

Fifty-eight gun registrations were taken by the Richland Patrol during the month.

One hundred and six prisoners were processed through the Richland Jail during the month.

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Community Patrol Division - Continued

TRAFFIC

Traffic control volume dropped off approximately 20% during the first half of the month but returned to near normal toward the end of the month. The traffic count taken at the Yakima River Bridge on George Washington Way over a four day period revealed an average of 11,785 cars per day using this roadway.

Traffic reports and exhibits were forwarded to the National Safety Council covering traffic activities in Richland during 1948. Results of the contest will be made known by the National Safety Council during the first part of April.

Due to the worn condition of the center lines of the streets and roads in Richland, a repainting program is being considered. Worn traffic signs are being replaced and recommendations are being forwarded to the Public Works Division for repair of certain roads considered hazardous to traffic movement.

Several traffic safety films and lectures were given to civic and plant groups during February. Station KPKW at Pasco, Washington, was used as a means of cautioning drivers to drive carefully during adverse weather conditions. Arrangements were made with the station management through the plant Public Relations Office, and the radio time was donated at no cost to General Electric Company.

Records show a total of twenty-nine traffic accidents reported in Richland during the month of February. Eighteen of this total were caused as a result of icy roads and adverse weather conditions.

Reports show a total of eighteen accidents in North Richland during the same period, eleven of which were attributed to inclement weather and road conditions.

TRAINING

Advance training for Community Patrol members at the Small Arms Range for the period January 14, 1949, to February 10, 1949, inclusive, was divided into Field Instruction as follows:

Pistol	1 1/2 hr.
Riot Gun	1 hr.
Machine Gun	1 hr.

Progress of scores and qualifications on the Army-L Course:

	December		January		February	
	No.	Percent	No.	Percent	No.	Percent
Unqualified	7	7%	4	9%	6	6%
Marksman	28	26%	5	11%	26	25%
Sharpshooter	26	24%	8	17%	22	22%
Expert	46	43%	30	63%	48	47%

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Community Patrol Division - Continued

Progress of scores and qualifications on the Machine Gun Course:

	December		January		February	
	No.	Percent	No.	Percent	No.	Percent
Unqualified	1	1%	1	0%	0	0%
Marksman	3	3%	1	3%	1	1%
Sharpshooter	7	7%	2	7%	12	13%
Expert	96	89%	28	90%	80	86%

RICHLAND AREA (VILLAGE)

	<u>December</u>	<u>January</u>	<u>February</u>
Check on absentees	5	10	9
* Persons assisted	296	278	236
Doors & windows found open in commercial facilities	31	59	83
Lost children found	13	10	9
Ambulance runs	32	47	43
Lost dogs reported	5	4	1
Dog & cat complaints	29	31	39
Persons injured by dogs	5	1	3
Bank escorts & details	52	42	43
Fires investigated	29	30	17
Miscellaneous escorts	36	55	50
Complaints investigated	77	47	66
Missing persons reported	4	0	1
Totals	614	614	600

* Includes: Persons admitted to residence; delivery of messages to residents who have no telephone; relay of messages; handling requests of out of town police; miscellaneous aids to private parties; and opening trailer parking lot for individuals.

RICHLAND AREA (NORTH)

	<u>December</u>	<u>January</u>	<u>February</u>
Check on absentees	15	7	3
* Persons assisted	526	519	478
Doors & windows found open in commercial facilities	55	73	69
Lost children found	4	2	1
Ambulance runs	19	7	26
Lost dogs reported	0	1	1
Persons injured by dogs	1	0	2
Dog & cat complaints	4	10	25
Bank escorts & details	50	55	48
Fires investigated	21	16	21
Miscellaneous escorts	31	45	23
Complaints investigated	148	102	108
Missing persons reported	1	0	0
Totals	875	837	805

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Community Patrol Division - Continued

* Includes: Admitting persons to their rooms; contacting parties on long distance calls; issuing rooms and bedding; locating persons wanted for various reasons; relaying of messages; assisting outside police agencies; assisting other departments; aiding private persons, etc.

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 154 Unusual Incident Reports was received, which consisted mainly of Accidents, Traffic Violations, and Intoxications. Regular Traffic Violation Reports, not accompanied by an Unusual Incident Report, are presented in separate tables in the Traffic Statistics attached to this report.

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COMMUNITY PATROL DIVISION

FORCE REPORT

FEBRUARY 1949

<u>Patrol</u>	<u>Entire Patrol</u> <u>1/31/49</u>	<u>Entire Patrol</u> <u>2/28/49</u>
Patrol Supervisor	1	1
Division Supervisor	1	1
Captains	5	5
Lieutenants	12	12
Sergeants	17	17
Patrolmen	<u>97</u>	<u>97</u>
Total	142	133
 <u>Clerical</u>		
Steno-Typists	Total <u>4</u>	<u>4</u>
Grand Total	146	137

Decrease

9 Transferred to Industrial Patrol

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PATROL DIVISION - TRAFFIC CONTROL STATISTICS
February - 1949

MOTOR VEHICLE ACCIDENTS

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Richland	35	29	0	0	0	1	6	2
North Richland	14	18	0	0	1	0	4	3
Totals	49	47	0	0	1	1	10	5

ACCIDENT CAUSES

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Causes	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Richland	14	1	15	10	0	0	6	18
North Richland	3	5	7	7	0	0	4	6
Totals	17	6	22	17	0	0	10	24

PLANT WARNING TRAFFIC TICKETS ISSUED

	Speeding		Parking		Imp. License		Def. Equip.		Other Violations		Totals	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Richland	0	2	69	168	2	11	8	24	0	2	80	207
N. Rich.	2	1	234	130	8	9	15	11	0	0	259	152
Totals	2	3	303	298	10	20	23	35	0	2	339	359

COURT CITATION TRAFFIC TICKETS ISSUED

	Speeding		#Stop# Sign		Drunken Dr.		Right of Way V.		Neg. Dr.		Parking V.		Other V.		Totals	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Richland	16	19	8	4	3	1	4	17	16	17	30	21	16	43	96	110
N. Rich.	9	7	5	10	2	5	3	10	18	10	0	9	22	42	61	87
Totals	25	26	13	14	5	6	7	27	34	27	30	30	38	85	157	197

Traffic Volume: Count taken on February 28, 1949, on George Washington Way just north of Newcomer Road, all traffic, 24 hour period - 6,048 Cars.

