HW-9595-DEL 14581

REPOSITORY	
COLLECTION	Atmospheric Releases
BOX No.	A
FOLDER	ola

727832 #1 - H. A. Winne, Schenectady #2 - Zay Jeffries, Pittsfield #3 - C. G. Suits, Schenectady 机 - R. C. Muir #5 - C. N. Gross

#6 - A. B. Greninger #7 - F. R. Creedon #8 - Office of Hanford Directed Operations Attention: C. Shugg, Manager #9 - Office of Hanford Directed Operations Attention: C. Shugg, Manager #10 - Office of Hanford Directed Operations Attention: C. Shugg, Manager #11 - Office of Hanford Directed Operations Attention: C. Shugg, Manager #12 - Office of Hanford Directed Operations Attention: C. Shugg, Manager #13 - 700 File #14 - 700 File #15 - 700 File

April 26, 1948

HAMFORD FORKS

MONTHLY REPORT

MARCH, 1948

ATION REVIEW DECLAS: ATION B UNCHANG

By PHPUSI

Date..... U. S. AEC Dh

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HW-9595

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# GENERAL SUMMARY

Production requirements were met by operation of the D and F Piles at 275 MW, the B Pile remaining in stand-by condition.

In the 300 Area, lead dip canning of Alpha rolled metal instead of gamma extruded metal was started on a production basis during the month. Thus far irradiated Alpha rolled lead dipped material has not shown any appreciable blistering tendencies.

Thirty-six batches were started in the Canyon Buildings and thirty-seven were completed through the Isolation Building.

Although the very large contaminated particles which were being discharged from the stacks of the 200 areas have been essentially eliminated by the replacement of the iron duct work and fans of the exhaust system, the problem of the smaller, mist-like particles still exists. This problem of removal of these small particles is being actively pursued by installation of special filters and scrubbers in the exhaust system.

There were no major injuries during March and the plant safety record at month-end was fifty-four days.

The Reactor Development Group met in Hanford to discuss present operating problems, the design of new Piles and the direction which should be taken for work on future piles.

The General Electric Company's House of Magic was in Richland this month. Fifteen scheduled performances were given with approximately 12,000 persons attending.



# STAFF

Manager		• •	•	• •	•	• •	. D. H. Lauder
Assistant Manager .			•	n •	•		. G.G. Lail
Assistant Manager (Sp	ecial Staf	f Assig	nne n	ts)	•	· •	J. R. Rue
Assistant Manager and	Works Eng	ineer	••	• •	•		W. F. Overbech
Assistant Manager and	Works Acc	court and	;		•	• •	. F. E. Baker
Construction Project	Manager .		٠		•		. F. R. Creedon
Production Superinten	dent .	. 8 1	•		•		. C. N. Gross
Technical Department	Superinter	ndent .	٠		•		A. B. Greninger
P Department Superint	endent .		•	• •	•		. J. E. Maider
S Department Superint	endent .	, <b>4</b> 13			•		. W. K. MacCready
Assistant Works Engin	nger		•	e u	0		. H. H. Miller
Maintenance Departmen	t Superint	tendent	•		•		. W. W. Pleasants
Electrical Department	Superinte	enden t	•	• •	•		. H. A. Carlberg
Instrument Department	: Superinte	endent	•		•		. H. D. Middel
Project Engineering D	epartment	Superin	ntend	ent	•		. J. S. HcMahon
Service Department Su	perintende	ent .	•	• "	•	•	. E. L. Richmond
Iransportation Depart	ment Super	intende	ent	•	•	• •	R. T. Cocke
Medical Department Su	perintende	ent .		• •		. W	J. D. Norwood, M.D.,
Health Instrument Dep	ertment Si	perinte	nden	ե .	.•	•	. H. M. Farker





# FORCE REPORT MARCH 1948

	Non-E	<b>rempt</b>	Exen		Tot		
	2-27-48	3-31-48	2-27-48	3-31-48	2-27-48	3-31-48	
l'anagement .	6	4	12	13	18	17	
Design	141	147	110	118	251	وي 265 ك	703
Construction	160	177	241	261	4015	438	700
P Department	241	240	55	55	296	295	
S Department	242	243	59	60	301	303	
Technical	325	352	203	210	528	562	
Power	409	405	86	86	495	491	
Maintenance	820	699	87	77	907	776	
Project Engineering	116	121	50	52	166	173	
Electrical	242	237	45	41	287	278	
Instrument	145	146	44	44	189	190	
Servico	1470	1643	232	263	1702	1906	
Transportation	703	683	74	62	777	745	
Medical	375	374	71	78	446	452	
H. I. Department	176	181	76	76	252	257	
Accounting	607	603	55	5 <b>5</b>	662	658	
Total	6178	6255	1500	1551	7678	7806	
					7026	710=	
					,		

DECLASSIFED

MANAGELENT Total

DESIGN DEFARTMENT
Exempt Employees
Non Exempt Employees
Clerical Total

ONSTRUCTION DEPARTMENT Clerical Exempt Employees
Non Exempt Employees Total

Supervisors Clerical Operators Total

"S" DEPARTMENT Clerical Cperators Engineer on Assignment Supervisors Total

	PERSONIEL
	DISTRIBUTION
	- MARCH 1
1	1948

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1 1 1 1	15 38	1 1 1	1 1 1	TRIBUTI 100-F Area	
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	17 151 168			3CO	
12	1 1 1	1 1 1.	1 1 -	Plart General	
1 1 1 1 1	1 1 1 1			3000 A1 ea	
14 8 1 8 E	11 2	261 78 99 438	118 81 66 265	700-1100 Area 13	
59 1 240 3	238 238 295	261 78 99	265	Total 13 44	
226035					

PROJECT ENGINEERING DEPARTMENT Supervisors Engineers Drafting Personnel Clerical Cthers Total	MAINTENANCE DEPARTMENT Supervisors Engineers Hechanics Clerical Others Total	POWER DEPARTMENT Supervisors Operators Clerical Others Total	Supervisors Chemists-Engineers-Fhysicists- Jr. Technologists & Metallurgists Laboratorians & Lnalysts Clerical Cthers Total	
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1	41 4 1 4 2	22 92 - 5	2 11 19 1 2	100-D
° ⊢ ⊢ ⊢ ⊢	11 1 70 8	21 91 116	32 14 1	100-F
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20 1 0 0 H	15 103 1 20	44 0 75 1 44 00	3 15 47 10 10	200-W
140114		18 14 21	34 124 98 19 37	300 Ares
	10 1 90 2 30	6 1 1 1 10	1 1 1 1 1	Flant General
1 1 1 1 1	1 1 1 1	28 1 1 22 6	1 1 1 1 1	3000 Area
16 29 34 62 10	22 161 9 19	9 66 1 79	18 13 13	700-1100 Area
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	TRANSPORTATION DEPARTMENT Supervisors Drivers (Based on areas served) Mechanics Traitmen Laborers Clerical Cthers Total	SERVICE DEPARTMENT Supervisors Patrolman Laundry Cperators Inspectors Junitors Clerical Others Total	INSTRUMENT DEPARTMENT Supervisors Engineers Hechanics Clerical Cthers Total	ELECTRICAL DEPARTMENT Supervisors Electricans Clerical Cthers Total	
	75 2 2 2 2 2 3 5 5 5 5 5 5 5 5 5 5 5 5 5	7 44 1 4 9 9	0 2 1 W 1 H	91171	100-B
	25 25 26 27 27 27 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28	59 59 75	16 1 20 20	12	100-D
	44 272 274 272	10 64 4 4 4 4 4	22 US 1 55	27 2 1 63	100-F
	55 A A A A A A A A A A A A A A A A A A	74 74 100	12 12 17	13 16	200-E
	24 4 3 3 4 3 3 4 5 5 5 5 5 5 5 5 5 5 5 5	98 88	23 3 15 24	100	200-W
	55 - 11 - 33	14 772 12 14	7 10 34 17	13 - - - - - -	300 Area
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		37 69 4 175 36 36	1 1 1 1 1	1 1 1 1	3000 Ar 9a
<u></u>	58 60 80 78 78 29 29	134 98 2 2 4 44 186 369 857	S 0 14 5 7 7	45 45 21 76	700-1100 Area
	•	263 614 4 33 263 222 1906		36 171 4 67	Totai
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GRAND TCTAL	ACCOUNTING DEPARTMENT Supervisors Clerks Telephone & Teletype Cperators Cthers Total	H. I. DEPARTHENT Supervisors Engineers H. I. Inspectors Clerical Others Total	MEDICAL DEPARTMENT Physicians Dentists Technicians Clerical Others Total	
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3540	55 288 50 199 592	14	18 10 124 94 150	700-1100 Area
7806	55 321 50 232 658	34 42 62 62 115 257	30 10 159 99 154 452	Tetal 80

# ARRIVALS AND DEPARTURES OF EXEMPT PERSONNEL

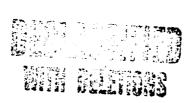
ARRIVALS			
		Physical	
Name	Department	Arrival	Origin
Guy H. Hill	Design	3-16-48	Trf. Schenectady
Howard J. White	Design	3-16-48	New
John R. Wolcott	Design	3-24-48	New
Rex I. Bissell	Construction	3-18-48	New
Harry E. Byrent	Construction	3-8-48	New
Bradley J. Card	Construction	3-18-48	New
Virgil L. Caudill	Construction	3-19-48	New
Wiley 0. Duncan	Construction	3-1-48	New
Herbert E. Eager	Construction	3-29-48	New
Hugh II. Gabbard	Construction	3-15-48	New
Robert II. Hanks	Construction	3-8-48	New
Dale E. Hess	Construction	3-2-48	New
Marvin M. Hille	Construction	3-16-48	New
John C. Hunter	Construction	3-1-48	New
William C. Long	Construction	2-27-48	New
William C. McCarthy	Construction	3-9-48	New Y
Frank M. Mackey	Censtruction	3-15-48	New
Frank C. Moats	Construction	3-12-48	New
Lisle C. Pratt	Construction	3-31-48	New
Clarence A. Richey; Jr.,	Construction	3-8-48	New
Merwin F. Rand	Construction	3-15-48	New
John W. Schuster	Construction	3-29-48	New
Melvin G. Shipley	Construction	3-25-48	Nev:
Earl B. Thomas	Construction	3-3-48	Naw
Robert D. Walkley, Jrame	Construction	3-9-48	New
Robert E. Weatherly	Construction	3-15-48	New
Dwight K. Warner	Construction	3-15-48	New
Robert R. Wall	Construction	3-16-48	New
Charles L. Watts	Construction	3-23-48	New
William Wright	Construction	3-15-49	New
Joseph J. Courtney	"S" Dept.	3-12-48	New
Claybon F. Callis	Technical	3-15-48	New
Clouis G. Craig	Technical	3-29-48	New
Stephen A. Hays	Technical	3-5-48	New
Orville F. Hill	Technical	3-1-48	New
Alfred A. Johnson	Technical	3-16-48	New
William H. McVey	Technical	3-30-48	New
George M. Muller	Technical	3-10-48	New
Forrest C. Telfer	Technical	3-5-48	New

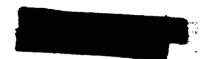


ARRIVALS		Physical	
Name	Dopartment	Arrival	Origin
Joseph E. Kaveckis	Instrument	3-1-43	New
George W. Brown	Service	3-23-48	New
Porothy D. Dunlap Dr. James H. Gray, Jr., Robert J. Greavos Alexander G. Hamuel Dewey H. Reps John Francis Riordan	Medical Medical Medical Medical Medical Medical	3-3-48 3-2-48 3-8-48 3-8-48 3-22-48 3-17-48	New New New New New New New
Daniel J. Vracin	<b>Medical</b>	3-15-48	New

Name	Department	Date of Departure	Origin
Hans A. Anderson Ross L. Coonrod Harold E. Darby William E. Downing Victor C. Downing Jr.,	Construction Construction Construction Construction Construction	3-3-48 3-2-48 2-28-48 3-1-48 3-19-48	Resigned Discharged Vol-Quit Vol-Quit Vol-Quit-Hous- ing.
Walter H. Hill Walter C. Rea Lonnie L. Sadler M. D. Root Theodere J. E. Glesson	Construction Construction Construction Construction Technical	3-5-48 3-1-48 3-3-4? 3-9-48 3-10-48	Vol-Quit Resigned Resigned Vol-Quit Vol-Quit
F. B. Kramer	Maintenance	3-5-48	Vol-Quit

# DECLARATIONS WITH DELETIONS





# P DEPARTMENT

# MARCH - 1948

# I. GENERAL

The D and F Piles operated at 275 M.W. throughout March except for scheduled outages. Each operating area had an extended outage of one week to complete the inspection and repair of Van Stone flanges. This program is summarized under Mechanical Experience. The B-Pile was maintained in standby condition with a water flow of 10,300 g.p.m. The 100 Area discharge rate continued at 60 tons per month.

During the month significant changes were made in the 300 Area canning process and in the fabrication of the uranium used. These consisted of the adoption of a lead-dip preheat stage in the canning operation to replace the former bronze and tin baths — and the use of alpha-rolled rather than gamma extruded uranium. The total 300 Area production for the month was 114 tons of acceptable 4" canned slugs; of this amount 14 tons were of the lead-dipped alpha-rolled type and the balance was gamma extruded material. Process change dates were as follows:

Began Lead Dip Canning of Gamma Extruded Metal:

"G" Line - March 8
"H" Line - March 24

Began Lead Dip Canning of Alpha-Rolled Material:

"G" Line - March 16
"H" Line - March 24

Inasmuch as the lead dip process allows a shorter canning cycle than the former triple dip process, it was possible to return the Canning and Inspection operations to a one-shift-per-day schedule on March 22 while still maintaining the present nominal production rate of 100 tons per month.

Operation of the Melt Plant in the 300 Area was placed on a three-shift basis on March 8 in order to work off a large inventory of scrap metal.

Mr. R. E. Marrs, General Electric Co., consultant from Schenectady, N. Y., visited the 300 Area on March 25 and 26 to assist in the design study of a rolling mill.

There is evidence that the top and the far side shields of both the D and F Piles are opening out, thus permitting a radiation beam to issue from within the pile structures. A design study for supplemental shielding at this location is being prepared.

# II. ORGANIZATION AND PERSONNEL

Number of employees on payroll:	March
Beginning of month: End of month:	296 295
Net Decrease	1

Three new operators were hired and assigned to the 300 Area; four terminated voluntarily from the 300 Area. Four experienced 300 Area operators were transferred to the 100 Areas for training in the pile process.

- W. A. Blanton visited the Joslyn Steel Co., at Fort Wayne, Indiana, on March 20 and 22 to inspect rolling mill operations at that plant.
- J. H. M. Miller, Shift Supervisor in 100-F Area, was transferred to the department's design-construction liaison group on March 30.
- J. D. Darby completed a period of training as a Shift Supervisor and was assigned to duties in the 300 Area on March 1.
- J. A. Haaga, Senior Supervisor in 100-D Area, assumed charge of the department's Statistical Group on March 1.

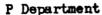
# III. AREA ACTIVITIES

PILE SUMMARY	PILE B	PILE D	PILE F
Time Operated (%)	-	78.4	75.5
Operating Efficiency (%)	•	77.8	73.9
*Power Level (U.W.)	-	275	275
*Inlet Water Temperature	6.9	7.6	7.4
*Outlet Water Temperature (Maximum	6.9	50.1	53.2
°C., 10 tubes, .240" zone)			
Number of Scrams	-	0	0
Number of Purges	0	1	1
Helium Consumption (cu. ft.)	32,534	46,193	51,950
Metal Discharged (tons)	0	31.1	28.5
Inhours Gained (this month)	0	20	21
*Inhours Poisoned	-	343	279
*Inhours in Rods	-	77	60

<sup>\*</sup> Month end figures.

#### PILE BUILDING

Outage Breakdown:



	Schedule	d	Length of		
Date of Outage	Motal Discharged	l'aintenance	Unscheduled	Outage (Hours)	
3-1-48*	F	F		132,3	
3 <b>-2-48</b>	D			19.4	
3-9-48	D			19.7	
3-14-48*	D	D		121.5	
3-1648	F			20.9	
3-24-48	F			22.3	

<sup>\*</sup> Extended outage for repairs to Van Stone flanges.

# Operating Experience

A number of Special Request samples were processed during March; details of their irradiation may be found in the Technical Section of this report.

Production Tests having operational significance during the month are reported below:

- 105-75-P (Exposure of 4" Slugs)
  A total of 31 tubes was discharged from D-Pilo at
  normal concentrations. No operational difficulties
  were experienced.
- (Replacement of Pile Helium Atmosphere with Carbon Dioxide)

  The displacement of helium at D-Pile was increased gradually throughout Harch, the analysis at month end being: Helium 74.0%

  Carbon Dioxide 25.2%

  Air and other impurities 0.3%

  The same effects reported previously have become more pronounced: The gain in reactivity was approximately 15 inhours; the central graphite temperatures increased 150 to 200 C.
- Measurements of graphite dimensions in the "A" Test Hole at D-Pile were repeated on March 2 and 15.

  These tests will be continued. On March 15, Tubes No. 2286-D and 2287-D were removed to allow measurements of KC and CC graphite to facilitate a study of the expansion rates of these two types of packing. The tubes were not replaced; additional measurements are to be obtained.
- 105-175-P (Heat Liberation by the F-Pile During Shutdown)
  The test was conducted during the period Earch 1 to 6.
  The water flow rate was reduced as follows:



Step No.	Time After Shutdown (Hours)	Water Rate Reduced to	Maximum Packing Temp. Rise	Maximum Bulk Water Temp. Risa
1	22	5000 g.p.m.	1° c	1.6° C
2	46	2500 g.p.m.		1.80 0
3	- 86	1000 g.p.m.	1° C	3.3° C
4	111	500 g.p.m.	20° C	14.1° C

The test was discontinued after 7 hours operation of Step 4 because the tube temperatures in the .240m zone in rows 29 to 36 inclusive increased to the maximum allowable extent (15° C).

105-180-P (Irradiation of an Experimental Beta Slug)
An experimental beta-type slug was placed in dry tube
No. 1481-F on March 4 and was discharged on March 16.
The removal was difficult; the tube was filled with
dummies and will be borescoped before being used again.

The filter capacity tests at Buildings 183-D and 183-F were continued throughout March. As reported last month, no operational difficulties have been experienced at the pile buildings except a rise in the rate of increase of water pressure drop in the process tubes. This has been most evident at F-Pile at which location the rise has been about 15 times normal.

Fourteen lower fringe tubes, coming due for discharge for the first time, were taken out of service at F-Pile. This completes the program of fringe tube retirement at both operating piles, their status now being:

Pile	Fringe Tubes Removed from Service	Resultant Loss in Reactivity (Inhours)
D*	3	1
F	74	39

<sup>\*</sup> This program was not started at D Pile until most of the fringe tubes had already been recharged.

Beginning in March, the 7 centermost perforated dummics in each stringer charged are being replaced with 6" solid aluminum dummics, allowing use of a large stock of obsolete 6" aluminum dummics. This will facilities the recovery of perforated dummics for reuse inasmuch as the center 7 pieces, which were too radioactive for repeated use, will no longer need to be examined and separated.

#### Mechanical Experience

All horizontal rods and all vertical rods, except No. 11-D, 16-D, and 31-F, which show some signs of binding, are in satisfactory operating condition at month end. Work performed on rods during March is as follows:

Rod guides were re-aligned on vertical rods No. 11, 22, 26, 27, and 32 at D-Pile and No. 13 and 31 at F-Pile. New tips were installed on vertical rods No. 31-D and 31-F.

Both the No. 2 and the No. 5 horizontal rods at F-Pile gave some trouble through binding. This difficulty was corrected by using Aqua-Dag as a lubricating coating. The shims below one of the bearing blocks on the No. 2 rod were removed since part of the binding seemed to occur at this location.

The program of inspection and repair to Van Stone flanges was completed during March. (A separate report is being issued to cover this work). Final figures on repairs were:

#### B-PILE

Front			Rear			
Cone	Irapested	Below 070	7	Inspected	Relow Die	_ <u>k</u> _
.140	512	113	22.1	512	177	34.6
.175	402	86	21.4	402	90	22.4
.200	98	: <b>16</b>	16.3	98	10	10.2
.240	_591	103	10.4	_991	40	4,0
Total	*2003	318	15.9	*2003	317	15.8

A total of 155 gum barrels in the upper third of the pile was given additional clearance of approximately 3/8". All flanges with less than .030" residual thickness were repaired.

\* One tube retired from service was not inspected.

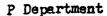
#### D-PILE

		Front.		Y	Rear	
Zone	Inspected	**Below Minimum	1	Inspected	**Below kinimum	43
.140 .175 .200 .240	444 462 256 836	77 27 12 	17.4 5.8 4.7 <u>4.4</u>	444 462 256 <u>836</u>	96 13 7 	21.6 3.9 2.7
Total	*1998	153	7.7	*1998	149	7.5

A total of 387 gum barrels in the upper center portion of the pile was given additional clearance of approximately 3/8". In addition to repairs on the Van Stone flanges which had less than the minimum residual thickness, new flanges were rolled on 327 others which had become damaged or which allowed insufficient clearance for gauging.



The second section of the second section is a second section of the second section of the second section is a second section of the second section sec



\* Three gas filled tubes and 3 air filled fringe tubes were not imprected.

\*\* The minimum was .030° for Rows No. 1 through 12, 14, 15, and 37 through 46.

The minimum was .040° for Rows No. 13 and 16 through 36.

# F-PILE

		Front			Rea:	
Zone	Inspected	Below .030"	d'o	Inspected	Below .030"	25
.140	381	87	22.8	381	258	67.7
.175	825	46	14.2	325	169	52.0
.200	264	24	9.1	264	109	41.3
.240	972	30	<u> </u>	972	_508	<u> </u>
Total	*1942	187	9.6	*1942	1044	53.7

\* 62 air tubes were not inspected.

A total of 473 gum barrels in the upper center portion were given additional clearence of approximately 3/8". In addition to repairs on the van Stone flanges which had less than the minimum residual thickness, new flanges were rolled on 146 others which had become damaged or which allowed insufficient clearance for gauging.

Damage done through previous discharging operations necessitated the replacement of 8 process tubes this month. These were: Nos. 1970-3, 2464-D, 3672-D, 3684-D, 1481-F, 1875-F, 2078-F, and 3282-F. The latter 4 were replaced with tubes ordered for DR (Replacement) Pile to allow evaluation in an operating pile.

Repairs were made to the floor of the west half of the F-Area Retantion Basin during the extended outage of Harch 1 to 6. As a result of these repairs the leakage rate was reduced from 220 g.p.m. to 60 g.p.m.

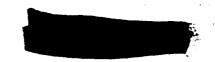
Repairs to the F-Area process water sever line between Building 105 and 107 were continued. Several new leaks have been found.

# File Development

The Pile Area Process Control group continued its development and evaluation of the magazine-type and long stroke rear face clarging machines. Both machines are being readied for complete functional tests at B-File.

A replacement oil drain trough is being fabricated for use in the discharge work at F-Pilo. The new trough will be in three sections to facilitate removal for decontamination and future repairs, and will be suspended by cables and counterweights to allow rapid adjusting by the operating crew.

Free chlorine was introduced into the south section of the B Area Fetentian Basin to inhibit algae growth. Chlorine concentration has ranged from



0.5 ppm at the outlet end to 10 ppm at the inlet end. Results will be reported later.

# GAS PROCESSING BUILDING

The 12 gas system make-up valve at Building 115-D was replaced with a In Fisher "Constant Flow" valve. This installation was in connection with the revisions made for the addition of carbon dioxide to the gas circulating system. The new valve permits a smooth regular addition of gas rather than the periodic rapid-flow additions made by the 12" valve.

A gas loss of several thousand fact was experienced March 13 at F-Pile. Subsequent checks showed the loss was caused by a faulty seal on the oil seal vent line at No. 1 Blower. The condition was corrected.

# SPECIAL HAZARDS

The north and west walks of the north section of the D-Area Retention Basin were reised 20m by the addition of 2 layers of cement block and a cap of cement brick. This installation was made to prevent radioactive water from washing over the basin walls during high winds.

There is definite indication of a beam of radiation emanating from the top far edge of both D and F Piles. The neutron intensity has not been definitely established; this locality is subject to strict control to prevent personnel exposure. Supplemental shields are being designed for permanent use.

# 300 APFA - METAL FABRICATION

#### Production Statistics:

Production for the month of March was as follows:

Billets Produced	32 Tons
Billets Extruded	0 Tons
Rods Machined	83 Tons
Acceptable Pieces Canned	114 Tons

Canning Yield: 90.2%

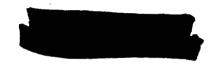
#### Melt Plant:

The casting yields were as follows:

		% Yield		
	February	Merch	10 Date 1948	
Billet Solid Metal	65 <b>.</b> 6 85 <b>.</b> 8	69.1 85.2	67,6 85.4	

Operation of the Melt Plant was placed on a three-shift basis on March 8 in order to expedite processing of the backlog of scrap metal.

#### P Department



During this period operation was established on the basis of a power input of 112 KWH per crucible. This appears to result in a nominal pouring temperature of 1315°C, although measurement of the temperature is sometimes difficult with an optical pyrometer because of oxide encrustation on the top of the crucible charge. However, it is believed that the few low density and high-carbon billets which were made during the month resulted from overheating of the charge; a power input of 100 KWH will be investigated as a possible remedy.

On March 2 arcing across the Number 1 coil in the south ("B") furnace necessitated a shutdown. Inspection of the coil revealed no reason for the arcing although some metal was observed around the insulating brick under the coil. This metal was removed and the brick was replaced. The coil was cleaned with carbon tetrachloride and the furnace was placed back in service on March 3. No further arcing of this coil has been apparent.

On March 15 inspection revealed that the pans supporting the coils in both furnaces were warped to the point that some of the welds tieing the pans to the furnace walls were broken. Repairs were completed on the south furnace and operation started on March 19. The repairs to the north furnace were completed and operation started on March 23. Subsequent investigations have revealed no further warpage.

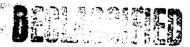
Experience during the month indicated that the mold sleeve breakage increased considerably after the 21<sup>n</sup> molds were extended to 27<sup>n</sup> for casting 21<sup>n</sup> billets. Molten metal entered the crack between the mold sleeve and the extension and formed a bead around the billet which, when cooled, made it necessary to break some mold sleeves in order to remove the billets. This condition was corrected somewhat by a close inspection of the fit between the sleeve and the extension to insure that there was only a minimum crack at this point.

The average life of a crucible has been approximately five runs per crucible before breakage, compared to approximately ten runs per crucible realized at other sites. A large portion of this crucible breakage is believed to have been due to the expansion of the stopper rod guide and of the surrounding residual metal against the crucible wall during the burn-out operation. Trial runs were successfully made without the use of the stopper rod guides and their use was discontinued on March 23.

Further investigation during this period indicated that the mold wash of carbonaceous cement (C-3) and aerosol is not suitable. An investigation of other types of mold wash will be made.

The effectiveness of the sand insulating-protective layer on the turn-table was demonstrated on March 11 when the complete charge from the Number 3 crucible in the south furnace was inadvertently poured into a cracked mold without damage to the turntable.

Extrusion, Outgassing, and Machining:





Extrusion, Machining, and billet yields were as follows:

•	% Yield (4" A's)		
	February	Harch	To Date 1948
Extrusion	93.9		93.9
Machining (Extruded Rods)	79.1	79.0	79.3
(Rolled Rods)		66.0	66.C
Billet	74.3		73.9

The low machining yield on rolled rods results from the larger nominal diameter of these rods compared to regular extruded rods (1.5% vs 1.403%). As more data is gathered on the degree of oversize necessary to insure clean-up, it is planned to reduce the diameter specified for rolled rods.

There was no extrusion on a production basis during the month. All billiets are being converted to rods by alpha rolling at other locations.

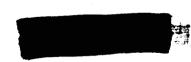
On March 9, three nominal 1.75% rods were produced by gamma extruding billets through a 1.20% die. These test rods were shipped off the plant on March 23 for reduction to a hormal rod diameter by means of alpma rolling. It is believed that this combination of billet to rod conversion methods may result in rods with satisfactory grain structure and good conversion economy.

In the course of a program to determine the feasibility of alcha extrusion with the present process equipment, six billets were machined to a diameter of 3.50° and, on March 23, an unsuccessful attempt was made to extrude them. The possibility of alpha extruding a regular 4.25° billet through a three-hole die is being investigated.

Four hundred and ninety-four alpha rolled rods were received from Fort wayne, Indiana, (Josiyn Steel Co.), on March 13, and 549 were received on March 20. A third carload of rolled rods was received March 31. Metallurgical Group examination of samples from the first shipment indicated that there was some unrecrystallized material present and that annealing would be required to produce a rod of satisfactory grain characteristics. An annealing operation consisting of heating the rods for one-half hour at 1110° C + 20° in an argon atmosphere in the cut-gassing oven was established as standard. (The outgassing operation, as such, was eliminated coincident with this changeover to rolled rods). The Machining operation has been treating annealed alpha rolled rods since March 19.

# Chip Recovery and Oxide Burning

The Chip Recovery yield was as follows:





	% Yield	
	Ú	To Date
February	Merch	19/8
89.2	90.4	89.6

Chip Recovery operated four eight-hour shifts during this period. The press was shut down on March 2 and March 3 when it became necessary to repair the compression ram.

The material burned in the oxide burner was as follows:

Weigh	t Out - Li	)S.
		To Date
February	March	<u> </u>
6,335	6,042	21,611

The oxide burner was operated on a daily schedule.

A modification of design of the cyclone separator on the oxide burner exhaust system is planned in an effort to reduce air-borne contamination.

# Canning Operation:

The canning yield was as follows:

4	<b></b>	Yield (4m	) ·
100			To Date
AN THE THE WAS ARREST	February	March	19/8
-01-2	87.9	90.2	28.2

# Canning rejects, by cause, were:

The second of th	% Tote	1 Canned -	(4")
to the state of th	February	March	To Pate 1948
Non-Seating Marred Surface Al Si on Outside of Can Frost Tost Bad Welds Miscellaneous	3.4 1.7 1.4 1.4 1.2 3.0	4.6 1.1 .7 1.2 .8 1.4	3.8 1.3 1.5 1.4 2.4
	12.1	9.8	11.0

The "G" canning line was converted to lead dip production on March 8. The material canned on this line was gamma extruded until March 15, during which time optimum process conditions were established under Production Test 313-94-M, "Lead Dipping Process". On this latter date, the canning



P Department



of alpha rolled material was started. The "H" line was converted to the lead dip process for canning alpha rolled metal on Harch 24. All material canned on the "B" line (4-12 shift) was gamma extruded - triple dip through March 19, when the 4-12 shift was discontinued. Since the lead dip process is operated on a process operated on a process of triple dip, the scheduled production requirements can be met with a two line, one shift operation.

A device to measure the relative adherence of the bonding layer was put into routine use during this period. Results to date indicate the adherence of the bonding of slugs canned by the lead dip process is as good as, and in some cases as much as 3 times better, than the adherence of the bonding of slugs canned by the triple-dip process. Two slugs per line per day are now routinely checked for bonding adherence.

A total of 292 pieces was rejected from the canned production of March 2 because of penetration. This failure was caused by overheating of the canning bath resulting from the combination of a short thermocouple in the bath and a low metal level.

Considerable difficulty was experienced during the early part of the month from non-seating. It appears that this may be due to improper concentration of silicon in the Al-Si bath, because of inadequate instrumentation of the thermal analysis checking apparatus, and/or incorrect recording of the temperature of the canning bath, caused by defective thermocouple lead wires. The Micromax recorder used in checking thermal analyses will be replaced with a Brown recorder during the coming month and the thermocouple lead wires to all canning furnaces will be replaced with Chromel-Alumel wire which is now on order.

Thirty-five receptable slugs were canned. An unsuccessful attempt was made to can one piece each of Special Request 77 and 78 (radium chloride).

A total of two hundred and twenty-two 8" MZ pieces was canned under Production Test 313-52-A, "Alpha Phase Extrusion".

# Recovery Operation:

**************************************	% Re	% Recovered		<u>Neight-Its.</u>	
	<u>llarch</u>	To Date	Harch	To Date 1948	
Z Slugs X Slugs Rejects	73.8 20.2 6.0	77.6 15.9 6.5	3.902 3.854	3.908 3.854	
	100.0	100.0			

# Inspection and Testing:

Inspection was returned to a one-shift operation coincident with the







changeover of the canning lines to the lead dip process.

Autoclave rejects were as follows:

February	March	To Date 1948	
0.20/M	0.49/M	0.47/M	

Thirty autoclave failures occurred; eight of these were completely destroyed. In the canning of 4" pieces the caps, which are only half as thick as the caps used on 8" pieces, are inherently more difficult to wet, because of their smaller size, without melting away too much of the cap. 78 c Welding is more difficult because of the greater possibility of overheating the cap. It is believed that these factors contribute to the higher incidence of autoclave failures in the canning of 4" pieces compared to 8" pieces.

The reproducibility of frost test results was improved during the month by changing the direction of flow of the air from the fan in the constant temperature bath so that it flows counter-current to the movement of slugs through the bath.

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

	% Useable (4")			
t to the company of t	February	March	To Date 1948	
Aluminum Cans Aluminum Caps Steel Sleeves	88.7 99.3 79.3	93.3 98.9 72.4	90.0 99.1 74.8	

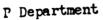
A procedure for can wall thickness checking was established as standard for the inspection of all cans. With this test in use there is only 1 chance in 40,000 that a can passed has a wall thickness of less than the minimum 0.030%. A new can wall thickness gauge was constructed to aid in this checking.

Approximately 10,000 "commercial grade" aluminum cans were received during the month for inspection and possible use in the process. Although the inspection has not been completed it appears, based on the inspection of approximately 5,000, that about 50% will be acceptable under present specifications.

#### 300 Area Test Pile:

This unit was operated on a one-shift five-day week schedule during March. A total of 133 tests on canned slugs, 66 on billet eggs, and 553 on graphite bars were made. In addition the following special tests were

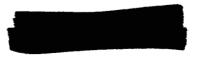




carried on:

041110		No. of Tests
Request No.		
16	To obtain basic information about the effects of neutron absorbers.	17
17	To determine the suitability of boron- impregnated stainless steel for use in making safety rods.	7
18	To obtain experimental data necessary for calculation of the absorption cross-sections of aluminum process tubes for 100 Areas construction.	3

CSF (finished) graphite continued to show excellent purity, with several imples giving a final din of 4 0,900 or better. All graphite tested was of an average quality considerably above that of the standards.





# S DEPARTMENT

# MARCH 1948

# OPERATING SECTION

# I. GENERAL

Thirty-six batches were started in the Canyon Buildings during March, and thirty-seven were processed through the Concentration Buildings and the Isolation Building. The average purity for the completed charges was 98.7 percent.

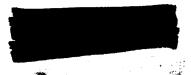
The material balances for T and B Plants averaged 101.5 percent and 104.3 percent, respectively, for a combined average of 102.9 percent. Waste losses for the two plants averaged 2.4 percent.

# Canyon and Concentration Building Production Performance Data — (3/1/48 - 3/31/48, inclusive)

	B Plant	T Plant	Combined
Number of charges started Number of charges completed	18 19	18 18	36 37
For completed charges:		•	
Percentage of starting product in waste		, ,	
This month	2.6(a)		2.4
Last month		2.4(b)	
Cumulative to date	5.3(c)	5.2(0)	5•3
Percentage of starting product recovered	. #	$\frac{1}{2} (S_{ij} - 1) = \frac{1}{2} (S_{ij} - 1)$	
This month	101.7	99•3	100.5
Last month	102.8	98.6	100.9
Cumulative to date	97.1	95.6	96.4
Percentage of starting product accounted in	for		
This month	104.3	101.5	102.9
Last month	بار 105	101.0	103.4
Cumulative to date	102.4	100.8	101.7
Gamma decontamination factor (log.)			
This month	7.65	7.59	7.62
Last month	7.62	7.72	7.66
Cumulative to date	7.31	7.26	7.29

<sup>(</sup>a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.011%—T Plant; 0.008%—B Plant.
(b) 0.021%—T Plant; 0.016%—B Plant. (c) 0.16%—T Plant; 0.0046%—B Plant.





# Isolation Building Performance Data (3/1/48 - 3/31/48, inclusive)

	<b>%</b> .	of Incoming	Product	
	Prepared for Shipment	Recycle	Losses	Material Balance
Average for this month Average for last month Average to date	93•9 95•3 96•5	4.67 4.25 3.96	0.05 0.03 0.11	98.6 99.6 100.5

# II. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	301
End of month	303
Net increase	2

Remarks: There were two new hires during the month of March; one on monthly roll, and one on weekly roll.

Changes in supervisory organization:

J. J. Courtney, a new hire, reported to work on March 12, 1948, as Supervisor-in-Training:

# III. AREA ACTIVITIES

# PRODUCTION PERFORMANCE

#### T and B Plants

# Section 8 Extract 18 m Maste Losses

Production Test 221-1-12; evaluation of Section 8 extraction variables, was concluded during the month. Phases 1, 3, 4 and 5-D having exhibited a lower average extraction waste than any other combination of phases were adopted as standard. These phases are:

Phase 1 - Water flush of 8-2 centrifuge following cake solution.

Phase 3 - Omission of effluent recycle following centrifugation.

Phase 4 - Additional sodium nitrite reduction preceding the reverse strike during precipitation.

Phase 5-D - Addition of one-half the phosphoric acid at 18 pounds per minute; the second half at 6 pounds per minute, followed by a one hour digestion.

The study of the temperature variable during centrifugation indicated no significant effect upon waste losses. Standardization of cooling from 50°C to 35°C during centrifugation was effected.





As a result of this production test which was initiated in April 1947, extraction waste losses have been reduced by approximately 0.4 percent.

At T Plant, the average waste loss for the first eleven runs during the month was 0.75 percent. Nine of these runs were in excess of the arbitrary limit of 0.60 percent, and were reworked. On run T-8-03-D-11, a leak developed in a flange of the centrifuge case spray line necessitating the replacement of the machine. The average waste loss for the seven runs following the replacement was 0.48 percent, indicating that the difficulty was of a mechanical nature. The average final waste loss was 0.39 percent.

At B Plant, operation during the month was normal with an average final waste loss of 0.42 percent.

# Section 13 Scavenger Reduction

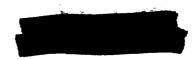
Evaluation of Production Test 221-B-6, involving the reduction of cerium and sirconium scavengers, was continued. In general, 25 percent of the normal amount of cerium and sirconium and 50 percent of the normal amount of hydrogen percente was used throughout the month.

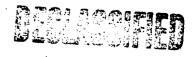
At I Plant, the test to determine the effect of complete elimination of the cerium and zirconium scavengers and the bismuth normally added with them was repeated on two runs, I-8-03-F-2 and I-8-03-D-14, with increased amounts of sodium bismuthate and sodium dichromate being added during oxidation. The 13-4BP wastes on these runs were C.74 percent and 0.60 percent and were reworked to 0.34 percent and 0.14 percent, respectively. The decontamination in both instances was adversely effected (log gamma decontamination factors through Section 17 were 3.92 and 4.21) indicating that complete scavenger elimination cannot be attained satisfactorily. The average 13-4BP waste loss for the month was 0.74 percent as compared to 0.84 percent for February.

At B Plant, all runs, with the exception of run B-8-02-D-20, were processed by adding the cake dissolving acid directly to the centrifuge from the scale tank rather than via the precipitator with each run being followed by a small acid flush of the precipitator which is combined with the succeeding run. On run B-8-02-D-20, the cake dissolving acid was added via the precipitator with the resultant waste loss of 1.33 percent which was reworked to 0.73 percent. The average 13-4BP waste loss for this month was 0.86 percent as compared to 0.89 percent for February.

#### Agid Wash B-8-03-AW-1

An acid flush was processed through the B Plant Decontamination and Concentration Building early in the month. No abnormal product hold-up in the process equipment was indicated.







# Section D Product Cake Removal

In order to determine the minimum amount of water required for satisfactory removal of the lanthanum fluoride byproduct cake from Section D centrifuge the cake removal water was reduced by 1000 pounds in two steps. This reduction results in a savings of approximately 50 minutes in the Section E time cycle due to the reduction in volume of the D-LBP slurries which are routinely reworked.

The first reduction of 500 pounds from the normal 2000 pounds was made on five runs effective with T-8-02-F-18. The average D-4BP loss on these runs being 0.036 percent, a second 500 pound reduction was made. Three runs so processed having averaged 0.07 percent D-4BP loss, it was ascertained that the accompanying reduction in the amount of rework precipitation oxidant was having an adverse effect; consequently, use of the original amount of oxidant was resumed. Seven runs processed under these conditions resulted in a D-4BP waste loss of 0.036 percent as compared with 0.054 percent for twenty-five runs preceding the test.

# Section A Byproduct Cake Removal

All runs were processed through Section A under Production Test 221-T-11, "Bismuth Phosphate Byproduct Removal (A-LBP) with Water or Water-Nitric Acid Combination." As reported last month, cake removal can be effected efficiently with water alone but representative sampling of the resulting A-LBP slurries could not be attained. Efforts during the month were directed toward the development of a satisfactory sampling technique but results thus-far have not been entirely satisfactory.