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COMMUNITY PATROL DIVISION
 RICHLAND JUSTICE COURT CASES
 FEBRUARY, 1949

Violation	No. of Cases	No. of Convictions	Total Fines	Total Susp.	Jail	Sentenced to	Suspended	License Revoked	Average		Warrants Issued
									Fine Paid	Cases Dismissed	
Drunken Driving.....6*	5	5	\$312.50	None	None	None	None	5	\$62.50	0	0
Reckless Driving.....2	2	2	90.00	None	None	None	None	2	45.00	0	0
Negligent Driving.....20	20	20	440.00	\$45.00	None	None	None	0	22.00	0	1
Speeding.....34	34	34	389.00	None	None	None	None	0	11.44	0	5
Stop Signs.....10	9	9	47.50	5.50	None	None	None	0	5.27	1	0
Failure to YROW.....10	10	10	104.00	7.50	None	None	None	0	10.40	0	1
Failure to Stop & Identify.1	1	1	12.50	None	None	None	None	0	12.50	0	0
Improper Passing.....3	3	3	18.00	None	None	None	None	0	6.00	0	0
Resisting an Officer.....1	1	1	2.50	None	None	1	None	0	2.50	0	0
Improper Parking.....26	26	26	73.50	28.00	None	0	0	0	2.82	0	5
No Driver's License.....27**	27	27	50.50	12.50	None	0	0	0	1.70	0	4
Failure to Give Arm Signal 2	2	2	15.00	7.50	None	0	0	0	7.50	0	0
Driving With Five Pass. in Front Seat.....2***	2	2	7.50	None	None	0	0	0	3.75	0	0
No Vehicle Registration...2***	2	2	7.50	None	None	0	0	0	3.75	0	0
Defective Equipment.....3	3	3	16.50	None	None	0	0	0	5.50	0	0
Invalid License Plates....71	70	70	531.50	\$203.50	None	0	0	0	7.59	1	2
Public Intoxication.....41	41	41	530.00	22.50	2	1	1	0	12.92	0	0
Public Nuisance.....16	16	16	237.50	None	2	2	0	0	14.84	0	0
Vagrancy.....19	19	19	117.50	57.50	9	4	0	0	6.18	0	0
Carrying Concl. Weapons...1	1	1	None	None	1	0	0	0	None	0	0
Third Degree Assault.....1	1	1	None	None	0	1	0	0	None	0	0
Sex Offense.....1	1	1	None	None	1	0	0	0	None	0	0
Bootlegging.....5	5	5	407.50	None	0	2	2	0	81.50	0	0
Gambling.....2	2	2	52.50	None	0	0	0	0	17.50	0	0
TOTALS.....307	304	304	\$3463.00	\$389.50	15	11	0	7	17.50	2	18

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TOTAL FINES.....\$3463.00
 LESS SUSPENSIONS..... 389.50
 \$3073.50

* One Case Reduced to Negligent Driving.
 ** 19 Cases included with other violations.
 *** One Case included with other violation.

PATROL DIVISION—RICHLAND OFFENSES
FEBRUARY 1949

Classification of Offenses	Offenses Known or Reported to Patrol		Actual Offenses		Offenses Cleared		By Other Perpetrators Involved
	Patrol	Unfounded	Jan.	Feb.	By Arrest	Action	
Arson.....	0	0	0	0	0	0	0
Assault.....	1	0	0	1	1	0	2
Attempted Assault.....	1	0	1	1	0	1	1
Burglary—Brk. & Entering.....	4	2	1	2	0	2	u
Attempted Brk. & Entering.....	0	0	2	0	0	0	0
Robbery.....	0	0	0	0	0	0	0
Larceny—Theft(Except Auto & Bike)	3	1	3	2	0	2 a	1
(a) Over \$50.00.....	10	1	10	9	0	12 b	7
(b) Under \$50.00.....	0	0	0	0	0	0	0
Auto Theft.....	8	0	9	8	0	5	u
Bike Theft.....	0	0	0	0	0	0	0
Weapons:Carrying,Poss. Using..	0	0	0	0	0	0	0
Destruction of Gov't. Prop....	0	0	0	0	0	0	0
Destruction of Personal Prop....	0	0	0	0	0	0	0
Destruction of School Prop....	0	0	0	0	0	0	0
Disorderly Conduct.....	4	0	4	4	4	0	4
Drunkenness.....	6	0	1	6	2	3	2
Embezzlement & Fraud.....	1	0	1	1	0	0	u
Forgery.....	0	0	0	0	0	0	0
Gambling & Or Possessing.....	5	1	1	4	1	2	5
Missing Persons.....	3	0	1	3	0	2	3
Offense Against Family & Children.	3	0	1	3	0	0	0
Pickup for Outside Agency.....	0	0	0	0	0	0	0
Prowlers.....	4	0	1	4	4	0	4
Public Nuisance.....	0	0	0	0	0	0	0
Rape.....	1	0	0	1	1	0	1
Sex Offense.....	0	0	0	0	0	0	0
Cohabitation.....	0	0	4	0	0	0	0
Vagrancy.....	0	0	0	0	0	0	0
Violation State Game Laws.....	0	0	0	0	0	0	0
Violation State Liquor Laws....	13	0	4	10	0	2	6
Miscellaneous.....	2	0	0	2	0	2	4 c
Juveniles (Other than above)..	2	0	0	2	0	2	2 d
Juveniles (Disorderly Conduct)	2	0	1	2	0	2	42
TOTAL OFFENSES.....	68	8	45	60	13	35	