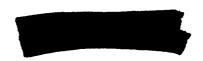
#### WASTE DISPOSAL

#### T and B Plants

# Cribbing of Second Cycle Wastes

At T Plant, no second cycle waste was cribbed during the month. Repeated attempts to secure soil samples from the test wells at the second cycle cribs were unsuccessful. The soil sampling device is currently undergoing major changes and will be tried again as soon as available. However, continued cribbing of second cycle waste early in April to avoid the necessity for expensive and difficult re-piping to permit re-direction of wastes has been agreed upon with the H.I. Department.

At B Plant, the sampling facilities in the fifty foot test shaft were modified to permit the taking of the desired samples from the laterals under the crib and to prevent the leakage into the test shaft. Jetting was resumed on March 16, 1948, but on March 17, 1948, liquid was discovered entering through the joints of the shaft proper. These leaks were then sealed with Flextite and jetting was again resumed on March 31, 1948. A total of 67,350 gallons of second cycle waste from X-112-B has now been cribbed.





# Additional Waste Disposal and Storage Facilities

# 211-TX Tank Farm - Project 163

Tank construction by the subcontractor continues to progress satisfactorily. All concrete tank bottoms have been completed, six steel tank bottoms are in place and welding of the sides of three steel tanks is in progress.

In the General Electric phase of the work, the base section of the 151-TX diversion box has been completed and the entire pouring of the 155-TX diversion box is finished. Painting and installation of the concrete encasement between the 151-TX and 155-TX diversion boxes is complete except for a small section between the 151-TX and the 222-T Building which remains to be poured. The piping between 151-TX and 155-TX diversion boxes is 90 percent complete and approximately half of this piping has been hydrostatically tested. Excavation of the trench from 155-TX diversion box to the 151-U and 152-U diversion boxes has been completed and pouring of the concrete encasement is nearing completion. The excavation of the trench from the 155-TX diversion box to the fence at the subcontractor's area is in progress. Excavation of the trench from the 155-TX diversion box to the 151-TX diversion box is approximately 85 percent complete.

# Crib and Tile Field - 221-B Cell Drainage Water

As reported last month, it is advisable to provide separate cribbing facilities for the 221-B Canyon Building cell drainage water which is now being disposed of via the 221-B Building waste disposal system. Project C-225 covering the installation of a crib and tile field in the vicinity of the 361-B dry well formerly used for this purpose has been approved and work expected to be started during April.

### Waste Status

The status of the Waste Storage Areas on March 31, 1948, is shown in the following tables:

B Plant								
Blag. 241		Per	centage				Capac:	ocess
Tanks	Waste	В	<u>C</u>	BX	B	<u>C</u>	BX	Total
x101,2,3	Metal Metal	100	100	19.3	, 0	. 0	218 269	218 269
x104,5,6 x201,2,3,4	Metal	0	100	<u> </u>	_	0	209	
×107,8,9	lst Cycle	100	65.7	0	0	116	338	454
x110,11,12	1st Cycle		100	<b>-</b> ,		. 0	-	-
×104	1st Cycle	-	-	-	-	-		-
x104,5,6	2nd Cycle	93•9	-	-	27	_		27
x110,11,12	2nd Cycle	96	-	0	19	-	454	473
x105,6	2nd Cycle	-	-	-	<del>-</del>			-
1226060	ו				<b>.</b>			

# 5 Department

	 ·	1
<b>T</b>		

Plant					D.		Cannoi	ter in
Bldg. 241	•	Percentage Full			Reserve Capacity in Batches to Process			
Tonks	Waste	T	<u>U</u>	IΧ	1	U	TX	Total
x101,2,3	Metal	100	100	_	0	0	-	
x104,5,6	Metal	-	53.1	-	-	126	-	126
x201,2,3,4	Metal	0	0	-	_	<i>3</i> 7	-	37
x107,8,9	1st Cycle	100	0	_	0	338	-	338
x110,11,12	1st Cycle	-	93.0	-	-	24	_	211
×104	lst Cycle	100	-	-	0	-	-	-
×104,5,6	2nd Cycle			-	-	_	-	-
x110,11,12	2nd Cycle	70.8		-	134	-	-	134
x105.6	2nd Cycle	100	***	_	0	-	-	-

### MECHANICAL PERFORMANCE

# Centrifuge Replacement - T Plant

A leak at a flange on the case spray line of the Section 8 centrifuge necessitated the replacement of this machine. The new machine was closely checked for tightness of fittings before installation and is operating satisfactorily. The old 8-2 centrifuge, which had been in operation since April 16, 1947, was stored in a spare cell pending subsequent final disposal.

# Product Transfer Line Failures - T Plant

A product solution leak, indicated by erratic conductivity meter behavior, developed in the pipe trench on the 8-4 to 12-7 tank transfer line in the 90° bend of the section of pipe through concrete at Section 8. No measurable amount of product was lost. In order to resume operations it was necessary to direct the transfer of product from the 8-4 tank to the 12-7 tank via the 12-6 and 12-9 tanks. The necessary modifications to the Section 12 piping are being fabricated to permit the product solution to be transferred directly from the 8-4 tank to the 12-7 tank.

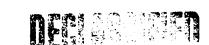
# 8-4 Tank Agitator Failure - B Plant

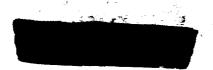
Immediately after the transfer of the cake solution into the 8-4 tank on run B-8-03-F-12, the 8-4 tank agitator was discovered to have failed. Investigation showed that the failure occurred in the agitator motor necessitating the replacement of the agitator assembly.

#### SPECIAL HAZARDS

#### Stack Gas Contamination

Intensive study of the stack gas contamination problem continues. Data gathered prior to and during the month has shown the active particles





currently being found are smaller in size, somewhat lower in activity and are being found over a wider area. Studies to date indicate that the problem is two fold: Relatively large and highly active particles have originated as the result of the formation scale and the deposition of activity on the black iron ducts at the stack fans; and, the entrainment of small particles and/or mists of somewhat lower activity from the process vessels and cells.

Three of the four electrically driven stack fans have been replaced with fans equipped with stainless steel ducts, the fourth fan will be replaced in April and replacement of the black iron ducts on the steam fans will be expedited. All cell ventilation ducts have been equipped with C.W.S. Type 6 filters and scrubbers are being fabricated for installation in the dissolver off—gas lines. Evaluating the effective—ness of these measures will be based on test sample data studies by the Technical and H.I. Departments.

Engineering work involving the development of permanent equipment and methods for efficient decontamination of stack gases and for accomplishing area clean—up and/or fixation of the particles which have been deposited in the vicinity of the stacks is actively under way.

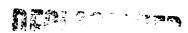
#### METEOROLOGICAL SECTION

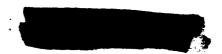
A total of ninety-three forecasts were issued to the T and B Plants during March, with an average accuracy of 88.8 percent. In addition, sixty-four 21-hour forecasts were issued to other departments, with an average accuracy of 84.8 percent.

General weather conditions for March are shown below:

Minimum air temperature (4 feet)	13°C on 3-10-47
Maximum air temperature (4 feet)	67°C on 3-30-47
Mean air temperature (4 feet)	67°C on 3-30-47
Maximum hourly wind velocity at 2001	62 MPH (SS#)
Mean velocity at 200°	11.7 MPH
Maximum hourly wind velocity at 50'	53 MPH (SSW)
Prevailing wind direction (8 point compass)	NW
Prevailing wind quadrant	N
Total precipitation	0.07 inches
Number of days precipitation occurred	5
Number of days snow occurred	2
Number of days fog occurred	0
Number of days dust storms occurred	0
Clear days	5 8
Cloudy days	8
Partly cloudy days	18
Maximum relative humidity	95
Minimum relative humidity	28
•	







# DESIGN AND CONSTRUCTION CONSULTANTS SECTION

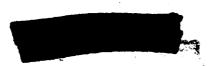
# Redox

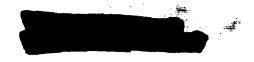
Progress during the month of March was largely confined to the forwarding of incremental items contained within the overall Redox program. Two of the regularly scheduled bi-weekly liaison meetings with Kellex New York design personnel were held. Both meetings were concerned primarily with the transmittal of information between the two groups. It is hoped that the time will soon be reached when such get-togethers will have as their primary function the discussion and acceptance of completed units of design.

During March the S Department in conjunction with the Redox Development Group of the Technical Department prepared the first uranium and plutonium cycle flowsheet which is to accompany Process Study Release No. 3. This flowsheet illustrates the complexity of the Redox process as now conceived and is indicative of the scope of the job that lies ahead. It can be said quite positively that a myriad of technical and equipment development problems must be answered before the Redox process can be translated into a full-scale plant operation. It has become more and more apparent that the development program must receive even more emphasis than it is now accorded.

# Area Laundry

The study and cost estimate for the proposed 200 Area protective clothing laundry facility was submitted to Management by Design Engineering Department during March. The study was rejected on the basis of too high a cost estimate and authority was given Design Engineering to re-study the building layout for the purpose of effecting a marked decrease in the cost. This re-study will be submitted in April.





# TECHNICAL DEPARTMENT

# MARCH 1948

#### GENERAL

H. P. Sleeper, of the General Engineering and Consulting Laboratory, Schenectady, and C. E. Clifford and T. Rockwell, of Oak Ridge National Laboratory, departed on March 3 after consultations on new shield materials.

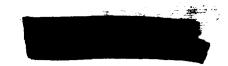
John B. Sampson, of the Knolls Atomic Power Division, departed March 19 upon completion of his work on the design of pile control systems.

The Reactor Development Group of the Atomic Energy Commission met here on March 22, 23, and 24 to discuss present operating problems, the design of the new piles, and the direction which should be taken by work on future piles. Messrs. J. P. Howe and H. Brocks attended as Schenectady representatives. Other visitors who were present included R. F. Bacher, J. B. Fisk, G. L. Weil, R. S. Wesner, J. M. Dunford, A. V. Peterson, W. H. Zinn, W. M. Manning, H. Etherington, A. M. Weinberg, J. A. Wheeler, D. F. Babcock, and Hood Worthington.

- E. P. Blizard of Oak Ridge National Laboratory, and Murray L. Lesser, NEPA Division, Fairchild Engine and Airplane Corp., arrived on March 31 for consultations on snielding.
- J. Marsden of the Research Laboratory at Schenectady consulted with the various chemistry groups here during his March visit.

Business trips od Technical Department personnel during March were as follows:

- O. H. Greager, J. Mr Frame and H. H. Hubble were in New York City March 1-2 for the regular monthly meeting with the Kellex Corporation on Redox design. J. O. Ludlow accompanied the group to New York and will remain there as the Technical liaison representative on this program. J. M. Frame and H. H. Hubble spent one day at the Argonne National Laboratory on the return trip, and discussed the most recent developments in the Redox development studies there.
- R. J. Schier returned from Ft. Wayne, Indiana on March 8, where he and T. S. Jones had supervised the rolling of uranium rod for Hanford by the Joslyn Steel Co. Jones remained in the east all month, following further rollings by Joslyn and by the Simonds Saw and Steel Co. at Lockport, N. Y. R. Teats left for Ft. Wayne on March 18 to assist Jones in this work. Both Jones and Teats visited the Revere Copper and Brass Co. plant at Detroit, Michigan on March 24-25 for discussion of further trials of alpha phase extrusion of uranium.
- P. M. Thompson spent March 3 to 22 on a trip to Schenectady and the I.B.M. Computing Laboratory at New York City, in connection with the application of I.B.M. machines to pile calculations.



#### Technical Department

A conference was held at the Argonne National Laboratory March 18-19 to discuss various phases of the Redox program being carried out at Hanford, Schenectady, Argonne and the Standard Oil Development Company, Hanford representatives at this meeting were O. H. Greager, P. H. Beaton, J. M. Frame, R. B. Richards, F. W. Woodfield, J. O. Ludlow, J. G. Bradley, H. R. Schmidt, and J. T. Stringer.

- D. W. Pearce visited the Argonne National Interatory on March 22-23 and the Carbide and Carbon Chemicals Corporation at Cak Ridge on March 24-25 in connection with the studies being carried out on metal waste recovery.
- D. F. Stepard left for Schenectady on March 26, where he is to discuss analytical development problems with Research Laboratory personnel.
- D. H. Curtiss left for Schenectady on March 27, where he is to consult on X-ray diffraction at the Research Laboratory.

# ORGANIZATION AND PERSONNEL

Personnel totals in the several divisions and groups were as follows:

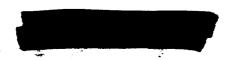
	February 29	March 31
Pile Physics	21	23
Pile Engineering	13	13
200 Plant Assistance	16	17
Chemical Development	79	36
Chemical Research	15	17
300 Plant Assistance-313	· 7	7
300 Plent Assistance-314	4	4
Metallurgy Laboratory	15	13
Laboratories Division	330	347
Statistics Division	10	11
Information Division	9	12
Administration	9	10
Totals	528	<b>563</b>

Net additions of 7 and 28 to the monthly and weekly rolls, respectively, accounted for the increase of 35 in total personnel.

New hires may be summarized as follows:

The Pile Physics Division added one physicist and one physical chemist. Two chemists joined the Chemical Research Division and one was added to Chemical Development; the latter Division employed also one operator and three clerical people. Added to the Laboratories Division were one supervisor-in-training, six chemists, and 23 non-technical laboratory people. One computer was employed for the Statistics Division. One chemist (for technical library work, and two clerical were added to the Information Division.

Torminations and miscellaneous transfers between divisions and departments accounted for the rest of the changes in personnel. Mest of these occurred with non-technical personnel. One non-exempt chemist regigned because of the delay in housing availabilities.



At month-end there were 2 exempt and 36 non-exempt personnel on the Technical rolls awaiting security clearance for classified work. Most of the latter were laboratorians.

### 200 APEAS PLANT ASSISTANCE

### Canyon Building

Rims T-8-03-F-2 and T-8-03-D-14 were processed through the first cycle by-product precipitation with complete elimination of added bismuth, cerium and zirconium scavengers under Production Test 221-B-6. Although precipitation conditions were modified to conform as nearly as possible with those of the second cycle by-product precipitation, the first by-product losses for these runs were 0.74% and 0.60% respectively. First by-product losses for normal runs processed in February and March ranged between 0.53% and 1.18% while second cycle by-product losses were between 0.16 and 0.27%. Log gamma decontamination factors through the Camyon Building were 3.92 and 4.21, respectively, for the runs processed without scavengers, while decontamination factors for runs processed normally during February and March were in the range of 4.75 to 5.49. Processing through the Concentration Buildings, however, resulted in normal decontamination factors of 7.41 and 7.47 for Runs T-8-03-F-2 and T-8-03-D-14 respectively. The deletericus effect of scavenger elimination on decontamination through the Caryon Euilding has been clearly indicated while no apparent improvement in the first cycle by-product precipitation less was shown.

Increased extraction losses were experienced at T Plant on Runs T-8-02-D-14 through T-8-03-D-11. The average product loss for the seventeen runs processed during this period was 0.76%, with fourteen of these over the 0.80% loss arbitrarily set as the limit requiring the waste to be reworked. Periscopic examination of the product extraction centrifuge in Section 8 during the processing of Run T-8-03-D-11, after high activity was found in the cell drainage water, revealed metal waste solution to be leaking from the case spray flauge. Following the replacement of this machine with that from Section 7, the product extraction loss returned to the previous level. The average loss for Runs T-0-03-D-12 through T-8-03-D-18 was 0.46%. The high activity cell drainage water, collected from the leaking centrifuge is being used as dilution water in batch preparation.

### Concentration Buildings

The weight of the routine lanathanum fluoride by-product precipitation rework, normally 3500 lbs., was reduced to 3000 and then to 2500 pounds at T Plant. Waste losses were unaffected. This is the maximum possible reduction consistent with good agitation in the precipitation tank. The volume reduction will be extended to B Plant.

Water removal of the bismuth phosphate by-product cake was tested further under Production Test 224-T-ll. Cake removal was satisfactory, however, careful sampling of the slurry waste with special equipment indicated that a representative sample of the tank slurry is not obtained. Cake removal with 1000 lbs. of nitric acid, a saving of 400 lbs. over that used in previous runs, has been set as a tentative standard.





### Isolation Buildings

Recent processing of B and T Plant runs has been in Cells 4 and 3 respectively. This order was reversed starting with Runs B-8-03-F-6 and T-8-03-D-7 in order to ascertain the effect upon material balance.

### REDOX DEVELOPMENT

### Demonstration Apparatus

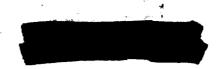
During the early part of the month, the revisions to the Demonstration Apparatus columns were completed. These revisions included the elimination of all sidestream samplers and intermediate packing supports, replacement of large-diameter feed mixing chambers with column-sized Tees, installation of new spiral spring type packing supports, standardization of glass pipe section make-up for all columns, and introduction of solvent feed up inside the bottom of the packing. The 1, 2, and 3-inch glass IA Columns were repacked with clean 3/16-inch Fenske stainless steel helices. The 5-inch stainless steel IC Column was packed to a height of 10.5 feet with 1/4-inch stainless steel split Raschig rings. Type 3 Micro Metallic sintered stainless steel filters were installed on all column fied lines, a bocster blow case was added to pressurize the IAF metal solution filters, and all receiver sight glasses lengthened.

Starting up on March 10, a total of 4 IA Column and 7 IC Column runs were carried out during the remainder of the month. All IA Column runs were throughput study runs and the IC Column runs were for service stripping of uranium for solvent recovery. Significant increases in throughput capacities of the columns were obtained as a result of the revisions to design. Stable operation without any cyclic local flooding was obtained for each of the IA Columns up to the following percentages of flow sheet throughput: 3-inch, 100%; 2-inch, 90%; 1-inch, 100%. In addition, the 1-inch column was run up to 150% of flow sheet throughput before total flooding occurred. Each run was of approximately 100 hours duration.

Chemical performance of all of the IA Columns was very erratic, however. The IAW uranium waste losses varied as follows: 3-inch,  $1^n$ - 30%; 2-inch, 1 - 4%: 1-inch, 0.3 - 2%, all quoted as percentages of the IAF feed. It is felt that the new design causes incomplete mixing of the IAF and IAS aqueous phases at the feed Tee and a large-diameter mixing Tee (3 inches) has been reinserted in the 2-inch IA Column for testing of this theory.

The 5-inch IC Column has operated very smoothly at flow sheet throughput. All ICW uranium losses have been less than 0.1 gm./liter of UNH. An uranium H.E.T.S. value of 2.5 ft. or less is being obtained by this performance and shortening or the column contacting section is planned to enable a more accurate H.E.T.S. evaluation to be obtained.

Equipment has been constructed and installed for recovering UNH from high IAW wastes by precipitation and centrifugation. Large batches of ICU uranium solutions have been concentrated by atmospheric evaporation without any solvent decomposition difficulties. Incomplete jacket removal prior to metal slug dissolution was corrected by increasing the NaOH weight by 50%. Optimum jacket removal conditions are now under study. Preliminary tests have indicated that, for these "cold" uranium studies, the post-distillation caustic and water washes of raw and recovered hexone may well be discontinued.



### Equipment Devalopment

Installation of immersion-type Micr: Metallic Type G sintered stainless steel filters in the IAF faed line has been followed by throughput and clarification studies. Initially, a flow of only 0.06 Gpm. at 1.5 Fsi. pressure drop could be obtained through the filter area of 155 sq. in. Elow case pressurizing of the feed has obtained a flow increase to 0.5 Gpm. at 10 - 12 Psi. pressure drop. Negligible improvement in metal solution clarity has been obtained thus far, however. Filtration test stand studies are in progress with this same type of filter, separate from those being carried out on the column feed filters.

A Fischer & Porter recording-controlling retameter, coupled with a Hammel-Dahl controller valve, has been installed on the 2 and 3-inch IA Column IAX and IAW lines. Calibration tests are being carried out before placing these flow controller systems in operation. Condenser relay and conductivity circuits have given promising results in initial tests for aquecus and solvent (non-hexone) thase differentiation.

Diring the month, 12 runs were carried out on the 1-inch, 3-stage horizontal extractor with UNH systems. Comparison runs made with dissolved uranium metal and constalline UNH as sources of metal solution feed preparation gave nearly identical performance. Stage efficiencies of ca. 75% were obtained for continuous arganic phase and ca. 100% for continuous aqueous phase operation for both types of solutions, using total throughputs of 200 cc/min., solvent/aqueous flow ratios of 1.5, and agitator speeds of 1600 RPM.

Numerous field changes in design have been carried out on the G. E. turbine pump experimental model during its service testing. These include installation of a shaft slinger ring to reduce shaft leakage, polishing of the impeller to remove scoring caused by internal bearing webble, substitution of a Boston Gear Co. F-10 coupling to reduce vibration, and replacement of the internal Tetler bearings and seal to reduce vibration and air leakage into the pump. Following those revisions, smooth pump operation was obtained and performance characteristics reasured at 3450 RPM. Present testing indicates that the lift capacity of the pump running dry is nearly zero, limiting the present design to submerged installation only.

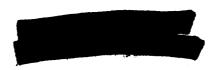
Laboratory space in Bldg. 3706 is being readied to accommodate 120 dynamic corresion testing units by April 15. Corrosion testing of General Engineering Laboratory sample pump pistons in IAX solution has shown Colmonov No. 5 to be unsatisfactory, while Stellite Star J and types 316 and 431 stainless steel are unattacked after 30 days immersion.

Coating materials tests have provided the following additional information:

(1) "Phenoline" - unattacked after 69 days in IAX, 65 days in IAW, and 82 days in IAS; (2) Bareco microcrystalline wax-stable after 106 days in 20% HNO3, penetrated by IAX; (3) Carbon fluorthene - unattacked after 78 days in 60% HNO3 and IAX; (4) Dupont shell varnish - unattacked after 77 days in IAS but attacked by concentrated HNO and IAX; (5) Prufcoat paints - attacked by 20% HNO3 and IAX after 23 days; (6) Fluorolube (a liquid MFP-10 polymer) - stable after 22 days in 60% HNO3, but slightly attacked by IAX.

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### Scale-Up Studies

Design of the Scale-Up Apparatus and its auxiliaries was essentially completed during the month, 65 additional prints being given final approval. Location and design of the waste disposal crib have been determined. Arrangements have been made for the storage of NH4NO3 at the Umatilla Ordnance Depot. Frozurement of 50,000 lbs. of NH4NO3 and 15,000 gallons of hexone for May 1 delivery has been initiated.

Construction has proceeded through completion of all interior steel work, erection of the 16-inch test column, placement of the service extractor mixers and settlers, outside steel work except for the installation of gratings and minor supports and braces, and the grouting into place of 8 out of the 14 storage tanks. Control panels are being erected, instruments being installed, electrical conduits run, and service piping ca. 50% completed. Procurement is improving daily and auxiliary equipment items such as flame checks, agitators, pumps, etc., are being stockpiled for installation on schedule.

Machnical Data Letters No. SU-14 and 15 were issued during the month, outlining suggested stainless steel pickling procedures. Several sections of prefabricated piping have been successfully pickled by these procedures, small sections in the 312 Bldg. and large sections in the 200-E shops. Procurement of stainless steel pipe is at present the outstanding bottleneck in construction, but expediting efforts have obtained promised deliveries in time to meet the scheduled completion date of May 1.

The Scale-Up Operating Manual is progressing through typing and several sections have been completed.

### Process Design

A complete streem data flow sheet for the NH<sub>4</sub>NO<sub>3</sub> system applied to the Test Plant has been prepared and a summary of all basic assumptions and calculations assembled. Similar calculations for the Al(NO<sub>3</sub>)<sub>3</sub> system have been carried out for the Test Plant and a comparable flow sheet 25% completed. A comparison of equipment requirements for the two types of flow sheets has shown that no rajor revisions to the original design proposed in Specifications Letters No<sub>3</sub> lt and 16 are necessary. Issue No. 1 of the Kellex Test Plant process flow sheets for the 100, 200, and 300 sections has been checked and Issue No. 2 of the 100, 200, 300, and 400 sections has been received and is being checked. Specifications Letter No. 17, outlining Test Plant laboratory design requirements, has been prepared in rough draft and is being readied for issuance.

Process Study No. PP-2 (EW-9286), outlining a stream data-material balance flow sheet for the Production Plants, was issued on March 25. Process Study No. PP-3, covering first cycle process design proposals, and Process Study No. PP-4, outlining waste disposal considerations, both for the Production Plants, have been prepared in rough draft.

General Electric - Kellex process design meetings were held at New York City on March 1 - 2 and at Hanford Works on March 15 - 16. Reviews of joint prograss and discussions of Kellex questions on General Electric design proposals were held at each session. No new major design problems were raised at either group of meetings.



The poriod of March 18 - 19 was spent in obtaining recent process performance data from the Argonne National Laboratory extended demonstration runs.

### Process Laboratory

A series of laboratory progress reports was issued during the month. Technical Data Study No. 1 (EW-S142) summarized results of studies of the batch stripping of hexone from water, No. 2 (HW-9148) summarized contribugation studies on dissolver metal solution, and No. 3 (HW-9291) summarized the IA Column equilibrium data for the NH4NO3 flow sheet.

Laboratory centrifugation studies with  $NH_4NO_3$  and  $Al(NO_3)_3$  IAS solutions have demonstrated that 100% clarities can be obtained with 10 and 3 minutes retention time respectively at 1100 G's. Exploratory filtration studies have shown that coarse, medium, and fine sintered glass filters are more efficient for metal solution clarification than the finest porosity sintered stainless steel filters.

Static equilibrium tests have been completed for the IA and IC  $NH_{\ell}NO_{3}$  systems. Figuration of 2-inch IA Column side-stream samples has been carried out to confirm the IA equilibrium line. Counter-current and simple multiple-batch  $\pm 1(NO_{3})_{3}$  equilibrium data are now being obtained.

### REDOX RESEARCH

### Sclubilities of Hexone in Redox Solutions

Solubilities of hexone in 1 M HNO<sub>3</sub>-4 M NH<sub>4</sub>NO<sub>3</sub> and 1 M HNO<sub>3</sub>-8 M NH<sub>4</sub>NO<sub>5</sub> solutions were determined by a cloud point method. Solubilities in the former solution ranged from 1.84 wt. % at -10°C to ca. 0.99% which was essentially constant from 40 to 70°C; solubilities in the latter solution ranged from 0.47 wt. % at -10°C to ca. 0.38% which was constant from 20 to 70°C. It is not believed possible to obtain highly accurate solubility values at temperatures above care 25°, since the rate of exidation of hexone appears to be of the same order of magnitude as the rate of solution of hexone.

### Remotion of Hexone in Process Systems at High Temperatures

An autocatalytic reaction occurring between hexone and 1 M HNO3-8 M NH4NO3 solutions at refluxing temperatures was described in the preceding report of this series. Although the reaction products have not yet been positively identified, it appears highly presumptive that these include 2-methyl pentanedical 3,4; and 1.1-dinitroisobutane and acetic and isobutyric acids. To date only the organic acids appear to have been reported in the project literature. Separation of the diketone from unreacted hexone is made difficult by the fact that the two liquids boil at the same temperature. Azeotropic distillation with toluene will be attempted as a separation method. Considerable significance is attached to the fact that hydroxylemine or hydrazine derivatives of the diketone may possess strong chelating powers and, if present in recovered hexone, thus lead to sub-standard distribution coefficients.



## Equilibria and Physical Properties of Al(NC3)3 - Salted Redex Systems

Distribution ratios of U(VI) in systems ranging from 0.1 to 2 M in UNH, 0 to 0.6 M in HNO<sub>3</sub> and 0 to 0.5 M in  $\Omega(WO_3)_7$  are complete. Current work is concerned with higher concentrations of  $\Omega(WO_3)_3$  and lower concentrations of UNH.

The viscosity of the hexone phase was found to increase with UMH or HNO<sub>3</sub> concentrations more rapidly than that of the aqueous phase. For either phase logarithm of the viscosity was found to be a nearly linear function of the UNH content. Water and a large number of aqueous solutions of varying UNH, HNO<sub>3</sub> and Al(NO<sub>3</sub>)<sub>3</sub> concentrations were shown to give definitely higher viscosities when saturated with hexone.

Interfacial tensions of the various systems have been found to vary from 10.6 dynes (water-hexone) to about 5 dynes.

A study of the enomalous disengaging times observed in certain of the equilibrated systems at low pH values is in progress.

A three to five stage packed tower for laboratory study of factors affecting stage efficiency and decontamination is under construction.

### Analysis for Plutonium in Al(NO3)3 Solutions

It is reported by the Argonne Laboratory that the adverse effect of aluminum salts on the carrying of Pu(III, IV) by LaF3 can be largely eliminated by using a very small portion of Al-Pu solution and increasing the HF concentration to ca. 4 M. This has been verified, nevertheless it appears that under optimum conditions 3-4% of Pu(III, IV) is still not carried. Somewhat better results have been obtained by separating from Al with an excess of NaOII, dissolving the Pu precipitate in 2 M HCl, reducing with hydroxylamine and coprecipitating Pu with LaF3 in the usual manner. Although this is a more lengthy procedure the amount of Al-Pu solution taken is not critical and losses appear to be within the limits of error of the LaF3 technique, i.e., <2%.

### Column IB Chemistry

The kinatics of the reaction of ferric ion and hydrazine have been studied in the presence and absence of catalytic materials. In 0.2 M HNO3 solutions with no catalyst present the reaction was found to be first order with respect to both  $F_3(NO_3)_3$  and  $N_2H_5NO_3$  and to have a rate constant value of 1.27 (liters/mola/lr.). In the presence of 0.005 and .05 M  $Cu(NO_3)_3$  K was increased to 1.61 and 4.75, respectively. The three values of K indicate the linear relationship:  $K = 1.27 + 60 \times M Cu^{++}$ , which may or may not hold above 0.05 M  $Cu^{++}$ . Data obtained in the presence of KI were consistent with a second order dependence on I concentration. It is difficult to hypothesize a mechanism which would have this effect.

It has been reported by KAPL that sulfamic acid does not reduce ferric ion. This has been confirmed and also found to be true in the presence of KI or  $\mathrm{Cu(NO_3)_2}$ .



The reduction of ferric ion by hydroxylamine was found to be surprisingly slow, only 17% reduction occurring after three days in a solution initially 0.005 M in Fe(NO<sub>3</sub>)<sub>S</sub> and NH<sub>2</sub>CR HCl and 0.2 M in HNO<sub>3</sub>.

It has been found that the nitrite content of reagent MNO<sub>3</sub> is destroyed by boiling as previously reported by KAPL. The slow reduction of the nitrite content of an HNO<sub>3</sub> solution at room temperature was also confirmed.

### Zirconium Investigations

Preliminary tests indicate than an air-driven "spinning-top" type of ultracentifuge will not be sufficiently reliable for use with plant dissolver solution. At high speeds the rotor tends to develop an essentially undamped vertical vibration of increasing amplitude which could eventually break through the air cushion and cause seizure.

### Wetting of Stainless Steel by Process Solutions

The possible effects on column behavior of heterogeneous wetting of the stainless steel packing have been mentioned in a previous report. Using dissolver solution obtained from the Scale-Up Plant dissolver and equilibrated hexone, various interfacial contact angle values were obtained, depending on the pretreatment of the polished stainless steel surface. When the coupon was either washed thoroughly in acetone and dried in air or washed with scap solution and rinsed in water, angles of ca. 90° were obtained. When trichloroethylene was used as a wash liquid, an even more hydrophobic surface was formed, angles of ca. 120° being observed. Trichloroethylene has been used as a wash liquid in cleaning up packing for use in the demonstration columns. By use of a caustic or MgO corub somewhat more hydrophilic surfaces, giving angles of ca. 65°, were obtained.

### STACK GAS DISPOSAL

Indications of continued radioactive particle evolution in particle collection tests made on the Campon ventilation air and process stack gas have resulted in the formulation of a four-point emergency program aimed to stop additional deposition of spot contamination in the 200 Areas. This program involves (1) installation of C.W.S. type 6 filter "frames" in the cell exhaust air ports of the Canyon Building to filter the air leaving the cells prior to the ventilation tunnel, (2) removal of radio-iodine and active dust or spray from disalver off-gas, (3) filtration of the Concentration Building tank went air, and (4) a second filtration of all ventilation air between the fans and the stack. The filter frames were installed in the cells at both B and T Plants and daily particle collection tests on the Canyon ventilation air and stack gas were made at B Plant to determine the effect of this installation on evolution of particles and entrained activity. First results on ventilation air samples showed an immediate decrease in filterable activity following the filter installation, with a later steady increese. Reasons for the disappointing results are actively being sought. Particles continued to be collected during these tests. A filter test unit has been installed at T Plant to sample the Canyon ventilation air. This unit is now in operation.



Exposure of the various components of the standard CNS filter frames to 70% nitric acid has indicated these assemblies to be unsuitable for the filtration of the acid bearing dissolver off-gas. In view of this fact, it has been proposed that the dissolver off-gases be scrubbed with water prior to disposal into the stack. Design of such scrubbers for installation in the dissolver cells is under way.

Water scrubbing of the Canyon ventilation air was tested in three crude experiments. Results, while not conclusive due to an accumulation of rust and foreign material on the filters downstream of the scrubber, indicated variable but positive decontamination of activities collectable on the filter papers.

Collection of iodine by silver was tested quantitatively by the Laboratories Division of the Technical Department. Tests at temperatures in excess of 400°C. resulted in saturation collection of 0.12 and 0.83 moles of iodine per mole of silver for pellets and Air Reduction Corp. catalyst, respectively. It is planned to test the capacity of the catalyst for iodine collection under plant conditions by operating a suitably shielded silver reactor to saturation with dissolver off-gas. Initial saturation tests under modified plant conditions will be made by operating the silver reactor with supplemental stable iodine additions to samples of the dissolver off-gas. Equipment for these tests has been fabricated. A test to determine if filterable activity passed through the silver reactor was made. Appreciable activity, 1700 mrep/hr, was collected on a filter positioned downstream of the reactor after two hours' operation at flow rates of approximately 1 to 7 CFM and reactor temperatures of 200 to 260°C. Very little activity was collected in a scrubber and second filter operated in series with the reactor and first filter.

#### PILE PHYSICS

#### Graphite Purification

Purified graphite is currently being produced by going to a peak temperature of 2650°C, and adding no carbon tetrachloride during cooling. This cycle was adopted as standard after functional tests indicated that graphite purified in this way was of consistently high quality. Activation tests on graphite produced in this way also indicated a low chlorine content.

The use of ammonia as a carrier gas produces graphite of a purity comparable to that produced by use of nitrogen. The gas feeder lines are badly corroded by the ammonia, however, and further development work will be necessary before ammonia can be used as an acceptable substitute for nitrogen.

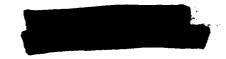
Two samples of poor quality graphite gave good results in functional tests after purification at Bay City. The original quality of the graphite makes little difference in the quality after purification.

### Regular Production Graphite

Seven heats of KC graphite were tested during the month. As with CS material, the quality of the O fraction is definitely higher than the N fractions but the difference is not so great as with CS graphite. The average quality of the KC material is only slightly better than that of CS material currently being received.







In view of the difficulties with pitch impregnation being encountered in the production of KC graphite, consideration is being given a wider use of CS in the piles.

### Control System for H Pile

In order to furnish sufficient control to shutdown the pile from a level of 400 kW and maintain it in a subcritical condition after loss of water, decay of menon and heating by fission products, 41 of the present vertical rods would be required. The use of 29 rods of 3-inch diameter and containing a hydrogenous moderating material will accomplish the same purpose. If the excess reactivity available from purified graphite were used to obtain power levels beyond 400 kW by using a thicker water annulus then still more control would be required. To provide for this possibility, the graphite and shield will contain holes for 45 rods of 3-inch diameter and the winch level will be designed accordingly.

To obtain basic data for the design of the moderator filled rods, the increase produced in the control power of a hollow cadmium sphere by filling it with water was measured in the test pile. Analysis of this experiment provided the necessary data.

A pattern of 15 horizontal rods has been recommended for the H Pile. This will allow a shutdown of 36 hours without the addition of P columns at present operating levels as compared with the 24 hours available with the present rod pattern. For operation at 400 MW, the allowable shutdown time would be 30 hours with the new pattern as compared with 20 hours with the present one.

### Irradiation Facilities for H Pile

Additional test holes are being considered for H Pile. These holes would go completely through the pile from the control rod face to the opposite side and would be used for the testing of components of power piles. Facilities for recirculation lines for the coolants would be provided under the pile.

The irradiation facilities for bismuth and other materials mentioned last month have been eliminated because of the high temperatures at which such uncooled facilities would operate.

### Production Test 105-1-P. Graphite Monitoring

The first graphite samples removed from receptacle slugs have exhibited changes which were, on the whole, in line with expectations based on samples exposed in capsule slugs. However, one sample had an anomalous stored energy spectrum and another sample with previous exposure showed an unexpected decrease in electrical resitivity. Possible reasons for the anomalies are being investigated.

#### Reactivity

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

	<u>D Pile</u>	F Pile
In rods	77 inhours	60 inhours
In Special Requests within poison pattern	175	122
outside poison pattern	5	0
		BPAL RANGER

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•	D Pilo	F Pilo
In Plant Assistance irradiations	20 inhours	3 inhours
In lead-cadmium columns	0	0
In bismuth columns	120	115
In dummy columns		
(including empty fringe tubes)	23	39
In menon	512	526
In overall coefficient	_1.24	<u>-178</u>
Total cold, clean reactivity	808	747

The D Pile gained 6 ih and the F Pile 21 ih during the month.

### Status of Special Irradiations

The status of the Special Request program on March 31 is given below. Those items which were active during the month are marked with an asterisk. Items listed as completed last month will receive no further mention. The number under P.T. indicates the Production Test, series 105-P. The letter suffix after a tube denotes the pile. Under "Quantity" the number of pieces, if given, will indicate that the material has been received. If the Hanford Request has been approved but no materichas been received, the Request No. and material only will be listed. Under "Tube and Pile" the initials BTHD or BTHF mean the piece is charged into the "B" test hole at the D or F Pile. The suffix T will denote a tentative schedule which may be changed. The abbreviations ORNL and ANL after the request number refer to Oak Ridge National Laboratories and Argonne National Laboratories respectively; KAPL refers to the Knolls Atomic Power Laboratory, UCRL refers to the Radiation Laboratories at the University of California.