(Continued on Page Two)

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Page Two--Richland Offenses--February, 1949

- u Represents Unknown.
- a One Case cleared from 1948.
- b Seven Cases cleared from previous months.
Two Cases perpetrated by 2 juveniles, ages 11.
One Case perpetrated by 1 juvenile, age 14.
- c One Case perpetrated by 3 juveniles, ages 14, & 17.
One Case perpetrated by 1 juvenile, age 16.
- d One Case perpetrated by juvenile, age 14.
One Case perpetrated by juvenile, age 4.

Property Recovered for the month was \$997.00. (5 bikes.)

PATROL DIVISION - NORTH RICHLAND OFFENSES - FEBRUARY 1949

Classification	Offenses Reported:		Actual Offenses:		Offenses Cleared:		Perpetrators Involved
	to Patrol during February	Unfounded: Feb.	Unfounded: Jan.	Feb.	By Arrest: Other	By Action:	
Assault.....	2 (1)	0	4	2	0	2	(1) a
Attempted Suicide.....	0	0	0	0	0	0	0
Burglary-breaking and/or entering... 1	1	0	4	1	0	0	0 u
Larceny-Theft (Except Auto & Bike)							
(a) \$50.00 and over value..... 5	5	1	5	4	0	0	0 u
(b) Under \$50.00 value..... 14	14	1	50	13	0	4	4 u
Automobile Theft..... 2	2	0	0	2	0	0	0 u
Bicycle and Motor Bike Theft..... 1	1	0	1	1	0	0	0 u
Carrying Concealed Weapon..... 1	1	0	2	1	1	0	1 u
Destruction of Government Property.. 1	1	0	1	1	0	0	0 u
Destruction of School Property..... 0	0	0	0	0	0	0	0 u
Destruction of Personal Property.... 1	1	0	1	0	0	0	0 u
Disorderly Conduct..... 1	1	0	1	1	0	0	1
Drunkenness..... 38	38	0	28	38	38	0	38
Embezzlement and Fraud..... 0	0	0	0	0	0	0	0
Forgery..... 0	0	0	0	0	0	0	0
Gambling..... 3	3	0	0	3	0	0	3
Missing Person..... 2	2	0	0	0	0	0	0
Narcotics..... 0	0	0	0	0	0	0	0
Offense Against Family & Children... 0	0	0	0	0	0	0	0
Pickup for Outside Agency..... 1	1	0	0	1	1	0	1
Prowlers..... 0	0	0	1	0	0	0	0
Public Nuisance..... 10	10	0	9	10	10	0	10
Rape..... 0	0	0	0	0	0	0	0
Robbery..... 0	0	0	1	0	0	0	0
Sex Offense..... 9	9	0	1	9	8	0	8
Vagrancy..... 19	19	0	23	19	19	0	19
Violation of State Game Laws..... 0	0	0	0	0	0	0	0
Violation of State Liquor Laws..... 5	5	0	4	5	5	0	5
Miscellaneous..... 1	1	0	1	1	0	1	1 b
Totals,..... 117	117	4	143	113	86	7	93 c

a - Shown in parenthesis is one old case Exceptionally Cleared during February 1949.
b - This offense committed by a white man by self mutilation of testicle.
c - 42 of the perpetrators are colored.
u - Represents Unknown.

Value of property recovered during February, 1949—\$3137.50

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Number of offenses known to police per 10,000 inhabitants, in cities between 10,000 and 25,000 inhabitants:

Classification	Wash. Oregon & Calif.		Richland		North Richland	
	Six Months (Jan-June 1948)	One Month Average	Six Months (Jan-June 1948)	Jan. 1949	Six Months (Jan-June 1948)	Jan. 1949
Murder.....	.181	.031	0	0	0	0
Robbery.....	3.47	.58	0	0	1.00	.66
Aggravated Assault.....	1.75	.29	1.5	.66	5.16	2.66
Burglary.....	35.69	5.95	4.55	2.00	.08	2.66
Larceny.....	127.06	21.18	22.0	16.00	25.16	36.66
Auto Theft.....	15.56	2.59	1.44	0	1.66	0

Number of offenses known to police per 10,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

Classification	State of Washington		Richland		North Richland	
	Six Months (Jan-June 1948)	One Month Average	Six Months (Jan-June 1948)	Jan. 1949	Six Months (Jan-June 1948)	Jan. 1949
Murder.....	.140	.023	0	0	0	0
Robbery.....	4.90	.82	0	0	1.00	.66
Aggravated Assault.....	.78	.13	1.5	.66	5.16	2.66
Burglary.....	36.91	6.15	4.55	2.00	.08	2.66
Larceny.....	92.22	15.37	22.0	16.00	25.16	36.66
Auto Theft.....	18.15	3.03	1.44	0	1.66	0

The portion of offenses committed by persons under the age of 25 years, is shown by the following figures:

Classification	National Average		Richland		North Richland	
	Six Months (Jan-June 1948)	One Month Average	Six Months (Jan-June 1948)	Jan. 1949	Six Months (Jan-June 1948)	Jan. 1949
Robbery.....	55.5	.55	0	0	0	0
Burglary.....	59.9	.8%	8%	0	0	0
Larceny.....	45.2	8	8	13%	5.3	72.00
Auto Theft.....	71.6	38	38	0	0	0

Note: Statistics of juvenile offenses throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation, which states: "It should be remembered that the number of arrest records is doubtless incomplete in the lower age groups because of the practice of some jurisdictions not to fingerprint youthful offenders."

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COMMUNITY PATROL DIVISION
U. I. MONTHLY REPORT
FEBRUARY 1949

TRAFFIC ACCIDENTS	39
PUBLIC INTOXICATION	42
TRAFFIC VIOLATIONS	26
3rd DEGREE ASSAULT	2
PICKUP FOR OUTSIDE AGENCY	1
DISTURBANCE	5
VAGRANCY	15
PUBLIC NUISANCE	11
BOOTLEGGING	2
MISSING PERSONS	1
MOLESTING	1
2ND DEGREE ASSAULT	1
INDECENT EXPOSURE	1
FIRE	2
STOLEN CAR	2
RESISTING OFFICER	1
GAMBLING	1
CARRYING CONCEALED WEAPONS	1
	<hr/>
TOTAL	154

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COMMUNITY PATROL DIVISION
OPEN DOORS & WINDOWS
MONTHLY REPORT
FEBRUARY 1949

<u>LOCATION</u>	<u>OPEN DOORS</u>	<u>OPEN WINDOWS</u>
SUB-CONTRACTORS (N. RICHLAND)	20	7
FACILITIES (N. RICHLAND)	4	19
SCHOOLS (N. RICHLAND)	16	2
FACILITIES (RICHLAND)	10	11
SCHOOLS (RICHLAND)	<u>32</u>	<u>30</u>
TOTALS	82	69

COMMUNITY DIVISIONS

COMMUNITY ACTIVITIES DIVISION

February, 1949

ORGANIZATION AND PERSONNEL

Number of employees on roll

Beginning of Month		13
Additions	0	
Terminations	<u>1</u>	
End of Month		12

SCHOOLS

On February 2, the Activities Division collaborated in the preparation of a school wide campaign for conservation of electricity. Posters with slogans "Lights Out When You're Out" were distributed throughout school buildings. Talks were scheduled and special slogan buttons made and distributed to all students. The buttons were supplied by Public Relations Division. Special ceremonies were held to launch drive and photographs were taken and published.

The Carmichael Jr. High School buildings were inspected February 1 and 4 by members of the Fire Department, Activities Division, J. Gordon Turnbull Company, McNeil Construction Company, and factory representatives. Particular attention was given Rollaway Fire Doors and their operation under fire conditions. Time tests were made and operation checked.

Representatives of the Turnbull and McNeil Companies, Atomic Energy Commission, and Community-Engineering and Activities Divisions, on February 8, inspected the Spalding, Marcus Whitman, and Lewis and Clark Schools for the purpose of checking correction of exceptions listed at previous inspection.

On February 9, regular monthly inspections of Spalding, Marcus Whitman, and Jefferson Schools by representatives of the Safety, Fire Department, Public Health, and Activities Divisions.

On February 17, representatives of the McNeil Construction Company, J. Gordon Turnbull, and the Activities Division conducted joint inspections of Carmichael Jr. High School preliminary to conditional acceptance of the buildings.

On February 17, representatives of the Safety, Public Health, and Activities Divisions conducted the regular monthly inspections of Columbia High, Lewis and Clark, and the Nursery Schools.

On February 18, arrangements were completed to move the first loads of School District equipment into the Carmichael Jr. High School buildings preparatory to occupancy. A special tour was made with representatives of the school district for the purpose of establishing the most desirable features in the classrooms and service rooms which might be incorporated into the plans of the proposed new Jr. High School buildings.

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Community - Activities Division

The final inspections of the Carmichael School were scheduled on February 21 to take place on February 23. Preliminary inspections were made of the south, north, and west wings and the east wing upstairs.

Members of the School Board for School District #400 were taken on a guided tour of the new Carmichael Jr. High School on February 23 by Activities Division personnel.

On February 23, arrangements were made for the removal of all accumulations of wind-blown trash and sagebrush piled against school buildings constituting a fire hazard.

Representatives of the Atomic Energy Commission, McNeil Construction Company, J. Gordon Turnbull, and the Community-Engineering and Activities Divisions conducted the final inspection of Carmichael Jr. High School on February 23. The building was accepted with general and specific exceptions.

On February 24, a final inspection of the Carmichael School was made by Fire and Safety authorities and permission granted to move students into classrooms.

On February 28, first student groups officially occupied Carmichael Jr. High. The estimated number of students making the move was 550.

The superintendent of Richland Public Schools attended the annual Pacific Coast Conference of the American Association of Secondary School Administrators.

Members of all local P. T. A. groups were invited to preview films on sex education and a poll was taken to ascertain sentiment regarding the showing of the films to Richland students. Polls indicated an approximate endorsement of 90%.

CHURCHES:

The following is a tabulation of full time paid personnel, as of February 28, 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
Nazarone	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>

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Community - Activities Division

The five United Protestant Churches in greater Richland combined to sponsor a special series of Evangelistic Services at the Central United Protestant Church from February 20 through 27.

Members of the Richland Church of Jesus Christ of Latter Day Saints and visiting dignitaries participated in ground-breaking ceremonies February 5 for the projected chapel at the corner of Goethals and Jadwin.

A new site was selected by the All Saints Episcopal Church at Symons and Sanford and arrangements were made for the removal to the site of the Nettleton-Sound barracks building recently purchased by the church.

The Reorganized Church of Jesus Christ of Latter Day Saints moved the first section of its Nettleton-Sound building to the church site at Swift and Long. The balance of its building is being dismantled and stored in the existing section for use in the construction of the proposed new church building.

The Community-Activities Division conducted a survey with regard to availability of project owned equipment for use in construction of church property. Procedures were established with cognizance of existing regulations as they affect limitations placed on aid rendered by any government agencies to any particular religious group or sect.