Req. No. & Scurco Material	Quantity	Exposure	Charged	Tube & Pile		Shipped	P.T.	ih ab- scrbed
3-3 (CRNL) Thorium	16 pcs, 16 pcs, 44 pcs, 32 pcs, 24 pcs, 16 pcs, 20 pcs, 22 pcs, 27 pcs, 32 pcs, 27 pcs, 16 pcs,	120 da.	6/3/47 6/3/47 6/17/47 6/17/47 7/2/47 7/2/47 8/5/47 8/10/47 9/2/47 9/2/47 9/9/47 10/21/47		10/21/47 10/21/47 11/3/47 11/3/47 12/2/47 12/2/47 1/6/48 1/11/48 1/6/48 1/6/48 2/16/48 2/3/48 3/2/48		49-E-F-F-F-F-F-F-F-F-F-F-F-F-F-F-F-F-F-F-	
*	18 pcs. 20 pcs. 20 pcs. 15 pcs. 11 pcs. 11 pcs. 27 pcs. 16 pcs. 13 pcs.	120 da. 120 da. 120 da. 120 da. 120 da. 120 da. 120 da. 120 da. 120 da.	10/21/47 12/2/47 12/2/47 12/8/47 1/8/48 1/8/48 1/8/48 1/8/48 3/2/48		11/18/47		49 - F 49 - F	18 18 19 15 15 25 17

20022								
Req. No. & Source Material	Quantity	Exposure	Charged	Tube & Pilc		Shipped	<u>P.T.</u>	ih ab- <u>sorbed</u>
12-B(ANL) Pu <sup>239</sup>		14 mo, est will b			7/16/47		59	
13-3(CRNL)Bc3N2	40	6 mo. 6 mo. 6 mo. 6 mo. 6 mo. 6 mo.	2/4/47 2/4/47 2/4/47 2/4/47 2/12/47 2/12/47	3169D	8/5/47 8/5/47 8/5/47 8/10/47		70-B s. shi 1/19/4	ppcd S
13-4(TRNL)Bo3N2	35	6 по.	2/12/47	1474F	8/10/47		70 <b>-</b> C	
13-5(ORNL)Bo3N2		6 mo. 6 mo.	9/9/47 9/9/47 11/4/47 11/4/47 2/2/48 1/18/48	1474D 3169D 2374F 1569F 1569D 2374D			70 <b>-</b> D	15 15 12 12
*14-3(ORNL)Al-U Alloy	l slug l	2 mo.	1/22/47	2977F	1/27/48	3/10/48	84	
* * * * * *	19 23 8 18 8 11 11 11 15 11 11		12/23/47 1/27/48 1/27/48 1/27/48	2374D 3179F 3169F 2682F 3179F 3169F 2682F 2082D	2/3/48 1/18/49 1/27/48 1/27/48 1/27/48 2/24/48 2/24/48 3/24/48 3/24/48 3/24/48			18
	11 11 11 11 18		3/24/48	3179F 3169F 2682F 3179D				16 16 16 23
28-2(CRNL)Iron	l casing	2 mos.	2/16/48	BTHD			87	
28-3(ORNL)Iron	l casing	2 mos.		<u></u>		\	87	
26-4(ORNL)Iron	l casing	2 mos.			<b>-</b>		87	• .
28-5(CRNL)Iron(Enric		Indefinite	4/4/48-T	BTHD			87	

DECLASSION

					/				
Req. No. & Source	Motorial	Quantity	Exposure	Charged	Tube & Pile		Shipped		ih ab- sorbed
28-6 (ORNIL	Iron(Enric l casing		ć mos.	4/4/48 <b>-</b> T	BTHD			87	
29-5-10(0	RNL)P205	6 casings	s 60 da.				<b>→</b>	96	
*32A(ANL) B C	Np <sup>237</sup> 0x. Cb mct. Pu <sup>238</sup> 0x.	2 g. )	6 mo.	7/29/47	BTHD	2/3/48	3/10/48	112	
*40-Prolin		)		- 4 1					_
	Pu	2 slugs	1 wk.	•		4/4/48-T		148	5
*40-3 (KAPL	)Pu	3 slugs	2 mos.	1/18/48	2881D	3/19/48		148	
40-4(KAPL	)Pu	3 slugs	4 mos.	1/18/48	3177D		- "	148	5
43 (ORNL)S steel &		1 papoose	3 mos.	12/23/47	2666 <b>F</b>	4/4/48 <b>-</b> T		111	10***
45 (ORNL)G	old	4 slugs	90 da.	12/23/47	2666 <b>F</b>	4/4/48-T		131	
46(ANL) B	i <sup>209</sup>	1 papoos	3 4 mo.	12/23/47	227LF			126	0
47(ANL)	BeO	4 slugs	1-15 da. 1-30 da.				1/14/48	127	
		· -	1-90 da. 1-180 da.	12/23/47	2666F^	4/4/48-T	_		
48(ANL)	Be0	4 slugs	1-15 da. 1-30 da.	12/21/47	3169D	1/6/48	1/14/48	128	
			1-90 da. 1-180 da.	12/23/17	2666F	1.71.71.5.45	same		
49(ANL)			1-15 da.					129	
, 4, (, ,	Oxide		1-30 da. 1-90 da.	Has not	ocen rec	id.	200		
	Ŋ	ing. Jithur an an an a	1-180 da.				<b></b>		
*51(ANL)	Вс	1 recept	<b>-</b>						
	٠	aclo	2-3 шо.	1/6/48	1474D	3/19/48	4/15/48	-T 133	3
53(ANL)	To	1 casing	4 mo.	1/27/48	BTHF		-	134	0
*54(ORNL)	Cu-Bc Alloy	l slug	2 mo.	1/6/48	1474D	3/19/48	4/15/48	-T 135	5
55(ORNL)	Stainless Steel	4 slugs	6 mo.	2/16/48				130	0
56 (ORNL)	Bo-Cu Alloy	2 slugs	6 no.	1/27/48	1368F			136	0
***T 14	•	also cont	ains 4 SR-	45, 1 SR-	47, 1 S	R-48 and	1 SR-49		
					-	~ ~		2 3 2 <b>39 0</b> (	<b>***</b>

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Technical	Department	;							
Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Dis- charged	Shipped	<u>P,T.</u>	ih ab- corbed
57(ORNL)	CaCO3	3 casings	6 по.	1/27/48	BTHF	~-		137	0
58(ORIIL)	Zinc	1 casing	6 по.	1/27/48	BTHF			138	0
59 (CENL)	Antimony	1 casing	6 mo.	1/27/48	BTHF			139	0
*60(ORNL)	KCI	7 casings	1-1 mo. 1-3 mo.	)2/16/48 )2/16/48 )2/16/48	ETHD ETHD ETHD ETHD ETHD	3/9/48 4/4/48 <b>-</b> T —			0
61(ORHL)	co304	l casing	6 mo.	1/27/48	BTHF		-	141	0
*62(CUIL)	Al-U235 Stainless Be, U, Al	10 slugs		4 slugs	were dis	scharged	4/15/48 on 3/19/		5
63 (ORLIL)	Al-U <sup>235</sup> Alloy	21 slugs	7-3 mo. 7-6 mo. 7-12 mo.	Slugs ar	o being	cannod.		146	
*64(ORNL)	Cu-Au Alle	oy 5 slugs	1 slug of 15,30,60 and 300	,150	dischar 150 da	sample rged on 3 sample 774D on 2	charged	into 142	
*65(ANL)	Li-11 Alloy	2 slugs	3-4 wks.	2/16/48	3179D	3/19/48	4/15/48	-T 14	3
*66(ORNI.)	<sub>U</sub> 234	2 casings	2&4 mo.	l casing	3/9/48	BTHD	-	160	<b>o</b> '
67-76(CRN		Received requests 4/4/48.							
77-78(ANL	)Ra	Somples a	re being	canned.		•			
79(KAPL)	<sub>U</sub> 235	Details b	cing work	ed out.					
80-84(ORI	L)	Samples r	eccived 3	/17/48.	•				
*ANL-100	Вс	5 casings	6-12 шо.	3/24/48	BTHF	-		176	0

ANL-103 Rare carth Oxides 1 casing ANL-104 Gd 1 casing --

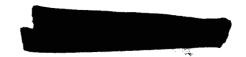
1 receptacle 4-6 mo.

The following requests have been approved but the samples have not been received: 85-89; UCRL-100 through UCRL-1C6; ORNL-100; ANL-102

Slug is being canned.

ANL-101

<sub>U</sub>238



### PILE ENGINEERING

### Corrosion and Blistering of Slugs

The favorable performance of alpha-relled, lead dipped slugs was confirmed this month during inspection of eighteen tubes discharged at normal product concentration. Experimental results are as follows:

Production Test No. 105-119-		% Blistered			
Type of Sluz	Number	<u>OK</u>	<u>S1</u>	Mod	Ext.
alphe rolled, lead dip	77	100			
alpha rolled, triple dip	115	31	19		
gamma extr., triple dip	108	14	80	6	
gamma extr. lead dip	156		39	59	2

The adverse effect resulting from the canning of gamma extruded slugs by the lead dip process is very pronounced. One tube of gamma extruded, lead dipped slugs discharged at 80% of normal exposure confirmed this adverse effect, although these slugs had a different canning date and came from a different lot of metal.

The irradiation of slugs made from metal having a high "tetal danger sum" as shown by chemical analysis and charged under Production Test 105-115-P was completed with the discharge of eighteen tubes after normal exposure. Normal blistering tendencies were observed, with 86% of the slugs being slightly blistered and 15 moderately blistered.

Production Tests 105-95-P (gamma extruded, triple dip slugs annealed after canning) and 105-90-P (slugs made from reclaimed (TX) metal) were completed with the discharge of one tube at 170% of normal exposure and four tubes at normal concentration. No significant effect on blistering was observed in either test.

Work on ferming replicas of blistered slugs has been interrupted temporarily by priorities given to other assignments.

Sixteen receptacle slugs discharged from the pile at normal concentration have all snewn slight blistering, despite the presence of the internal void in the slugs. It is anticipated that the presence or absence of blistering of the internal surface can be determined after chemical removal of the aluminum portion of these slugs.

### Corrosion of Van Stone Flanges

Inspection of the various Van Stone flange assemblies in the hot flow laboratory showed no neasurable corrosion, although four of the assemblies had been operated for 13 weeks with pile effluent water steam-heated to 90°C.

Solution potential measurements indicate that neither lead nor cadmium provide cathodic protection to aluminum in the presence of stainless steel. In addition, lead washers were found to be mechanically unsatisfactory for use as Van Stone flange gaskets because of cold-flow properties.

Twelve nozzles which had been machined to receive an aluminum insert have been





installed on the rear face of the D Pile. In six cases the insert bears directly on the flanged process tube and in the remaining cases an asbestos gasket was provided. Tests on a proposed design in which the Van Stone flange is bent to a 45° angle and a suitable aluminum insert is provided have demonstrated unsatisfactory mechanical properties.

### Graphite Expansion

There is conclusive evidence that the rate of vertical graphite expansion at the D Pile during the last nine months is only about half of the previously established rate. We effect from earbon dioxide addition during the past two months has been observed. Current data indicate a very substantial reduction in the rate of vertical expansion of the F Pile during the past three months during which the pile was operated at the increased power level of 275 MM, but confirming data from tube traverses are yet to be obtained.

The carbon dioxide concentration in the D Pile atmosphere was increased to a nominal 25% (75% holium). No significant changes in thermal stress in the end shields have been observed. The presence of carbon dioxide has increased the central graphite temperature about 40°C, to a current maximum temperature of 260°C.

Measurements made after removal of process tubes showed that tube bearing blocks made from KC graphite had contracted up to 0.8% in length, whereas the length of tube bearing blocks made from CS graphite was substantially unchanged. These data indicate that CS graphite may be used for process tube blocks in new piles without introducing new problems caused by endwise expansion of the graphite.

Crushing strength determinations on "hollow ground" graphite blocks demonstrated that Innds from 1/8- to 3/8-inch wide would be satisfactory as regards mechanical strength of the block.

### Can Openar Facility

The can operer facility was placed in operation during the month. Graphite samples were removed from the interior of six irradiated receptacle slugs. An average of at least two receptacle slugs per day can be opened in routine operation.

#### Beta Experiment

An experimental bota slug, complete with electric heater and instrumentation but containing no sodium or uranium, was charged into the F Pile for one week. The heating coil burned out during operation and trouble was encountered with the discharge of the slug. This preliminary trial in an operating pile is to be repeated. It is believed that the discharge trouble was caused by faulty alignment of the discharge nozzle.

Two active beta slugs were found to be defective and were returned to Schenectady.

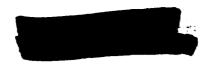
### Segmented Discharge

Preliminary estimates indicate that the magazine-type rear face charging machine will increase the amount of time consumed in charge-discharge operations on the





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pile by 50% to 80%. An additional increase of at least 15% will be required if the long-stroke charging machine is used. The use of 4-inch slugs has increased the charging time about 10%.

The present design of the chute to be used with the magazine-type charging machine was found to be unsatisfactory, and the chute is being modified.

Tests indicate that perforated aluminum slugs can be used to push a new column of uranium slugs into a process tube and can then be retrieved with only minor contamination hazards at the front elevator. The use of a steel tape attached to the innermost perforated slug and resting between the ribs has been demonstrated as a practical means for retrieving the slugs.

### Development of New Control Rods

Attempts to obtain the desired boron deposit of 50 ng/sq. cm. on new horizontal rods by flame spraying a beron-eluminum powder onto the tubes have been unsuccessful. A deposit of only 30 ng/sq.cm. was determined on an existing spare rod left over from construction. Deposits obtained under various experimental conditions have ranged from 22 to 38 ng/sq.cm.

In an experimental study it was found that boron powder would be packed into a 1/8-inch annulus with a bulk density 0.36 gms/cc. This type of construction is of interest for vertical safety rods. However, the thermal conductivity of the powder so packed was found to be only 0.017 BTU/(hr)(ft.)(°F.), which is somewhat lower than the conductivity of rock, so the use of this construction for water-cooled horizontal rods appears infeasible.

### 300 AREA PLANT ASSISTANCE

### Uranium Molting and Casting

Survey Strategic FOO

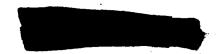
The length of casting pipes in billets has been effectively reduced by capping with about a 1° thick cap applied 1 minute and 45 seconds after the billet is poured. In addition, the formation of voids in the billets has been reduced remarkedly. Whe was of a drip after pouring in place of the capping precedure is being investigated.

The cause for occasional sub-normal billet densities (18.71 to 18.82 gm/cc) and almormally porcus billst surfaces was traced to the use of a water mixture of Type C-3 carbonaceous cement as a mold wash. The use of this cement has been discontinued, and a Zirconits mold wash will be tried in place of it.

Chemical analytical data on 61 casting heats indicated that the average cerbon content of Type B motal was 592 ppm. Those heats were made using a 115 KTH energy input to a 550 pound scrap charge to give an estimated pouring temperature of 2500° F. The use of a lower power input to provide a lower pouring temperature is being investigated to determine whether carbon pickup by the molten charge can be reduced.

Four trpical 21" Type B billets were sent to the 100-F Area for radiographing to evaluate the feasibility of this method of billet inspection.





### Alpha Phase Rolling of Uranium

Alpha phase rolling of uranium billets to nominal 1.5" diameter rods for Hanford to supplant gamma phase extrusion was started at the Joslyn Manufacturing and Supply Co., Fort Wayne, In. on February 28. Rolling was also started at the Simonds Saw and Steel Co., Lockport, N.Y. on March 31 because Joslyn alone could not schedule a sufficient quantity of rolled uranium to meet Hanford's requirements. Currently, uranium is being rolled at both sites. The schedule of billets rolled to date is as follows:

	Approximate Quantity	Date	Site		
1st carlcad 2nd carload	30 tons 30	2/28 <b>-</b> 3/4 3/5 <b>-</b> 3/10	Ft. Wayne Ft. Wayne		
3rd carload 4th carload 5th carload	30 30	3/19 and 3/22 3/27 and 3/29 Started on 3/31	Ft. Wayne Ft. Wayne Lockport		

Rolling at both sites has been supervised by one or more members of the 300 Area Plant Assistance Group including T. S. Jones, R. J. Schier, and R. Tests.

The first two carloads of billets rolled at Fort Wayne were preheated to  $1050^{\circ}$  F for rolling. However, with this temperature, considerable amounts of the rolled metal remained unrecrystallized, and the preheat temperature for subsequent runs was raised to  $1100^{\circ}$  F. An annealing operation was instituted in the 300 Area to complete the recrystallization of rolled metal. All rods are being annealed in an argon atmosphere at  $1110^{\circ}$  F  $^{\circ}$   $20^{\circ}$  for 1/2 hour minimum in the outgassing furnace. However, none of it is being outgassed, it having been concluded that this step is unnecessary. It has been found necessary to straighten the rods for machining after annealing.

At Fort Wayne, rolling is being performed in a two-stand, two-high 16" mill by hand round rolling using circular grooves. Reduction to a nominal 1.5" diameter rod is accomplished in 25 passes. At Lockport, a 16" two-stand mill is used also, but the roughing stand is a three-high mill containing 8 different sized diamond grooves (smallest - 1.75"), and the finishing stand is a two-high mill containing 8 round grooves. Reduction to a 1.5" diameter rod was accomplished in 24 passes (16 diamond and 8 round).

Two experimental rolling trials were made at Fort Mayne during fabrication of the first carload of billets. In one, two billets each were heated to 850° F, 900° F, 950° F, and 1000° F and rolled, allowing sufficient time for cooling between passes so that the metal was not heated above its initial preheat temperature. In a second trial, five billets were heated to 1050° F, and one was rolled in the normal manner to each of the following approximate rod diameters and then cooled: 1.86°, 1.70°, 1.68°, 1.61°, and 1.57°. Two-foot sections from these rods were heated to 650° F, and then rolled to 1.5° diameter. No difficulty attended this low temperature final reduction. It is expected that those trials will furnish data on grain size and recrystallization utilizing lower rolling temperatures.





Arrangements were completed by the A.E.C. for a trial rolling by the Rustless Steel Division of Armco at Baltimore, Md. on April 2. R. J. Schier will follow this trial.

### Alpha Phase Extrusion of Uranium

As part of an experimental program to study the alpha phase extrusion of bare uranium billets, an attempt was made under P Department jurisdiction to alpha phase extrude a bare billet at 1130° F with an extrusion ratio of 4.6 to 1. This extrusion ratio was obtained by using a container specially sleeved to 3.75" diameter, and a 1.8° diameter die with a ram turned to 3.5° diameter for 18° of its length. Then a 3.5° diameter billet preheated electrically in the rotary furnace (argon atmosphere) was tried, the ram upset at its reduced section at about 700 tons pressure (140,000 psi); the billet failed to extrude.

Information just received from the Matson-Stillman Company (fabricators of the 300 Area press) indicates that the full 1000-ton capacity of this press can be utilized only with the present 4-1/4" diameter ram, and that if smaller diameter containers and ram are used, the load on the ram will have to be reduced accordingly. Since the lowest extrusion ratio that can be obtained with this press utilizing its maximum capacity is about 7 to 1 with single-hole dies, and since bare billets cannot be extruded within the capacity of the press with this ratio, experimental work now is limited to the trial of multiple-hole dies to obtain lower extrusion ratics. Use of a single-hole die with a diameter greater than 1.75" to obtain a lower extrusion ratio is not considered a practical evaluation of the extrusion conditions that would be used to produce the 1.45" diameter rod desired for fabrication into slugs.

Fifteen rods (30 half sections) from the 10-ton rolling made at Fort Mayne in August 1947 were annealed at 1110° F. Six butt end and 6 lead end sections from these rods were machined into 8-inch MZ slugs without straightening, and the remainder were straightened prior to machining (all under FT-314-53-M, Supplement A). These rolled metal slugs will be used as control slugs for the first exposure of alpha extruded metal in the pile in place of gamma extruded slugs as planned previously.

R. Teats and T. S. Jones visited the Revere Copper & Brass Company, Detroit, Mich., to inspect facilities for making another experimental alpha phase extrusion run there. They have a 2000-ton capacity press, as may be required with bare billets.

### Gamma Phase Extrusion

Three billets were gamma phase extruded to 1.75" diameter rods for use in experimental rolling trials to determine the structural effect of sizing gamma extruded metal by rolling below the recrystallization temperature. Four two-foot sections of these rods were shipped to Fort Wayne to be rolled to 1.5" diameter rods at about 200° C and 350° C.

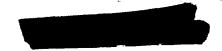
#### Slug Machining

Sections of three wranium rods rolled in the alpha phase by the Simonds Saw and Steel Company in their mill at Lockport, New York were studied with respect to surface quality and uniformity and the depth of cut necessary to permit satisfactory clean-up. The following conclusions were drawn from this study:

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- (1) These three Lockport rods exhibit a much smoother and more uniform surface than any rolled or extruded material heretofore received or fabricated at Hanford.
- (2) The 40 mil cut was sufficient for a complete clean-up of all sections studied.
- (3) An acceptable surface was obtained with a maximum cut of 0.034" (0.068" diameter reduction).
- (4) Rods of comparable surface quality may safely be made to a nominal diameter of 1.430" with the expectation of at least 99% complete clean-up in machining slugs of "A" diameter.

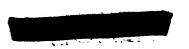
This study is dotailed in Doc. No. HW-9239, "Machining Data on Lockport Rolled Rods." dated North 19. 1948.

The first carload shipment of rods rolled in the alpha phase at Fort Wayne, February 28 through March 5, were studied in a similar manner. The general surface quality of those rods was fairly high, being comparable to that of rolled rods previously received from this source, though generally inferior to that of the Lockport rods described above. The interior soundness of these rods was considerably inferior to that of the 10-ton let rolled at Fort Wayne in August 1947, presumably owing to the presence of internal blowholes in the billets. There was greater variability in rod diameter than is commonly experienced with extruded material. Statistical treatment of the data obtained during this study led to the following conclusions:

- (1) The minimum clean-up of the rods is influenced principally by flaws incurred during rolling. These flaws, which appear to a greater or lesser extent in about 90% of the rods, required an average cut of 0.045" to clean up while the sound portions of the rod required only 0.030" average cut.
- (2) No advantage results from surface grinding or scalping billets before rolling, either from a standpoint of uniformity of rod diameter or flaw elimination.
- (3) The nominal diameter rods of comparable surface quality may safely be reduced from 1.500" to 1.460" with expectation of at least 98% complete clean-up (exclusive of flaws which were of extremely variable depth) during mechining.

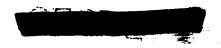
If the surface quality can be improved, further reductions in diameter will be feasible.

The alpha phase extruded raterial to be lead dip canned under PT 314-53-M was nachined into 8-inch MZ slugs. It was necessary to strip the jackets from the rods extruded in Bldg, 314 using copper jacketed billets because the copper became entangled in the rollers of the roller-turner tool. This caused the tool to gouge the work.





1001001



### Slug Canning

WITH DELETIONS

The alpha extruded slugs covered by PT 314-53-N were canned, and on March 31 were in the final stages of 300 Area inspection testing. The alpha-rolled companion material is schoduled for immediate canning to pormit charging of the entire test meterial into the pile early in April.

:	
	All alves assented by DT 212-101-1: Mounting Pays-Tack Clude of Intermediate
	All slugs covored by PT 313-101-L, "Canning Four-Inch Slugs of Intermediate
	Diameter," have been cannod and inspected. The yield data indicate no significant
	improvement with respect to non-seats by virtue of the 0.003" reduced diameter of
	AMPLOY CHOICE WARE A CAN POLY OF MALE BOOK OF THE BOOK
	the se-colled intermediate slugs. The extremely variable and sporadic appearance
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use in selecting replacement pilot slugs, and a set of replacement pilot slugs was prepared for regular production use. Numerous checks on the frost test machine showed good reproducibility of melted areas, regardless of the location of void regions relative to the induction coil.

The jacket adherence tester designed for use in evaluating the quality of bond on lead-dip canned slugs has proved useful in general quality testing. Although several refinements in design are desirable, this equipment has been set up for use by the P Department in evaluating the quality of regular production.

### Wiscellaneous ...

Procurement of a test sample of Invar tubing, for use in preparation of protective sleeves designed to reduce the number of stuck sleeve rejects, has proved very difficult. Inastuch as stuck sleeves are no longer a problem with 4-inch slugs, the procurement of this tubing is being dropped.

The 12 canned slugs and five 4-foot lengths of gamma extruded material requested sometime ago by Dr. Kingdon of the Schonectady Research Laboratory were tested and shipped from Hanford early in March.

The following special work was completed:

A sketch of Request 40-D-3 and D-4 was propared and delivered to the File Engineering Division. Requests 40-D-3 and 40-D-4 were shipped to 100-D Area for pile loading. Requests 67 through 76, comprising 11 slugs, were crimp-closed at both ends, bubble tested, and made ready for shipment to 100-D Area. Test samples taken from slugs showing extremely low results in the Test Pile, and some from machined slugs showing surface pits at Pickle, were analyzed and found to contain greater than 1,000 ppm cobalt and greater than 2,000 ppm magnesium, respectively. The high cobalt slugs were converted to exide and shipped out as D-2 scrap. Arrangements have been made to send the high magnesium slugs to Los Alamos.

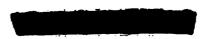
#### METALLURGY LABORATORY

### Alpha Extruded Uranium Rod

Macro- and micro-examination of the twenty rods which were alpha extruded in the 300 Area during the works of February 16 and 23 was completed during the month. This examination revealed very little unrecrystallized metal, and the recrystallization of these rods is estimated to be 99% complete. In three of the wafers, each from a different rod, small discontinuous internal cracks were found about 1/4 inch below the surface. These wafers were cut from a part of the rod that normally would be expected to be sound.

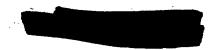
### Alpha Rolled Uranium

Three alpha rolled rods received from Lockport, N.Y. on March 4 have been examined. Two of these rods had been rolled from billets preheated to  $460^{\circ}$  C  $(850^{\circ}$  F), one of which was a normal length (13-inch) billet, and the other a long (29-inch) billet. The third rod had been rolled from a normal length billet preheated to  $540^{\circ}$  C (1000° F). Micro- and macro-examination of wafers selected at nino-inch intervals along these rods revealed the following:



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- (1) Macro-examination of samples of the lead and butt end of all the rods revealed small cracks. The worst case, however, extended less than 3-1/2 inches from the end of the rod.
- (2) All rods showed a sound structure in the sample removed nine inches from either end of the rod.
- (3) The rod rolled from a long billet preheated to 460° C (860° F) had a fine grain structure throughout, and a very small amount of unrecrystallized grain structure.
- (4) The rod rolled from a normal length billet preheated to 460° C (860° F) had a fine but non-uniform grain structure, and numerous areas of unrecrystallized metal.
- (5) The rod rolled from a normal length billet preheated to 540° C (1000° F) had a very non-uniform grain structure, and more unrecrystallized metal than the other two rods. This apparent discrepancy is unexplainable, due to lack of exact information on the rolling procedure used at Lockport in these trials.
- (6) Several longitudinal samples which showed unrecrystallized metal were annealed for 20 minutes at 560°C (1050°F). This treatment produced fine, completely recrystallized grain structure. A slight amount of grain growth resulted from this treatment.

Samples removed from unrecrystallized areas of these rods were amealed at 600° C (1112° F) for fifteen minutes. Two slug-size pieces were also removed from areas of the same rods, and adjacent to known unrecrystallized metal, and completely canned by the lead-dip process. Examination of microstructure of both the sets of samples showed all samples to be completely recrystallized.

Examination of the rods relied by Joslyn at Fort Wayne, Ind. from Feb. 28 to March 4 showed structures varying from cold worked metal to complete recrystallization. The lead end of the rods which were rolled at 566° C (1050° W) were found to be recrystallized to a large extent, whereas the butt ends of these rods were completely cold worked.

Eight 4" slugs were cut 14" and 20" from the cropped buttend of four rods for the purpose of determining the offect of lead dipping on cold worked structure. Adjacent 2" samples were taken for a comparison of the structure of as-before and after the canning procedure. All checked samples had a completely cold worked structure before canning. Of the eight canned slugs, two were 90% complete, three were 99% complete, and three-appeared to be completely recrystallized.

Samples removed from the lead, middle, and butt end sections of alpha rolled rods annealed in the outgassing furnace in the Press Building (314) show no noticeable difference in structure along the length of the rods. Samples taken from rods placed at the top and near the outside edge of the plant container show an average larger grain size than samples removed from rods placed near the center of the container. The average grain size between the rods placed in these two positions differs only by a factor of two and is believed to be inconsequential to blistering tendencies.





In most cases, after annealing; there seems to be more variation in the sample than along the rod or even between rods. This difference is one of grain size that appears as bands. In all cases, however, the grains appear equiaxed and well stabilized.

Four samples taken near the centers of two rods alpha rolled by Joslyn in August 1947, and representing the rolled metal now under test in the 100 Area piles, were also found to contain some unrecrystallized metal.

### Exemination of Irradiated Uranium

Field tests with the slug cut-off box were completed, and a wafer was cut from an irradiated slug which was considered to be extensively blistored after an exposure of 730 MiD per ton of metal. The procedure outlined in Problem Assignment 3-M was followed. The wafer, after the sectioning operation, was macro-etched and photographed.

Radiation analysis of the 3/8 inch wafer removed revealed that the gamma component energies were 1.6 new and 0.72 new, while the beta energy was 2.3 new. At an intensity of 25 R/hr at 1 foot, this requires peroximately 2 inches of lead to reduce it to <10 mr/hr at 1 foot, and approximately 5 inches of lead to reduce it to this level at 5 inches. The gamma intensities which are first approximated are in error by less than a factor of 2. The high beta activity is easily shielded out, and therefore is of concern only there visual observation is essential.

Conclusions reached on the basis of observation of one wafer is that the blistering is not a result of voids in the metal, that the compound layer is intact, and that the blistering is a result of deformation of the wranium metal. A report on the sectioning operation is being issued to cover inspection and radiation results.

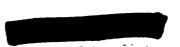
Equipment to contain more effectively the contamination resulting from macro-etching of the wafers removed from a blistered wranium slug has been designed. The contaminated cut-off wheel used for the first wafer has been successfully removed from the hot slug cut-off box, and a new wheel will be inserted when all other facilities are ready for the second sectioning operation.

### Dilutometric Studies

Although a number of dilatometric curves have been obtained on alpha rolled and gamma extruded metal from temperatures of -190°C to temperatures well within the beta range, no general conclusions can yet be drawn. This situation is due to the fact that a number of unexplained variations in the curves have been observed, and repetition of these variations on either heating or cooling have not book obtained due to the lack of a continuous recording system. A temporary continuous recording system employing strain gages was built during the month in order to alleviate this situation. Experimental trials will be made in the near future.

#### Properties of Uranium

In some preliminary work on the microhardness of uranium grains, using the Tukon indentor, only one set of strain markings per grain was noted. This indicates that uranium might have only a single set of slip planes. Further, it was noted that







the hardness was greatest when the long axis of the indent was perpendicular to the strain markings, and least when the long axis was parallel to the markings.

Creep of wranium under very low stresses will be studied by the torsional pendulum method. An order has been placed with the Schenectady Research Laboratory for suitable wire for this purpose. Consideration also has been given to the measurement of creep by normal methods. A discussion of the Schenectady beryllium program was held during Dr. J. P. Howe's recent visit, and it was decided that work on the effect of neutron irradiction on stress relaxation should be continued. The other work originally planned will be dropped for the present except, perhaps, for the high temperature exposure container. Such a container would be of general interest and merits further work.

### Experimental Equipment

Plans are being made to add a 6" x 6" to 6" x 10" rolling mill, and a 200 to 500 ton metal extrusion press to the experimental facilities. Information required for the purchase of this equipment is being assembled. Since space is not available for this equipment in the 300 Area Technical Bldg. (3706), thought will be given to providing the necessary space once the orders are placed.

Use of the tensile machine is being hompered by the lack of accessory equipment. These items were lost in transit and are being re-ordered.

### Boron Stainless Steel

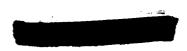
Tensile and impact specimens have been machined from stainless smeel containing boron that has been treated as follows: as cast, ennealed 10 minutes at 1065°C (1950°F), and annealed for 20 minutes at 1065°C (1950°F). These samples will be tested off-site.

Six day exposure to hund atmosphere produced slight resting of as cast and asannealed boron stainless steel samples. This rusting was primarily located at the point of contact with the glass holders, where condensation formed drops of water. Pickling with a 2% HF-10% MWC<sub>2</sub> solution removed the rust and discolored the samples. They were polished with #00 paper before re-exposure to the same hund atmosphere.

Several experiments were run in order to determine whether or not the matrix naterial seen in the microstructure of the boron stainless steel samples is austenite. Specimens of as-cast material were deformed at room temperature and at -195° C. They showed no subsequent microstructural change. Cast and heat treated specimens showed no attraction to a magnet. Both of these experiments lead to the conclusion that the matrix material is customite.

### Redox Corrosion Tests

Static immersion corrosion tests were started on the following alloys: R-55 (La Bour) in IBX and IBX, S-372 (Ingersoll-Rand) in IAX, IBS and IBP, and Worthite in IBP and IBS Redox solutions.





All design and engineering arrangements were completed for the dynamic corrosion testing facilities to be installed in Rooms 44 and 6 of the Technical Bldg. (3706). Facilities for the installation of these testing units are now in preparation.

Huey corrosion tests on steinless steel welds were bogun. These tests are designed to show comparisons between similar parent metals welded with different types of welding rod.

### LABORATORIES DIVISION

### Work Volume Statistics

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

the second of the second of the second of	Fe	bruary	u en	icrch	
e de la companya de l	Samples	Determinations	Samples	Determinations	
Routine Control, 200	1648	2621	1520	2415	
Routine Control, 300	744	3314	* 893 °	3285	
Water Control, 100, 700	9769	18282	9853	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Redox Control	1023	3573	1342	4020	
Process Reagonts	886	1592	783	1404	
Essential Materials	105	580	154	591	
Special Samples	1534	2317	2160	3259	
Totals	15739	32276	16 <b>70<del>5</del></b>	32462	

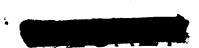
### 200 Area Process Control

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

Laboratory	AVO	Geometry	No. of Tests
B & T Plant	ුනුදු ( නොල්ලා	50.57%	inger of the second of the sec
Isolation Blog.	19 <b>50</b>	50.48	91 78 1 78 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

The precision of the analytical results of the canyon starting solution (8-1-4R), the Isolation Bldg. starting solution (P-1), and the final product solution (AT) may be supportized as follows:

		February	March		
Sample	Procision (1%	No. Out of Centrol	Precision (=%)	No. Out of Control	
8-1-M.	1.49	13	1.39	16	
P-1	1.68	3	1.68	1	
at the second	1.23	1	1.35	4	





. The Angel Grigor grand Color



The increase in the number of results out of control is attributable to the increase in precision, which caused many results to fail on the low side. The average range for the last 48 AT titrations was 0.88%, as compared to 0.54% for 64 results in February.

The standard iron solution used in the Isolation Laboratory to check the chemical titration of plutonium was analyzed a total of 120 times during the month. There were 64, 36, and 20 results inside 1%, 2%, and outside 2% of the assay value, respectively. The average precision for duplicate titrations was 2.16% as compared to 1.92% for February. A summary of the results follows:

Assav Value Group Ave.		Z Diff.	No. Determinations	Precision (=5) Single Duplicate	
14.84	14.81	- 0.2	28	2.80	1.98
12.68	12.65	- 0.2	24	2.84	2.01
14.84	14.73	- 0.7	24	2.79	1.97
10,18	10.21	+ 0.3	22	1.68	1.33
13.57	13.54	- 0.2	22	5.11	3.61

The synthetic 8-1-MR was analyzed 15 times in the B & T Plant Control Laboratory (222-B). The standard precipitation procedure was used, with the percent recovery based on 2.077 x 10<sup>5</sup> c/m/ml. The group average was 2.033 x 10<sup>5</sup> with 97.7% recovery.

In an attempt to make the monthly average percent, reported, more truly representative of the actual control performance, certain minimum values have been established, which limits must be exceeded or a rerun is required. 1.970 x 10° c/m/nl has been so established as this critical lower limit, and all synthetic 8-1-MR values from September 1946 have been recalculated on that basis. The results since January 1, 1948, as recalculated, are as follows (expressed as c/m/ml):

Month	No. Sets of Discs. 2	Recovery
January sperintender 2.007 to the second	THE CONTRACTOR OF THE PROPERTY	96.7
Februaryng o formal 2.008s (m)	and the contract of the contra	97.9

### 300 Area and Essential Moterial Control

The routine analytical control in these laboratories proceeded without incident.

#### Analytical Development - Redox

A spectrophotometric method for the determination of trace amounts of UNH based on the color formed from U (IV) and the dye Alizarin Rod-S was investigated. The method is quite sensitive, the working range being from 50 to 300 micrograms at a dilution of 50 ml. However, the color developed fades rapidly, making the method unsatisfactory for control analysis. The spectrophotometric method for UNH, utilizing ascorbic acid as the color developing reagent, was found to be satisfactory for control analysis. Iron below 400 micrograms does not interfere; chronium above 100 micrograms and aluminum above 1000 micrograms interfere and must be removed.

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Preliminary results indicate that UNH in amounts as low as 3 micrograms may be detected spectrographically. The possibility of adapting this technique to quantitative control analysis is being studied.

The 100 standard solutions required for the preparation of the working calibration curve for determination of UNH in Redox solutions using the X-Ray Photometer have been prepared. The X-Ray absorption of these solutions will be determined as soon as satisfactory attenuator blocks are fabricated.

Attempts to determine hydrazine spectrophotometrically using salicylaldehyde or p-dimethyl amino benzaldehyde were not successful. A gravimetric procedure based on the precipitation of the hydrazine with salicylaldehyde was found to give low results; an average recovery of 94.3% was obtained with a standard deviation of 1.9%. A volumetric method for pure hydrazine sulfate based on the oxidation of the hydrazine by KBrO<sub>3</sub> in the presence of KBr was found to give reliable results. Attempts to determine hydrazine in the presence of ferrous iron by means of a potentiometric titration were unsuccessful. The removal of the iron by precipitation with socium hydroxide gave satisfactory separation.

Methods for the analysis of mixtures of Pu(III) and Pu(IV) at tracer concentrations are being investigated. The ability of zirconium phenyl arsonate (ZPA) to carry Pu(IV) and not carry Pu(III) is being studied as the basis for a control method. A stock solution of Pu(IV) was prepared by reducing a pure plutonium nitrate solution with hydroxyl amine hydrochloride, then exidizing the Pu(III) formed to Pu(IV) with potassium bronate-potassium branide solution. On four analyses of this solution the average ancunt of Pu carried by the ZPA was 98.2%. The ZPA precipitate cannot be mounted on platinum for counting directly as it gives a high absorption loss. The ZPA precipitate is dissolved with HF, a LaF3 precipitation is under, and this precipitate mounted on platinum for counting. The ZPA precipitate can be vashed with 0.5 ml. of a solution IN an HNO3 and containing 10 mg/Hz of piccyl arsonic acid, with an average loss of product of 0.34% per wash. Present results indicate that Pu(III) is not carried by the ZPA. As a result of these investigations, a tentative procedure for the analysis of Pu(IV) was issued. This procedure will be studied using known mixtures of Pu(IV) was issued. This procedure will be studied using known mixtures of

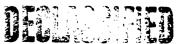
Investigation of the potassitin fluoride nethod for the determination of nitric acid indicated that some of the nimitation of the presence of small amounts of fluoridicate in the reagent. This interference was minimized on aqueous solutions by adding a large excess of aluminum nitrate to the sample before titration. With hexone samples the reagent is adjusted to a definite pH, the sample added, and then titrated with sedium hydroxide to the same pH as used for adjustment of the reagent.

#### Analytical Development - Miscellaneous

A preliminary survey of the lead-dip canning bath composition has shown that lead is appreciably soluble in aluminum-silicon and does not segregate on chilling. On this basis, work is proceeding on the development of a spectrographic method for lead in this matrix.

The collection of data on the performance of ASP counting instruments using 1 mil electrodes versus two mil electrodes continued. Contrary to previous concepts of plateau characteristics, the ASP instruments tend to plateau in a







region where the geometry ranges from 50.7 to 51.2%. Both the one mil and two mil electrodes exhibit this characteristic. The one mil electrode was expected to plateau at a significantly lower voltage than the two mil electrodes. Data collected thus far do not confirm this, and no significant difference seems to exist between the two types of electrodes.

The Development Group of the Instrument Department submitted a modified SP instrument to the Technical Department for experimental tests. The input and amplifying circuits of this instrument have been altered so that the pulse selecting circuits receive a much larger signal voltage. This change was made on the theory that the larger the signal voltage available, the less the instrument is susceptible to fluctuations in counting due to exterior influences as well as to variations in the electronic circuits themselves. Preliminary data collected on plateau characteristics indicate the instrument has better plateau characteristics than the regular SP. The instrument also plateaus in a region where the geometry is around 51%.

### Special Hazards Control

The design of a "hot" laboratory table has been completed, and construction of a nodel will begin as soon as copies of the drawing are received. The table will be constructed with a channel iron frame, a steel supporting top, and an interchangeable stainless steel covering plate. This heavy construction is being adopted so that a considerable amount of portable shielding can be utilized. The unit will be built on a six-foot nearle so that a maximum of flexibility can be obtained.

The second test of the use of rubber gloves in the Isolation Blog. Laboratory was completed during the north. Since a slight decrease in continuously hand frequency and severity was noted, and since an general increase in the amount of contamination found about the laboratory was indicated, the use of rubber gloves during plutonium solution transfers was adopted as standard practise.

### STATISTICAL STUDIES

### Graphite Quality

Proviously, it was found that the graphite bars from the bottom row of the heat treatment furnace were of much lower quality than the graphite from the upper six rows. In the upper six rows there was a gradual, though slight, improvement in quality from the sixth row to the top row. The Pila Physics Division requested an estimate of the sample sizes required to establish the average quality of both the upper six rows and the seventh row within \$2.05 \text{din}\$ and \$2.10 \text{dih}\$ at the \$95\% confidence level. From the bottom row, twenty-four individual bars are required for a precision of \$2.05 \text{dih}\$ and 6 bars for \$2.10 \text{dih}\$. With a random sample from the upper six rows, \$147\$ bars are required to establish the average within 0.05 \text{dih}\$ and 36 bars for \$20.10 \text{dih}\$. Using a systematic sample from the upper six rows designed to remove the effects of the slight trend from row to row, nine individual bars are required for a precision of \$20.05 \text{dih}\$.

### Correlation of Billet Density with Nitrogen and Carbon

Data submitted by the Bldg. 314 Plant Assistance Group, consisting of 34 chemical analyses of uranium metal billets, gave a significant multiple correlation coefficient of 0.9615 between density vs nitrogen and carbon. This means that



variations in nitrogen and carbon accounted for 92% of the variation in density. The correlation coefficient between density and carbon was -0.9349, and between density and nitrogen -0.6160, thus indicating that carbon had the greater effect on density.

### Slug Can Wall Thickness

All inspection reports to date on the minimum thickness of 4-inch aluminum can walls were reviewed. The standard deviation of measurements from 540 cans, 4 different can series, 3 inspectors, and 2 different gauges were consistent with the tentative sampling plan that previously had been set up on the basis of extensive measurement on 30 cans.

Control charts plotted from data obtained during the routine inspection of 4-inch aluminum cans for minimum wall thickness revealed striking differences between groups of cartons bearing different manufacturers sories numbers. The P Department will find out from the manufacturer what a series number designates. This lack of control on the part of the manufacturer increases the number of rejects and the amount of inspection required at Hanford.

### Canning of "I" Diameter Slurs

Data from PT 313-101-M submitted by the Bldg. 313 Plant Assistance Group revealed that reducing slugs from "A" diameter to "I" diameter failed to influence significantly the number of non-sect rejects.