COMMUNITY

On February 15, the Activities Division completed arrangements to rehabilitate all public school tennis courts. New nets were placed on courts at all schools and courts at Columbia High School were given an acid treatment to roughen surface.

Arrangements were completed to place all existing softball fields in first class condition for spring and summer playing. All backstops were inspected and after necessary repairs, were scheduled to be repainted a dark green.

A 2½ foot fence was erected along the Columbia River bank, extending from the cyclone fence east of the swimming pool to the Boat Club stairway. Construction of this railing was completed on February 28.

Arrangements were made to erect a cyclone fence along the southwest perimeter of the Community Park playground area to prevent children from running into the existing driveway which serves the softball field.

New softball backstops were erected at Jefferson School, Lewis and Clark School, and the Community Park.

One Thousand stool chairs were stenciled with the name "Park" and stored in hutment 2005. These chairs were designed for use by community organizations using park facilities.

The Community-Activities Division, through the County Prosecutor, made arrangements for the use of 30 polling booths for use in Union-Elections on February 8 and 9.

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Community - Activities Division

The Activities Division supplied one representative to act as Captain of all solicitor personnel for Red Cross drive among the community divisions.

The Community-Activities Division recreation representatives worked out tentative plans for the organization of a Junior Baseball program in Richland. This program is being worked out in collaboration with the local baseball teams and the American Legion. An open meeting has been scheduled for March when plans are to be presented to parents in the community.

A complete survey was prepared to cover Richland's recreational needs and proposed methods for accomplishing the desired objectives outlined. This includes a complete children's summer playground schedule.

The Recreation Section of the Activities Division compiled and catalogued a nucleus of a recreation library which will be available for reference to all local groups interested in this type of activity.

One representative of the Activities Division has been made available for evening schedule and will assist community organizations in planning and supervising their evening activities as well as maintain closer supervision with regard to compliance with current regulations relating to the use of public facilities.

Representatives of the Activities Division have been requested to set up and supervise the operation of the Richland Girls Basketball Tourney and meetings are being held with League Officers for this purpose.

February 6 - 12 was designated as "Boy Scout Week" as a local observance of the 39th Anniversary of the Boy Scouts of America. Eight hundred twenty (820) cub scouts, boy scouts, senior scouts, and adult leaders participated in the program.

The Richland Atomic Aerie No. 2894, Fraternal Order of Eagles, received its charter February 2 from the executive state president of the organization at a special ceremony held in the Co-ordinate Club. The new organization has 300 local members.

The Activities Division conducted a telephone survey to establish new rates for supplemental listings of all community organizations in collaboration with the Community-Accounting Division.

On February 8, the Red Cross opened its Blood Donor Drive with the first of a series of "bloodmobile" visits. The first day resulted in the collection of 62 pints of blood from as many donors.

The Richland Community Concert Association conducted its annual membership drive the week of February 14. All memberships were sold.

On February 17, the American Legion announced plans for a \$100,000 club building and requested a building site for the projected construction.

The March of Dimes drive in Benton County exceeded its \$12,700 goal by \$53. Richland's contribution stands at \$4,326.

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Community-Activities Division

The regular monthly meeting of the Recreation Advisory Committee was held on February 28, 1949. The Committee recommended approval, subject to proper security clearance, of the "Tech Rec" Recreation Association, Better Business Bureau, Richland Diggers and Cutters Gardenaires, and the BPOE Tri-City Chapter of the Pasco Elks Lodge 1730. The minutes of the November 28 and December 28, 1948, meetings were approved February 2, 1949, by the Atomic Energy Commission. Organizations receiving formal approval include: Employee-Community Relations Recreation Association (ECRRA), North Richland Apostolic Church (Negro), North Richland Holiness Church, D. M. R., American Society of Mechanical Engineers, Pilgrim Holiness (Branch of Kennewick Church), and Gonzaga University Alumni Association.

The number and types of organizations presently served by the Community-Activities Division include 16 business and professional clubs, 24 churches and church organizations, 5 civic organizations, 16 fraternal organizations, 8 music and art associations, 9 private instructors, 33 recreation and hobby groups, 9 schools and 8 parent teachers associations, 10 veteran and military organizations, 5 welfare organizations, 11 social clubs and organizations, 19 boy scout troops, 13 camp fire girls troops, 36 girl scout troops, 3 other youth groups, and 14 miscellaneous organizations.

As of February 28, 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
	<u>104</u>

MAJOR ACTIVITIES DURING THE MONTH

February 10	Community Concert - Susan Reed	Columbia High School
11	Meistersingers Concert - N.R.I.G.	North Star Theater
16	Globe Trotters vs Richland All Stars	Columbia High School
18	Community Concert - Hazel Scott	Columbia High School
23	Red Heads vs Basin Surplus, Basketball	Columbia High School

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Community - Activities Division

RICHLAND PUBLIC SCHOOLS PERSONNEL AND ENROLLMENT REPORT

The following is a tabulation of full-time school district paid personnel, as of February 25, 1949:

Administration	3
Clerical	14
Principals and Supervisors	17
Teachers	232
Building Custodians	39
Cooks	19
Nursery School Ex. Day Care	17
Bus Drivers	2
Total	<u>343</u>

On February 25, 1949, there were 62 children enrolled in the Richland Nursery School with an average attendance of 46. There was a decrease in enrollment during the month of 3. On this day there were 17 children enrolled in the Extended Day Care program of the Nursery with an average attendance for the month of 15. There was a decrease in enrollment during the month of 2.

COLUMBIA HIGH SCHOOL

		<u>Boys</u>	<u>Girls</u>	<u>Total</u>
Freshmen	(9th grade)	173	180	353
Sophomore	(10th grade)	155	164	319
Junior	(11th grade)	119	95	214
Senior	(12th grade)	100	98	198
		<u>547</u>	<u>537</u>	<u>1084</u>

GRADE SCHOOLS

	<u>Spalding</u>	<u>Sacajawea</u>	<u>Lewis & Clark</u>	<u>Marcus</u>	<u>Jeff.</u>	<u>Ball</u>	<u>Total</u>
Kindg.	134 (4)*	69 (2)*	118 (4)*	90 (4)*	82 (3)*	113 (4)*	606
1st grade	114 (3)	122 (4)	149 (5)	118 (4)	103 (3)	149 (5)	755
2nd grade	94 (2)	108 (4)	119 (4)	92 (3)	86 (3)	117 (4)	616
3rd grade	85 (3)	110 (3)	116 (4)	85 (3)	76 (2)	112 (4)	584
4th grade	77 (2)	107 (4)	107 (3)	102 (3)	86 (3)	101 (3)	580
5th grade	105 (3)	102 (3)	95 (3)	79 (2)	65 (2)	90 (3)	536
6th grade	51 (2)	93 (3)	84 (3)	74 (2)	66 (2)	91 (3)	459
7th grade		86 (3)	94 (3)	118 (3)	68 (2)	88 (3)	454
8th grade			61 (2)	254 (8)		66 (2)	381
	<u>660</u>	<u>797</u>	<u>943</u>	<u>1012</u>	<u>632</u>	<u>927</u>	<u>4971</u>

*

Half days

() Number of classes

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GENERAL ELECTRIC COMPANY
FANFORD WORKS
COMMUNITY ACCOUNTING DIVISION

MONTHLY REPORT FOR FEBRUARY, 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	<u>28</u>	Total	<u>28</u>	Total	<u>28</u>

Since November, 1948 when the total number of personnel in the Community Accounting Division was 32, a continual reduction has been accomplished as the result of reorganization and redistribution of work, until the present number of employees was reached on February 1, 1949 which is looked upon as the desired operating force in this Division under the present circumstances.

ACCOUNTS RECEIVABLE

RENTS:

House leases processed:	<u>February</u>	<u>January</u>
New	294	344
Modifications	13	26
Cancellations	120	131
Active total house leases	5522	5445

Of the 294 new house leases, 136 covered new ranch type houses. There were 106 new dormitory assignments and 96 removals.

Rental revenue was as follows:

	<u>February</u>	<u>January</u>
Equipment	\$ 160.47	\$ 146.46
Houses	237,007.72	223,619.90
Dormitories	15,356.95	15,510.95
Facilities	<u>35,053.00</u>	<u>73,515.92</u>
Total	\$27,578.14	\$312,793.23

The noticeable decrease in facility revenue was due to the receipt in January of retroactive rental from the new Seattle First National Bank contract and the overstatement of January accrued revenue adjusted in February.

TELEPHONE:

The resident and facility potential telephone service is utilized to the fullest extent and as a result there is very little change in volume or revenue from month to month. There are about 2450 stations now in service realizing a revenue of approximately \$5,000 per month.

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Community Accounting Division

A study has been made on resident and facility telephone rental and service rates and based on the present Interstate Telephone Company rates for an exchange of our size, a new schedule of rates was drafted. A discussion concerning services and rates was held with the Electrical Division, and the advisability of delaying action on rate changes until the new dial system is placed into effect is being considered. The Electrical Division has made a comprehensive study of a proposed rate structure under a dial system. This subject will be discussed further and conclusions reached in the near future.

MISCELLANEOUS RECEIVABLES:

There were 99 miscellaneous invoices issued during the month accounting for \$1,561.28 in revenue. Dog licenses issued in February accounted for \$24.00 in revenue.

One alteration permit was paid by Richland Thrifty Drug at a fee of \$14.80. The total revenue received to date from alteration and building permits is \$891.51.

Government owned equipment located in respective facilities was sold during February as follows:

2-9-49	Ganzel's Barber Shop	\$ 867.03
2-21-49	Columbia Service Co.	85.26
2-25-49	Garmo's Food Store	1,697.44
2-28-49	The Style Center	<u>4,707.72</u>
Total for February		\$ 7,357.45
Previous Sales		<u>36,052.66</u>
Total to date		\$43,410.11

The new backcharge authorization forms were agreed upon and placed into effect during the month and backcharges are now being billed on an actual cost basis except for small work of a repetitive nature on which a fixed price has been established.

Twelve collection letters were written resulting in the payment of ten accounts totaling \$326.16.

ACCOUNTS PAYABLE

STATISTICS:

	<u>February</u>	<u>January</u>
Accounts Payable Vouchers Processed	333	281
Freight Bills Processed	371	199
Purchase Orders Received	83	79
Amount of Purchase Orders	\$94,481.73	\$50,682.33
Receiving Reports Received	426	315
Total Net Amount Disbursed	\$240,453.69	\$136,186.51

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Community Accounting Division

The increased volume in vouchers and freight bills processed is primarily due to the delayed shipments during January and the early part of February because of bad winter weather. The shipments were released when the weather permitted during the latter part of February.

GENERAL:

Despite the increased volume in freight bills, the freight account reflected a zero balance at month end.

There were eleven open items reflecting a debit amount of \$151.24 in our Accounts Payable account. Of these, ten are current vouchers and all are expected to be cleared in March.

The status of the contracts for which the Community Division is responsible is as follows:

Subcontractor	Subcontract Number	Amount Awarded	Amount Paid	Amount Retained
Vance Properties, Inc.	None Applied	CPFF	\$ 76,436.13	-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	*117,628.67 est.	65,510.44	7,181.72
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 Reefing & Paving Co.	G-227	7,500.00	6,000.00	-0-
Graysport Constr.Co.	G-231	* 43,270.00 est.	28,273.84	2,163.50
			<hr/>	
			\$389,300.74	\$290,828.13 \$13,466.44

*Total amount of contract will be the total of the estimates as submitted. Contract is based on a unit price award.