#### Slug Blistoring

Pile discharge data from slug blistering experiments are being reviewed. Thus far the alpha rolled material shows great advantage over regular gamma extruded. Slugs canned under PT 313-94-M to study the effects of alpha rolling, gamma extrusion, lead dipping, triple dipping, and outgassing on the blistering tendency of slugs, and charged in the 100-D Pile under PT 105-119-P, have been partially discharged and examined for extent of blistering. Mone of the alpha rolled lead dipped slugs discharged to date have shown any tendency to blister at normal concentration. The comparisons showed the following:

- (1) Whether lead dipped, triple dipped, outgassed or unoutgassed, the alpha rolled slugs were less susceptible to blistering than gamma extruded slugs.
- (2) The lead dippod rolled slugs are less susceptible to blistering than triple dippod rolled slugs.
- (3) Triple dipped gamma extruded slugs are less blistored than lead dipped gamma extruded slugs.
- (4) Outgassing appears to inhibit slightly the blistering of gamma extruded slugs.
- (5) There was no difference in the blistering tendency of slugs from UM and G billets.









Further data from this experiment will be available during April. Some of the tubes in this experiment will be exposed to higher than normal concentration.

### UNH ve Specific Gravity of Redox Samples

A second degree equation fitted to data for all Redox sampling positions for the hexons phase gave a correlation coefficient of 0.9935 between specific gravity and UNH. From this relationship the UNH in the hexone layer can be estimated from the specific gravity with a precision comparable to the present analytical error of the UNH analysis.

### Coincidence Studies

In response to a request from the Instrument Department, the probability distribution of time intervals between disintegrations from a radioactive substance for any given disintegration rate was derived. The theoretical distribution obtained was checked against data taken from Esterline Angus charts which the H. I. Department had submitted in conjunction with another problem now in progress. The theoretical and observed distribution checked very closely. This theoretical distribution permits a nore direct approach to the estimation of coincidence losses in counting the disintegration from radioactive substances.

### Hand Counting

In conjunction with the H. I. Department, a procedure has been devised to compute the minimum hand counting time necessary to obtain a satisfactory differentiation between contaminated and non-contaminated personnel. The procedure gives the warning level to be used in conjunction with the minimum time.

#### Film Badge Data

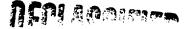
Results of the examination of film badges issued to 300 Area P Department personnel covering the period from December 27, 1947 through February 6, 1948 were submitted by the 300 Area Survey Group of the H. I. Department. Significant differences in film readings were found between groups of individuals performing different types of work. Contrary to expectations, significant differences were found between the average weekly readings for all individuals. There was no interaction between groups and weeks, indicating that the weekly differences are due to testing procedure. A significant corrolation coefficient of \* 0.4120 was found between the open window and shielded badge readings. However, this coefficient indicates that only 16% of the variations in the readings are accounted for in the relationship between the two types of badge readings.

### Building Site Contomination

At the request of the H. I. Department, an estimate was made of the highest and lowest amount of particle contamination over a proposed building site area which could reasonably result in the number of particles actually observed in a relatively small sample of that area.

#### Blocd Count Data

Analyses of variance to study the effects of seasons and ages on the male preemployment red and white blood counts were computed. Non-orthogonal analyses of





variance were used to take into account the differences in number of males examined in each month and age group.

### INFORMATION DIVISION

### General

Conferences were held during the month with Rear Admiral W. C. McCauley and R. C. Robin, Assistants to Mr. Neblett, and with Joseph P. Brennan, consultant to the Records Management Branch of the A.E.C. in Washington, D. C. Mr. Neblett's Assistants were interested in the development of a common set of subject headings which might be used to standardize the filling of correspondence throughout the General Electric Nucleonics Project. Mr. Brennan was exploring, for the A.E.C., the possibility of microfilming and storing for safe keeping important and basic project reports and data in order that essential records would be preserved in the event of unexpected catastrophe.

### Plant Library

Work on the acquisition, cataloging, and circulation of books proceeded on a routine basis, with a number of procedures introduced to simplify routines.

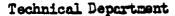
The mechanics of book requisitioning, formerly handled in the Division office, were transferred to the acquisition and c\_taloging unit in the W-10 building to round out the originally planned functions of that group. Since it is necessary to check the card catalog and the on-order file to prevent duplication of purchases, and to check the book indexes for publishing information and Library of Congress catalog card numbers, it has greatly simplified matters to make the job of checking orders and proparing requisitions a dual responsibility of one office.

Further streamlining of the order procedure was instituted by the receipt of a large shipment of scrip from the United States Government Printing Office. This is to be used in handling expeditiously and economically a great many Information Division purchases of minor and inexpensive government publications from the Superintendent of Documents in Washington, D. C., without the necessity of preparing a formal requisition for each item. This is the same principle being employed to expedite ordering of photostat material by the purchase of blocks of coupons from the American Chemical Society. In connection with the purchase of photostats, special arrangements were completed for the handling of emergency requests. Such requests will be transmitted to the Schenectady office of the A.E.C. by teletype, and from there to the Research Laboratory Library in Schenectady which will return the photostats by air mail. Experience to date indicates that this procedure reduces the average wait for photostats to one week, versus 3 weeks when the A.C.S. coupon service is used.

Issuance of the Division's publication, the INFORMATION BULLETIN, was further delayed by the problem of bringing it up-to-date so that when issued it will contain all the library additions for the first quarter of the year. In this connection, arrangements were completed with the Information and Publication Division of the Brookhaven National Laboratory to obtain a weekly supply of their lists of current periodical articles on atomic research. These lists will



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comprise an insert to the Hanford publication, and will greatly extend the usefulness of the literature searches being carried on by the Brookhaven group.

Library statistics were as follows:

	February	Morch
Number of books on order received ·	743	272
Number of books fully cataloged	410	413
Number of periodicals processed but not fully cataloged	26	326
Pamphlets added to pamphlet file	515	109
Miscellaneous material received, processed and routed (includes maps, photostats, patents, etc.	) 16	43
Books and periodicals circulated	563	622
Reference service rendered	221	347

The present library bock collection is approximately as follows:

Number of books 2700

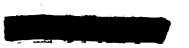
Number of periodicals 1260

### 300 Area Classified Files

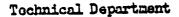
The receipt, processing, and circulation of MDDC reports has been transferred permanently from the Classified Files unit to the Library. The stock of these reports in the 300 Area and 700 Area Classified Files has been moved to the Library and will be consolidated. Outstanding copies not in active use are being called in and in future copies requested will be charged out for a specific interval in the same manner as library books are handled.

A check list of MDDC reports and index cards missing from the files was completed and forwarded to the A.E.C. Technical Information Branch at Oak Ridge. Approximately half of the missing reports have been received, and in addition a decision was reached that three copies of each report, rather than the eight at present being received, would take care of future requirements.

Following receipt of a requested quota of the "abstracts of Declassified Decuments," the positive (unsolicited) routing of MDDC reports was discontinued in favor of the distribution of the "abstracts" which will become permanent reference copies in the files of the recipients. The new procedure has been well received except for the single criticism that in some instances the receipt of the "abstracts" on site precedes by some weeks the receipt of the actual reports.





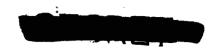


A similar procedure has been worked out in the handling of the A.E.C. "Guide to Published Research on Atomic Energy," of which a requested supply was received and distributed according to the list set up when the Technical Department was circularized some time ago. Distribution of both these publications will be handled by the Library as part of its standard routine for the circulation of periodicals.

en e	February	March
Documents routed	4235	3700
Documents issued	886	973
Reference services rendered	2414	2050







# POWER DEPARTMENT MARCH 1948

### GENERAL

All shipment of coal to the plant stopped during the month due to the coal strike. Approximately 1800 tons of coal was trucked from the 100 F Area stockpile to supply other areas where shortages existed.

A survey of all Area coal stockpiles was completed on March 31. Results of the survey indicate an overall gross shortage of 4.06 per cent below the inventory book record. This difference is within the accepted range of survey accuracy.

### PERSONNEL AND ORGANIZATION

	No.	of employees	on payroll		March
		Beginning of End of month	month	٠,	495 491
7.4	Net	decresse			4

The indicated net decrease in personnel was a result of the transfer of the former department Superintendent and secretary to the Management group, transfer of one operator to Project Engineering Department and the termination of four operators. Three operators were employed.

### 100 AREAS

The work on repairing leaks in the B Area North clearwell, started in February, has been completed and tests have shown it to be satisfactory.

The West filter influent flume in the F Area filtration plant was removed from service from March 1 to March 5 for repairing leaks in expansion joints.

The North clearwell in D Area was out of service from March 15 to March 19, and repairs made to leaks in expansion joints, sloping walls, and influent flumes.

Upon request of the "P" Department, the water flow to 105 Building was reduced to 500 gpm in successive steps, during the period of March 1 through March 5.

A surge occurred on the export water system on March 14 when a pump relayed out in D Area. The system was restored to normal, the electrical system checked, but no evidence of the cause has been determined.

The South half of the B Area retention basin was chlorinated, at the "P" Department's request, to kill algae on the bottom and sides of the basin.





### Power Department

Lay-up of York refrigeration equipment in D Area was completed during the month. This work is now in progress for F Area, and inspection reveals damaged labryinth seals on Nos. 1, 2, and 3 units.

Filtration plant flow tests started in February in D and F Areas were continued throughout the past month. Both areas operated with ten filters and sedimentation basins, within the established limits.

#### 200 AREAS

A series of tests were started and are in progress in the West Area filtration plant to determine effects of increased flow rates. Sufficient data has not been accumulated to make definite conclusions at this time.

The railroad serving the West Area power house was cut on March 16 to excavate for construction work, and will be out of service for several weeks.

### 300 AREA

Construction of new boiler in the heating plant, the new sanitary water high tank, and two new well pump installations are nearing completion.

### 700 AREA

On March 13 connections were made providing steam and water service to the new wings of the Administration Building.

#### 1100 AREA

Necessary connections were made to domestic water system to supply service to the "A" and "E" housing areas and the multiple housing unit during the month.

The Nos. 1 and 6 Village irrigation systems were placed in service. The remaining four systems have been delayed awaiting extensive repairs to distribution lines damaged by construction of new housing.

### MISCELLANEOUS POWER AREAS.

A representative of the Pondor Engineering Co. inspected the oil furnaces at the Pasco Storage Depot on March 6. Recommendations will be submitted for equipment modification for safer operations.

The White Bluffs water system was out of service on March 23 and connections made to a new water storage tank.







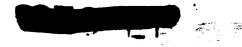
### POWER DEPARTMENT STATISTICS

From March 1, 1948

Thru March 31, 1948

<del>:</del>		AREAS	
	<b>L</b> ọọ►B	100 <b>-</b> D	100-F
RIVER PUMP HOUSE (Building 181)  (max)  River stage Feet above seal level (min)	386.5 385.0	379.2 377.9	305.7 364.3
River temperature avg. of. Water pumped to Reservoir gpm avg. rate Water pumped to Refg. Condensers gpm avg. rate	385.7 40.1 12912	378.6 39.9 38398 0	384.7 387 33147 0
RESERVOIR (Building 182)			
Water pumped to Filter Plant gpm avg. rate Water pumped to Condenser System gpm avg. rate gpm avg. rate gpm avg. rate gpm avg. rate gpm normal rate chlorine added at #1 inlet pounds	12209 681 22 3287 6493	32321 3835 2232 3287 9550	28962 3152 1033 3287 5500
FILTER PLANT (Building 183)			
Filtered water to Power House gpm avg. rate Filtered water to Process gpm avg. rate Filtered water to Fire & Sanitary gpm avg. rate Chlorine used in Water Treatment pounds	113 10532 72 967	306 28418 91 5250	251 26087 115 4500
Lime used in Water Treatment pounds  ppm avg.	1.5 20917 4.6	1.10 41800 3.5	30000 30000 2.8
Coagulant used in Actor Treatment pounds ppm avg.	71865 15.8	190960	170000
Raw Water pH pH avg.  Finished Water pH pH avg.  Alkalinity, M. O Raw ppm avg.	7.73 no analysis 55	8.04 7.42 57.5	8.0 7.45 62 56
Finished ppm avg.  Residual Chlorine - Settled ppm avg.  Finished ppm avg.  Finished ppm avg.  Finished ppm avg.	.25 .08 .24		.22
North Clearwell ppm avg. South Clearwell ppm avg.	no analysis no analysis 69	.023 .026 72.9	.02 .02 76
Hardness - Finished ppm avg.  Turbidity - Raw ppm avg.  Filtered ppm avg.	12.3 no analysis	12.2	10.0
REFRIGERATION (Building 189)		•	
Rofrigeration produced Tons per day Temperature, Process Water In avg. F. Temperature, Process Water Out avg. of.		0 - -	0





From March 1, 1948

Thru March 31, 1948

Steam generated - Total	M pounds	35926	110124	94258
Average rate	lbs./hr.	48288	148016	126690
225 psi Steam to plant (cst.)	M pounds	31551	95933	82506
15 psi Steam to plant (est.)	M pounds	64	976	44]
Coal consumed	Tons	2301	7245	6234
Coal in storage (cst.)	Tons	20441	•	
Sour in acouste (eac.)	lons	20441	42149	<b>394</b> 90
DEASRATOR PLANT (Building 185)				
Water flow	gpm avg. rate	10282	28128	25837
Chemicals consumed:	<b>.</b> .		, .	
Dichromate	pounds	8293	19500	20500
Sodium Silicate	pounds	84750	201740	212860
Chemical Analysis:	pouzius	02.00	2027 10	111000
pH	gvs Eq	7.67	7.66	7.67
Dichromate	pom avg.	No analysis		2.0
Silica	pom avg.	No analysis		
Dissolved Iron			.022	•02
Free Chlorine	bbm cag.	.08		.13
rige childring	bom cad.	•00	• 12	•10
PROCESS PULP ROOM (Building 190)	• 1.			
Total water pumped	gpm avg. rate	10247 to 10247	27953 31407	25662 30944
Water temperature	avg. oF.		42.6	42.4
Water temperature  VALVE PIT (Building 105)				
VALVE PIT (Building 105)		44.4 		
VALVE PIT (Building 105). Chemicals consumed:	avg. °F. ;	44.4 	<b>42.6</b>	42.4
VALVE PIT (Building 105). Chemicals consumed: Solids	avg. °F. ;	44.4 		
VALVE PIT (Building 105). Chemicals consumed: Solids	avg. °F. ;	44.4 	<b>42.6</b>	42.4
VALVE PIT (Building 105).  Chemicals consumed: Solids Chemical analysis: A, B, C & D Headers	avg. °F. ;	44.4 	42.6 2250	42.4
VALVE PIT (Building 105).  Chemicals consumed: Solids Chemical analysis: A, B, C & D Headers Standard limits	pounds	44.4	42.6 2250	1900
VALVE PIT (Building 105).  Chemicals consumed: Solids Chemical analysis: A, B, C & D Headers Standard limits	pounds	44.4	42.6 2250 7.70	42.4 1900 7.70
VALVE PIT (Building 105).  Chemicals consumed: Solids Chemical analysis: A, B, C & D Headers Standard limits	pounds  pH. (	0 mex) 7.70 min) 7.60	42.6 2250 7.70 7.60	42.4 1900 7.70 7.60
VALVE PIT (Building 105).  Chemicals consumed:     Solids Chemical analysis:     A, B, C & D Headers     Standard limits pH 7.5-7.8	pounds  pH (	0 max) 7.70 min) 7.60 avg) 7.68	42.6 2250 7.70 7.60 7.67	1900 7.70 7.60 7.65
VALVE PIT (Building 105).  Chemicals consumed: Solids Chemical analysis: A, B, C & D Headers Standard limits	pounds  pH (  ppm (	0 mex) 7.70 min) 7.60 evg) 7.68 mex) 6.0	2250 7.70 7.60 7.67 6.5	1900 7.70 7.60 7.65 6.5
VALVE PIT (Building 105).  Chemicals consumed:     Solids Chemical analysis:     A, B, C & D Headers     Standard limits pH 7.5-7.8	pounds  pH (	0 mex) 7.70 min) 7.60 evg) 7.68 mex) 6.0 min) 5.0	2250 7.70 7.60 7.67 6.5 5.5	42.4 1900 7.70 7.60 7.65 6.5 5.0
Chemicals consumed: Solids Chemical analysis: A, B, C & D Headers Standard limits pH  Si02	pounds  pH (  ppm (	0 mex) 7.70 min) 7.60 evg) 7.68 mex) 6.0 min) 5.0 evg) 5.3	2250 7.70 7.60 7.67 6.5 5.5 5.9	1900 7.70 7.60 7.65 6.5 5.0 5.8
VALVE PIT (Building 105).  Chemicals consumed:     Solids Chemical analysis:     A, B, C & D Headers     Standard limits pH 7.5-7.8	pounds  pH (  ppm (  ppm (	0 mex) 7.70 min) 7.60 evg) 7.68 mex) 6.0 min) 5.0 evg) 5.3 mex) 2.1	2250 7.70 7.60 7.67 6.5 5.5 5.9 2.0	1900 7.70 7.60 7.65 6.5 5.0 5.8 2.1
Chemicals consumed: Solids Chemical analysis: A, B, C & D Headers Standard limits pH  Si02	pounds  ppm (	0 mex) 7.70 min) 7.60 evg) 7.68 mex) 6.0 min) 5.0 evg) 5.3 mex) 2.1 min) 1.9	2250 7.70 7.60 7.67 6.5 5.5 5.9 2.0 1.9	1900 7.70 7.60 7.65 6.5 5.0 5.8 2.1 1.9
VALVE PIT (Building 105).  Chemicals consumed:     Solids Chemical analysis:     A, B, C & D Headers     Standard limits pH 7.5-7.8  SiO <sub>2</sub> Na <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> 1.8-2.2	pounds  pH (  ppm (  ppm (	0 mex) 7.70 min) 7.60 evg) 7.68 mex) 6.0 min) 5.0 evg) 5.3 mex) 2.1 min) 1.9 evg) 2.1	2250 7.70 7.60 7.67 6.5 5.5 5.9 2.0 1.92	1900 7.70 7.60 7.65 6.5 5.0 5.8 2.1 1.9 2.0
Chemicals consumed: Solids Chemical analysis: A, B, C & D Headers Standard limits pH  Si02	pounds  ppm (  p	0  mex) 7.70  min) 7.60  evg) 7.68  mex) 6.0  min) 5.0  evg) 5.3  mex) 2.1  min) 1.9  evg) 2.1  max) .03	2250 7.70 7.60 7.67 6.5 5.5 5.9 2.0 1.9 1.92	1900 7.70 7.60 7.65 6.5 5.0 5.8 2.1 1.9 2.0
VALVE PIT (Building 105).  Chemicals consumed:     Solids Chemical analysis:     A, B, C & D Headers     Standard limits pH 7.5-7.8  SiO <sub>2</sub> Na <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> 1.8-2.2	pounds  ph (  ppm (  pp	0 mex) 7.70 min) 7.60 evg) 7.68 mex) 6.0 min) 5.0 evg) 5.3 mex) 2.1 min) 1.9 evg) 2.1 mex) .03 min) .005	2250 7.70 7.60 7.67 6.5 5.5 5.9 2.0 1.9 1.92	42.4 1900 7.70 7.60 7.65 6.5 5.0 5.8 2.1 1.9 2.0 .02
VALVE PIT (Building 105).  Chemicals consumed:     Solids Chemical analysis:     A, B, C & D Headers     Standard limits pH 7.5-7.8  SiO <sub>2</sub> Na <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> 1.8-2.2	pounds  ph (  ppm (  pp	0  mex) 7.70  min) 7.60  evg) 7.68  mex) 6.0  min) 5.0  evg) 5.3  mex) 2.1  min) 1.9  evg) 2.1  max) .03	2250 7.70 7.60 7.67 6.5 5.5 5.9 2.0 1.9 1.92	1900 7.70 7.60 7.65 6.5 5.0 5.8 2.1 1.9 2.0





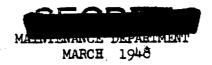
From March 1, 1948

Tor' April 1, 1948

	Unit		200 Arc	128	
		2	<u> </u>	200-77	
Reservoir (Building 282)		_			
Raw water Pumped	gpm avg. rate	:	1755	1531	
Filtor Plant (Duilding 233)					
Filtered Water Pumped	gpm avg. rate		377	423	
Chlorino Consumed	1b.		185	24 <b>1</b> 2800	
Alum Jonsumod	lb.	,	1800		
Chlorine Residual - Sanitary	urrer bom	•	•6	8	
Power House (Building 284)					
Steam Generated - Total	H 1b.	2	1951	29439	
Steam Generated - Ave. Rate	lb./hr.		9504	39570	
Coal Consumed (Est.)	tons		1394.	1752.	
Coal in Storage (Est.)	tons		2378	16377.	
			300, 700,	1100 Areas	
		300	700	1100	
Power House (Buildings 384 and	d 784)				
Steam Generated - Total	11 1b.	11437	25274		
Steam Generated - Avg. Rate		15372	33970		
Coal Consumed - Total (Est.)	tons	684	1981		
Coal in Storage (Est.)	tons	1191.4	5157		
Sanitary and Fire System (110					
duitouty did Tilo by both (110	<u> </u>				
Well Water Pumped - Total	gal.			95,348,000	
Well Mater Por Day	gal/day			3,076,000	
Well Water	gpm avg. rate			2,136	
Chlorine Residuel	ppm			0.2	
Sewage Treatment Plant (1100	arca)				
Total Sewago Treated	gal.			62,400,000	
Source Treated Per Day	gall/day			2,013,000	
Sownge Flow	gpm avg. rate			1,398	







#### GENERAL:

There were no major or sub-major injuries in the Maintenance Department during the month of March The 100 Areas are currently leading in the Safety Derby and the picnic is scheduled for May 5.

Work continued on an emergency basis in the 200 Areas fabricating and installing special filters and scrubbers in the canyon cells in order to reduce ground contamination near the 291 stacks.

Ground was broken in the 300 Area for two new Minor Construction projects. One was the Nine Tube Mock-up, Building 305-A, for the Technical Department and the other was the Optical and Electrical Building 3708. Work also started in Building 3706 on the project for conversion of offices to laboratories.

In the 700 Area, the new Gate House, Building 701-B, was completed and is ready for use as soon as the new parking lct along Stevens Drive is completed. The South additional wing to the Administration Building 703 was completed during the month and is now completely occupied. The North wing will be completed by April 20. These two wings comprising 12,800 square feet of floor space were completed in five months construction time.

## ORGANIZATION AND PERSONNEL:

Number	of employees on payroll		March
	Beginning of month		712
•	End of month	1	<u>705</u>
	Net Decrease		7

Decrease in personnel shown above is due to normal turnover.

#### WORK ORDER SUMMARY:

Area	Backlog Man-Days 4-1-48	Men on Roll	Backlog Cays 4-1-48
100	2992	121	24
200	15895	184	86
300	1288	74	17
700	3137	108	29
M.C.	5350	119	1.5
Total	28663	606	47





In previous monthly reports the sacrog figures have been obtained from the Work Order Cost Accounting Section. The figures given above have been obtained direct from the foremen through Maintenance supervision. The net result is approximately the same although the method of computing is different. At the end of last month a forty-eight day backlog was reported compared with the forty-seven given above. The 200 Area shows the largest backlog because of the large volume of construction work on waste line systems now in progress. Several more crews of men are being transferred to the 200 Area to reduce this backlog and speed up the construction work. The 300 Area shows the smallest backlog largely due to the fact that a number of men were transferred into this area last month so that the Redox scale-up construction could be expedited and this work is scheduled for completion some time in April.

# 100 AREAS:

#2 horizontal rod in the 105-B Pile was reduced in thickness 3/16" by milling the rod without removing it from its working position. The Aimer track on the "D" elevator was removed to provide room for the installation of special charging equipment that will be installed on this elevator.

The north clearwell of Building 183-B developed serious leaks shortly after the 36"pipe line failure last January. In order to determine the cause of these leaks, lll-22" dismeter holes were drilled in the floor and gunnite slope in the search for cavities in the sub-grade. Approximately 20 yards of cement mud mix were pumped beneath the floor with a mud pump. Regains were made on the horizontal and vertical expansion joints.

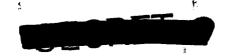
The gun barrel shortening and vanstone repair work on the 105-I Pile that has been carried on during the past five months has been completed. 1998 tubes were inspected, front and rear. 629 repairs were made. Process tubes #2464, #3672, and #3684 were replaced with new 28 aluminum tubes.

The north half of the west wall and the entire length of the north wall of the 107-D basin was increased in height by adding two courses of concrete building block and one course of concrete brick. This was done to prevent water from splashing over then the high winds hit the basin.

The north clearsell in Building 183-D developed serious loaks. The expansion joint in the top of the gunnite slope along the west wall of the well was caulked originally with asbestos rope which did not expand and hold the water back. The asbestos rope was removed from the joint and caulking compound was placed in the bottom of the joint. One-inch thick strip of wood was pressed into the top of the opening.

The gun barrel shortening and vanstone repair work on the 105-F Pile that has been carried on during the past five months has been completed. 1942 tubes were inspected, front and rear. 1377 repairs were made. Process tubes #1481, #1875, #2078, and #3282 were replaced with new DR tubes. Special equipment was developed to remove the leaking bellows from process gun barrels #1867 and #3757. New bellows were installed

Steel ladders were fabricated and installed at the 115 and 105 ends of the pipe tunnel between these buildings in "F" Area. This permanent ladder





# 3 Maintenance Department



installation eliminates the contaminated portable ladder situation that has existed previously.

Three horizontal rod tips were fabricated, crated, and placed in storage in the 100-D Spare Parts warehouse.

An underwater micrometer was fabricated for the Technical Department from their drawings to be used to accurately measure process metal dimensions in an underwater position. The entire assembly was made of stainless steel and brase to prevent corrosion and rust.

#### 200 AREA:

The fabrication and installation of chemical warfare filter units in each cell of the T and B canyon Buildings was completed.

Installation of #2 replacement exhaust fan at the T Canyon Stack has been completed. This fan is equipped with stainless steel duct work, of which the discharge section may be removed by remote control, also the complete fan assembly may be installed or moved remotely.

The 8-2 Centrifuge in T Canyon failed in service when a spray line gasket leaked. This machine was moved from position to storage and the 7-2 centrifuge moved to the 8-2 position for service.

The following replacements were made in the Concentration Buildings cell vessels:

E-1 Tank	T-Building	Thermo well,
D-3 Tank	B-Building	Thermo well;
D-1 Tank	B-Building	Dip tute
E-1	B-Building	Dip Tube

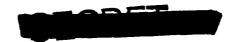
Failure in each case was due to prolonged exposure to corrosive liquids.

Repainting of the interior of East Area Patrol Headquarters was completed.

A new Monel metal washing machine was installed in the area laundry in the #2 position, replacing a machine of wooden construction no longer serviceable.

#### 300 ARMA:

To keep the 314 Melt Plant in operation, it was necessary to fabricate 5 500 stopper rods, 200 rod guides, 100 molds, and approximately 50 crucibles. The machining of this graphite in the Maintenance shop has created a difficult housekeeping problem. "P" Department personnel are being trained to machine this graphite on the lathe in the 314 melt plant.





# Maintenance Department

A three-inch diamete. extrusion press ram and container liner were made for use in experimental alpha-phase extrusion. During the test the ram failed. An experimental three hole die is now being made for further experiments.

The crucible support plates in both of the Melt Plant furnaces warped to the extent that the furnaces could no longer be used. It was necessary to straighten these plates and to weld in additional brackets and plate stiffening members to prevent a recurrence of this warping.

Considerable experimental installation work was done during the menth on the Redox domenstration unit. This work included the dismantling, cleaning, and reassembling of three of the glass columns, and the installation of a new five-inch stainless steel column.

An X-ray laboratory and dark room was installed in room 31 of the 3706 Building. The conversion of rooms 97 and 99 to chemical laboratories was completed. In addition, the experimental machine shops in room 38 and 42 are being revised with the addition of various new shop equipment.

The work on the Redox scale-up unit has progressed as rapidly as possible with the material on hand. In the past week various items, which have been delaying the job, were received, and it is expected that the job will progress faster from now on. This job is approximately thirty percent complete.

#### 700 AREA:

The remain of the Village irrigation system is in progress. Section Number 6 is complete and in operation. Sections Number 1, 2, and 5 will go into operation scon. Anticipated completion of the entire system will be approximately April 16.

Architectural and machinery layout changes were made in the 760 Blueprint Room to increase production. These changes included the removing of three partitions, relocating present equipment and adding a new Ozalid Frintmaster machine.

The interior painting program in the Kadleo Hospital is in progress. It is planned to paint all the patient's rooms in pastel colors, and the corridors are to be lightened up.

With completion of the new wings of the Administration Building a large number of office moves are being made. This entails a continuous program of minor alterations in the old sections of the building to accommente new occupants.





# PROJECT ENGINEERING DEPARTMENT

# March 1948

#### GENERAL

The Project Engineering Department has as its responsibility decign and related engineering duties connected with authorized requests for work emanating from the Hanford Works Plant. The requests for engineering studies and project proposals in general will come from Works Engineering and Operating Departments.

As per Engineering Request Procedures of February 18, 1966, requests as mentioned above will be initiated on a Work Order accompanied by a reason sheet and shall be directed to the office of the Works Manager pending procedures forthcoming from the Project Engineering Department.

CECANIZATION & PERSONALL	Maurah.	
Mumber of employees on payrull		
Beginning of Weath	154	
End of Month	173.	

Wet Increase

The following personnal changes were made:

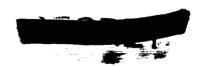
# Added to rell:

		Finks Fulton	Programme	Transferred	from	the	H. I.	Department
J.	L.	Howard		Transferred Decartment	frem	ti:e	Trans	portation
W.	L.	Goss		Transferred	from	the	Power	Department

#### New Employees

V.	S.	Johnston Fox Martin	Personnel added to department to take care of additional blueprint reproduction due to demands of the Construction, Design and Project Engineering Departments.
			Englacing Departments





Project Engineering Dept.

# ORGANIZATION & PERSONNEL (Cont.)

E. L. Bunker

Replacement for man transferred to the Technical Department as shown on the February report.

# Terminations

W. J. Gilstrap

Terminated due to housing

The force as of March 31, 1948, is as follows:

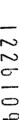
Superintendent Asst. Superintendent Asst. Area Engineers Engineering Group Leaders Engineer Assignment Foreman Total Supervision	1 1 3 4 38 38 3
Draftsman Jr. Engineers Estimators Jr. Draftsman Clerks Jr. Clerks Helpers O. M. O. Stenographers Typist Office Helpers	21 7 4 16 4 5 6 23 11 4 20
	-
Grand Total	171

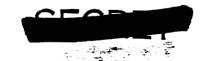
# PRESENT STATUS OF WORK:

# Projects, Suspense Codes Authorized and Under Construction

# 100 AREAS

Project <u>Number</u>	<b>&gt;</b>	% Phys. Complete	Date Auth.	Est. Cost
C-172	Dismantling of Equipment in Demineralization and Deaerating Plants	1	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	n 4	2-10-48	4,000



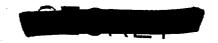


# Projects, Suspense Codes Authorized and Under Construction (Cont.)

# 100 AFEAS

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-238	Effluent Sewer Line 1057 to 1079	0	3-26-48	\$207,000
Susp. C.	Can Opening Facilities	98		7,000
	TOTAL Estimated Cost 100 Areas Pro	jects		\$990,000
	200 AREAS			
C-112	Additional Underground Maste Tank Facilities. (Closing Notice Issued 3-18-48)	100	11-25-46	207,790
C-120	Divert Second Cycle Waste from X-110 (New awaiting results of H. I. Studies on Soil Sampling)	98	1-15-47	134,300
0-126	Install Central Lint Catcher for 2723-W Laundry. (Closing Notice Issued 3-15-48)	100	1-9-47	2,525
C-133	Special Test Wells 200 E & W	91	1-30-47	135,000
C-160	H. I. Shaft at 2/1 B	98	7-14-47	19,000
C-163	Additional Waste Storage and Tie Lines - 200 W (G. E. Portion only - Subcontract not included)	38	7-25 <del>-</del> 47	500,000
C-166	Additional Mitric Acid Storage Facilities	70	7-2-47	57,000
C-171	Alterations to Sim Periscope Assemblies	38	8-6-47	7,200
0-192	Biology Laboratory	0	2-3-48	590,000
C-193	Alterations to Existing Lighting System 272-E-W	80	9-20-47	6, <i>6</i> 00
C-213	Sprinkler System - Railroad Shop Riverland	0	1-13-48	8,200
C-21.5	Addition to Building 2707 EA.	0	2-2-48	4,170

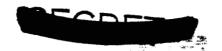




# Projects, Suspense Codes Authorized and Under Construction (Cont.)

# 200 AFEAS

Project <u>Number</u>		% Phys. Complete	Date Auth.	Est. Cost
C-225	5-6 Waste Disposal to Ground			\$ 34,000
s.c.10155	Physical Testing Equipment	65		
S.C.10225	Stack Filtration Facilities 200 E & W. Additional phases contemplated	32		
	TOTAL Estimated Cost 200 Areas Pro	jects	;	12,785,685
	300 AREAS			•
0-122	Additional H. I. Instruments (Closing Notice Issued 3-18-48)	100	1-15-47	105,200
( <del>-</del> 127	300 Area - Increased Capacity of Telephone Exchange (Electrical Dept. will procure and install equipment).	0	5-12-47	30,000
C-1/11	Addition to 3717 Instrument Shop (Closing Notice Issued 3-31-48)	100	3-24-47	90,000
C-142	Motal Custing Facilities Pts I & I	I 96	4-7-47	188,000
C-129	Building 3745-A X-Ray Facilities	70	8-20-47	22,000
C-207	Fire Alarm System for Building 3706 and 3717	10	11-19-47	5,450
C-215	Move Propage Tank - 300 Area (Closing Notice Issued 3-18-16)	100	1-23-43	2,650
C-219	Construction of Additional N. I. Instruments	0	1-27-48	<b>97,2</b> 00
C220	Projects for Optical Building 3708 - 300 Area	2	1-30-48	81.,900
C-223	3703 Office Building Units for Technical	0	3-1-48	93,000
C-227	Conversion of Offices to Labs. Bldg 3706	0	3-15-48	429,0CD
•	Total Estimated Gost 300 Area Proje	ects_	\$1	L.1AŁ.4CO



# Projects, Suspense Codes Authorized and under Construction (Cont.)

# 700 - APMIN. & GENERAL FLANT AREAS

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-138	Bldg. 702 - Automatic Dial. Exchange (Elec. Dept. will procure & install equip.)	3	5-12-47	\$470,500
C-374;	Additional Telephone Cables - Richland (Material partly raceived, but no installation work started)	. 0	5-12-47	45,000
C-14.8	Combined Maint, Shops 700 Area Parts I & II	90	6-25-47	183,950
C-174.3	Expansion of Printing Shop 717 Bldg.	96	7-23-47	16,000
C-175	Sldg. 703 Freight Elevator	90	7-29-4?	9,3400
C-177	115 KV Power Line through Richland Part: II in preparation	0	8-34-47	1,160,700
C-195	Radic Communications for R. R. Dispatching	33	10-15-47	34,000
C-196	Electrical Distribution Headquarter Bidg. & Conversion of 2713 E to Garage	o	10-10-47	162,400
C-202	Gate House & Parking Lots - 700 Are at Stevens Dr. & Swift Elva.	70	11-7-47	31,500
∂ <b>-2</b> 09	Two Story Addition to Bldg 703	75	13-3-47	140,000
C-214	Rahabilitation of Plané Railroad	1	2-18-48	3,274,000
0-217	Addition to Bldg. 760	. 0	2-21-48	113,300
	TOTAL Estimated Cost for 700 Admin. Plant Areas	. & General		\$5,580,050

50



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# Projects, Suspense Codes Authorized and Under Construction (Cont.)

# 1100 AREA

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-134	Richland Village Dust Control & Landscape Program 1947 to June 1948	3 49	12-19-46	\$250,000
C-146	Irrigation Extensions - Village	<b>8</b> 5	3-28-47	90 <sub>3</sub> 000
C-157	Revisions to Kitchens - All "E" Type Houses	98	6-12-47	15,900
C-153	Air Conditioning All Dorms except W-4 & W-13	31	7-28-47	136,800
C-164	Construction & Expansion of Parking Compounds - Village	0	6-27-47	50,700
0-167	Commercial Laundry Add. to Equip. Room. (Closing Notice Issued 3-22-4	.8 <u>1</u> 00	7-1-47	8,000
C-182	Install Sidewalks, Curb & Gutter West Side Geo. Wash. Way, Cillespie to Abbott Streets	0	8-19-47	26,800
C-185	Overhead Doors - 1131 Garage	0	e-26-47	5,500
C-194	Air Conditioning Richland Theater	55	10-1-47	7,000
c-210	Automatic Traffic Signals - Richlar	nd O		7,900
C-224	Transformer Station for Bakery Addition Foodstore "A"	96	2 <b>–13–</b> 48	4,000
	TOTAL Estimated Cost 1100 Areas Pro	ojects		\$602,860
	TOTAL Estimated Cost for Active App Projects All Areas	perore	\$	10,355,995

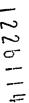
# Projects Being Routed for Authorization

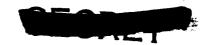
H. R. No	20	·	Estimated Cost
A-416	(C-218)	Village Streets (Returned for Additions & ReEstimate)	\$ 52,300
A-423	(C-229)	Office Machine Repair Shop Hut 722 L	3 <sub>3</sub> 700
A-454	(C-242)	Mail Box Installation - All forms	5,600



Projects !	Being Rout	ed for Authorization	
E, R. No.			Estimated Cost
A-458	(C-243)	Fainting and Improved Lighting Bldg 721	\$ 5,300
<b>925</b> .	(C-148)	Combined Maintenance Shops Bldg 72 Part II . Additional Funds	2 16,250
962	(C-177)	115 KV Power Line Through Richland Part II Additional Funds	217,000
A3C47	(C-237)	Mine Tube Mock-Up Building	26,000
PROJECT E	NCINSERING	- AREA REPORTS	
Status of	Ergineeri	ng Study & Design Work in Progress	During Month of March
E. R. No.	:	100 ARFAS	% Engineering Complete
A7004	Downcome	r Design 105-F	20

E. R. No.	100 AREAS % S	Ingineering Complete
22004	Downcomer Dasign 105-F	20
A-1006	Dry Air Supply to Test Holes	25
A-1012	Physical Bend and Tension Testing Machine	80
A-1035	Can Opening Facilities 200-N	100
A-1044	Outlet Charging Device	40
A-1046	Spectrometer	60
A-1048	Revise Gas Circulating Systom Building 105	50
A-1053	Study 2nd Effluent Sewer Line 105 D to 107 D a Recommend New Installation	and O
A-1054	Design Roller Flanging Device for Van Stone Jo	oints 0
A-1055	Design and Estimate a Radiation Shield for Top Far Side of 105 D and F	) )
· •	200 AREAS	
2279	Prepáre Project for Regasketing Facilities 221-T & B	· 72
2285	"B" Jet Assembly	75
2287	Study Rail Alignment of 200-N Cranes	70





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

F. R. No	. 2CO AREAS (Cont.) % E	ngineering Complete
2249	Stack Alignment Survey 291-T-B (Long Term)	90
2305	Study & Recommend Facilities & Procedure for Working Diversion Hoxes	95
2309	Water Supply & Plumbing - 622 Blag. Project Eeing Prepared.	ಕ೦
2326	Mark Grade on Steam Line Supports 200-W	0
2327	Study Possibility & Redesigning Connector Head to Simplify Gasket Changing	70
2333	Study and Recommend Outer Roller Bearing for 30 Crame	Eo CS
2339	Design Bracing for Stand Pipes - High Water Tank	s. 95
2343	Design Equipment Decontamination Station for Smalltems 221E	95
2344	Design Equipment Decontamination Station for Smalltens 221T	95
2353.	Crane Alignment & Pail Elevation - 221-T	70
2354	Design Sampler to Simplify Sampling 221.	95
2360	Prepare Project to Build an Addition to 222U	99
2361	Specify Catwalks Replacement for High Water Tunk (H-I-539 to be used)	3 100
2363	Revise Trombone Type Sampler 221-B	0
2368	Study & Recommend a means of preventing steam copining from creeping through a concrete wall	11. 30
2369	Prepare Project to Install Manifold Outlet Pipin Tank Baffles to Permit Future Use of Remaining 3-200 Series Tanks for 254-7 and B Waste	£0 ,
2373.	Design Docontamination Sink & Piping 221-T & B	95
2372	292-B Annex to Scrubber Facilities	50





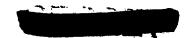
# Status of Engineering Study & Design Work in Progress During Month of March

	OI MASSINGSTILK Settly & Design Work III . 1 Opt 635 Dat I	
E. R. N	o. 200 AFEAS (Cont.) % E	n_ineering Complete
2373	Design Safety Shower for G Cell 224-T	10
2374	Estimate Cost of Freviding Parallel Operation of "B" & "E" of "G" & "F" Cells, 224-T	0
2375	Adaps "Q" Smith Sampler Principles to 221 Pldg. Sampler Compartments	0
2376	Cathodic Protection to Underground Waste Lines (Survey Work and As-Built Drawings).	80
2378	Design Precipitator Tanks with Longer Life Jackst 221-T-B	s . 70
2380	Study Sanitary Septic Tank & Tile Field Overload Conditions at 200 E & W Process Areas	10
2381	Design Acid Supply Tanks & Piping for 222-3	50
2385	Steel Stock Handling Equipment	100
2386	Connector Wall Nozzle 46 to 15-6 Nozzle 16 at 221	B 100
2387	Piping Changes E-I-Y Tank 224-T	20
2388	Redesign Centrifuge Drive Fork	100
2389	Air Conditioner - 622 Building	10
2390	Valve Maintenance Chart	160
2393	Steam Jet with Remotely Removable Features	0
2395	Bismuth Submitrate Preparation Facilities	· C3
2396	Diversion Box Connector - Upper 2 to Lower 13 24-154-B	100
2397	Specify 1-1/2" Pipe from Car Spot to 181 Tank 211	<b>T</b> 20
2398	Industrial Burial Ground 221 T-B	30
2099	Rodesign Poppy Carriage 221 T-B & 231	0
2400	Maintenance Hoist for Cranes 221-T-U-B	10
21.22		10

Maintenance Hoist for Granes 21.2 N-F-R

10

2401



# Status of Engineering Study & Design Work in Progress During Wonth of March

E. R. No	200 AFEAS (Cont.)	% Engineering Complete
2402	Gib Crane Over Axelson Lathe 272-E	0
2403	Revision of 222 T-E Control Labs.	0
2404	Coal Supply Survey and Volume Est.	65
2405	Canyon Trench Jumper Nozzle No. 42 Sect. 13L to No. 74 Sect. 14R - 221B	0
2406	Provide and Erect Temp. Office Fldg Near 231-	60
	300 AFEA	
A-3003	Stump Shear (Canceled by P Department	47
A-3C19	Housing for X-Ray Machine	97
A-3027	Water Softeners - 3706 Building	100
A-3036	Designs for Construction Octical Instruments F 300 Area	11dg. 80
A-3027	Design Marking Device for Building 313	100
A-3042	Design Air Filters for Building 3706	70
A-3044	Designs for Conversion of Eldg. 3706 Offices t	to Labs. 77
A-3046	Study Procurement of New Chip Recovery Press	50
A-3048	Study & Recommend Additional Ventilation for C Burner Room Eldg. 314	Dzide 100
A-3050	Make a Design Study of Rolling Mill for 300 Ar	rea O
A-3051	Make A Design Study of New Extrusion Press for	300 A. 2
A-3052	Prepare Recommendation for Permanent Office Sp 300 Area	oace in O
A-3053	Prepare Project for Bldg to House Meters Group Records	o and O
A-3054	Prepare Project for Frame Addition to the Exis	sting 0





Status of Engineering Study & Design work In Progress During Month of March (Cont.)

# 700 ADMIN. & GENEPAL PLANT AREAS

E. R. No	• <u>% E</u>	Ingineering Complete
528	Bldg 702 - Automatic Dial Exchange	95
883	Coal Pile Survey - 700 Area & 300 area	50
887	Coal Pile Survey - 100 B, D, & F	50
923	Improvement of Air Conditioning System Bldg. 70	30
925	Combined Maintenance Shops - Bldg. 722	93
941	Experimental Animal Farm	43
962	115 KV Power Line Through Richland	60
963	Biology Laboratory	5
972	Survey Effluent Lines 100 B & D Areas	න
973	Elec. Dist. Hdgus. Bldg. Substation 251 & Conve of Bldg. 2713 E to Garage	ersion 23
997	Deodorizer for Building 706	5
A-401	Telephone Cable Layout - Hidg. 720	20 20 m
A-409	Telephone Cable Layout for Eldgs. 703,705,760 8	¥ 77C• O
A-414	Fire Alarm & Detector System for Bldg. 705	100
A-420	Rehabilitation of Plant Railroad	20
A-428	Design & Estimate for Office Machine Repair Sho Hutment 722-H	99 30
A-429	Electrical Work - Bldg. 3708	10
A-432	Addition to Bldg 760	35
A-438	Design for Badge Assembly Machine for Construct Security	tion 10
A-445	Electrical Design for Bldgs. 3706, 3703 & 3707	60 ·

Electrical Work Bldg. 305-A Test Unit

100

2611

A-443



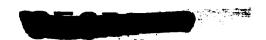
# Status of Engineering Study & Design Work in Progress During Month of March

(Cont.)	d T	ngineering Complete
E. R. No	•	
1-450	Detarmine Elevation of Export Line 100 F Area	100
1-451	Layout for Concrete work 321 Eldg.	<b>.85</b>
A-452	Expansion of Main Plant Telephone System	3
A-457	Plans & Survey for Relocation of Tel. Cable - 30	000 A. 100
a-459	Lighting of Maintenance Shops - Bldg. 3722	0
<u>A-4</u> 60	Remodeling of Elueprint Room - Eldg. 760	100
A-461	Trace 12 Railroad Diagrams	100
A-463	Electrical Drawings for Charging Device	10
A-454	Metering of Power - All Process Areas	0
n-467 ·	Remodeling of Bldg 722-A and Erection of Two Hi for Elect. Dapt	tments . 0
A-468	Illumination Tests - 716 Garage,	0
A-4:59	Electrical work - Bldg. 2221	10
A-470	Seel Coating of 36 Viles of Plant Highway	
W-414	1100 AFEAS	And the second second second
785	Cafeteria - Air Conditioning	55
812	Irrigation Extensions - Village	90
822	Pop Up Sprinkler System - Village Public Ground (Canceled)	ds 35
341.	Richland Dust Control & Landscape Program	77
896	Construction & Expansion of Parking Compounds Village	<u>-</u>
<b>720</b>	Air Conditioning All Dorms Except W-4 & W-13	75
958	Design for 5 Ton Overhead Grane - 1131 Garage	0
A-47.7	Oil Burner for Hospital Incimerator	0
17	·	

Automatic Truffic Signals - Richland

4-4-2

30



Status of Engineering Study & Design Work in Progress During Month of March (Cont.)

E, R. No	. 1100 AREA	5 Engineering	Complete
A-416	Patching & Seal Coating of Village Streets	90	
A-418	Study of Lighting - Commercial Laundry	100	
A-422	Air Conditioning - Transient Quarters -	7	
A-425	Electric Heating - Wiring - K. S. Warehouse	25	
A-437	Design Steel Columns in Easement - Richland Lutheran Church	25	
A-44]	Design & Estimate for Heater Platforms - Lev Clark School	vis & 100	
A-442	Design & Estimate for Walk-In Refrigerator Recreation Hall - Conceled	0	
A-447	Irrigation, Grading & Seeding for Grounds of New Houses	e 950 O	
A-453	Replacement of Roof - North Reservoir - Rich	nland 50	
A-454	Installation of Mail Boxes - All Dormitories	100	
A-455	Ronovation of Tract House L-859	10	
A-456	Improvement of Van Gieson St. Perkins Ave. Yakima River Bridge	ა ვი	
A-462	Alterations to 3 Drawer Fish Box - Rec. Hall	. 0	
A-465	Fuel Oil Storage Facilities - Richland Airpo	ort 0	
A-466	Remodeling of warehouse 5 and 6 - Richland	. 0	

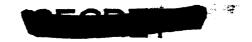
# ENCINEERING STUDIES GROUP FEPORT

# Studies Completed This Month

E. R. No		Date Completed
4305	Work Space Under Domitories	3 <b>~</b> 25
4306	Concrete Standard Practice	<b>3-</b> 25



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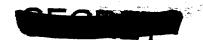


# Studies Complete this Month (Cont.)

E. R. N	<u>o</u> .	Date Completed
4316	Paint Standards (Canceled)	3–9
4321	Hutment Weatherproofing	3-16
4322	Antislip Floor Treatment Materials	3-3
4325	Lubrication Survey - 3000 Area	3-22
Studi.es	Added This Month	· ·
4335	Maintenance of Roof - Kadlec Hospital	3-12
4335	Review Oil Coding System	<b>3-11</b> .
Active (	Studies	% Committee
979	Standard Sign Catalog	1.5
i,296	Oil Reclamation Survey	95
4310	Use of Abrasive Equipment	80
4318	Packing & Casket Standards	15
4324	Lubrication Survey - 300 Area	75
4326	Use of Inhibited Oil in Turbines	7 <i>5</i>
4327	Maintenance of Pitched Roofs	<b>60</b>
4330	J. I. Penn & Worthington Compressors	5
4331	J. I. Boilar Pumps & Turbines	40
4332	J. I. Ruggles Klingeman Control Valves	75
4333	Stainless Steel Control	30
4335	Maintenance of Roor - Kadlec Hospital	0
4336	Review Oil Coding Eystem	С

BLUEPPINT CONTROL GROUP REPORT

This Month Last Month



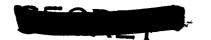
BLUEPRINT CONTROL GROUP PEPORT (Cent.)	This Month	Last Lionth
Black and White	42,604	21,293
Blueprint	24,936	19,758
Ozalid (2 Machines)	67,591	25,276
Photostat	49,311	41,035
Reproducibles Omalid Portagraph	3,446 217	1,493 75
Frints Temporarily Cut Carded & Returned for Filing	2,254	2,250
Prints Carded Out on a Permanent Basis	67,094	42,137
Permanently Charged Prints Returned for Disposal	16,568	9, 51.5

# EACKLOG SUMMATI

	Work On Hand 2-29 Estimated Man Days	Work Completed 3-31 Estimated Man Days	Work on Hand 3-31 Estimated Man 1278
Studies	203	100	115
Proj. & Des	ign <u>8,667</u>	1.658	8,679
TCTA	L 8,870	1,758	e,794

226121





#### ELECTRICAL DEPARTMENT

## MARCH, 1948

## GENERAL

Work Order Summary:

	Work on	Hand Feb. 22	Work Completed	to March 28		Hand March 20
	No. of	Estimated	No. of	Estimated	No. of	Estimated
<u>trea</u>	Orders	Man Days	Orders	Man Days	Orders	Man Days
100-B	12	58.0	24	175.6	13	43.5
100-D	16	27.2	43	241.6	20	33.5
100-F	33	32.7	97	<b>396.</b> 8	11	10.7
200-E	43	143.2	89	317.8	69	189.1
200=रा	77	152.4	88	295.7	69	170.5
300	38	283.8	98	240.0	24	259.7
700-1100	110	217.5	198	481.4	73	446.6
Distribution	209	12,490.0	221	2,601.6	193	12,802.7
Telephone	20	2,495.3	14	424.4	. 24	2,436.1
Minor Const.	33	1,724.3	25	697.7	76	1,317.3
Total	591	17,624.4	897	5,872.6	572	17,712.5

The work order backlog is essentially the same as at the end of the previous month. Decrease of Winor Construction backlog partially reflects transfer of some work to the Village Public Works Organization.

The attached load chart for the peak day of the month, March 10, shows a total of 47.3 LVH peak for the entire Project including a coincidental 19.3 LVH demand for the 66 KV system. The 220 KV peak is essentially the same as that of the previous month, and the 66 KV coincidental peak is slightly lower in line with seasonal trend towards reduction of electric heating load.

The final decision for the routing of the new 115 KV system, Project C-177, has now been made, and the line will be routed through the Village (not around it) over essentially the same right-of-way as the present 66 KV system which it will replace.

Final studies are boing made pertaining to reconnection of Village feeders to the now system and are expected to be complete by May I so as to enable all necessary preliminary work to be done during the summer months. Materials for the line itself are now arriving, and a line construction contract will be awarded shortly.

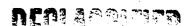
Special labor crows continued Osmoso treatment of pole butts with the following work accomplished during the month:

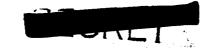
2.3 KV lines to Pistol Range	ll Poles
13.8 KV lines in 100-D Area	167 "
13.8 KV lines in 100-F Area	121 <sup>u</sup>
230 KV Systom	300 H

599 Polos

Total

1226122





One Electrician was upgraded to the position of Foreman to replace one of the Foreman transferred to the Villago Public Works Organization.

One Juntor Engineer was hired during the month.

Hr. H. A. Williams was employed as Clerk in the Electrical Department office, 703 Building.

One Electrician and one Groundman were hired during the month, and five men terminated voluntarily.

	Ho	rch
Number of employees on payroll:	Exempt	Non-Exempt
Beginning of month	40	242
End of month	41	220
Not decrease	:	21.

## AREA ACTIVITIES

# 1. 100 Areas

# A. 100-B Area

An alarm tell was installed in the Round House in Riverland and was connected to the train Dispatcher's magneto phone.

Three tolephone poles were replaced due to breakage during high winds.

Coagulator units #1, #2, #3, and #4 in 183-3 Filter Plant Head House were completely rewired and the bolt shifters were everhauled. The wiring in these units had become deteriorated from chemicals and oil.

Due to heavy winds on March 21, fence lighting circuits were damaged and it was necessary to call out Linemon from Richland for repairs as trouble occurred after normal working hours.

The fifteen bad order poles found in the area during Osmose treatment were replaced during the month, and all poles in this area are now in good condition. The entire distribution system was checked and repaired as necessary.

## B. 100-D Area

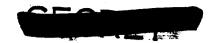
Two floodlights were installed on the west wall of the 183 Filter Plant Head House to illuminate the chlorine tank connections in this area.

The "D" elevator cab positioning switch installation in the 105 Pile Building is 75 percent complete.

Voice powered telephone circuit VP-2 was connected to the A-6 phone circuit in the 105 Pile Building at the request of the "P" Department. This was to allow a greater latitude of communication with the "Flys Eye".

All vertical safety rod clutches in the 105 Pile Building were inspected and drop out voltages checked. Sefety circuit time delay units were also

# Electrical Department



chocked.

Four 230 KV structures were dismentled and removed. These structures had been abandoned when the 230 KV line was routed around DR in December.

# C. 100-F Arca

A large air cooler was installed on the roof of the 182 Reservoir Building pump room.

A voice powered interphone was removed from the 185 Building and installed at the Operator's desk in the 183 Head House Building.

Lights and receptacles were installed on the 185 Chemical Treatment Buil'ing balcony for an Instrument Department stere room.

Refrigeration compressor motors and control and associated equipment in the 189 Refrigeration Building is being laid away. Work is nearly complete.

## 105-F Pile Building

Flys Eye motors were repaired. Trouble was due to shorted collector ring brushes.

All vortical safety rods were inspected and adjusted. Four rods stuck due to mechanical trouble and one was dreeping due to clutch adjustment.

Conduit and lead cable were installed from the rear face to the "X" sample room for Bota Experiment.

A "Reelite" on "C" elevator failed due to a broken shaft. It was repaired and the rest of the reelites were inspected. Two others had cracked or broken shafts and were repaired.

On March 22, the main lighting breaker tripped off, but no reason could be found for it. Lead check indicates a 200 amp. lead and the breaker is rated 600 ampores.

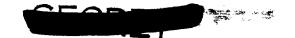
Two fluorescent light fixtures were installed in the 105 Gate House for the new kardex racks.

On March 4 at 5:10 P.M., Breaker E6X4 in Substation C6S5 tripped off due to everload. This breaker feeds the fan meters in the 105 Pile Building and will not held in if two of the 150 HP fan meters are started simultaneously.

#### D. White Bluffs

Ninoteen distribution transformers were removed from the eld Pacific Power and Light Company system, checked, and delivered to transformer pool.

The service entrance switch and wiring for the White Bluffs Booster Station was relocated to allow construction to build an extension on the building.



## E. Hanford

Two additional pump motors were installed in the irrigation section across the river from Hanford.

Secondary service was supplied to several small houses at the Weber ranch in Ringold.

# F. Status of Major Work Orders

Project	Location	Item	Comments
WO D-33846 D-37381	Riverland Locomotives	Oil and Water Heaters	90% complete (Held fc materials.)
Design Ch. 40	105 <b>-</b> B	Revision Shim Rod Control	100% complete

## 2. 200 Areas

# A. General

The following notations pertain to development of cathodic protection of stainless steel pipe during the month.

Rectifiers for temporary protection of the "U" area pipe were received March 29. These will be installed during the coming month.

Because of construction work in progress at the 241-U 151 and 152 diversion boxes, considerable delay has been experienced in our efforts to provide cathode connections to the piping at these points.

The experimental work relative to obtaining further knowledge of stainless steel corrosion was continued during the month.

Twelvestem foot sections of pipe were buried with varying degrees of cathodic protection; Bitumastic coating, Tapecoat and No. 33 Americat. Several months will be required to obtain data from this work.

Polos were re-aligned in 13.8 KV lines from station A-8 to 200-E and North Areas.

#### B. 200-E Aroa

The tower lights for the 241-BX and west side of 241-B Tank Farms were installed and put into service.

Agitator motor 8-4, in Canyon Building 221-B, failed and will be replaced by a new agitator.

The North Area cranes were inspected and new rubber cushion supports were installed on the soleneid brake of onc. The others will be replaced as soon as more cushions are obtained.



Ingersel-Rand unleaders were installed on No. 1 and No. 2 air compressers in Canyon Building 271-B to replace the Square D unleaders which were original equipment. It is thought that the new unleaders will be less subject to sticking.

Seventoen motors were overhauled in the motor repair shop.

Telephone service line was provided for the Fire Station.

#### C. 200-ii Area

Two 220 volt circuits were provided in room 36 in Separation Building 231 for a Spectograph installation.

A load study is being made of the various feeders and transformers in the 200-W Area. It is expected that considerable time will be required to complete it, as recording meter readings are being taken.

On March 13, the first cathodic protection bond anchor point was installed on the "TK" process lines. Also, the first seven thermocouples were installed for the Instrument Department.

On March 20, an impact wrench failed on the 75 ton crane in 221-T Canyon Building, due to a broak in the reclite cord supplying the motor. Repairs were made and the wrench was returned to service.

On March 30, the tap was changed on the lighting transformer supplying the construction work in 241-TX. This increased the potential from 195 to 210 volts. The voltage on the power transformers for this area was 415 volts with a load on, and 490 volts with load off, indicating an excessive drop in the primary feeders. A 13.8 KV Jino section will be built for the 234-5 Area and it is planned to use this line also for the 241-TX Area.

Three additional street lights were installed at 224 Building.

#### D. Status of Major Work Orders

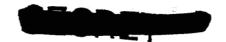
Design Ch. 11 200 E & W

Project	Location	Item	Comments
C-126	200 <b>–</b> ii	Installation of filters in laundry dryers	100% complete
C-160	241-B	H.I. Shaft - second cycle waste crib	90% complete
C-166	211 B & T	Nitric Acid Storage	50% - 211-5, 0% - 211-T (Not ready for electrical work.)
C=193	272 E & W	Alterations to	95% - 272-ii, 80% - 272-E

and code call

Evacuation signals 100% - T, 95% -B, 0% - U

(Awaiting materials)



# 3. 300 Area

- A. On March 30, a dump truck, with body raised, struck overhead conductors at a read intersection south of the Beiler House, Building 384, at 10:54 A.M. One of the conductors moved up into the 2300 volt circuit. Breaker E3-X2, supplying 440 volt power to the 321 Building, opened and was reclosed at 11:05 A.M. Primary fuses were blown on lighting transformer L-2 and bank E3-X110. These supply the emergency circuit to street and fence lights, Beiler House emergency lights and power. The main telephone trunk cable entering the 300 Area was badly damaged and has been repaired. An Unusual Incident Report was prepared.
- B. Scale-up Tank Farm 321 (Project C-187) has been given top priority for electrical construction. An agreement has been reached that Subcontraction forces will do the outside work in Tank Farm at the same time as the Electrical Department does the inside work, and the two will work together in joining the two conduit systems and pulling wire in order to expedite construction. It is likely that some delay will be encountered because of material delivery, and every effort is being directed towards expediting.

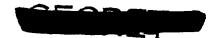
# C. Status of Major Work Orders

Project	Bldg.	Item	Comments
C=141	3717	Addendum #3, addition to Bldg. (Inst. Shop)	50% complete
C-142	314	Induction heating	98% complete
C-187	321	Scale-up Tank Farm	15% complete
C-188	3702	Technical Library and Office	98% complete
C-189	3745-A	X-Ray Building	25% complete
C-207	3706 3717	Fire Alarm System	0% complete (Equipment of not received.)
C-215		Relocate Propane Tank Farm	100% complete
C-220	3708	Electrical Shop and Cptical Building	1% complete (Drawings not available. Conduit run in concrete slab for lighting circuit in pit.)
C-227	3706	Remodeling Building	2% complete

# 4. North Richland (3000 Area)

The Sand Plant, Batch Plant, and Hot Mix Plant formerly connected to Richland feeders were disconnected by the Electrical Department and then reconnected by Subcontractors through a new line to North Richland main transformer station.





## 5. 700-1100 Areas

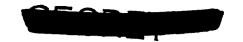
- A. In line with last month's report, the Electrical Department has transferred the required mon with supervision to the Village Public Works Organization as of March 8. Future reports will not be concerned with 1100 Area except for Hospital, certain Power Department items, and the distribution system which are retained by the Electrical Department. The latter will remain responsible for 700 Area electrical work.
- B. A complete overhaul was made of the large X-Ray machine in the Kadlec Hospital over the week-end of March 20 and March 21.
- C. The telephone line to C.A.P. Airport was removed and relocated so as to provide clearance for the construction of the new Yakima bridge.
- D. Two spans of primary were built and a transformer bank was constructed to serve Tract House K-788.
- E. A new transformer bank was constructed for service to Tract House L-898.
- F. In order to clear 6900 volt line on Davidson Street at "A" Area, primary was re-routed over new construction lines through area and then north on them existing lines to Batch and Aggregate Plants.
- G. All poles, wires, and telephone lines were removed from Davidson Street along "A" Area.
- H. Secondaries at the Columbia High School were extended to provide service, both power and light to the Contractor.
- I. A 60 foot pole was set for Patrol radio antenna at the Pasco Depot.
- J. The 6900 volt primary feeding the "E" Housing Area and apartment buildings was energized.
- K. In order to clear right-of-way for the extension to the 760 Building, it was necessary to provide an alternate feed from Stevens Drive to the 700 Area. Also, existing feeder was re-routed so as to provide clearance for pool parking lot and entrance to the 700 Area.
- L. The 700 Area switching station was completely dismantled and removed and the R.O. stations for fence and road lighting in this area were relocated next to the 722 Building.
- M. One hundred ampere three-shot reclosing fuse cutouts were installed on the permanent feed to the 700 Area at the point of take-off on Swift Boulevard.
- N. Due to low voltage at Patrol Pistol Range, which is fed off the 2300 volt line from the 200-N Area, a new 6900 volt line was strung from an existing line fed from the Hanford substation. This line was constructed on 17 poles.
- O. A temporary three-phase power bank, installed for Terteling and Sons Pump House, was dismantled and removed. Also, a three-phase bank, installed for Terteling and Sons at Filter Plant, was removed.



- P. At the request of the Construction Department, 1400 feet of No. 6 primary wire was replaced with three No. 2 conductors in order to take care of additional lead in the "E" Area.
- Q. Hetering equipment was installed on the main 6900 volt line feeding the 700 Area.
- R. A report was made to the Design Department relative to the severity of radio interference arising from oil burner equipment recently installed in precut houses.

# S. Status of Major Work Orders

Project	Iton	Comments
C-147	Engineering Building (760)	95% complete (Completed except for fire alarm.)
C-148	Electrical work on Combined Shop (722 Bldg.)	85% complete
C=153	Flood lighting Soft Ball Park	O% complete (Materials are on hand, but work order has not been received.)
C-157	Revisions to "E" house kitchens	This work order was given to the Village Public Works Organization.
C-158	Air conditioning in all dorms except M-9 through M-14	50% complete
	Installation of freight elevator in 703 Bldg.	100% complete
C-186	Installation of electrically operated garage doors at 1131 Garage Bldg.	20% complete
0-194	Revisions to heating and air conditioning of Richland Theatre	Turned over to Village Organization
C-202	Electrical work for Gate Houses 701-A and 701-B	90% complete
C-209	Two story additions to 703 Bldg.	70% complete
C-224	Service to Garmes Bakery, Grocery and Castleberry Drug Store (under- ground) (Additional Work Order)	60% complete (Sorvice is completed to Bakery and Grocery and completion of service to the Drug Store is scheduled for about
		April 10.)



# 6. Telephone Group

- A. Installation of additional 13 quad telephone trunk cable was begun between the Richland exchange, North Richland and the 300 Area. This is 90 percent complete to North Richland with completion schodulod for April 2, 1948.
- B. Inspection was begun on used 27 quad cable and cable inspected to date was found to be in poor condition. This inspection is about 20 percent complete. This cable was to have been installed with the 13 quad cable and is now held up pending inspection report.
- C. Three additional two-way trunks were installed on the North Richland exchange. This makes a total of ton incoming one-way trunks, ten cut-going one-way trunks and three two-way trunks on this exchange. Twenty-one of the most busy stations in North Richland are also served by the Richland exchange in order to relieve the load on trunking facilities of the North Richland exchange.
- D. The old 60 line manual board at North Richland was removed from service.
- E. Seven additional toll circuits to Pasco were placed in service, making a total of twenty seven to Pasco.
- F. Changing of all residence one party numbers to two party was completed with the exception of the 1500 numbering group. Work is proceeding on the 1500 group and should be completed in about two weeks.
- G. One hundred and forty-seven lines were vacant on the Richland exchange as of Harch 30, 1948.
- H. Three additional trunks were installed between the White Bluffs manual telephone board and the Richland exchange, making a total of six trunks.
- I. The manual telephone board in Hanford was removed.
- J. Twenty-three bad order poles were replaced in 2.3 KV lines from 200-N to BY station.
- K. During the month, the following telephone instruments were moved:

	Installed	Removed
All Work Aroas	42	18
Richland	368	294
North Richland	275	<b>\ 98</b>
White Bluffs	9	_2
Total	694	412

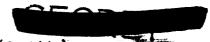
#### 7. Power Supply Interruptions

230 KV

There were no unscheduled interruptions during the month.

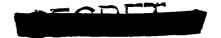


# Electrical Department

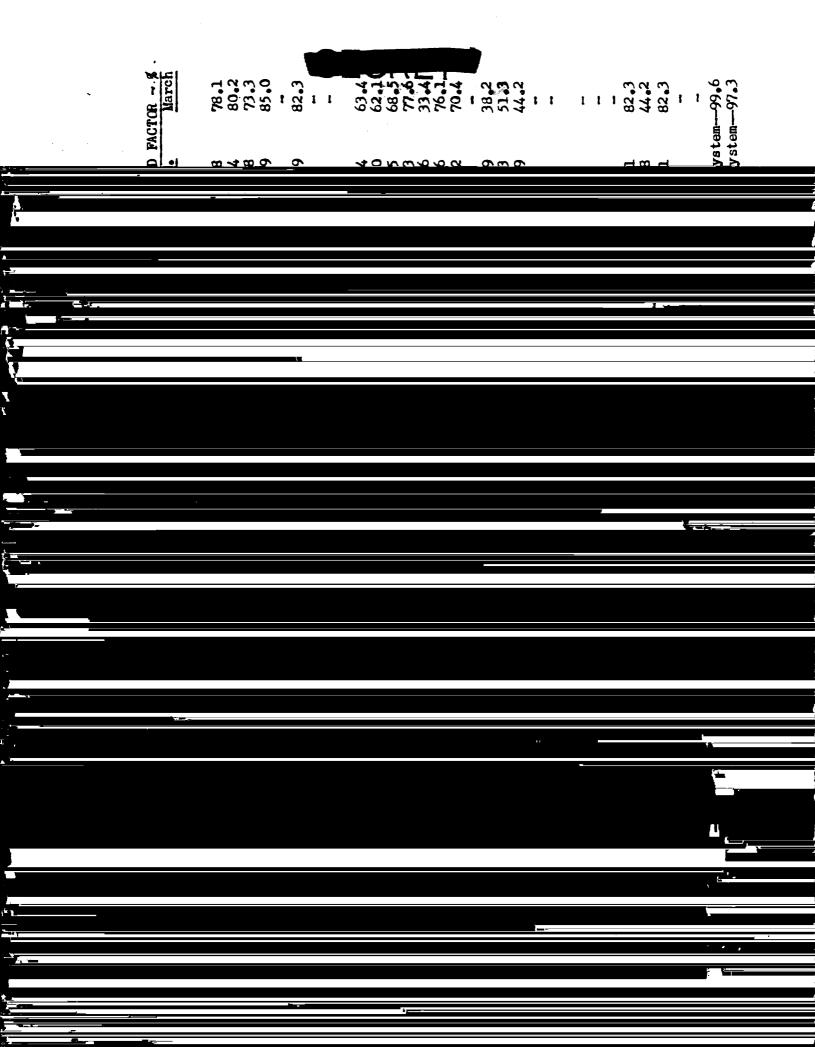


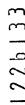
# Power Supply Interruptions (Contide)

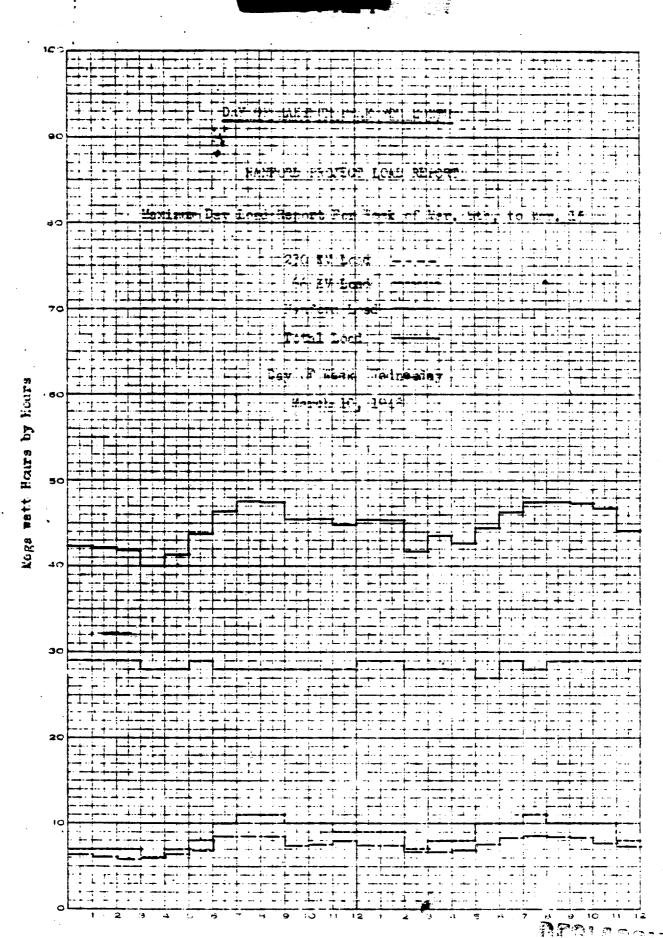
Date	Area	Circuit Affocted	Duration	Romarks
		66 KV	•	
March 6	Columbia Camp	REA Line, single phase	2 hrs. 20 min.	Cause unknown
March 11	300	Const. transformer bank at 321 Bldg.	l day	Unknown
March 18	Columbia Camp & Prosser Barricade	REA Line	l hr. 30 min.	Unknown
March 21	Columbia Camp	REA Line	l hr. 46	Unknown
March 28	Ringold	6.9 KV Ringold Line D5-X8	3 hrs. 30 min.	Fuse blown Found nothing.
March 29	Columbia Camp	REA Line		One phase open
March 29	Columbai Camp	Fuse to transformer	1 hr. 8 min.	Fuse blown
March 30	300	E3-X2 and E3-3X10	l hr. 25 min.	Truck body raised struck lines

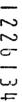














# INSTRUMENT DEPARTMENT

# MARCH 1948

#### GENERAL

Project C-219 - Additional Health Instruments has been released to the field. It is suggested that future project proposals contain a nominal overhead INE to make our manufacturing costs compatible with other sources of supply.

All routine maintenance is being studied by supervision with the aim of reducing the frequency of routine maintenance checks.

Work Order Summary:

•	Work on Hand Mar, 1		Work Completed in Mer.		Work on Hand Mar. 31	
Area	No. of Orders	Estimated Man Days	No. cf Orders	Estimated <u>Man Days</u>	No. of <u>Crders</u>	Estimated Man Days
100-3	17	22,3	5 <del>ó</del>	118.2	11	17.7
100-D	47	30.8	113 .	347.6	54	129.5
100-F	49	51.3	91	375.0	49	136.4
SCO-E	55∍	48.2	245	424.1	19	17.2
200-W	57	73.4	312	574.4	44	164.9
300	129	1803,6	160	2459.5	158	1615.4
700	57_	97.25	152	332.3	48_	<u>65.9</u>
Totals	411	2126.6	1129	4632.1	383	2145.0

# Organization and Personnel

Number of employees on payroll:	Mirch
Beginning of Month End of Month	183 190
Nat Increase	2

Reasons: These men were hired to supplement our present Design and Construction group.

# 100 AFEAS (Reference Report No. HK-9376)

# Project C-172 - Dismantling of Demineralization and Degeration Facilities

Quotations have been received for twenty-nine (29) instrument panels to replace those now in 185-B, D, and F.

# Project C-222 - Dismontling Equipment in the 105 Valve Pit

Instrument and control equipment have been removed from 100-B and 100-F Areas and made available to the Redox program.



Five (5) work orders totalling 3,240 man hours have been received from the Construction Department. Of this 1,640 hours is inner barricade construction which conceivably could be carried on by Construction forces and thus relieve the Operating departments of this responsibility.

# 200 AREAS (Reference Report No. HW-9377)

# Project C-163 - Additional Waste Storage Facilities - 200 West

Material has been ordered and work started on the installation of approximately two hundred (200) thermocouples on the 241TX waste lines.

A pressure recorder was installed temporarily on the steam jet line in the Concentrations Building 224-B to study the effective pressures necessary to give the proper jetting rate at various solution levels. Plans are under way for installation of a control system to provide the proper steam pressure necessary to give the jetting rate that will not result in loss of product recovery.

Flow meters have been temporarily installed for measurement of steam flow to process buildings 221 and 224. A one week flow study will be made as soon as weather conditions will permit.

#### 300 AREA (Reference Report No. HM-9378)

## Project C-1/1 - Addition to 3717 Instrument Shop

This project has been completed and closed as of March 30, 1948.

#### Froject C-122 - Additional Health Instruments

This project was completed and closed as of March 16, 1948.

## Project C-171 - Alterations to Six Periscope Assemblies on 75 Ton Crane

No additional work has been done on this project as the necessary parts have not been received.

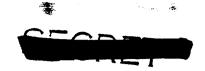
#### Project C-220 - Optical Shop and 300 Area Electrical Shop, Bldg. 3708

All footings and walls have been poured to ground level.

#### Design Division

Several designs have been completed during the past month. They include:

- 1. A printing register for the Health Instrument Department.
- 2. A portable scaler for the Health Instrument Department.
- A redesigned underwater mold for the Technical Department.



## Instrument Department

#### Optical Section

Several glass spheres of special material were made for the Technical Department. These were made to considerable accuracy both of size and roundness.

Two fluorophotometers were assembled and are ready for the electronic parts and painting. Two glass permanent standards were made for the fluorophotometer.

## Development Division

#### Graphite Inclusion Detector

Reports from the field indicate that this unit is satisfactory. A final report is being prepared.

#### C. P. Mater Revisions

Preliminary tests of a modified C. P. Meter have indicated that the vacuum chamber may be eliminated. However, difficulties caused by switching transients have had to be overcome before the prototype instrument can be completed and sent to the field for checking.

# Fhotoelectric Position Indicator for Slug Marking

A photoelectric device is being developed for use in conjunction with the X-Ray system used in locating the ends of the uranium in canned slugs. It is intended that this device will indicate by signal light the correct position of the canned slug for marking.

# Canned Sluz Counting Device for 100 Areas

A preliminary survey has been made and experimental work outlined to secure design data for a device to count canned slugs at the point of discharge from the unit. It is planned to construct a specially shielded ionization chamber and amplifier to give a signal as each slug is discharged.

# 700 AREA (Reference Report No. HT-9379)

#### Tube Division

Production Report - 5 Mica Window Tubes 87 Thin Walled Glass Tubes 3 Boron Coated Chambers

A total of twenty-one (21) Victoreen Mich Window Tubes have been received in the last two months. Twelve of these tubes have been put in service and the remaining nine, which do not meet acceptance checks, are being returned to the vendor. Other Mich Window Tubes have been ordered from different vendors who advertise tubes for immediate delivery, but to date no tubes have been received and the promised delivery dates were extended.



Instrument Department

#### Standards Section

A standard dead weight tester has been received from the National Bureau of Standards. Three field dead weight testers have been calibrated against it and were found to be within tolerance of 5% accuracy.

#### DESIGN AND CONSTRUCTION - INSTRUMENT ACTIVITY

#### 100 Areas (Reference Report No. HW-9380)

#### Design 100-ER

The Instrument design work for the DR Area is complete with the following exceptions:

- a. <u>Mischarge Area Horizontal Periscore</u> Drafting is scheduled for completion on April 13, 1948, at which time a requisition for purchase will be originated.
- b. Discharge Area Viewer Drafting promised for completion March 30, 1945.
- c. Binoculars for Viewing Station Details are ready and requisition is being placed.
- d. Pile Motion Indication Equipment Development work is well under way. Procurement of some parts is a temporary delay. Final procurement will be withheld until the prototype satisfies design requirements. Completion is scheduled for May 15, 1948.
- e. Temperature Difference Power Level Indicator Development work is under way. Completion of design and preparation of requisition is promised for April 15, 1943.
- f. Revision to B.G.S.T. Temperature Neasuring System Considerable redesign was necessary due to the additional points requested by Operations. Completion of this charge is promised by April 15, 1948. Necessary parts for this charge are ordered or on hand.

Specifications and requisitions were completed for procurement of the following: Main Control Desk and Panel, Miscellaneous Panel for the Control Rock, Area Monitor Panel, and various small panels throughout the 105 Building.

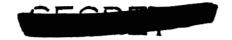
Orders were placed for additional instrument equipment required for the 183-D Filter Plant Building.

#### Design 100-H Area

Preliminary layout of the 105-H Building indicates that some rather drastic changes in arrangement are planned. The Control Room will be relocated, which will increase the length of all thermocouples and copper tubing lines.

1226137

Propagation of the second



#### Instrument Department

Alterations have been issued to present orders for the material needed to take care of this increase.

Specifications were prepared and requisitions sent to Purchasing for the flow metering and control equipment of the Main Pumping Station in 190-H Building. This comprised equipment for sixteen pump sets, four pump panels, one Main Control Panel, and two Master Regulators.

#### Redox (Reference Report No. HJ-9381)

#### Scale-Up Construction

Fabrication of sub-assemblies, manifolds, hardware, and accessories for instrument installations is in progress in the 321 Euilding Shop. One Tank Farm Panel is practically complete. Using this as a prototype, the fabrication of piping and accessories for six additional panels is progressing concurrently. Connecting tubing assemblies are being fabricated to permit rapid installation as soon as major equipment is placed.

#### Demonstration Unit

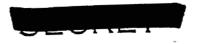
Tests are to be made on the 2", 3", and 5" demonstration columns. The original installations are being revamped to accommodate the new units, and instrumentation is being adapted to the new equipment upon the request of the Operations group.

#### Redox - Kellex Comporation

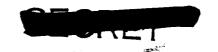
Representatives of the Kellex Corporation visited the Hanford Works during this period. A trip was made to the 200-W Area to collect data on problems related to the present crane installations. Several meetings were held during the visit and topics of instrument development were discussed. The latest information on proposed optical equipment for the crane includes: One Binocular Periscope and one Monccular Periscope. The Kellex Corporation has been authorized a maximum of \$5,000.00 to be diverted from the periscope study to investigate the feasibility of television.

#### 234-5 Euilding

An additional Assignment Engineer was assigned to the 234-5 Building program during this month. His immediate problem involves the design, application, and procurement of instrumentation for the temporary process line.







#### SERVICE DEPARTMENT

#### MARCH 1948

#### PERSONNEL

#### ORGANIZATION AND PERSONNEL

#### Employment and Investigation

Effective March 1, H. F. Johnstone, Investigation Supervisor, was transferred to the Design Department as a Section Supervisor.

On March 25 one Investigator was loaned to the Construction Department for a period of one month to assist the Service Superintendent of Construction in personnel activities.

Effective March 29, one stenographer was transferred to the Construction Department. On March 22, one stenographer was transferred from the Investigation Group to the Construction Department.

On March 15, one typist and one messenger were added to the Procurement and Sign-Up Groups.

#### Industrial Relations

One typist terminated, effective March 23.

#### Public Relations

Effective March 15, one clerk was added to the Public Relations Division by virtue of a transfer from the Construction Department.

#### Education and Training

No organization changes were made during the month of March.

Number of Employees on Payroll:

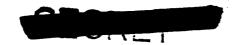
Beginning of month

End of month

84

Net decrease

This decrease is a result of a voluntary termination from this division.



#### ACTIVITIES

#### Employment and Investigation

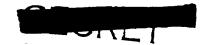
The volume of interviews by the Employment Office increased appreciably during the month of March, as did the volume of new cases received for investigation. A total of 1,925 applicants were interviewed during March, as compared with 1,774 during February. The number of new cases received for investigation increased from 420 in February to 607 in March.