The McAtee and Heathe subcontract G-223 for paving parking compounds was paid in full.

COST

REPORTS:

The budget figures and the year to date costs were used for the first time in conjunction with the current month's cost as reported on the January summary operating report. The respective division reports did not contain budget figures, but it is expected that this breakdown will be ready for the February report.

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The operating reports in the future as in January will include in addition to the actual liquidation to other Divisions, the estimated amount assessed them and the variance involved in the assessments.

The Operating Report for January was distributed on February 28, 1949.

The Community Utilities report for January was completed on February 28, 1949.

The Department Comptroller's report for January covering appropriations and projects was prepared from information available, but was not issued pending clarification of the method of distribution. The procedure governing the reporting of appropriations of a non-project nature will be revised in order to assure a more accurate report.

GENERAL:

A proposal was submitted to the Manufacturing Division regarding the allocation of cost of maintenance of passenger cars and trucks. A standard charge for each piece and type of equipment is now used as a basis for distributing the total maintenance cost on a plant-wide basis. Our proposal recommended actual labor and material cost on the units assigned to the Community Divisions be used as the basis for distributing the cost of maintenance of this type of equipment. This would result in at least a ten per cent savings to our Division if the proposal is followed.

GENERAL LEDGER

The trial balance for January was forwarded to the General Division for consolidation on February 23, 1949.

STATISTICS	NO	AMOUNT
Second Class Invoices Received	77	\$428,445.28
Second Class Invoices Issued	50	231,661.79
Public Vouchers Forwarded for Govt. Billing	26	121,397.49

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DESIGN DIVISION

FEBRUARY 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

The design and development of Pile Area "G" has reached the stage where intelligent selections can be made from the numerous ideas submitted and, as a result, the entire project is becoming better defined.

At the present time, it appears that the major effort will be directed toward securing a higher power level (500mw) and, at the same time, accomplishing a substantial reduction in construction costs. The present intent is to schedule the work on the basis of engineering-economic problems and to take advantage of advances made by the Technical Division in pile physics without, however, attempting to schedule the latter improvements until they can be defined.

Progress is continuing in the evaluation of the heat transfer problem and Dr. H. Johnson, our consultant on this problem, will be in Richland for two weeks starting March 1. The subsequent discussions of the Technical Division and Design Division with Dr. Johnson are expected to define the tentative power level on which the design will be based. Present indications are that the 500 mw power level will require:

1. An increase in flow rates over that of the present tubes of 14%.
2. An increase in header pressure to 490 p.s.i.a.
3. An exit temperature of 84°C for the hottest tube.
4. A rated water plant capacity of 38,000 g.p.m.

In the field of shielding, it appears that plain concrete shields for the sides will be the most economic, and cost figures are being accumulated on this at the present time. For the front and rear shield, interest is centering on asphalt-boron and asphalt-aggregate compositions, and alternately on magnesium-oxychloride concrete with heavy aggregate. A representative of the Design Division has completed a trip to Oak Ridge to determine how the facilities there may be used to advantage on this program.

Mechanical design work on sheet rods is continuing and a design has been evolved which will permit the continued alignment of the rod guide with the slot in the graphite, taking into consideration graphite growth. A test set-up which will permit complete performance tests is being designed.

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One of the major difficulties still facing the Design Division is the development of a satisfactory third safety system. Present efforts are directed toward the use of steel-boron shot, but there are many problems to be solved in the adaptation of this system and there is some question whether it would be approved by the Pile Safety Committee.

Mechanical design on metal handling systems is continuing and a number of invention disclosures have been submitted. Two different types of machines are being worked on at the present time. The time study and flow chart prepared by Project Engineering was received February 15, and is being studied.

The water studies which, together with the work on heat transfer, will lay the foundation for the water plant design are in progress, with an expected completion date of May 1. Work is being initiated to scope and specify the work of an Architect-Engineer for the design of the water plant and it is expected that this work will be assigned to an Architect-Engineer this summer.

Plans are also being laid to establish an adequate system for planning and materials take-offs and the establishment of unit costs so that we will have a firm basis on which to estimate costs. A group which will devote its efforts to this work will be established in this Design Section about the end of May. Likewise, the Architect-Engineer will be fully instructed concerning the need for accurate cost estimates.

Negotiations that were leading to a contract for engineering assistance from the Parsons-Aerojet Company have been terminated and general plans have been changed accordingly. A request is being made for an extension of the directive date to January 1, 1951. It is believed that the granting of this extension will permit a better job to be done both by ourselves and by the Architect-Engineer.

Work is proceeding on the preparation of the report which will form the basis for a Part II of the Project Proposal to be submitted some time in April.

Expenditures to date are well within current appropriations.

Instrument Design

With the present atmosphere of helium, carbon dioxide and air in the pile the analysis for exact composition is difficult. This problem was discussed with Leeds and Northrup, who suggested a possible means of making a continuous analysis by thermal conductivity means. They suggest a double flow cell be used, passing total gas through the first cell, then scrubbing out the carbon dioxide and comparing the remainder with the original by passing through the second cell. They have offered to provide us with the necessary calibration for this unit. The remaining gas can then be simply analyzed for helium and the remainder will be air. The 100-E Area design will be modified to incorporate this as the most of the equipment is already provided but was to be used for moisture measurement. The moisture analysis will be done with Foxboro Dew Cells, which measure the dew point temperature of the gas. These units are new and fairly inexpensive. In view of their cost (\$100.00), one cell will be placed in each of the 10 exit plenum sampling lines and one in each of the inlet and exit gas main sampling lines. These will be connected to two 6-point recorders.