At the beginning of the month, there were 680 open requisitions for non-exempt personnel, 401 of which were covered by interim commitments. At the end of March there were 828 open requisitions, 475 of which were covered by interim commitments. In addition, at the beginning of the month there was a total of 106 requisitions for exempt personnel; 57 of the persons requisitioned having accepted offers, 33 having been made offers but no acceptances received, and the remaining in the process of being investigated. At the end of March there was a total of 114 open requisitions for exempt personnel; 63 of the persons requisitioned having accepted offers, 44 having been made offers, but no acceptances received and the balance in the process of being investigated.

Sixteen new requests for inter-departmental transfers were received by the Employmen Office during March. In addition, 55 active cases were reviewed, making a total of 71 requests on file. As a result of these requests, 48 personal interviews were he and 7 transfers effected.

The recruiting of technically trained personnel among leading universities in the We and Mid West continued during the past month. Students were interviewed at the University of Minnesota, Illinois Institute of Technology, Purdue University, University of Wisconsin, California Institute of Technology, University of Southern California and the University of California at Los Angeles. A total of 194 interviews were conducted, the majority of which were candidates for B.S. degrees; however, this also included a number of candidates for M.S. and Ph.D. degrees. As a result of these interviews. 52 offers were made. These offers were made to 16 chemists, 31 chemical engineers and 5 analysts.

For the past several months the program for the procurement of female personnel has been seriously restricted due to the lack of adequate living accommodations for women. During the latter part of March additional facilities became available in North-Richland to a limited degree. Accordingly, in view of the critical need for stenseraphers and typists, a recruiting campaign was launched by the insertion of advertisements for help in Walla Walla, Yakima and Spokane newspapers. In addition, a member of the Employment Office visited Spokane during the week of March 22, at which time 53 persons in clerical categories were interviewed. Offers were made to 7 stenographers and 2h typists. Plans have also been completed to recruit stenographers and typists in Portland, Oregon; Seattle, Washington; Missoula and Butte, Montana; Denver, Colorado; and Salt Lake City, Utah. At the same time efforts will be made to recruit linemen for the Electrical Department in Portland, Seattle, Missoula and Butte.



During the month of March a total of 1,80% contacts with company employees were made by Industrial Relations Counselors. These contacts resulted in a total of 2,051 inquiries, summarized as follows:

Policy	154
Military Service	13
Group Life Insurance	143
Group Disability Insurance	164
Pension Plan	63
Suggestion System	21
G.I. Bill of Rights	5
Social Security	44
Recreation	10
Richland Housing	. 120
Other Housing	30
Municipal (Facilities)	14
Municipal (Social)	11
Municipal (Personal)	5
Personal	108
Miscellaneous	136
Income Tax	1,013
Total	2,051

A total of 108 exit interviews were given to terminating employees during the month of March.

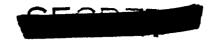
During March, 281 new employees were given prientation. Of this number, 62% elected to participate in the Group Life Insurance Plan, and 74% elected to participate in the Group Disability Insurance Plan. This reflects a decrease of 13% in the number electing to participate in the Group Disability Plan.

Industrial Relations Counselors attended four Area Council Meetings, with a total of 70 members in attendance. In addition, six Supervisory Conferences were attended, and two meetings, with a total of 27 employees in attendance, were conducted by Counselors for the purpose of discussing employee ratings and job evaluation.

The following employees, on leave of absence because of illness, were visited at their homes and assistance rendered:

J.	R.	Connell	Maintenance Department
s.	C.	Fullenwider	Maintenance Department
A.	₩.	Resseguie	Power Department
P.	D.	Oldham	Service Department
W.	0.	Fritz	Maintenance Department





On March 25, an emergency call was received from Pueblo, Colorado, by the Industrial Relations Division with the request to locate Robert J. Pulley, whose father was seriously ill in that city. This individual was located as an employee of the Atkinson-Jones Company at North Richland, and the information conveyed to him.

The American Red Cross Campaign, the plant solicitation for which was in charge of the Industrial Relations Division, was completed on March 12 with 131% of the \$9.350 quota being centributed by company employees.

The rating of weekly salary employees scheduled for the month of March has proceeded according to plans and almost all departments have returned their ratings in order that they might be tabulated and analized.

#### 1. Suggestion System

At the end of March the volume of work in the office of the Secretary of the Suggestion System was as follows:

	Feb.	Mar.	Total Since 7-15-47
Suggestions received and acknowledged Investigation reports completed	143 235	135 76	1,889 1,529
Awards granted by the Suggestion Committee Cash Awards	9 <b>\$</b> 115	26 \$200	106* \$1,095

\*Two awards erroneously reported have been deleted.

A suggestion system award story appeared in the March 26 issue of the Works NEWS.

Meetings with area groups in various departments are being solicited in an effort to encourage increased employee participation in the Suggestion System and to seek constructive criticism for improvement of the program.

#### 2. Insurance Coverage

A. Additional information concerning coverage offorded by the Travelers Liability Policy with respect to mal-practice insurance coverage for doctors and dentists at this works was received from the Travelers Underwriting Secretary. This information tended to confuse the original reply received from Travelers concerning this matter, and, as a result, an additional request has been made in order to clarify this problem.

B. An Addustor of the Travelers Insurance Commany is still in the process of



- C. The bodily injury claim of was settled during the month for '3,000. Both the Atomic Energy Commission and the General Electric Company approved this figure.
- D. In accordance with General Instructions Letter Number 30.9, request has been made of the Realty Division to obtain duplicate copies of insurance policies required of the various concessionnaires on this project in order that they might be reviewed and maintained on file in the Insurance Division.
- E. An inquiry was received during the past month from the Atkinson-Jones Labor Relations Department through the Construction Department Labor Relations Division as to whether insurance on privately owned vehicles was invalid because insurance company investigators were not allowed beyond the perimeter barriade to conduct investigation of accidents which might occur within this area. It was ascertained from the Security Division that any individual might be granted entrance through the perimeter barriade upon application and approval of the Security Division. This information was furnished to the Atkinson-Jones Labor Relations Department.

#### 3. Life Insurance

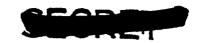
Code information for use by insurance companies in issuing insurance to employees or this project was furnished to 49 insurance companies and investigation agencies during March.

#### 4. Compensation

- A. (deceased), A pension was awarded by the Department of Labor and Industries to the claimant in this case; Rose Geiger, widew of the deceased. It was felt that this pension was awarded in error and that the award was not substantiated by the facts. Accordingly, an appeal has been made of this decision to the Joint Beard of the Department of Labor and Industries.
- Allowance of this claim was opposed as a result of the findings of the autopsy, which revealed that death was due to the bacterial endocarditis rather than back strain. The Department of Labor and Industries sustained our objection to the allowance of this claim.
- C. As a result of a request made during February, approval has been obtained from the Department of Labor and Industries for dentists in our Dental Clinic to proceed with dental work without prior authorization from the Department. This decision will prove of considerable benefit to our Medical Department and also to the injured person.

PRIVACY ACT MATERIAL REMOVED

DECLASSIFIE



#### Public Relations

During the month of March, the services of the Public Relations Division were again resumed for the Municipal Administration Division. This amounted to a reversal of the request made during the month of February which specified that such public relations matters would be handled within that Division.

A tremendous response to the House of Magic show, arrangements for which were made by the Public Relations Division for presentation in Richland on March 15, 16, 17, 18 and 19, was particularly encouraging. It was necessary to increase the number of performances until by the end of the week fifteen scheduled appearances had been made. It was estimated that approximately 12,000 persons attended the House of Magic performances while it was in Richland. Arrangements were also made for the House of Magic to visit the Prosser High School, in connection with their High School Science Fair, for two scheduled performances on March 20. In addition to the House of Magic performances at the Prosser High School Science Fair, the Public Relations Division provided a display involving a General Electric wire recorder and various General Electric educational publications for distribution. A letter of appreciation was received from the Science Department at the Prosser High School for the assistance rendered in making their High School Science Fair a success.

Newspaper publicity and the preparation of a two-color cover for the Safety and Fire Protection Division clean-up week bulletin was made by the Public Relations Division during the month of March. In addition, preclamations from the Village Safety Committee and from the Assistant Manager were prepared and approval obtained for publication.

During March a revised write-up on the Village of Richland was prepared by this division for use by the Employment Office in furnishing prospective employees information concerning the Village of Richland.

Classified advertisements for stenographers and typists were prepared at the request of the Employment Office and arrangements made for their publication in the Spokane, Yakima and Walla Walla newspapers during the month of March.

The General News Bureau was supplied with a biographical sketch and photographs of Messrs. Baker, Overbeck and Rue for their use in making a general news release concerning the three recently appointed Assistant Managers.

Original art work on the floor plans of the seven new individual housing units has been completed by the artist in the Public Relations Division and submitted to the printer for duplication.

Seven general news releases were made to the Villager and Tri-City Herald during the month of March.

Assistance has been rendered by this division in connection with the arrangements for the tour of Army personnel scheduled to visit the Tri-City area on Army Day. Escerts will be provided the convoy of army trucks from the time they reach the Yakima River bridge. A public address system and commentator mounted on a jeep will also be used in escerting this convoy, which will make a tour of North Richland and Richland.



The artist employed in the Public Relations Division completed a second phase of the work in connection with the publication of the booklet entitled "Facts about Radiation Hazards."

Four issues of the Works NEWS were published during the month of March, with the G-E Candid Camera rotogravure section being included in the March 26 issue.

#### Education and Training

From the anticipated light enrollment for the spring term, 14 classes covering the different subjects have been organized in the School of Nuclear Engineering. The prospect of offering a lecture course on the Fundamentals of Nucleonics is also being considered.

Three of the five cooperating educational institutions have had official representatives in Richland during the month. Dr. L. C. Cady, liaison officer for the University of Idaho, made his second visit to Richland to enroll graduate students for the spring term in that institution.

The extension directors of both the University of Washington and Washington State College accompanied by their assistants visited Richland for a conference with the Education Division and with Dr. W. I. Patnode of the General Electric Company and M. R. Cydel of the Atomic Energy Commission. This conference concerned the initial steps to be taken in the promotion of a state-wide series of public panel discussion on "The Atomic Age" to be initiated jointly by the two institutions.

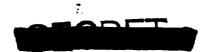
During the month of March, 56 supervisory conferences, consisting of approximately 600 members of supervision, held an average of three meetings each. During these conferences the following subjects were discussed:

Confidence

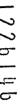
Maintaining Discipline
Supervisor as an Instructor

In addition, the following material was distributed to members of these groups with out benefit of discussion:

Supervisor's Problems Cooperation









#### STATISTICS

#### Employment and Investigation

Number of employees on rolls	2-29-48	3-31-48
Exempt	1,500	1,551
Non-Exempt	6,178	6,255
Total	7,678	7,806

#### ADDITIONS

•	Exempt	Non-Exempt	Total
New Hires	47	234	281
Re-employs	-	1	1
Reactivations	2	12	14
Transfers from Other Plants	1		1
Net Additions	50	247	297
Payroll Exchanges	13*	-	13
Gross Additions	63	21,7	310

#### TERMINATIONS

	Exempt	Non-Exempt	Total
Actual Terminations	11	133	244
Removals due to extended leaves	1	24	25
Payroll Exchanges		<u>15</u> **	13
Gross Terminations	12	170	132

Approximately 94% of all actual terminations were on a voluntary basis and most of those were for the following reasons: (a) another job, (b) housing, and (c) to return or stay home.

#### GENERAL

	2-48	3-48
Applicants interviewed	1,774	1,925
Photographs Processed	5,135	6,247
Fingerprint impressions taken (in duplicate)	456	690
Procurement letters written	1,661	1,611

<sup>\*</sup>Transferred from Weekly Salary Roll

<sup>\*\*</sup>Transferred to Monthly Salary Roll



#### ABSFNTEEISM STATISTICS\* (Weekly Salary Roll)

	• .	<u>5-48</u>	<u>3-48</u>
Male		3.24%	2.06%
Female		4.17%	2.94%
Total Plant Average		3.45%	2.27%

#### INVESTIGATION STATISTICS

	<u>2-48</u>	<u>3-48</u>
Cases pending at beginning of month	1,977	1,627
Cases received during the month Cases closed	420 770	607 642
Cases pending at month-end	1,627	1,592
Number found satisfactory for employment	288	409
Cases found unsatisfactory for employment	6	14
Cases closed before investigation completed	8	13
Special investigations conducted	238	112

#### Compensation and Insurance

#### Claims

	Reported in March, 1948	Reported in February, 1948	Total Since Sept.1,1946
Workmen's Compensation Liability	121 12	73 21	428 126
Handled for du Pont	0	0	

#### Compensation Payments Approved (Department of Labor and Industries)

	February, 1948		January, 1948		Total Since 9-1-46	
	No. of Claims	Amount	No. of Claims	Amount	Amount	
Medical Aid Accident Fund Ponsion	6 25 25	\$ 113.10 2,690.92 1,250.47	51† 50 [†	3,019.0	24, \$ 7,905.49 00 59,064.65 07 24,472.34	

#### Liability Payments Approved (Travelers Insurance Company)

January	Public Liability	883.80
	Property Damage	196.45
		\$1,030.25

\*Statistics furnished by Weekly Fayroll Division



**650**05

Service Department

#### FROT ECT\_UN

#### SAFETY & FIRE PROTECTION

PRIVACY ACT MATERIAL REMOVED

#### Safety

Plant Safety Record - 54 days

#### Injury Statistics

	February	March	Year to Dato
Lajor Injuries	1	0	2
Non-Tabulatable Major Injuries	0	0	G
Sub-Major Injuries	Ŀ	2	8
Minor Injuriou	<del>59</del> 0	بلياح	1,392

#### Sub-Major Injury No. 107

March 9, 1946 - , an employee of the Transportation Department, working in Hanford, sustained a fracture of the distal phalanz left thumb. Injured was cranking the starting motor of bulldozer No. 63-4180. It appears that the motion lacked sufficient momentum to carry past dead center; and, as a result, the motor kicked back. This pulled the crank from the right hand, and as it sprang backward, the handle of the crank hit injured's left thumb with which he was grasping angle brace.

#### Sub-Major Injury No. 103

March 9, 1948 - , an employee of the Design & Construction Department, sustained torn ligaments, left ankle. While walking from second ladder of 5000 Area reservoir to the valve pit on the south side of tank, he stepped on one of many round loose rocks and turned his ankle.

Safety Meetings - There were 67i; Safety Meetings held during the month, with a total attendance of 7,913.

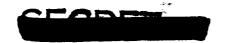
Safety Spectacle: - Orders were placed for 74 pair prescription safety spostacles; 52 pair were received, checked, and fitted; and 198 adjustments and repairs were made to all types of safety spectacles.

Emposure Hours - There were 1,374,411 emposure hours from February 29, 1948, to and including March 31, 1948.

NOTE: Due to renumbering of sub-major injury to from 105 to 1032 on the Monthly Report for February, 1948, it necessitated changing the numbers of submajor injuries as follows:

from 106 to

104, from 107 to 105, and PRIVACY ACT MATERIAL REMOVED



#### Astiviti es

#### 100 Areas

As directed by the Central Safety Council, arrangements have been made in the 100 Areas for orientation of new employees by the Safety Engineer. Departments were advised to contact the Safety Office whenever new employees are assigned to them.

A final report on the investigation of a new material (chlordane), used for control of black widow spiders has been submitted for approval of the Central Safety Council. The results were very satisfactory, sad it is believed that this material will control black widow spiders throughout the plant.

A letter was submitted to the Power Department relative to a potentially serious condition in the maintenance and use of the 189 Building cranes. These cranes are located in a shut-down area but are used periodically to remove and work on equipment in the building. They are not in a regular maintenance and inspection schedule.

One near-serious accident and one sub-major injury were investigated. The near-serious accident was a case in which a Hanford Fire Division employee was involved in an automotive accident, and the sub-major injury involved a cranking accident on a tractor at the Rot Mix Plant at Hanford.

A series of daily talks given during part of February and March at the Pistol Range to all patrolmen attenting safety meetings have been concluded.

The 100-D Safety Celebration, held in recognition of the Area's second year without a lost-time injury, was held March 11, 1948, at 3:12 P.M.

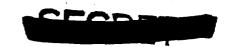
The new 100-D Area Assident Prevention Program is getting under way with satisfactory results. A report of fifteen exceptionally good suggestions to eliminate unsafe practices or conditions was submitted by the Committee. All members were given a copy of "Lock and Tay Procedures", which was used for special emphasis by the Committee during the month of March.

The 10C-F Area Skit Contest was completed and prizes awarded. It should be noted that contests of this type are not particularly adaptable for our Safety Programs, for they require considerable time and effort which connot be given while employees are at work.

#### 200 Areas

The subject of orientation of new employees was discussed with the 200 area Councils, and it was decided that the Safety Engineer would be contacted when new employees report to the Area, and arrangements made for a meeting with them at the carliest possible date.

No formal investigations were held during the month, but the Safety Nogizeer investigated one fire in the S22-3 Laboratory and one injury and 222-T Laboratory. A large number of new employees are being brought fact.



The 200-E Area Council is taking steps to improve most of the bus leading spots in the Area to get away from tripping and stumbling hazards at existing leading spots.

The parking lot in front of 2704-E is to be abandoned as soon as parking facilities can be set up in the rear of the building.

#### 300 Arsa

In accordance with the plan adopted by the Central Safety Council, a "New Employee" Safety Orientation Meeting has been set up for each Friday morning at 9:00 A.M. The first meeting will be held April 2, 1948.

At the request of the Experimental Shop, Building 3706, an investigation was made as to the possibility of using 90 pounds compressed air for the development of a high speed centrifuge. The request was granted and a new air line was installed.

At the request of the Chemical Research Section, Building 3706, the use of 10 pound steam for heating solvent distillation equipment was investigated. It was decided that this method of heating would be better than the use of electric current, for reasons of fire and explosion prevention. This request was granted, and a 10 pound steam line is being installed.

A test was conducted in the 300 Area to determine the effect of molten metal on coveralls, both flame treated and untreated. The results of this test indicate that the continued use of treated coveralls is advisable.

#### 700 & 1100 Areas

Sub-major injury No. 108 was investigated by the 700 Area Council.

Upon recommendation of the Contral Safety Council, the Safety Engineer meets all new employees for a well-rounded Safety Orientation.

Zoning of Areas and isleways where safety spectacles are required has been completed in the Maintenance section of the 722 Building.

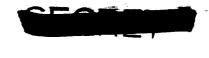
The AEC pile driving equipment operating at the Yakima bridge on the Richland road to Kennewick was found to be unsafe from the standpoint of a high wind unbalancing the equipment and its falling across the roadway blocking traffic and doing considerable damage. Recommendations were made for correction.

The monthly school inspection of Public Health, Fire and Safety shows objectionable conditions to be improving due to interest shown by the School Student Councils.

Recommendations were made on the M, Q, R, and S type houses and the multiple housing units in Richland.

Work is being done with the Engineers on several buildings in the Areas.

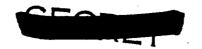




SAFETY DIVISION . INJURY AND ACTIVITY STATISTICS

							-			
	Area	Area	100-D Area	Area	200-E	2co-W	700-110C Areas	Hanford	3000 Area	Passo. Area
Macr Injuries	1Ct	<b>©</b>	52	115	75	100	171	S	ĸ	#
Sub-Major Injuries	0	0	့ပ	0	c	C	C	<b>-</b> 1	7	0
Major Injuries	0	0	0	0	0	c	C	c	0	0
Days since lest Tabulatable idajor Injury	168	1972	924	1072	139	811	514	3,66	यंग	7 <sup>†</sup>  7
Pays since last Sub-Major Injury	50	72	969	160	112	1,76	04	25	83	170
Cays without a Minor Injury	<b>!</b> ;	25	16	6	· ໝ	100	1	56	83	28
Exfety Moetings Conducted	ક્ર	1,8	160	<u>\$</u>	89	98	505	0	ţ	7
Number in Attendance	8/6	5/0	252	539	555	£1.6	4376	0	1	24
Salaty Spaceales Delivered	14	Ø	9	ĸ	ţ	9	14	ï	ı	ŧ
Scfoty Spectacles Scretced	6	S.	1/1	17	65	680	જ	1	1	i
						-				





### MONTHLY INJURY ANALYSIS Period - March 1 through March 31, 1948

#### Minor Injuries

											TOT	L
	Misc. Burns	Abrasion	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Alisters	Unclessified	MARCH	LAST MONTH
P	4	3	6	3	2	1	0	4	Q	O.	23	23
Production	3	11	3	3	0	0	1	2	0	0	23	9
Technical	12	17	0	19	8	4	0	2	1	0	63	37
Fower	6	3	1	5	1	0	0	3	2	2	23	20
Maintenance	22	34	23	37	5	8	9	21	6	2	167	130
Electrical	1	12	3	11	ı	4	0	1	0	2	35	26
Instrument	. 2	3	2	9	O	0	0	0	0	0	16	15
Service	0	15	14	11	5	7	8	5	C	3	<b>68</b>	39
Transportation	6	13	8	5	2	2	4	10	О	1	51	36
Medical	0	0	2	8	2	1	0	0.	0	1	14	28
Accounting	C	2	3	1	1	0	C	3	1	0	11	15
Design & Construction	0	4	1	I.	1	1	0	4	0	1	13	5
Health Instru- ment	3	6,	2	8	4	6	. 0	2	1.	0	32	7.
Project Engineering	, O	2	1	2	0	0	0	C	0	0,	5	0
TOTAL	59	125	69	123	32	34	22	57	11	12	544	
LAST MONTH	45	75	39	96	19	35	36	27	7	8		390



#### Fire Protection

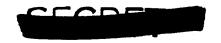
#### Fires

	Number of February			mated I		
Plant Area	10	8	No	Da.ze.ge	No	Demage
Loutine Duties			•			
Fire Extinguishers						
Inspected Installed and Relocated Refilled Repaired	1,860 270 150 10					
Gas Masks					-	
Inspected Serviced	99 3					_
Fire Drills and Lectures						
Outside Inside (House Drills) Auxiliary Brigade Safety Meetings	);2 , 96 29 31					
Water Barrels						
Installed Refilled	32 0		,			

All fire alarm boxes in the Industrial Areas were tested.

All fire hose houses, hydrants, and lines in Plant Areas were inspected and mydrants flushed.





#### GENERAL DIVISION

Laundering volumes were as follows:

Plant Loundry (Building 2723)	February	March
Coveralls - Pieces Towels - " Missellaneous "	19,293 5,221 	24,935 7,262 45.709
Total Pieces	63 <sub>:</sub> 1ر و6	73 "905
Total Pry Weight - Lbs.	88,509	113,932
Richland Laundry (Building 723)	·	
Flatwork - Pieces Rough Dry- ** Finished - **	121 ,962 29 ,172 4 ,527	167,460 28,375 5,331
Total Pieces	155,1.61	201,168
Total Dry Weight - Lbs.	100,049	130,772

Due to the heavy loads coming from North Richland Barracks, extra help was requisitioned and the third shift was installed in the 723 Laundry.

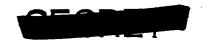
The "Central Lint Catcher" project was sampleted this month in the 2723-W Laundry.

#### CLASSIFIED FILE

During the month of March the MDDC reports (Manhattan District Declassified Reports) were transferred to the Technical Library in the 300 Area. This move was in accordance with establishment of the Information Division in the 300 Area.

A breakdown of work statistics as compared with the month of February follows:

	<u> Neprum'r</u>	March
Classified Documents Received and Issued (Encoming)	1413	1256
Unclassified and Restricted Documents Received	8253	9362
Classified Documents Issued (Outgoing)	3238	3582
Inter-Area Trans for	6130	6362
Tellow Copy Transfer - Pittsfieli	1461	2383
Desument's Routed	5746	4651
Requests for File Documents	2340	2501
Documents Trans mitted to AEC for Retrensmittal	• •	•
Off Site	<u> 369</u>	<u>156</u>
Total	<b>28 ,</b> 955	30 <b>,</b> 753



#### PATROL AND SECURITY

#### General

The 770 - A, B, C, D and E Protection Buildings were turned over to the General Electric Company by Construction on March 2.

Effective March 1, 1948, the 101 Area was closed to all except personnel having a Formal "P" clearance or higher. This operation will be classified as a "limited" area.

On March 5, one additional patrolman was assigned to the 101 Area, making a total of three patrolmen per shift making tower No. 2 on top of the 101 Building, the Badge House and a fence patrol in the vicinity of the No. 1 and No. 3 towers. The fence patrolman will assist in the Badge House when necessary.

A temporary post was established on Merch 9 at the Aggregate Mix Plant east of the 100-D Area and north of White Bluffs, and one patrolman is assigned from 6:00 P.M. to 6:00 A.M. daily to prevent unauthorized use of Government property. A radio jeep is maintained at this post. The 100-D Area Outer Patrol car will check this post frequently on Sundays and holidays during the day shift.

Effective March 9, one patrolman with a jeep was assigned to patrol the White Bluffs Construction Area from 6:00 P.M. to 6:00 A.M. daily. Telephone 6671 in the White Bluffs Fire Station will be used for communication.

Inasmuch as the Ferry will not operate on Sunday, hereafter each Saturday night a radio equipped jeep will be parked at the north ferry landing for emergency use. On Sunday the River Patrol will operate on the project side of the river, from a point just below Hanford to a point just above White Bluffs. This procedure was placed in affect March 11, 1948.

On March 19, one patrolman was assigned to a foot patrol in the vicinity of the two hutments in the 700 Area containing construction classified files. This post will be manned from 6:60 P.M. to 6:00 A.M. and twenty-four hours on Sundays and holidays.

Effective March 21, 1948, a Kardem control system was instituted at the 105-F

On Friday, March 26, 1943, a gate was opened between the 100-DR Area and the 100-D Area proper to permit necessary access for construction personnel. Construction employees will have their badges flagged with a yellow stripe which indicates that they have a Formal "?" clearance which is necessary to enter a "li ited" Area.

On Wednesday, March 24, 1948, work was started on fencing for the 234-5 construction Area. This work will be performed by Construction employees with a Formal "P" clearance.





The following Instructions Letters were prepared and distributed throughout the plant: No. 70, entitled "Departmental Security Meetings", and No. 71, entitled "Instructions on Personal Notes".

The Security Education Program has been stepped up and one man has been assigned full time to making Security speeches throughout the areas. Any time not used in making Security talks will be spent preparing and distributing Security material such as posters, pamphlets, signs, etc.

The protective fence in the 100-D Area was cut on March 29 due to construction work on an addition to the 107 Building and Tile yard.

#### PATROL

The 200 Areas handled 143 Process ascorts between the Areas.

Requests handled totaled 1028, mainly consisting of opening doors and gates for employees of other departments.

A total of 1019 Construction employees were escorted into areas for First Aid treatment.

There were 136 Unusual Incident reports received, consisting mainly of contraband picked up at barricades.

Six classified escorts were handled during the month.

Ten employees were given emergency First Aid treatment in Areas by Patrol supervision during periods when medical personnel were absent from the areas.

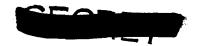
Practice evacuations were held as follows:

Date	Aren	Time
3-3- <u>!</u> :8	100-D	1:05 P.M.
323- <sup>1</sup> <sub>4</sub> 8	100-F	10:04 A.M.
3-26-48	200-W	3:58 P.M. & 2:06 A.M.
3-27-48	200-VI	3:0!4 A.M.
3-23-18	200-11	10:00 A.M.
5-29- <del>4</del> 8	200 <b>-</b> E	5:01 A.M.
3-30-48	100-3	11:35 A.M.
3-30-48	100-DE	11:18 A.M.

#### Training

Effective this month, the Patrol Training Program was divided into two sections, Municipal Patrol and Industrial Patrol.

All patrolmen who have previously had M-8 Light Armored car training were instructed in the mounting and dismourting of the .50 caliber Machine gun and getting into position to protect a designated spot.



New signs covering "Range Rules" were erected on March 4.

Basic training at the Patrol Small Arms Range was continued, and qualifications in Army "L" course firing were as follows:

	January	February	Warch
	Percent	Percent	Percent
Unqualified	13	10	8
Marksman	25	29	34
Sharpshooter	25	21	21
Expert	27	!10	<u>57</u>
Total	100	100	100

The practical machine gun course was fired and no score kept.

The Safety Meeting included the film "Fire and How to Fight It", and a safety discussion on "Safety Training and Re-Training" was given by J.P.H. Kelly, Safety Engineer.

Security talks were given on "Compartmentation", Fulletin No. 19.

Health talks were given on "Mental Health".

#### SECURITY

#### Operations Section

There were 364 Security Meetings held, with an attendance of 6,458 employees.

Authorization cards issued: Februs	ary - 60 March - 51	
Re-investigation cases forwarded to Al Pe-investigation cases forwarded to Al		250 3,517
Class "Q" clearances received on old e Class "Q" clearances received on old e Class "Q" clearances received on new e Class "Q" clearances received on new e Class "Q" clearances received on both	employees to date employees this month employees to date	21 1,233 308 3,265 e 2-17.47 - 4,493
Formal "S" clearance awaiting change t Interim "S" clearances awaiting change Formal "P" clearances awaiting change	e to "Q" 25	

The Security Slogan Contest closed March 19, 1948, after running for an eight weeks period with good participation by the plant as a whole. There were 1,007 entries received during the entire contest period, and this will provide material for Security Education publicity in the future.





A Security Poster entitled "Restricted Data" was posted throughout the plant March 15, 1948. On March 30, 1948, posters entitled "Security - Let's Strengthen ... Not Weaken the 'Link'" were posted throughout the plant.

G. E. Security Bulletin No. 21, entitled "It Can Happen Here" was issued March 22 1948.

#### Statistical Summary of Outstanding Area Badges

		F	ebruary	•				March	
	A	В	C	Total		<u> </u>	<u> </u>	<u> </u>	Total
100-3	مبلت	1233	769	3442	100-B	1.27	1239	685	2351
100-9	75?	1144	810	2711	1.00-D	741	1168	695	2614
100-F	765	1028	794	<b>2</b> 537	100 <b>-</b> F	719	1054	682	24,55
200-E	935	1250	691	2874*	200-E	916	1275	61.0	2801*
200-M	1063	1414	673	3150	200-W	111,0	1422	565	31.27
500-M	67	724	194	985	200 <b>-</b> N	67	733	187	937
3U0	بلبلز1	1357	532	3233	300	1372	17708	436	3216
100-DR	2458	90		2548	100-DR	2970	201	-	3171
300-C	54	162	-	216	300-C	88	156	-	علبل
3+1-IX	679	12 <u>1:</u>	-	803	241-TX	104,7	196	-	1235

\*Includes 31 "A" badges at Riverland Yards

\*Includes 33 "A" badges at Riverland Yards

#### Visitors or Temporary Badges

Area	February	March
100-B	22	49
100-D	1:0	49 67 69 70
100-F	52	6 <del>9</del> -
200-E	52 48	70
200-7	71	82
<b>K-0CS</b>	16	34 93
300	82	93
100-DR	46	147
300 <b>-</b> -C	5	20
21:1-TX	95	271
101	2	48
Total	479	850

#### Special Clearance Section

Following is a statistical summary of emergency clearance status of vendor and consultant companies:

Total companies forwarded to AEC this month - 16 Personnel - 69
Total companies forwarded to AEC to date -118 Personnel - 1,320

Total companies cleared for restricted data this month - 33 (new and old)

Personnal - 300



Number and type of clearance granted by AEC this month to vendors:

Emergency "Q" Administrative "Q"	9
Formal "Q"	535
Formal "P"	149

Total number of individual investigations conducted by the Security Section for the purpose of obtaining Emergency Clearance for vendors and consultants:

February	-	13		March	-	59
----------	---	----	--	-------	---	----

Emergency Clearances requested for General Electric personnel this month	5
Emrgency Clearances requested for General Electric personnel to date	44
Emergency Clearances received on General Electric personnel this month	4
Emergency Clearances received on General Electric personnel to date	19
Clearance cards issued this month to vendor personnel	281
Administrative "Q" clearances requested from AEC this month	2
Clearunce changes from "PF" to "Q" requested from AEC this month	10

#### Construction Section

There were 242 Security Meetings held, with an attendance of 6,425 sub-contractor employees.

Construction Security Bulletin No. 5, entitled "Area Badges" and Bulletin No. 6, entitled "Plant Area Regulations" were issued to all sub-contractors for their March 8 and 22 Security Meetings, respectively.

	February	March	Total to Date
Hires	2,647	3,279	19,558
Terminations	1,421	1,557	19,558

The number on suc-contractor and vendor payrolls as of March 31, 1948 - 12,110

#### Summary of clearances requested and received

		Formal "P" clearances requested this month	228
Number	of	Formal "P" clearances received this month	35
Number	of	Formal TP clearances requested to date	2년 887
Number	of	Formal "P" clearances received to date	
No ber	of	"P" clearances requested this month	1,018
Numb er	of'	Formal "Q" clearances requested to date	4,792
Number	of	Formal "Q" clearances received to date	2,023
Numb er	of	"QS" clearances requested to date	1,471
Number	of	"QS" clearances received to date	0
Number	of	Administrative clearances requested to date	53
Number	of	Administrative clearances received to date	59 85 5
Numb er	of	Emergency clearances requested to date	وكر
Number	of	Emergency clearances received to date	

Lost Badges

February - 98

March - 132

Total to date - 341

DEPT SOCIONA

## HANFORD WORKS General Electric Company Richland, Washington

# REPORT OF VISITORS FOR PERIOD ENDING MARCH 51, 1948

					Restricted Data
e - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Classified Unclassified
ICAL DEPARTMENT					
Visitors to this Works			•		
r. Cantril or Institute itsh Hospital ttle, Washington	Consultation on medical problems	W. D. Norwood P. A. Fuqua	3-17-46	3-16-48	×
STRUCTION DEPARTMENT					
Visits to other Installations	in ons	,			
f. Pitts Camp White Ford, Oregon	Supervice dismanteling electrical equipment	Mr. Gans Mr. Hatten Mr. Powl	1-,6-48	3-10-48	×
5. Church Seattle, Washington	Testify in action of U.S. Government vs. State of Washington, B & O Tax	i i	3-2-38	3-8-48	×
<pre>     Kelly     Pacific Telephone &amp; Tel     tle, Washington graph </pre>	Kelly Pacific Telephone & Tele- proving telephone ser- le, Washington graph vice for Project	J. Cantelen	3-1.9-18	3-19-48	¥

Carbonic Co., Seattle

Visits to other Installations

Jaske

GN DEPARTMENT

3-3-48 3-4-48

BATE NUMBER

1334,14-1 NOT USED

- e - Organization	Purpose of Visit	Person Contacted	Arrival	Deporture	Restricted data Classified Unclassified
T. Stranix Gunderson Bross Corpe tland, Oregon	Work with vendors on structural steel	L. W. Johnson	3-3-48	3-5-48	<b>M</b>
B. Thayor Giffels & Vallet roit, Michigan	Conference with archi- tect ongineer	C. S. Steigleder W. Rauche	3-5-48	3-15-43	×
<pre>1. Runke Giffels &amp; Vallet coit, Wichigan</pre>	Conference with archi- tect engineer	C. S. Steigleder W. Ranche	3-5-18	3-14-48	×
<pre>Wright Giffels &amp; Vallet cit, Michigan</pre>	Conference with archi- tect enginser	C. S. Steigleder W. Muche	3-5-46	3-11-48	X
<pre>Mount of the state of the</pre>	Arrange for fabrication of equipment	E. E. Roth	3.4.49	3-6-48	×
. Klein Western Gear Works tlo, Washington	Technical consultation of work being done	Mr. Forsythe D. Spencer	2-29-48	3-7-43	×
ampten War Assets Administration of transformers for agut, Idaho	Arrange for acquisition n of transformers for Project	E. B. Herron	2-5-48	3-12-48	×
LoInterney Fuget Sound Maval Ship— erton, Wash。	Arrange for faintcation of equipment by yard	Г. МсКев	3-15-48	3-18-46	¥
. Phodes Fust Engineering Company sburgh, Pennsylvania	Inspection, inventury and analysts of dismantled steam plant	J. M. Kelly W. D. Canan	2-5-48	5-1-48	×



1					Restricted data
e - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Classified Unclassified
E, Rhodes Erie City Iron Works e, Pennsylvania	Inspection, inventory and analysis of dismantled steam plant	J. M. Guy	2-5-48	5-1-48	<b>X</b>
E. Rhodes H. J. Furguson Company Broadway, New York	Inspection, inventory and W. analysis of dismantles steam plant	W. N. Thompson	2-5-48	3-1-48	; <b>∢</b>
E. Rhodes Atomic Energy Commission v York, New York	Inspection, inventory and A. A. Lavina analysis of dismantled steam plant	Ac A. Lovina	2-5-48	5148	⊭i
E. Rhodes General Electric Company analysis of dismantled York, New York	Inspection, inventory and J. analysis of dismantled steam plant	J. B. Esset	2.5.46	5-1-48	×
T. Strand Puget Sound Naval Ship- emerican yard	Consultation on test equipment orders at shippard	p- Er. Allison	3-22-48	3-23-48	×
<pre>M. Burns     General Electric Company     ionectady, New York</pre>	Technical consultation on Electric Company work at Consulting Iabora- New York	1 G. R. Rede - L. Gitzemdarner	3-14-48	3-26-48	×
D. Flanders , Giffels & Vellet proit, Michigan	Design liaison between General Electric and Giffels & Vallet	C. S. Steigleder	3-19-48	3-29-48	×
D. Flanders : International Filter Co. .cago, Illinois	Design liaison between General Electric and International Filter Co.	l I	3-19-48	3-20-48	<b>⊢</b> :
Smith ; U.S. Geological Eurvey rtland, Orogon	Business conference	A. M. Piper	3-15-48	3-18-48	<b>&gt;</b>



1					Restricted data
e - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Classified Unclassified
E. Irons Kellex Corporation Viork Gity, New York	Design conference	H, H. Willis	3-1-48	5-2-48	Ħ
H. Trapnell General Electric Company enectady, New York	Technical conference	M. A. Edvards	3-22-48	4-1-48	<b>X</b>
H. Trapnell Giffels & Vallet roit, Michigan	Technical consultation	C. J. Stalglader	3-22-48	4148	H
H. Trapnell Kellex Corporation York City, Now York	Technical consultation	V. L. Parsegian	3-22-48	4-1-48	×
R. Williams Los Alamos Iaboratory Alamos, New Moxico	Inspection and corsultation of DF-West	E. R. Jette	3-22-48	3-26-13	×
C. Hollingshead Los Alamos Iaboratory Alamos, New Moxico	Inspection and consultation of DP-West	E. R. Jette	3-22-48	5-26-43	×
G. Silvester Los Alamos Laboratory Alamos, New Mexico	Inspection and consultation of DP-West	E. R. Jette	3-22-49	5-26-43	×
W. Porter Los Alamos Laboratory Alamos, New Mexico	Inspection and consultation of DP-West	E. R. Jette	3-22-48	3-2 G- <u>1</u> 8	≽⋖
P. Peabody General Electric Company enectady, New York	Technical consultation	J. S. Quill	3-22-48	3-26-48	<b>X</b>



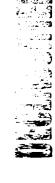
1					Restricted data	
e - Organization	Purpose of Visit	Person Contacted	Arrival	De arture		ः च्य
SCTRICAL DEPARTMENT					•	•
Visitors to this Works						
S. Quill eral Electric Company enectady, New York	Conference relative to proposed transmission line for Project	H. A. Carlberg F. J. Mollerus	3-8-48	3-10-48	×	
L. Moody ific Telephone & Telegraph telephone matters ttle, Washington	Conference relative to telephone matters	H. A. Carlborg E. J. Willingham H. A. Remaly	3-1-48	3-1-48	H	
B. Noble integraph conference relativitic Telephone & Telepraph telephone matters ttle, Washington	Conference relative to telephone matters	H. A. Carlberg B. J. Willingham H. A. Remaly	3-1-48	3-1-48	×	
A. Osipovich Discuss plans for neville Power Administrat- right-of-way for Ruland, Oregon ion transmission lines	Discuss plans for propose right-of-way for 250KV transmission lines	proposed H. A. Carlberg	3-24-48	3-24-48	H	4 32-4 1
Visits to other Installations	tions					•
A. Carlberg  Bonneville Power Administration tland, Oregon	Conferences with BDA stration	S. E. Schiltz O. A. Demith C. Bjorquist	3-9-18	3-10-43	M	
TRUMENT DEPARTMENT						
Visits to other Installations	ions					
Hilgeman Giffels & Vallet roit, Michigan	Consultation on 100 Area design work	C. J. Steigleder	3-16-48	3-19-43	×	
E. Kaveckis Los Alamos Laboratory Alamos, New Moxico	Technical consultation on DP-West	E, R. Jotte	3-22-48	3-23-43	×	

te.	:				of the same of the	-	P PRO				
Restricted data Classified Unclassified					×	×		×			×
Class	×	×							×	Ħ	
Departure	4-2-48	4-2-48			3-5-49	3.5-48		331-45	3-29-40	4-2-48	4-2-48
Arrival	3-28-48	3-28-48			3-5-43	3-5-48		3-24-48	3.24.48	3-29-48	3-29-48
Person Contacted	M. A. Princi	T. R. Rhea			H, W. Parker	H. M. Parker		I I	A. Hollaendur	И. L. Hall	i t
Purpose of Visit	Instrumentation consultation at Harlord Works	Instrumentation consultation at Hanford Works			Consultation	Consultation	lons	Fishery Riology Macting	Attend information moet-	Information meeting	Attond conforence for Amorican Industrial Fy- gionists
e - Organization	D. Middel General Electric Company it Lynn, Massachusetts	D. Middel General Electric Company tation at Hanford lenectady, New York	ITH INSTRUMENT DEPARTMENT	Visitors to this Works	M. Piper S. Geological Survey tland, Oregon	C. Newcomb S. Geological Burvey tland, Oregon	Visits to other Installations	F. Foster Seattle, Washington	A. Kornberg Carbon & Carbido Pidge, Tenressee	P. Seymour Argorne Laboratory cago, Illinois	W. Healy Harvard University bridge, Massachusetts



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Restricted data Clarkified Unclassified	×			×		×	×			ж	<b>&gt;4</b>
Doparture	4-2-48			3-26.48		8-43-8-43	3-10-48			3-29-40	3-29-49
Arrival	3-29-48			5-25-48		3–16-43	3-10-48			3-1.9-48	3.13-48
Porson Contacted	.1 1			V. W. Wood		J. E. O'Conner	pr. Ensmiger			H. H. Gerstein	H. H. Gerstein
Purpose of Visit	Attend conference for American Industrial Hy-glenists	Ħ		Discuss metal processating	tions	Discuss carplus equip- ment	Consultation		dons	Inspection of plant on Plant	Inspection of plant on Plant
/ - 0.ganization	E. Adley Harvard University bridge, Massachusetts	JECT ENGINEERING DEPARTMENT	Visitors to this Works	E. Marrs heral Electric Company herestady, New York	. Visits to other Installations	A. Bowman ; War Assets Administra- isville, Kentucky tion	C. Baudendistel : Washington State College Iman, Washington	er department	Visits to other Installations	H. Skarshaug South District Filtration Plant cago, Illinois	P. Johnson South District Filtration Plant cago, Illinots



Visitors to this Works

DEPARTMENT

<b>1</b>	:			1	Restricted data	_
ne - Organization	Purpose of Visit	Person Contacted	Arri al	Departure	Classified Unclassified	
E. Marrs Geral Electric Company Genectady, New York	Coordinate mill procurement and design	V. W. Wood W. A. Blanton	3-25-46	3-26-48	⊭	
. Visits to other Installations	ations				٠.	
A. Blanton : Joslyn Steel Company rt Wayne, Indiana	Inspect rolling opera- tions	L. Frуе	3-20-48	3-41-49	ы	
4 DEPARTMENT						1
Visitors to this Works				•		
E. Church versity of Washington itile, Washington	Meteorology consultation	D, E. Jenra	3-18-48	3-20-43	×	
. Visits to other Installations	ations	1				-
f. Boll Rellex Corporation Vork City, New York	Technical consultation on H, H, Fillis Redox Design Program	H, H. Willis	3~1~3	33-48	Ħ	
HNICAL DEPARTMENT	-	•				
Visitors to this Works						
A. Lane Inton Laboratory Ridge, Tennessoe	Technical corsultation	C. W. J. Werds	3-1-48	3-2-43	×	
B. Sumpcon heral Electric Company henectady, New York	Calculations in Physics	C. W. J. Wende	2-11-48	3-19-48	×	
P. Sleeper eral Electric Company	Consultation on new shie ing systems for piles	shield. C. W. J. Wende	8-36-48	2-3-49	×	



ı O					Restricted data
me - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Classified Unclassified
E. Clifford nsanto Chemical Company k Ridge, Tennessee	Consultation on new shie ing systems for piles	shield- C. W. J. Wende ss	2-26-48	5-5-48	Ħ
Rockwell nsanto Chamical Company k Ridge, Tennessee	Consultation on rew shie ing systems for piles	shield- C. W. J. Wende	2-26-48	3-3-40	<b>H</b>
P. Howeneral Electric Company nenectady, New York	Discuss present operating C. W. problems on piles	g C. W. J. Wende	5-18-48	5-26-48	×
Brooks heral Electric Company henectady, New York	Discuss present operating problems on piles	g C. E. J. Wende	3-18.48	3-26-48	X .
P. Bligard Inton Laboratory Ridge, Tennessee	Discuss shielding	C. W. J. Wende	3-29-48	4-2-48	H
L. Lesser A Division rchild Engine & Airplane Corp. Ridge, Tennessoe	Discuss shielding Corp.	C. W. J. Wende	3-31-48	4-2-48	×
Visits to other Installations	ations				
O. Indlow Kellex Corporation York City, New York	Become liaisen efficer between Hanford Korks and	H. H. Willis	5-1-43	Tro years	×
H. Hubble Kellex Corporation York City, New York	Consultation on Redox Design Program	H. H. Willis	5-1-48	3-3-48	×
<ul><li>Itabbie</li><li>Argonne Laboratory</li><li>ago, Illinois</li></ul>	Consultation on Redox Design Progrem	Mr. Lownan	3-1-48	3-3-48	×



thed data Unclassified		٠.	•						
Restricted data Classified Unclassi	H	H	H	H	H	×	×	×	×
Departure	5-3-48	3-3-49	න ස	3-19-48	3-19-48	3-19-48	3-19-48	3-19-48	3-19-43
Arrival	3-1-48	3-1-48	3-1-48	5-18-48	3-18-48	318-48	3-18-48	3-18-48	3-18-48
Person Contacted	H. H. Willis	Mr. Lowaan	W. H. Willis	Meet- W. M. Manning	Meet~ W. M. Manning	st-W. W. Warming	Meet. W. M. Manning	st-W. W. Manning	st- W. M. Manning
Purpose of Visit	Consultation on Redox Design Program	Consultation on Redox Design Program	Consultation on Redox Design Progrem at Kellex	Attend Redox Program Mee ing	Attend Redox Program Mee ing	Attend Rodox Program Met. W. M. Marning ing	Attend Redex Program Mee ing	Attend Redox Frogram Meet. W. M. Manning	Attend Redox Program Weet- W. M. Manning ing
10 - me - Organization	M. Frame Kellex Corporation w York City, New York	<pre>M. Frame     Argonne Laboratory     icago, Illinois</pre>	H. Greager ; Kellex Corporation w York City, New York	M. Frame : Argoime Laboratory icago, Illinois	H. Greager : Argonne Laboratory :cago, Illinois	B. Richards 1 Argonne Laboratory icago, Illinois	H. Beaton : Argonne Laboratory cago, Illinois	O. Ludlow : Argonne Laboratory cago, Illinois	T. Stringer Argome Laboratory cago, Illinois



· ·					Restricted data	
e - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Classified Unclassified	, .
R. Schmidt Argorne Laboratory cago, Illinois	Attend Redox Program Meet-W. M. Marning ing	W. W. Marning	3-18-48	3-19-48	; ₩	
3. Bradley Argonne Iaboratory cago, Illinois	Attend Redox Program Meet. W. M.	W. V. Marring	5-18-48	3-19-48	×	
#. Woodfield Argome Laboratory cago, Illinois	Attend Redox Program West-W.	W. M. Manning	3-18-48	3-19-48	x	
M. Pearce Argonne Laboratory cago, Illinois	Consultation and inspection regarding Methods for Metal Waste Recovery	W. M. Manning II. H. Hyman W. Johnson	3-22-48	3-23-48	×	
<ul><li>#. Pearce</li><li>Carbide &amp; Carbon Co.</li><li>Ridge, Tennessee</li></ul>	Consultation and inspect- ion regarding Nethods for Metal Waste Recovery	7. Hard S. Cromer -I., katers	3-24-48	3-25-48	×	
S. Jones Simonds Saw & Steel Co. falo, New York	Aid in establishing metal fabrication procedures	P. D. Potts	3-9-48 3-29-48	3-15-48 3-31-48	××	
Jones Joslyn Mfg. Co. t Yayne, Indiana	Aid in establishing metal febrication procedures	L. S. Frye	5-15-48	5-23-48 3-27-43	××	
<ol> <li>Jones Ravere Copper and Brass roit, Michigan</li> </ol>	Aid in establi whing wetal fabrication procedures	G. Ewald	3-24-48	3-25-48	×	
Foats Joslyn Mfg. Co. Wayne, Indiana	Aid in establishing metal fabrication procedures	L. S. Frye	5-20-48	3-22-48	×	



Restricted data Classified Unclassified	×	 ₩	×	×	X	<u>-</u> .
Departure	3-25-48	3-31-48	3-20-48	4-8-48	4-2-48	4.2.48
Arrival	3-24-48	3-30-48	3.5.48	3-29-48	3-26-48	3-29-48
Person Contacted	1 G. Ewald	l P. D. Potts	G. E. Walter	J. Inkesch	Dr. Flagg	н. н. њіл
Purpose of Visit	Aid in establishing metal G. Ewald fabrication procedures	Aid in establishing metal P. D. Potts fabrication procedures	Technical consultation	Consultation on X-ray diffraction	Consultation for Redox Analytical Methods	Iaboratory Design Con- ference
12 - me - Organization F	k Brass	Teats : Simonds Saw & Steel [falo, New York	M. Thompson : Research Laboratory nenectady, New York.	H. Curtiss : Research Laboratory henectady, New York	F. Shepard Consultation for R : Ceneral Electric Company Analytical Methods nenectady, New York	<ul><li>M. Knights</li><li>s. Argome Laboratory</li><li>icago, Illinois</li></ul>



RECTRICTED



# PROTECTION DIVISION ORGANIZATION AND PERSONNEL

### Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrosse
Central Files	26	26	-	-
General Division	159	177	18 (2)	
Patrol and Security	<b>623</b>	619	<b>-</b> .	9 (9)
Safety & Fire Protection	1/40 :	139		<u>l</u> (c)
Total	953	961	18	10

\*137 shown last month was incorrect.

#### TOTAL INCREASE - 8

- (a) 12 Hires due to installation of third shift in 723 Launary.
  8 Transferred from Roalty Division.
  1 Voluntary Termination
  1 Transferred to Realty Division.
- (b) 7 Hires
  18 Terminations
  2 Returned to Payroll from Leave of Absence





### MUNICIPAL ADMINISTRATION DIVISION

### FIRE PROTECTION

Fires	Number of	Fires	Estimated D	ama go
	February	March	February	Mirch
Village North Richland & Columbia Comp Miscellaneous	0 功 10	9 13 1	\$ 398.58 18,734.30	No Damage
Total	24	23	\$19,132.88	\$ 42.90

### North Richland

- 3-7-48 Burning eigerette ignited bedding in Barracks 240-8, Room 1, occupied by S. W. Bragg and A. O. Miller. Estimated damage: \$6.70.
- 3-8-48 Burning eigarette dropped in trash box in Barracks 136-D, Room 9, occupied by C. Hotis and J. Ontke Estimated damage 77.50.
- 3-27-48 Burning eigerette ignited bedding in Berracks 104-B, Room 8, occupied by W. J. Kenefic and C. E. Dale. Estimated damage \$22.00.
- 3-27-48 Burning eigarette ignited bedding in Barracks 246-C, Room 14. Estimated damage 16.70.

All other fires in the Manicipal Division were of a minor nature and no damage was experienced.

The total loss from fires in 1948 is \$19,673.78. The loss during the same period in 1947 was 33,462.00,100

Inspection was made of 364 buildings in the Village during March.

### Activities

Definite steps have been taken by representatives of Design and Construction, Project Engineering and Safety & Fire Protection to prepare a project for the installation of a fire detector device as recommended by the Village Safety Committee at the meeting of February 26, 1948. It is recommended that, due to the extreme hazard which exists in the B.O.Q. dormitories in Richland, the manually operated alarm system be installed immediately and that the dead end extended fire protection water line now located near the intersection of Goethals and Guthries be looped into the water line at Guthries and Gillmore to provide an adequate supply of water in event of fire and compensate for friction loss in present hookup.

Plans for revising the air conditioning units in the barracks at North Richland have been approved and work has been started, which is in accordance with the recommendations of the Safety & Fire Protection Division.

Inspections are being made of the chimneys of the pre-cut houses from Bremerton which are being reassembled and erected in North Richland to determine if they are safe to use.

On Saturday, March 20, 1948, the Safety & Fire Protection Division conducted an inspection of the oil burning heating unit that is to be used in the Bremerton houses in North Richland. The inspection revealed that the occupant must fill a can from a 50 gallon drum of fuel oil located outside the house; then enter the house and fill the fuel tank on back of the heater. This method of supplying the heater with fuel oil is considered a definite fire hazard. The committee recommends the following method (which is proposed by the Safety & Fire Protection Division) of supplying the heater with fuel oil to eliminate the hazard:

- 1. Installation of a 50-gallon drum at back of the house with bottom two inches above float valve level on the heater. Drum to be of such dimensions that it will not place more than 30 lbs. oil prossure on float needle valve.
- 2. A shut-off valve should be installed nonr tank in oil line to burner.
- 3. Oil line to tank should enter tank at bottom and extend in la inches above bottom.
- h. Tank should be equipped with a 1-inch screened vent. Vent to be directed away from house a few inches above top on tank.
- 5. Fill port to be equipped with a dirt screen of the same mesh as the screen on burner tank, and a tight fitting cap.

An inspection of the oil burning furnaces which are being installed in the Pehrson type houses reveals that they are not listed in the approved appliance list of the Underwriters Laboratories. It is recommended that all new contracts covering buildings in Richland and North Richland specify that the gas, oil, and electric appliance carry an Underwriters approval on the completed unit.

The pre-fabricated small home units offered for sale and erection in the North Richland trailer camp have been inspected by the Safety & Fire Protection Division. Those small units can be used with certain regulations which are being prepared by the Safety & Fire Protection Division and will be submitted at a later date.

As the limit of life of Columbia Camp cannot be determined at this time, the committee reviewed the present alarm system (five buttons and siren and the Fire Station) and decided it is not adequate for protection of life and property in the event of a fire. The committee recommends the following alarm system be installed and that the necessary work be done on the Fire Station to eliminate the unsatisfactory conditions:

- 1. Huts where people are sleeping have only one door. A second door should be installed in the opposite end.
- 2. The fire alarm system does not indicate from which part of the camp the alarm is turned in, and the Fire Department is therefore delayed in getting to the scene of the fire."



It is recommended that a Gamewell Vitaguard Jr. alarm panel be installed with six three-fold alarm boxes. This system is the same as that used in the Areas and can be used for an Area when the camp is abandoned.

It is recommended by the committee that alarm systems in all of the school buildings be connected to a master fire alarm box similar to the one in the Columbia High School for the purpose of positive notification to the Fire Department and to eliminate the inconsistency of one school having direct contact with the Fire Department while the others do not, and the uncertainty of the Fire Department receiving an alarm in event of fire.

Because of the difficulty experienced by the Fire Department in opening the nine R. D. Wood fire hydrants, which are located in various high value districts in the Village, and caused by the opening wrench fouling against the tightening ear on the pumper suction line, the committee recommends these hydrants be replaced with "Corey" type.

It is recommended that the use of the open flame or oil pot flare type of warning lights be discontinued in Richland, North Richland and Columbia Camp and that a reflector type or enclosed red lantern type of warning light be used.

The Safety & Fire Protection Pivision advised the committee that accurate tests had been conducted with "Flamort T", a fire retardant for the treatment of textiles such as drapes, upholstery, rugs, etc. The product is of high purity and does not effect the luster or color of the fabric. The committee recommends the use of "Flamort T" for flameproofing all textiles deemed necessary by the Village Safety Committee.

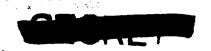
After a general discussion of the increased quantity of service and fire protection water now needed and the additional increase that will be used during the summer months as new homes and buildings are completed in Richland and North Richland, the committee decided to request the Power Department to advise them of the contemplated increased source of supply and the approximate date same will be available.

A report from Chief Hare showed that during the recent high winds, large quantities of waste paper, especially newspaper, were piled up against fences and buildings, constituting a fire hazard, as well as being very unsightly. The committee feels that practically all of this paper comes from around the various homes and other buildings in the Village and could be prevented from blowing away by more careful efforts on the part of the residents. The committee recommends that the Program and Publicity Sub-Committees publicize this condition to all residents and request their cooperation in preventing the accumulation of loose paper around the homes.

Construction was contacted and asked to begin work on the fire alarm system in North Richland as soon as possible.

Plan was approved for underground water line in storage yard at North Richland.

The National Clean-up week Campaign was held March 21 through March 27, 1948. Posters were displayed at strategic locations throughout Richland, North Richland, and Columbia Camp, and 10,000 bulletins were prepared and distributed on March 25 and 26 to all homes and tract homes in Richland, all barracks and trailers in North Richland, and to safety meeting locators.



Transportation records show that they collected 2,660 cubic yards of trash and rubbish from the Village, which is 20% above the average weekly pickup. They collected 626 cubic yards of trash and rubbish from North Richland.

### Routine Duties

### Fire Extinguishers

Inspected Installed and Relocated Refilled Ropaired	1,994 242 189 2
Fire Drills & Lectures	
Outside	90
In si de	167
Safety Meetings	17
Water Barrels	
Installed	0
Refilled	22

All fire alarm boxes were tested.

#### PAIROL

#### General

On March 1, 1948, the new jail, located at the rear of the 770 Building, was designated as a County Jail in a "resolution" adopted by the board of County Commissioners. The jail was inspected and approved on March 2, 1948, by Deputy Sheriff Lambert of Prosser, Washington.

All buildings of the 770 group were released to Patrol from the Sub-Contractor Construction group as of March 2, 1948.

Effective March 2, 1948, we are assigning a patrolmon each shift to the new jail as "jailer". This post requires one man 24 hours daily.

Patrol began making a weekly boat check on the day shift, effective March 5, 1948.

Effective March 22, 1948, the handling of classified escorts was discontinued by the Municipal Patrol. This function is now being performed by the Atomic Energy Commission.

Effective March 23, 1948, all Trailer Control Check Posts were discontinued until further notice. Observation of trailers coming onto the project is being made by our regular Traffic detail.

One hundred and nine orisoners were processed through the Richland Jail during

22617



### Training

Routine classroom instruction in Dormitory W-10 continued through the month as follows:

1:00 P.M. to 2:00 P.M. - "Gathering Evidence and Preparation of Samo."

2:00 P.M. to 3:30 P.M. - "Traffic Instruction and Mothods of Procedure."

3:30 P.M. to 4:00 P.M. - "Health, Safety and Security Discussions and Instructions."

For period covering month of March, the advance Firearms Training for Municipal Patrol members at the Small Arms Range was divided as follows:

Pistol
Practical Training

2 Hours

Qualifications in Army "L" course firing were as follows:

	January	February	March
Unqualified  Marksman  Sharpshooter  Expert	13%	10%	2%
	25%	29%	30%
	25%	21%	19%
	37%	40%	49%

### Richland Area (Village)

	January	February	March
Classified escorts	14	114	14 (Discontinued 3-22-48)
Check on absentees *Persons assisted	5 948	2 612	2 314
Doors and windows found open in commercial facilities		20	11
Lost children found Ambulance runs	4 74	3 66	गेंग 6
Lost dogs reported Dog and cat complaints	o 26	1 29	7 30
Persons injured by dogs	14		8
Totals	1089	747	436

<sup>\*</sup>Includes: Esecrts from Cashier Office and Bus Terminal to Bank; persons admitted to residence; transportation for nurses and technicians to hospital on special night calls; delivery of messages to residents who have no telephone; and opening trailer arking lot for individuals.





#### Service Dope rtment

### Richland Area (North)

	January	February	March
Check on absentees	o	0	14
Escorta	127	165	137
Bank details	26	26	27
Ambulance runs	17	15	7
*Persons assisted	854	658	731
Complaints investigated	<u>78</u>	122	121
Totals	1102	986	1027

\*Includes: Special Bank details; admitting persons to their rocms; contacting parties on long distance calls; issuing rooms and bedding; locating persons wanted for various reasons, and handling complaints of a general nature.

### Richland Area (Columbia Camp)

•	January	February	March
*Persons assisted	108	167	123
Escorts	1	0	0
Ambulance runs	2	2	1
Complaints handled	4	8	2
Open doors and windows			2
Totals	121	180	128

\*Includes: Bedding issued; services rendered to others, and handling of emergency details in general.

#### Traffic Section

Adult drivers training and instruction which began on January 30, 1948, was continued through the month of March. Classes are conducted each Friday night for periods of two hours.

A number of films on "Safe Driving" have been purchased and are being shown in our regular adult drivers training classes. These films are of the very highest type and are recommended for any program of drivers education.

#### Traffic and Offense Statistics

These are presented in separate tables at the end of this report. A comparison of Richland Offense Statistics with outside averages also is presented.

#### Patrol

A total of 180 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 on the companies of the content of the

	1740	
43		

	PATROL DI	LIVISION - RICH	RICHLAND OFFENSES	SES			
Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Of February	Offenses Y Merch	Offenses By Arrest	Cleared By Other Action	Perpetrators Involved
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Assault All	<b>J</b> C	40	0	0	0	0	o (
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recovery  To a part (arount auto & bike);			•	I	(	Ć	(")
(*) - (50.00 and over value	<b>6</b> 0	ĸ	<b>1</b>	ر ا	<b>)</b>	<b>&gt;</b> (	)
(b) = Under \$50,00 value	62	<b>⊘</b>	6	( <b>a</b> )	N C	u -	<b>\$</b> 0.
Auto Theft	<b>.</b>	<b>α</b> ,	0 (	(a)	<b>&gt;</b>	<b>⊣</b> ⊂	(n)
Biovole Theft	10	<b></b> 4 (	<b>7</b> •	۸-	0	<b>-</b>	1
Weapons: Carrying-Possessing	. اسم	0 •		ري ام	o C	+ O	8
Destriction of Government Property	<b>⊒</b> † †	<b>-</b> - (	ם ל	ે •	0	a	7
Destruction of Personal Property	6	<b>&gt;</b>	v c	) (	0	0	0
Destruction of School Property	<b>0</b> 1	<b>-</b>		) L	0	7	7
Disorderly Conduct	νį	<b>-</b>	1 K	)61	19	0	<b>50</b> *
Drunkenness		<b>o</b> c	۰.۰	ķ	0	1	<b></b> 1
Embozzlement and Fraud	, ,	o C	C	0	0	0	0
for gery	<b>-</b>	,		0	0	0	0
Jambling	<b>5</b>	o c		1 (e)	0	7	_
Hasing Persons	<b>→</b> ¢	o c	. 0		0	0	0
Offense against family & children	<b>)</b> -	o C	-	, <b>-</b> -	<u>, -</u>	0	
Pickup for Outside Agency	7	o c	- 4	(E)	င	٥.	_
Prowlers	ó c	o C	•	0	0	0	o (
Rape	<b>-</b> - C	o c	0	_	0	0	(3) (3)
Sex Offenses	<b>寸</b>	ی د	0		0	-	N i
Cohabitation	<b>-</b>	o C	0		_	0	«
Vagranoy	- C		<b>,</b>	0	0	0	<b>.</b>
Violation State Game Laws	<b>o</b> C	0	0	0	0	0	ن <b>ـ</b> כ
Violation State Liquor Laws	, kc	, <b>,1</b>	80	ય	0	O)	4
Miscellaneous	, (e)	,	,	1	•	ĸ	• <b>•</b>
Juveniles (Uther Chair Crosses)		0	1	4 18		8	25
	12	14	62 11 <b>9</b> 24	-	ਰ	<u>.</u>	
(a) - Two of the offenses were perpetrated	by two J	uveniles, age uveniles, age	٠,				
(b) - One of the offenses was perpetrated	by three	juveniles, a	ges 4, 16	and 17 y	years.		
ı	petrated by four	juvenilos, ag _ are lh vear	8. KZ, 48.	na C nu	•		
(a) - The one offense was						( ]	
52							

- (f) The two offenses cleared were perpetrated by a juvenile, age 16 years (one of the offenses 'actual' Feb.)
  - (g) Three of the offenses were perpetrated by six juveniles, ages 11, 15, 15, 16, 17 and 19 years. (u) Represents 'unknown'.
    - \*One of the perpetrators was a colored male.

Value of property recovered during month of March was \$797.51 (includes one auto and three bicycles).

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NORTH RICHIAND OFFENSES	
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ossiftestion of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual O	fenses	Offense By Arrest	s Cleared By Other Action	Perpetrators Involved
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(b) under the value	9	0	. <b>,</b> 1	•	0	0	<b>0</b> (
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bloydle and motor bare that	0	0	-	0	0	، د	<b>-</b>
Carrying concession capa:	K	0	1	<b>6</b> 0 -	0	<sub>P</sub> -1 (	<b>N</b> C
Destruction of School Property	Ó	0	0	0	0	0	<b>.</b>
Dostruction of Jersons! Property	0	0	0	0	0	0	<b>)</b> (
District Conduct	0	0	0	0	<b>)</b>	<b>&gt;</b> (	
Dring brook	39	0	25	£,	96	<b>-</b>	60
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Violation of State Game Laws	0	0 (	<b>5</b> (	<b>)</b> (	<b>&gt;</b> C	) <b>O</b>	0
Violation of State Liquor Laws	·- ,	 • •	) ic	) (O	0	0	0
M scollanous	>	•		S			•
Juvonilos (othor than reported above) Disorderly Conduct	0	ok	0	0	0	0	086
	121	N	2	711	3	i	

(a) - One of the offenses was perpetrated by 3 juveniles, ages 18. (b) - 26 of perpetrators involved are colored males.

Value of property recovered during the month - \$511.13.

1226182

154

Number of offenses known to police per 10,000 inhabitants, in cities between 10,000 and 25,000 inhabitants:

	Washington Orog	ron & Calif.	Richland	•6		North Richland	i ch land	
	Six Months One Month	Ono Month	Six Months (Jan-June 1947)	Fobruary 1948	March 1946	Six Months (Jan-June 1947	February 1948	larch 1948
Classification				0.3		•	. (	
Murdor	989.	Jil.	<b>0</b> (	0	0 0	0 0	o c	( <u>)</u>
Robbery	19.57	3.5¢	<b>-</b> 6	<b>.</b> 7	3	o c	0.0	٠ 0 0
Aggravated Assault		/a• 1	77.	3	1.33	0	39.	0
Burglary		19.09	12.34	13.66	30.66	0	7-33	25.0 []
Larceny	57.73	8.6	22.	0	1.33	0	<b>3</b> .	0
2 40114 0204				•	6			

Tumber of offenses known to police per 10,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

	State of Weekington	hineton	Richland	 		North Richland	ichland	
1	SIX Months	One Month	Six Months	February	March	(Jen-June 1947)	February 1948	1948
lassification	(Jan-June 1947)	Average	That emp-use	3				•
Murdor Robbory Aggravated Assault Burglary 'Larceny Auto Theft	5.11 1.62 36.20 91.39 19.79	.30 .85 .65 .03 .3.30	0 		30.00	00000	2.0 2.0 7.33 7.33	0 0 0 0 0 0 0 0 0

The portion of offenses committed by persons under the age of 25 years is shown by the following figures:

North Richland	Six Months February Kirch (Jan-June 1947 1948	0			, ,	the Thistorm Crime Report published b
ii 1	loue 1948		) ()	Z,	50%	7 11 11 11 11
uew er	Spruary 1948		0 <b>%</b>	8	0	4
ban Land	Six Tonchs (Jan-June 1917)		0 K	198	33%	
	National Average (Jan-June 1947)		56.3%	. 0.94	74.1	
ine porcion de catalacte de la		Classiff oation	Robbirg	Burglary	Laydeny	Arco rilor c

Statistics of juvenile offenses throughout the United States were taken from the Uniform Crime Report published 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 worthless incomplete in the records. Notes

PATROL DIVISION - TRAFFIC CONTROL STATISTICS March - 1948

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			Total 151 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 tals 1 Narch 5 21 104 18 81 18 81
	•		শ্লা প্রতাত	116 116 116 116 116 116 116 116 116 116
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		명 [편] O G O [전 -	Equip Mar	Parking V. Mar. Nar. 20 20 6 6 26
	Injuries March 0 0 0	Reckless & Drunken Driving Feb. March 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Nes. Dr. 0 1 6 8 10 14 19
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	Pate 0 0 0	Fallure Feb. 5 6 6 8	<b>[54]</b>	Drunken Driving Feb. March 0 0 0 1 6 0 6
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	tor Vehicle Accidents  Total  Feb.  1  Chlend orth Richland  5  19	coldent Causes ant chland rth Richland	farni nd	Ed Ed
	ant chlan rth i	colde cant chie	t ce	18 16 1.0

Count taken on 3-30-48, north of Yakima R. Bridge on George Wn. Way - 24 hour period - 11,435 cars. Due to late reporting, thirteen accidents that occurred in Richland, four in the Plant Area, and four that occurred in North Richland during the month of February, are included in March totals. raffic Volume te:

		12.4.4	に見れておればは	THE STREET				
			MARCH,	MARCH, 1948			Average	Varrents
					1	1 400000	Fines	100000
Number of N	Number of			Sentenced	Sentence	License	Paid	
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	3 -	00 016	5,50	0	0	<b>3</b>	2.11	-1
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	~ ,	77.50	None	C	0	0	17.50	5
Failure to Appear 1	<b>-</b> 1	2 1	60.67	· C	C	0	2.75	-
No Driver's License 11	20	88.50	OT. 10	ه د	·	· C	3,32	0
NO DILYGIA CARCOLLO DO	20	72.00	5.50	0	) )	<b>)</b>	1	· C
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								ı
TOTAL294	289	\$ 3680.50	\$676.70	걲		17		'n
		2,00%		- 40°				
Total Fines		676.70						
Loss Finos Susponded								
Total Received		3003.80		<b>.</b>				
						1	•	

The above includes violations that occurred on the Hanford Works Project.





### MUNICIPAL ADMINISTRATION DIVISION ORGANIZATION AND PERSONNEL

### Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Lecrease
Patrol	161	160	-	1 (a)
Fire Protection	114	120	<u>6 (b)</u>	-
Total	275	280	6	1
WET INCORASE 5				

- \_
- (a) 1 Hire 2 Terminations
- (b) 7 Hires 1 Termination





#### **HUNICIPAL ADMINISTRATION**

#### GEMERAL

Several candidates for the position of city manager of Richland were escorted around the village in order to acquaint them with the physical layout and with some of the problems involved in its administration.

In response to a request from J. R. Rue, Assistant Lanager, a comprehensive report was submitted embracing recommendations on procedures which, if adopted, would result in lower operating costs.

A meeting was held March 19 with a representative of the United States Public Health Service from the San Francisco District Office to discuss the best measures for garbage and trash disposal. The representative from the Public Health Service was complementary with respect to the present method of disposing of waste materials but, in view of the smoke nuisance created by the burning method, recommended instead the operation of the sanitary fill method for both Richland and North Richland. He recommended against the sale of garbage to piggeries inasmuch as there could be no adequate control to prevent the incidence of trichinosis. The Public Health representative will submit an official report setting forth his findings and recommendations.

Comments were submitted to the Transportation Department upon the recommendations of ir. Arthur Jenkins, Transportation Consultant, relative to the Village local bus system. In brief, the comments reflected the feeling that his recommendations, if adopted, would result in less satisfactory service than is now given to village residents with no corresponding increase in revenue or reduction in operating costs.

A procedure was restablished, as approved by the Atomic Energy Commission, to make scrap lumber available to residents of Richland and North Richland by furnishing permits to pick up scrap lumber at a central location.

As a move to reduce costs of additional procurement and maintenance of lawn mowers, the decision was made and publicized that project owned lawn mowers would no longer be issued to village residents.

### VILLAGE EXPANSION AND IMPROVEMENTS - RICHLAND

Work authorities were requested of the construction Project Manager during the month as follows:

1. Request for the preparation of an overall plan of the future village showing locations of houses, churches, schools, commercial facilities, public buildings, warehouses, water works, sewage disposal facilities and other necessary installations.





- 2. Request for the preparation of study covering the location, design and estimated cost of construction of a Youth Activities building.
- 3. Request for establishment of procedure for clearance of plans and specifications of buildings to be erected by others in Richland and North Richland.

Work authorities pertaining to Municipal activities were issued by the Construction Project Manager as follows:

- 1. Study to establish irrigation standards for public areas
- 2. Design of school administrative offices and warehouse facilities
- 3. Design of dog pound and veterinary facilities
- 4. Construction of lighted softball park
- 5. Design of addition to Richland Post Office.

Detailed reports were submitted to the Atomic Energy Commission to support the budget requests for the construction of the Youth Activities Building and the Educational Building. These justifications pointed out the many reasons why such structures should be erected to be used as an integral part of community youth and educational programs.

Similarly, a detailed picture was given to the Atomic Energy Commission of the program set forth for the continuation of the dust and erosion control project. together with the reasons why the continuation of this work is considered necessary for the health of the community.

The previously requested study on the location of church sites throughout the village completed by Turnbull, Inc., and Associates will forwarded by the Design Engineering Department to the Atomic Energy Cormission for approval.

In order to expand the present dog pound facilities to meet current conditions, pending the development of plans for the construction of a new building, additional runs were installed during the month.

A work order was issued to provide lighting for the present four tennis courts located at Richland park. With the increase in the population of the village with no corresponding increase in tennis courts, the lighting of the present courts will permit their heavier utilization during the evening hours.

Previous plans for the erection of a dog pound and veterinary hospital to be constructed from Project funds have been temporarily put in abeyance pending the determination as to whether the operator of such a facility would be willing to construct the necessary facilities at his own expense. Similarly, work on the design of the school administration offices and school warehouse facilities has been postponed pending a decision as to whether the food store operation adjacent to Farcus Whitman School can be relocated and the building converted for the use of the school district.





### VILLAGE EXPANSION AND IMPROVE ENT - NORTH RICHLAND

A work authority was requested of the Construction Project Hanager for the construction of additional grade school facilities to serve the augmenting population of North Richland.

#### DUST CONTROL AND LANDSCAPING

During the month of Farch, the street tree planting program continued with the planting of 398 street trees and the moving of 11 trees, located on the street tree line of residential premises. Trees and shrubs planted in the shelter belt west of Wright Avenue were returned to the mursery due to the decision to create a residential district in that area. Work continued on improving the village nursery and the planting in the mursery of shall trees and shrubs to be planted in the village at a later date when their size justifies permanent installation.

In order to provide effective control against tree and plant disease in the village, it was decided to publish information relative to the correct spray measures to be taken to prevent diseases and to invite representatives of the Washington State Department of Agriculture to visit Richland several times during the howing season to make inspection for the presence of infection.

### VILLAGE INFORTATION

Articles were published in the Richland Villager of Harch 18 setting forth rules for the guidance of villagers on the planting of shade trees and vegetable gardens. Information was submitted in the articles on the individual responsibility of residents for the prevention and control of infection to trees, shrubs and plants planted on their residential premises.

#### CRGANIZATION AND PERSONNELL

Number of Employees on Payroll	March
Beginning of month	13
End of month	13
Not increase or decrease	

### VILLAGE SAFETY COLLITTEE - RICHLAND

Action taken by the Village Safety Committee during the month is set forth as follows:

#### Traffic Control

Recommended the installation of Armor-Flex traffic markers for crosswalks at two intersections. These installations will be made on a trial basis to test the effectiveness of the material, as a means of reducing the cost of repeated renewal of crosswalk painting.





### Fire Prevention

Recommended the extension of a fire protective water line in order to more adequately protect the mens' dormitory area.

Recommended that all new construction projects covering buildings in Richland and North Richland specify that gas, oil and electrical appliances carry Underwriters' laboratory approval.

Recommended that open flame flares currently used in the construction area be discontinued and replaced by reflector type or enclosed red lantern warning lights.

Recommended that alarm systems in all school buildings be connected to a master fire alarm box.

Recommended replacement of certain fire hydrants in order to eliminate the possibility of wrench fouling against the tightening gear on the pumper suction line.

Recommended investigation of current plans be made in order to insure apple water pressure in all areas of the village for proper and adequate fire protection.

### VILLAGE SAFETY COMMITTEE - NORTH RICHLAND

Reported that barricades will be placed immediately around excavations.

Reported plans for the installation of safety hand guard railings to be placed along the loading and unloading lanes at the new bus depot.

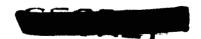
Recommended the installation of appropriate caution signs around the area of the school buildings.

Recommended the installation of automatic fire protecting equipment in all multiple living quarters.

Reported the inauguration of a fire patrol inspection of the barracks each might.

#### COMMUNITY ACTIVITIES

On March 24, 1948, the Recreation Advisory Committee held its regular monthly meeting. The committee recommended that the following organizations be approved: Tri-City Christian Businessmen's Committee, A & J Number 1 Club, American Association of University Women, National Association for Advancement of Colored People, Painters Business, Social and Educational Club, Officers' Reserve Corps (Tri-City Composite Group 618), Triple Teen Club, and String Instrument School (Private). Those organizations recommended for approval on February 24, 1948, including Church of God, I. B. P. O. E. W. (Elks), Richland Welfare Board and the Richland Softball Association were approved by the Atomic Energy Commission on March 10, 1948.



The annual Red Cress Drive resulted in total receipts of 14,395.65, over-subscribing the 14,380 quota by I percent.

Since the publication of required procedures relative to the construction of new buildings and utilization of existing structures for use as club houses, the following organizations have submitted applications and tentative plans for construction: The Castle Club, Veterans of Foreign Wars, and the I. B. P. O. E. of W.

The Kiwanas Minstrel Show sponsored jointly by the Richland, Pasco, and Kennewick groups for the benefit of the Spastic Hospital at Soap Lake, Washington, and local needy, make \$1507 of which 500 was allotted to Richland.

### SCHCCLS

School enrollment in Richland and North Richland as of Farch 31, 1948, was as follows:

Sacajawea Grade School	1,035	
Marcus Thitman Grade School	743	
Lewis and Clark Grade School	851	
Jefferson Grade School	355	
John Ball Grade School (North Richland)	283	
Total all grade schools		3,272
Columbia High School		795
Total all schools		4,067

This indicates a total enrollment increase since May 31, 1947, of 804 pupils, with 103 additional pupils at the high school and 641 at the grade schools. During the month there was an increase in chrollment of 162 pupils in the grade schools and no increase or decrease in the high school.

On March 31, 1948, there were 78 children enrolled in the Richland Nursery School with an average attendance of 54. There was an increase in enrollment during the month of 1. On this day there were 16 children enrolled in the Extended Day Care program of the Nursery with an average attendance for the month of 14. There was no increase or decrease in enrollment during the month.

The school board announced that Mr. P. A. Wright, head of the Snohomish, Washington, School System for the past 24 years, had been appointed superintendent of the Richland Schools and would take over his duties on July 1.

#### CHURCHES

Following the publication of procedures relative to the construction of new buildings and utilization of existing structures for church purposes, the following church organizations initiated requests for sites and submitted preliminary plans for proposed structures: The Richland Episcopal, Assembly of God. South Side United Protestant, Richland Lutheran, Latter Day Saints, Redeemer Lutheran, and the Church of Christ. Conferences were held regarding



the early submission of plans by the Catholic, Christian Science, Latter Day Saints (Reorganized), Free Methodist, and United Protestant Churches.

The name of the United Protestant Church was officially changed to the Central United Protestant Church.

### COLUMITY FACILITIES FERSONNEL

The number of full time employees employed by the schools, churches and community organizations as of March 31, 1948, was distributed as follows:

Schools		240
Churches		24
Community	Organizations	73
Total	-	337

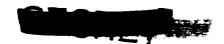
### MAJOR ACTIVITIES DURING MONTH

March 16	Cheney College Choir
March 20	Richland Orphan's Trestling Show

and the second of

Columbia High School Columbia High School





### REALTY DIVISION

### GENERAL

The Realty Division has as its general responsibility the landlord relationships involving assignment and leasing of houses, apartments and dormitory rooms; the procurement and performance of commercial facilities; and the operation of the construction camp at North Richland, as well as the operation of Columbia Camp.

### ORGANIZATION AND PERSONNEL

Humber of employees on payroll:	March
Beginning of month	271
End of Month	<u>277</u>
Net increase	- <u>;</u>

Additional jamitors for use in the barracks and trailer camp wash houses at North Richland constitute the increase of personnel during the month of March.

The following report is divided into these parts: Richland Housing, Commercial Facilities and North Richland Housing activities:

### RICHLAND HOUSING

Housing Utilization as of Month	End Conven-	_	Fre- Pr	•		
Houser Occupied by Family Group			Cuto fa	_	نهدا الاسترال	Total
Operations	2245	20	<u> </u>		34	3565
Facilities	116			16	12	250
Government	102	1		38 1	3	156
Kellex Corporation		3	٠ ١	9	,	15
Morrison-Knudsen	<u>l</u> ı			3		-7
Atkinson-Jones	i	3		3		7
J. Gordon Turnbull				1		, i
Giffels & Vallet				1		1
Graveport Construction Co.				-	7	1
Newport-Kern-Kibbee					1	1
Vernita Orchards			18		h h	<u>.</u> J.
TOTAL HOUSES CCCUPTED	2470	27	110 +13	<del>30</del> 1 <del>0</del> +	** <del>61</del>	<del>4008</del>





Houses utilized for special purp	_		-	- 1	7
Houses assigned (lone se written) 8	12	20	7		1.7
Houses assigned - awaiting tenanta22	7	14	17		ÉÓ
Government houses - unassigned	·	٠_	-	_ :: <del>:::::</del> 73	- O
TOPAL HOUSES 2500	46	144	1351	10 101	4155

- Total includes 10 prefabs and 12 hutmants taken over at Columbia Camp.