With the greater number of horizontal rods expected for new piles, it will be impossible to mount selsyn equipment directly in front of the operator as we do now, although the information is necessary to him at all times. The transmitting selsyn,

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must make a great number of revolutions for the full travel of the rod to obtain accurate readability of the receiver. The Schenectady group has been asked to suggest a means of using a single indicator which the operator can connect to any rod by positioning a switch.

A study is being made of possible ways to attach thermocouples to process tubes and bring these out through gas gun barrels in tight seals. Decision was made to machine 16 gun barrels in 100-H Area which could be used for this at any time operations may elect.

PILE AREAS "DR" & "H"

Electrical Design

In the design of the 105 DR and 105 H Building piles a number of changes were made in the safety control circuits by means of which a pile is scrambled. These changes were made after an exhaustive study of the requirements. The circuits were designed for utmost reliability when really needed, and also for the reduction of unnecessary scrams.

Since it was felt that interested persons outside this group were not fully aware of the sequence of operations and the timing of events in the scram circuits, a drawing was prepared which portrays in schematic fashion the arrangement of the circuits and the timing of their operation. This drawing was discussed with interested groups. It illustrates the manner in which a scram operation is triggered by:

1. Loss of water pressure
2. Overactivity of the pile
3. Loss of voltage at some part of the electrical supply system affecting the 105 and 190 Buildings
4. Failure of some component of the safety circuit itself
5. Manual scram operation.

A comparison of this drawing with the safety circuits used in previous piles will show the changes which have been made. The changes consist chiefly of:

1. The introduction of a new instrument supply equipment consisting of a battery for stored electrical energy, a DC bus which is always energized from the battery, chargers to supply the DC bus and keep the battery charged, and an inverter set to serve an AC instrument bus from the DC battery.
2. The removal of the Beckman AC supply circuits from the emergency AC building supply to the above mentioned AC instrument bus.
3. The changing of some safety circuit relays from AC to DC.
4. The elimination of the rectifiers on the vertical rod clutches which are now served from the DC bus.
5. The use of pre-set time delays in two sets of relays so that there can be a discrimination in timing of the scram circuits between the various causes
6. The elimination of the gasoline-driven emergency generator at the 105 Building.

These, and a number of other minor changes improve the reliability and usefulness of the controls and reduces to a minimum the chance of false scram.

In any future developments in pile safety controls, this drawing and the detailed drawings supporting it, will serve as a starting point.

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PROJECT & RELATED PERSONNEL

	<u>1-31-49</u>	<u>2-28-49</u>
<u>GOVERNMENT EMPLOYEES</u>		
Civilian Personnel - Atomic Energy Commission	341	339
Civilian Personnel - G. A. O.	6	8
	<hr/>	<hr/>
Total		347
		347
<u>RICHLAND VILLAGE PERSONNEL</u>		
Commercial Facilities (Includes No. Richland)	1717	1627
Organizations, Clubs, Etc.,	106	104
Schools	341	343
Churches	25	25
	<hr/>	<hr/>
Total		2189
		2099
<u>MORRISON-KNUDSEN PERSONNEL (Columbia Camp)</u>		
	186	198
<u>CONSTRUCTION SUB-CONTRACTORS</u>		
Atkinson-Jones	8306	7002
Newport, Kern & Kibbe	15	16
Newberry Neon	943	780
Urban, Smyth, Warren Co.,	1959	2002
J. P. Head Co.,	15	12
Kellex Corp.,	585	565
J. Gordon Turnbull	139	139
Giffels & Vallet, Inc.,	187	175
Morrison-Knudsen Co.,	247	263
C. C. Moore	99	51
V. S. Jenkins Insulating Co.,	22	6
Curtis Sand & Gravel	30	36
National Carbon Co.,	320	330
Trowbridge & Flynn Electric Co.,	8	9
J. A. Terteling & Son	495	424
Graysport Construction Co.,	15	184
Nettleton-Sound	32	4
Thorgaard Plumbing	9	4
Chris Berg Co.,	120	16
Holert Electrical Co.,	23	1

(Continued on page #2)

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273

1220055

DECLASSIFIED

Page #2

1-31-49

2-28-49

CONSTRUCTION SUB-CONTRACTORS

McNeill Construction Co.,	308	189
Rust Engineering Co.,	15	7
Arnold & Jeffers Co.,	25	11
Charles Swanson (& Lyle)	6	-
Fox Metal Products	9	6
Scott-Buttner	21	14
Martins Furniture	4	2
Parsons Tile	4	-
Williams Paint & Glass	-	2
Seldon's Inc.,	6	-
West Coast Painters	16	19
Holaday & Edworthy	7	2
Chicago Bridge & Iron	15	-
P. S. Lord	-	10
Haughton Elevator Co.,	5	6
E. J. Bartells Co.,	34	47
H. P. Fischer & Sons	6	-
Howard.P. Foley Co.,	30	31
E. F. Sherrill	-	2
Combustion Eng. Co.,	1	1
Indust. Eng. & Contractors	35	50
Hanley & Co.,	26	50
Johnson Service	1	2
X-Ray Products	11	20
Anning-Johnson	16	23
National Blower & Sheetmetal	6	6
United Refractory & Construction	12	13
Link-Belt	2	6
Isaacson Iron Works	7	7
Strasser Drilling	2	3
Warsaw Elevator	-	3
Consolidated West Steel	-	7
Raicolith Flooring	-	3
Asbestos Supply	-	2
Total	14,199	12,563
<u>GENERAL ELECTRIC PERSONNEL</u>	<u>8,678</u>	<u>8,668</u>
<u>GRAND TOTAL</u>	<u>25,599</u>	<u>23,875</u>

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250

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