  Conumancy figure includes 4 houses occupied by Bonneville Power in

  Priest Rapils and White Eluffe.
- \*\*\* This includes 32 tract houses occrded up for salvage.

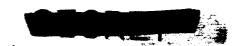
Housing Turnover During Month	Begin	Moved	Moved.	Month	Diff-
	Morta	<u> </u>	_೦ಬರ_	End	erences
Conventional Type	2157	28	42	2470	Minus 14
Block Type		27		27	Flue 27
Precut Type	75	36	<u> </u>	110	Plus 35
Rrefab Type	1344	27	<u>147</u>	1350	Minus 14
npartments	.9	l		10	Plus 1
Tract	52	7	_ 8 _	61	Minue 3.
Total	397 F	126	<u> 62</u>	40CE	Plus 34

### Dozmitory-Statistics

Dermitories		editeque00	Vacapoice	Total Peds
Men - Occupied	14	*519	**59	558
Men - Unoccupied	•	* <i>)-)</i>		
Women - Occupied	12	<del>*</del> 502	**13	<u>-</u> 515
Women- Unoccupied	-	-	-	)±) <del>-</del>
Weman's Dermitories				
Occupied 37:		at va		
Medical Department	7			
Government Office	ī			
G. E. Office	<u> </u>			
Education	1			
Apartment	ī			
	***31			

- \* Total includes single beds added in two single rooms in the men's dormitory for two G. E. employees and il beds added in the Girl's dormitories for the Atkinson and Jones Company.
- This includes 6 beds in W-9 and 10 beds in M-12 not in use. Space in W-9 is being used for supply rooms and domnitory offices. Space in M-12 is being used for F. B. I. offices. Also, included in this total are 7 vacancies in M-12, which was turned over to the F.B.I. to house their personnel only and 18 vacancies in M-9, which was turned over to Kellex Corporation to house their personnel only.

<sup>\*\*\*</sup> Potential occupancy 28 dermitories: 14 men's - 14 women's.



Seventy (70) precuts were accepted from the Hudson Commany during the month of March - 29 "U" type and 21 "V" type.

Forty-five (45) Atkinson-Jones houses were accepted during the month of March - 4 "M" type. 23 "Q" type, 17 "R" type and 1 "S" type.

Eight (8) apartments were accepted from the Atkinson-Jones Company during the month of March.

Tract House JJ-671 was leased to the Vernita Orchards Company at \$1.00 per month.

Tract House L-898 was remodeled and leased, rental \$57.50 per month unfurnished.

Tract Roune M-788 was remedeled and is ready for allocation, rental to be 40.00 per month unfurnished.

Tract House 2000-I, relocated and remodeled, was leased for \$30.00 per month unfurnished.

### COMMERCIAL FACILITIES

The following figures indicate trends in commercial activities as related to various basic items:

	Feoruary	March
Cafeteria Meal Customers (Progressive)	102,770	123,613
Per cent of room-day occupancy - Tran.Qts.	92.95%	97.41%
Gallons of ice cream sold	9,937.47	8,941
Gallons of milk and cream sold (Carnation)	70,460	82,201
Darigold milk deliveries	7,29h	3,572
Theeter customer count	372, کې	52,044
Cases of soft drinks rold	6 <b>,8</b> 95	9,694
Callons of gauoline sold	135,275	224,770

Total number of Commercial Facility employees, full and part time, as of March 31, 1968, 935.

Authorization was armited Siler's Beauty Salon to install four additional booths at the operator's expense.

Authorization was granted Progressive Cafeteria to install Breakfast and Eois Bar, at their expense.

Work orders were issued to put coffee wagons at the Progressive Cafteria in good operating condition.

#### COMMERCIAL FACILITIES - NOFIH RICHLAND

The following figures indicate volume of business in Cafeteria  $\frac{u}{u}1$ :



	February	March
Average Meal Check - Breakfast	.46	.48
Average Meal Check - Lunch	.62	.60
Avorage Meal Check - Supper	.62	.62
Average Daily Sales of box lunches	484(Sun.o	cc)431 (Sum exc.)

Following figures indicate volume of business in Cafeteria #2:

Moel Customers	100,739	139,612
Average Meal Check - Breakfast	.52	45
Average Meal Check - Lunch	.62	•53
Averago Moal Check - Supper	.63	.58
Average daily sales of bor lumches	\$43(Sum.ex	c) 158 (Sun.exc.)

Following figures indicate volume of business in Columbia Camo:

Moel Cust mens	7,569	6,655
Average Miel Check - Breakfast	,45	· lie
Average Meal Check - Lunch	-54	•55
Average Meal Check - Supper	•52	•52
Average daily sales of box lunches	65(Sm.es	c) 54 (Sum.exc)

The autombile license agency department of the Columbia Service Company served approximately 119 patrons during the month.

Mickey's Shoe Renewing pick-up station served thirty-three customers during the month.

The Richland Laundry & Dry Cleaning served 955 customers at the North Richland pick-up and delivery station during the month.

The North Richland check-cashing service, operated by the Seattle First National Bank, served approximately 1,942 people each pay day (Friday evenings). A total of approximately 7,767 employees were served during the month.

Western Gas and Power Company delivered 576 gallons of propene gas to trailer residents during the month.

North Richland Ice Delivery, delivered 54,775 pounds of ice to 1,660 customers in North Richland Trailer Camp during the month.

Canteen Food Service, Inc., had a total of 308 employees on their payroll as of March 31. 1948.

### CCYLTACTS AND NEGOTIATIONS

An operating agreement dated Ferruary 9, 1948, retroactive to September 9, 1947, was entered into by and between General Electric Company and Canteen Food Service, covering feeding service operations in North Richland.



CEARIN

### SERVICE DEPARTMENT

A Supplemental Agreement dated February 25, 1948, effective November 3, 1947, was entered into by and between General Electric Company and Canteen Food Service, covering feeding service operations at Columbia Camp.

A Supplemental Agreement dated March 19, 1948, was entered into by and between General Electric Company and Richland Electric, which extends indefinitely the temperary rental provisions applicable to certain appliances sold by the facility to employees of the Contractor under the Contractor's Employee Sales Plan, fixed by Paragraph #3 by a previous Supplemental agreement dated August 1, 1947.

Invitations to bid were sent cut on the following prospective facilities:

Food Store - North Richland Automotive Service Stations - North Richland Drug Store - North Richland Self-Service Laundry - North Richland Fountain Lunch - North Richland Jewelry Store - Richland

Operators for the following facilities in Richland and North Richland have been selected:

Men's Work Clothing Store - David Horenstein, doing business as Hermon's Mon's Stores, Inc., Portland, Oregon. Located on Dudiana Avenue, North Richland.

Food Store - Conrad Diettrich, Food Lines, Inc., Walla Walla, Washington. Located on Indiana Avenue, Morth Richland.

Sorvice Station located at Fourth and George Washington Way in North Richland - Collin Bloiler and T. H. Brown, Toppenish, Washington.

Service Station located at Fourth and Stevens Drive in North Richland - Gilbert D. Moyle, doing business as Inland Empire Refineries, Inc., Spokene, Washington.

Drug Store - Robert D. Hand, Buy-Rite Drug Store, Longview, Washington. - Located at Indiana & 6th Street, Morth Richland.

All of the above businesses will construct their own buildings in North Richland.

### - Inventory and Property

The annual 1948 inventories of Government equipment at the following locations were completed:

Cafetoria No. 2, North Richland Recreation Hall, Richland





### Requests for Establishment of Businesses in Village

A number of individuals expressed a desire during the month to establish and operate businesses in Richland and North Richland. The types of establishments desired are shown in the following list:

Alteration Shop Automobile Agency Bakery

Borber Shop Beauty Salon

Bowling Alley or Billiard Parlor

Coal and Ice Business Cold Storage Locker

Garage

Garbage Disposal

Hardware & Electrical Appliance Store Recreation Hall

Ice Cream Store Ice Creamery

Ice Cream Vonding Service

Ice Delivery

Ice Manufacturing Plant Infant's & Children's Store Jewelry Store and Gift Shop

Laurdry & Dry Cleaning Establishment

Laundry & Dry Cleaning Fick-up Station Service Station

Meat Market

Men's Clothing Store

Music Store

Pastry and Coffee Shop

Pop Corn or Orangeade Stand

Pop Corn Wagon Portrait Studio Radiator Repair Shop Department Store

Diapor Service & Baby Laundry

Dressmaking School

Drug Store Flower Shop Food Store Fountain Lunch Furniture Store Radio Repair Shop

Radio Sales & Service Store

Recreation Hall Restaurant Riding Academy Roller Skating Rink

Rooming House

Saw Filing & Carpenter Tool Shop

Sea Food Market

Seers Roebuck Order Service Office

Self-Service Leundry
on Service Station
Shoe Ropair Shop
Souvenir Shop

Sporting Goods Store & China & Gifts

Taxi Service

Tavern Theater

Trailer Sales & Accessories

Watchmaking Shop Women's Wear

Written permission was granted to sixteen (16) Village tenants to conduct the following part-time businesses in their homes:

Sell Electrolux cleaners and air purifiers

Sell Rawleigh products (2)

Sell The World Book Encyclopedia" (2)

Sell "Red Comet" fire extinguishers

Represent the Minnesota Mutual Life Insurance Company (2)

Make appointments for Superior Cleaners

Sell clothing made by the C & D Co., and "Maisonette Frocks"

Sewing and alterations in the home

Sell Avon products

Sell Kirby vacuum cleaners (2)

Sell Westmoreland Sterling (2)

DECLASSIFIED



Written permission was granted thirteen (13) individuals living outside of Richland to contact Village tenants on an appointment basis on the following business matters:

Sell "Red Comot" fire extinguishers
Represent the Lutheran Brotherhood Life Insurance Co., of Minneapolis
Represent the Grolier Education Society, Inc.
Sell 'Encyclopedia Britannica"
Represent Pacific Press Publishing Association
Represent the Publishers Guild, Inc. (2)
Sell "Wear-Ever" cooking utensils
Sell "The World Book Encyclopedia" (3)
Sell clothing made by N. W. Tailoring Co. & C. & D. Co.
Sell "Compact" vacuum cleaners

An out of town trip was made by members of the commercial facilities group on March 26 and 27 for the purpose of visiting prospective facility operators in Longview, Washington and Portland, Oregon.

### NORTH RICHLAND HOUSING ACTIVITIES

### Barracks Occupancy:

The increase of occupied bels during March was very slight owing to the usual spring moves of construction workers and end of the month adjustment lay-offs by the principle subcontractors. At the end of the month there were nearly 800 beds available for occupancy. All presently planned barracks have been finde available for occupancy except three one-story mens barracks and four one-story womens barracks. Wing 242-C, which was burned cut in February, was rebuilt and put back into use in March.

Total barracks in use, or available for uso March 31, 1948:

One-story barracks - white - 76 wings One-story barracks - colored - 20 wings Two-story barracks - white - 42 Two-story barracks - colored - 1

(Three additional two-story barracks still being used for Recreation Hall and Post Office.)

Columbia Camp is still being used as a temporary overflow barracks.

#### Trailer Camp:

On March 31 nearly 700 trailers were in the camp, with nearly 2000 total occupants. About 150 additional trailer lets had been turned over to us by construction and authorization issued for trailers to be moved in. Current General Electric requirements were all taken care of and the only





subcontractors still having a waiting list were Atkinson-Jones, Urban Smyth & Warren, and Newbery Neon Electric. These waiting lists totaled approximately 300. About 40 bath houses were ready for use. Maintenance overhead was heavy, largely due to juvenile vanialism, pilferage of removeable fixtures and the barracks doors, normal with new equipment. This fact emphasizes the immediate need for playgrounds, ball parks, swimming facilities, etc.

Road surfacing progressed steadily during the month. Requests for Work Authorities to cover the construction of Trailer canopies and placing of top-soil have been forwarded to construction.

During March arrangements were made with two manufacturers of portable "cabins to sell sample cabins, one wood and one aluminum, to two project employees. The cabins are bought on skids and brought into the Trailer Carp on trucks. Specifications were established for such manufacturers as with to sell such cabins for use on trailer camp lots and a letter of Contract was drawn up by the G. E. Legal Staff and approved by the A. E. C. to protect the registered owner, the legal owner, the Government, and the General Electric Company, in case of termination by the occupant from employment on this project. As these cabins in the maximum size of 12 feet by 20 feet have considerably more floor space than the average trailer, and as they cost less than one-half as much as a good trailer, it is felt that they may be to some degree an answer to the critical shortage of housing accommodations.

#### Houses:

Practically all of the 198 prefabricated houses brought over from Gremerton, Washington, were on the Project and in various steps of construction by March 31. As of the end of the month 12 houses have been received from construction and furnished with furniture borrowed from Richland Realty Division. All of these houses were leased during March and 11 occupants moved in. Ten additional houses were being furnished and made ready for imspection to be received from construction in the immediate future.

A ratic was set up whereby 85% of the houses are assigned to Atkinson-Jones and their subcontractors, the remaining 15% to be assigned to employees of North Richland Facility Operators and Community Activities personnel.

### Forth Richland Realty Division Expension:

Toward the end of March we were informed that as soon as the transfer could be made the North Richland Realty Division would take over facilities for handling bed linen and similar supply material transportation and sanitation trucking, or pick up of trash and garbage. At the end of the month arrangements for the transfer of these responsibilities were in process.





### Personnel:

On March 26 approval was received for a six day week for all employees of the North Richland Realty Division, to be effective with the week starting March 29, 1948.

On March 17 the Trailer Camp supervisor was assigned other duties outside of this Division. The General Office supervisor was transferred to supervise the Trailer Camp and the Werehouse supervisor was transferred to supervise the General Office. During the month Sanitation supervisor and one foreman were transferred out of this Division.

### Work Requests:

The following Work Requests were submitted during the month of March:

Individual Trailer Shelters at North Richland Trailer Camp
Top Soil Covering on Trailer and House Sites at North Richland
Additional Dormitories for Richland
Interior and Exterior Pairting & Providing Air conditioning
and fire alarm system in six B.O.Q. barracks in Richland
Walkways and Steps for Hudson Replacement Houses





### GENERAL

The transfer of two electrical crews and two foremen from the Electrical Department to the Village Public Works Organization was made on March 8, as scheduled.

The transportation group performing street and road maintenance was not transferred as scheduled due to the extensive amount of work to be done in both the village and plant. It is proposed to make this transfer of personnel at such time as work has been caught up and the groups can be split.

### ORGANIZATION & PERSONNEL

Number of employees or	n payroll:	Exempt	Non-exempt	Total
Merch 1, 19 Merch 31, 19		30 32 2	300 343 43	330 375 45

During the month of March the following personnel changes were made:

New Employees	Exempt	Non-exempt 26
Transfers - From Electrical	2	.19
From Maintenanco		2
From Accounting		1
To Maintenance		1
Terminations		4

### VILLAGE ENGINEERING DIVISION

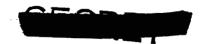
#### **GENERAL**

The normal duties of inspection, scheduling and follow-up consultation and general planning were performed during the month. Priority schedules were set up with the Village Maintenance and Labor Divisions, and Transportation Department, outlining the work to be performed in the order most advantageous to the over-all Village Maintenance. Contacts with members of the Construction Group were continued relative to Richland houses, facilities, and dormitories. Performed the necessary liaison work with Design Department, where we were designated as the Contact Engineer.

#### RICHLAND TENANT SERVICE

Richland Tenant Service and Village Maintenance Work Order and Progress report is as follows:





	Incomplete 2-29-48	Issued Dur- ing March	Incomplete 3-31-48	Issued Prev. Month
Patrol Day Maint.& Elect Patrol Furniture Repair Patrol off shift Elect. Patrol off shift Maint. Regular Work Orders Backcharge Work Orders Fire Insp. Patrol Orders	. 1015 45 0 24 643 39 705	3243 118 624 254 472 153	1158 142 0 0 648 66 442	2647 46 509 302 361 141 0
COLUMBIA CAMP				
Tonant Service Patrol Orders Work Orders	1 7	31 23	0	32 21

#### Activities

- 1. Voltage on power lines improved during the month. However, some trouble was encountered during the recent strong winds. No motors or starters were damaged.
- 2. Rear doors have been installed in all barracks, providing an exit at each end of the building for men housed in these units in case of fire.
- 5. The Benton City postmaster is making arrangements to provide daily mail service to the Camp for tenants in the Village and Camp as well.
- 4. Total comp population has averaged about 240 for the month.

### The Tabulation of House Renovations by Types for the Month is as Follows:

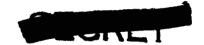
Tract	<u>A</u> .	B	D	E	F	<u>G</u>	. <u>H</u>	ī	<u>Q</u>	Profabs	Apts.	Hutments	Total
ı	5	4	0	0	3	Q	4	0.	ì	18	. 0	0	36

During the month, paint was distributed to tenants as follows:

Kemtone 206.50 gallons
Enamol 114.25 gallons
Varnish 24 querts

#### ITEMS OF INTEREST

- 1. Requests for basement excavation permits are still showing a high interest.
- 2. Requests for bathroom painting outstanding amount to 85 for the month.
- Sink lineleum requests for repair are still high. Repairs and completions have increased considerably, and to date outstanding requests amount to 302.
- 4. Window glass replacement requests outstanding amount to 165.
- 2. 122b203



6. Outstanding patrol order requests for miscellaneous types of repair amount to 663 to date.

Alteration Permits issued to tenants during the month of March amounted to 130 as compared to 77 issued during February. Permits issued during March consist of the following:

Basement Excavations	36 40
Installation of air conditioners Installation of Bundix washers & dryers, and other	40
type washers	19
Refinish floors	16
Install back door in prefab	6
Install dark room in basement	3
Remove cabinet in living room of 2 bedroom profeb	1
Stopped up coment shelving & concrete base	1
Install closet in wall adjacent to back porch	1
Install tileboard in "F" house	l
Increased size of opening underneath sun perch "R" house	1
Instell 20 cmp circuit	1
Install partition in basement	1
Goment besoment of Treet house L-898	1
Install lattice in archway of "F" type house	1
Extra receptacle in kitchen	<u> </u>
TOTAL ALTERATION PERMITS ISSUED DURING MARCH	130

#### ACTIVITIES

An initial inspection was conducted at Garmo's Bakery, and exceptions noted. As soon as corrections are made, a final inspection and acceptance will be scheduled.

Construction of Compbell's Food Locker Addition is proceeding slowly because of material shortages and structural changes requested by facility operator. A conference was held with the architect, builder, and operator for purposes of clarifying and approving these structural changes. Revised prints will be submitted in the near future.

Construction is proceeding on schedule for the modernization of the Thrifty Drug Store. This work is approximately 85% complete.

Final inspection was given the Richland Laundry Utility Room Addition and relocation of equipment. This project is now acceptable.

Estimates were prepared for the Municipal Administration Division, covering the following items:

- 1. Replacement of (9) R.D. Wood Fire Hydrants with the Corey type.
- 2. Installation of fire detection systems in dormitories and Transient Quarters of Richland, and Dormitories of North Richland.







A survey was made of the Transient Quarter's dining room and kitchen, for purposes of placing this facility in operation. Approximate estimates were prepared.

Specifications were prepared covering the exterior painting of 514 houses in Divisions 4 and 5. These have been submitted, along with a purchase requisition, to the Purchasing Department in order that they may produce bids for the painting of these homes. Paint products will be supplied by the General Electric Company; and the contractor will be allowed to use the hutments on Casey Avenue for their headquarters. Village maintenance mechanics will do all necessary carpenter work preceding the painting of the homes.

A preliminary review was given the following requests for new construction:

- 1. Richland Lutheran Church Addition
- 2. Addition to Rainbow Service Station
- 5. Modernization of Castle Club
- 4. Warehouse shop and office for a plumbing, heating contractor.

A work order has been issued covering the installation of a grease-proof, asphalt tile floor in the Thrifty Drug Store. Material Control will expedite delivery of the materials. The new floor is necessary due to the fact that the original mastipage flooring is completely worn through.

A work order has been issued providing for installation of project approved doors and doorway at the main entrance of Garmo's Food Store. Existing doors will be removed.

Technical service on routine matters has been furnished the Community Activities Division and the Commorcial Facilities Division.

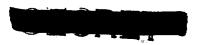
Additional electrical ranges were installed in the kitchens of the Thrifty Drug Store and Bus Depot. Changes in building service, as well as electrical distribution were made necessary because of increase in load.

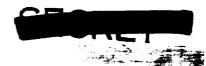
Assistance was furnished the Labor and Maintenance Divisions of the Village Public Works Organization in obtaining materials and equipment and also maintaining the necessary control and cost records.

A total of 8 Back Charge Estimates and 5 High Spot Estimates were made this month.

INSPECTION AND ACCEPTANCE OF NEW HOUSES:	Previously Accepted	Accepted During Merch	Total
"U" and "V" Type Pro-cuts	81	70	151
M, Q, R, and S Type Conventional	1	45	46
Apartments	0	8	8







### Tract Houses, Remodeling and Repair, 1943

House No.	Estimate Submitted	Work Order Issued	¿ Complete	Completed
K-788 L-898 K-787 2000-X J-641 K-784 K-789 0-1250 L-902 K-756 K-718 L-859	2-19-48 3- 5-48 3-17-48 Proposel only 3-19-48 3-24-48 3-24-48	12-29-48 1-12-48 1-22-48 1-22-48 2- 4-48 2-23-48 3-15-48 3-17-48	0 0 5	3-12-48 3-26-48 3-18-48 3-12-48 3-12-48

A survey was completed and estimate propered for the work necessary to replace dormitories W-8 and W-21 in their original condition so they can again be used as dormitories.

An estimate was propared and specifications outlined for seed to be purchased for lawns of newly constructed homes in the village.

A study was made of the hot water heaters being installed in the A&J homes. These heaters, which are manufactured by Seidelhuber Iron & Bronze Works, of Scattle, appear to be of an inferior quality since excessive maintenance has already been experienced on the few units which have been in use to date. A request has been made to the Purchasing Department to either have the faulty parts replaced or to replace the entire units with a more satisfactory type.

A procedure for acceptance of facility operator sponsored buildings was drawn up and approved for use in the future.

### PERSONNEL

Number of employees on payrell: Beginning of Month End of Month

Two mombers transferred from Maintenance Department to this group to handle Material Control.

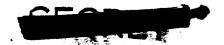
Two members terminated during this month, which have not been replaced to date.

### VILLAGE MAINTENANCE DIVISION

#### GENERAL

The personnel of this group, organized by transfer of employees from other departments, was completed March 8, at which time two foremen, 15 electricians and four helpers were transferred from the Electrical Department. All groups





have been located in their new work areas except the two electrical crews. Their relocation will not be possible until the Typewriter Repair shop and Electrical Distribution group vacate hutments 722-D and E.

Due to the increase in amount of work, and as a result of the division of groups from the maintenance and electrical departments, a shortage of transportation equipment resulted. A detailed study was made of these requirements and submitted to the Transportation Department.

### SAFETY

During this month there have been no major, or sub-major injuries, or near serious incidents.

### EQUIPMENT FAILURES

There have been no failures of major or important equipment during March.

### PROCRESS

- 1. Renovations During March, 35 renovations have been completed, of which 15 received a complete paint job. As of April 1 there were ten orders
- for renovation on hand and plans are being made to increase the paint crews and number of female laborers for cleaning to keep up with the increased volume of renovation orders expected.
- 2. Reconditioning Dermitories W-8 and W-21 Proparations are being made for the replacing of these dermitories in their original state for use in housing women employees. Work will be started in W-8 as soon as the General Electric Property group and A.E.C. Procurement group have vacated the building. Work can be started on W-21 as soon as the Public Health group has vacated that building.
- J. Transient Quertors The work of reconditioning the dining room and kitchen in the Prensient Quertors, as requested by the Engineering group, has been completed except for the painting of the walk-in box and a few minor items.
- 4. "E" House Kitchens Revisions have been made to the kitchens in 19 "E" type houses, and only one remains to be done. This one will be completed as soon as arrangements can be made with the tenant to do the necessary work.
- 5. Outside Painting Program All proparations for exterior painting have been stopped due to the plans for sub-contracting exterior painting of the homes in divisions four and five.
- 6. Interior Painting Program Interior painting work was completed on 137 conventional type dwallings. This work will continue through the surmer in view of the fact that no exterior work is planned.
- 7. Cormercial Laundry Project No. 167 All work was completed on this project Merch 15, 1948, and the installation is in full operation.





## VILLACE LABOR DIVISION

### ORGANIZATION AND PERSONNEL

Total personnel as of April 1, 1948, as follows:

Exempt personnel 12
Wookly personnel 138
New omployee received furing Merch 23
Terminations during Merch 1

### GENERAL

1. Project C-134

- A. Village tree planting progressed during Merch with approxinntely 400 trees being planted in the Village. Proposed
  tree planting is 30% complete.
- B. Work in Villago nursery No. 2 has progressed satisfactorily and is of this date 95% complete.
- 2. Fuel Deliveries

79,818 gallons of fuel oil were delivered during the month to occupied houses and houses under construction. There were 1,328 tens of coal delivered to Village ewellings during the month.

3. Gerbago and Trash Disposal

- A. Six now garbage trucks were received during the month and will be put into service as rapidly as possible.
- B. A new garbage and trash disposal site has been selected as a result of the complaints being received from property owners on the east side of the Columbia River. It is planned to move the disposal grounds to this new site as soon as the present excevated area for disposal purposes has been filled. It is estimated that this will be senting in May. Plans are being made to use the Senitary Landfill Method for disposal of garbage and trash. It is also proposed that the new area, which is located northwest of the village, be available to Richland villagers for a common disposal grounds to eliminate the present unsatisfactory condition of disposing of trash at numerous places in and around the village. Signs will be posted and publicity given the establishment of this disposal area.







#### MARCH 1948

#### **GENERAL**

Absentseism in the Department for the month of March was 1.39%. This was a decrease of 1.98% over the month of February.

Following is the March Work Order Summary for the Mechanical and Labor Division.

e e e e e e e e e e e e e e e e e e e	Work on hand February 22			completed ch 28	Work on hand March 28	
	No.of	Estimated	No.of	Estimated	No.of	Estimato
Groups	Orders	Man Days	Orders	Man Days	Orders	Man Days
All Area Labor and Repair	145	11,940.2	282	2,832.0	114	11,476.2
700-1100 and Railroad Labor	207	8,588.3	356	5,932.8	224	8,126.6
Riverland Railroad Repair	6	7.4	19	217.9	4	4.8
700-1100 Repair	243	458.0	409	3,486.8	201	543.9
Total Labor and Repair	601	21,003.9	1.066	12.469.5	543	20,151.5

## ORGANIZATION AND PERSONNEL

The following additional functions within the Village heretofore performed by the Transportation Department Labor Division were transferred to Village Public Works Service Department during the month: Lawn Hower Repair; Grass Seed Distribution; Janitor, Fireman, and Watchman services at the Labor Yard.

W. L. Straughen, Assistant Chief Supervisor, K. J. Parchen, General Foreman, W. B. Hinson, Truck Foreman to General Foreman, C. M. Carlyle, G. E. Hess, J. E. Millard, M. L. Roller, O. S. Sinderson, L. Stanfield, and C. E. Zimmer Labor Foremen, were transferred to Village Public Works, Service Department, effective Harch 1, 1948.

During the month, requisitions for weekly salaried personnel were issued to increase the force by six Switchmon, one Tractor Operator, one Locomotive Operator, one Auto Mechanic, and two Laborers. Total force as of March 31, 1948 was 745.

Number of employees on payroll Beginning of month End of month Nct decrease			Yarch 777 745 32
Terminations Transferred to other Departments	Total	8 8	39
New Hires Transfer from other Departments Return to Work (removed from roll)		5 1 1	
Net decrease			32

Force of Morrison-Knudsen, Track Maintenance Subcontractor, was increased by 13 and the total force as of March 31, 1948, was 105.

### OPERATIONAL ACTIVITIES



#### 1. Railroad Operations

Railroad operations continued on an increased basis with all train movements being effected as scheduled. There were 5,238 cars handled during the month and undoubtedly would have been more had it not been for the decrease in lumber shipments and the coal strike as commercial tonnage was exceedingly heavy during the first half of the month.

On March 17, 1948, a trial test run was made with 14 empty passenger coaches with the purpose of reaching a basis for the establishment of a schedule for the future transportation of Construction workers.

## 2. Repairs

A new set of exhaust manifolds was installed, cylinder heads were tightened, and the valves were readjusted on Baldwin locomotive 39-3721.

Annual hydrostatic tests were made on the main reservoirs of General Electric locomotives 39-3726 and 39-3727, and 39-3728. Orifice tests were made on the compressors of General Electric locomotives 39-3727 and 39-3728.

On March 25, 1948, repairs necessary to place the 21 passenger coaches for Construction workers in operating condition were begun so that they will be ready for service when needed.

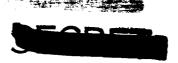
#### 3. Track Maintenance

Railroad track maintenance continued in a routine manner in the Areas by Department forces and outside the Areas by subcontractor's forces with the following items of interest.

- a. Project C-214, Rehabilitation of Plant Railroads, has been somewhat curtailed pending authorization of camp facilities to accommodate additional labor, the inability to secure new rail, and the questionable quality of re-lay rail offered. Arrangements for the inspection of a quantity of Chicago, Milwaukee, Saint Paul, and Pacific Railroad Company rail are in progress.
- b. Heavy receipts of cross ties are being distributed. Twelve hundred cross ties were installed in 100-D and 100-F Areas. Old ties were removed and switches were repaired in 105-D track. Renewed 20% of cross ties in coal track and disposed of 200 old ties in 200-East Area. Renewed 25% of ties in coal track in 200-Test Area.
- c. The Railroad Maintenance Subcontractor performed the following work:
  - 1) Unloaded 14,000 cross ties
  - Unloaded 20 cars of rail, angle bars, tie plates, and other material
  - 3) Replaced 10,000 ties
  - 4) Completed re-lay of 1,000 feet of 65 " rail including two turnouts between the east switch of Riverland Yard and Riverland Junction



## AUTOMOTIVE OPERATIONS AND REPAIRS



## 1. Automotive Operations

- a. The extent of automotive equipment usage is indicated by the monthly total mileage of 1,051,630 for all types of vehicles. The total mileage for March 1947 was 843,633.
- b. Area and Village Local bus systems operated during the month as scheduled.

Effective Harch 22, 1949, one additional bus stop was established in North Richland at the Atkinson-Jones Office for the 300-700 Area Stretchout Shuttle Bus.

c. The extent of Area bus traffic is indicated by the monthly total passenge count of 108,592 and the extent of Village Local bus traffic is indicated by the monthly total passenger count of 68,073.

Total passenger count for March 1947 for Area traffic was 80,888 and for Village Local traffic was 65.639.

- d. Off-the-Plant special automobile trips (company business and official visitors) totaled 265.
- e. Miscellaneous automotive operations services including (a) Motor Pools (b) Inter-Area Shuttle Service (c) Inter-Area Freight, Mail, and Express Services (d) Towing and Trecker Service were rendered during the month in a routine menner.

## 2. Repairs

This Division received 438,112 gallons of gasoline, 194,950 gallons of Diesel fuel, and 10,500 gallons of kerosene during the month for Project use.

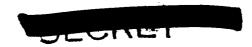
### LABOR ACTIVITIES

#### 1. General

Cleaning and repairing of the Richland main irrigation canal was completed and water turned into the system on March 15, 1948. The Labor Division patrols the canal seven days a week on the No. 2 Shift with a two man crew. The Automotive Division patrols designated locations on the canal seven days a week between 6:00 p.m. on the No. 3 Shift and 6:48 a.m. on the No. 1 Shift with two Shuttle Drivers who perform this work in addition to their regular driving assignments.

#### 2. Roads and Strent Maintenance

Two thousand eight hundred and fifty cubic yards of  $3/4^n$  minus rock were crushed and stockpiled. Three hundred and twenty two tons of pre-mix road and street material were propared. Three hundred and eighteen street and road signs were repaired and installed.







## 3. Areas

Work in the Areas continued on a routine basis except as noted.

### a. 200-East

Project C-112, Additional Underground Waste Tank Facilities. Well 241-BX-135 was completed and has a depth of 150 feet. Footage on all wells drilled to date totals 1,050.

Project C-120, Divert Second Cycle Waste Supernates to Ground. Work Order D-69819 excavation has been completed and the backfilling is 92% complete. Our portion of this work is approximately 78% complete.

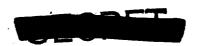
Project C-133, Special Test Wells. Wells 361-B-4 and 5 were completed and have depths of 321 and 327 feet respectively. Wells 361-B-6, 7, and 8 were started and have present depths of 335, 245, and 45 feet respectively. Footage on all wells drilled to date totals 7,487.

Project C-166, HNO3 Tank Farms for 200-East and 200-West Areas. Work Order D-69168 - excavation for bases and footings at 211-B is 80% complete. Mix and place concrete at 211-B is 85% complete.

#### b. 200-West

Project C-163, Additional Process Wasto Storago. Work Order D-68002 fifty seven cubic yards of concrete were mixed and placed in Diversion Box 154. Seventy two cubic yards of concrete were procured from a subcontractor and placed in Diversion Box 155. Concrete placement in Diversion Box 155 is now approximately 75% complete. Work Order D-68010 - excavation of waste line trench extending from Diversion Box 155 to Diversion Box 156 is approximately 85% complete as 80,000 cubic yards of earth-were removed. Excavation of trench extending from Diversion Box: 155 to Diversion Boxes 151-U and 152-U was completed to fine grade as 65,000 cubic yards of earth were removed. Excavation of trench from Dimension Box 155 to Diversion Box 163; 241-TX Area; is approximately 75% complete as 3,000 cubic yards of earth were removed. Work Order D=68013 - two hundred seventy-nine cubic yards of doncrete were mixed and placed in trench extending from Diversion Box 155 to 241-U Tank Farmer Also 233 cubic yards of concrete were procured from a subcontractor and placed at this location. Sixty-eight cubic yards of concrete were mixed and placed in 33 cover slabs. Eighty-four cubic yards of concrete were procured from a subcontractor and placed in 47 cover slabs.

Project C-166, HNO3 Tank Farms for 200-East and 200-West Areas. Forty cubic yards of concrete were placed in the remaining tank base at 211-T Building. A 22,000 gallon stainless steel tank was set, bases were backfilled, excess earth disposed of, and approximately 3" of gravel were spread over this area completing the project.







#### e. 300-AREA

Project C-189, Structure to House 2 MEV X-Ray Machine. Twenty cubic yards of concrete were placed and block work is near completion. Our portion of this project is 85% complete.

Project C-220, Optical Building and Electrical Shop. Excavation was completed. Thirty cubic yards of concrete were placed in the walls and foctings. Our portion of this work is 20% complete.

Code 1302, Nine Tube Test Unit, 305-A Building. Work Order E-50071 - excavation has been completed. Work Order E-50074 - seventeen cubic yards of concrete were placed.

#### d. 700-1100

Project C-138, Automatic Dial Exchange, 702 Building. One hundred cubic yards of concrete were placed. Our portion of this work is 27% complete.

Project C-148, Combined Maintenance Shops, 700-Area. This work was completed except for drainage structure on lines for blacktop apron.

Project C-167, Commercial Laundry, Addition to Equipment Room. Work Order D-69621 - project was completed.

Project C-202, Gate House and Parking Lot, 700 Area at Stevens Drive and Swift Boulevard. Excavation for water line is 85% complete and the concrete work was completed as eight cubic yards were placed during the month. Work Order D-68169, Excavation and Backfilling on Storm Drains, was completed.

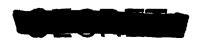
Project C-209, Two Story Addition to Richland Administration Building. Block work and general cleanup is approximately 85% complete. Water lines were put into service during the month.

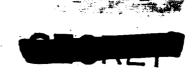
Project C-224, Transformer Station for Bakery Addition. Food Store "A" (Garmo's). Excavation for transformer base was completed.

Work Orders E-31350, E-31355, and E-31356. Wells G.E. 1100-2 and 3 were started and finished during the month and have completed depths of 103 and 120 feet respectively. Well G.E. 1100-4 was started and has a present depth of 80 feet. Footage on all wells drilled to date totals 404.

#### e. 3000 Area

Work Order #-2105, Code 1302, and Work Order E-31352, "ide 13020. Well G.E. 3000-3 was started and finished during the month and has a completed depth of 99 feet. Well G.E. 3000-4 was started and has a present depth of 156 feet. Footage on all wells drilled to date totals 423.





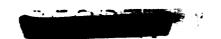
## EQUIPMENT CONTROL

- 1. Seventy units of equipment were transferred to the Construction Department on P.I.T.'s making a grand total of 268 vehicles transferred to date.
- 2. There are 525 units of equipment presently on order as 63 units were requisitioned during the month. Three hundred and thirty three units were received on orders placed prior to Harch 1, 1948. No units were received on requisitions placed during the month.
- 3. The replacement program got well under way with the large delivery of new equipment. The odd makes and models accumulated during the past four years will be disposed of, thereby standardizing our equipment and eliminating the necessity for stocking such a wide range of repair parts.

#### TRAFFIC DIVISION

- 1. A survey has been made comparing present all-rail, truck-water-rail, and water-rail rates to Hanford on shipments of Sodium Nitrite from Gibbstown, New Jersey, and Sodium Bichromate and Ammonium Silico Fluoride from Baltimore, Maryland. In each instance, substantial savings can be effected by using water service: Sodium Nitrite, \$215.00 per car, Sodium Bichromate \$257.00 per car, Ammonium Silico Fluoride, \$475.00 per car. Instructions have been issued to route future shipments via water-routes. The Milwaukee Road has been notified of this wide differential in order that they might handle with the Transcontinental and Central Freight Association Tariff Bureaus to reduce these rates if they wish to participate in this traffic.
- 2. As a result of our proposal of October 27, 1947, the California-North Coast Lines have approved rates of 92¢ and 111¢ per cwt. on Second Hand Contractor's Outfits, from San Francisco and Los Angeles, respectively, to Hanford. Rates will become effective April 24, 1948, and will represent savings of 54¢ per cwt. or approximately 3130.00 per car.
- 3. In line with our recent proposal, the Southern Pacific, Great Northern, and Milwaukee Failroads have agreed to protect the Kennewick rate of 38¢ per cwt. to Hanford on lumber from southern Oregon points as shown in Items 6460, 6470, and 6480, Korth Pacific Freight Bureau Tariff No. 41-G. Rates are to be published effective April 10, 1948, and will result in savings up to 14¢ per cwt. or as high as \$110.00 per car.
- 4. Because of a request filed January 21, 1948, the North Coast Lines have published a through rate of 38¢ per cwt., minimum weight 30,000 lbs., on Plaster Aggregate from St. Helens, Oregon, to Hanford, to become effective April 14, 1948. This will result in savings of 55¢ per cwt. or approximately \$155.00 per car.
- 5. The railroad mileage allowance on tank cars was increased from  $1\frac{1}{2}\ell$  to  $2\ell$  per mile effective March 20, 1948, Supplement 15, Association of American Railroads Tariff No. 7-N.
- 6. As a result of rate reductions secured from the carriers, there was a total saving in freight charges for the month of March amounting to \$13,308.48. This makes a total saving to date of \$286,427.42.





#### HEALTH INSTRUMENT DEPARTMENT

## MARCH 1948

#### Organization

The composition and distribution of the force as of 3/31/48 was as follows:

	100-B	100-D	100-F	200-W	200-E	<u>300</u>	<u>700</u>	P.G.	Total
Supervisors	- T. <b>TO</b>	1	3	8	4	13	5	0	34
Engineers	1	3	6	9	17	6	0	0	42
Inspectors	0	3	7	9	28	14	1	0	62
Clerical	0	ō	Ö	Ó	0	2	2	0	4
Others	٥	10	9	40	14	30	6	5	114
Total	1	17	25	66	63	65	14	5	256

Number of Employees on Payroll

March

Beginning of Month End of Month

#### Net Increase

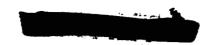
The net increase came from the addition of 5 laborers and one helper for the badge and pencil routine, required for Construction locations, two inspectors for training in Survey work, and one helper for the Biological group. The gain was offset by the termination of one laboratorian, and the transfer of an inspector and one laborer to the Design and Construction Department.

The senior man in charge of H. I. survey work in each Plant Area was logically retitled Area Supervisor. Simultaneously, M. L. Mickelson became Chief Supervisor (Survey), and J. W. Healy became Chief Supervisor (Methods Development).

#### General

A considerable fraction of the Department's efforts was devoted to the theoretical and practical pursuit of active particles emanating from the Separations Plants stacks. For the first time, some "reasonable" but by no means definitive limits to permissible exposure were written down. These findings, together with the programs of all contributing departments, were included in a report "Review of Stack Discharge Active Particle Contamination Problem", H. M. Parker to File, Document HW-9259, dated 3/22/48.





By this time, the entire 200-E Area has been surveyed. This was done by emergency ordering of additional instruments, promptly supplied by the A.E.C. Instrument Branch, Oak Ridge, and by the assignment of all possible H. I. men to the task. Attempts to further expedite the work by loans of personnel from other departments were unsuccessful. The second section of the H. I. Training School was postponed indefinately in order to concentrate on the above work.

J. W. Healy and F. E. Adley attended the American Industrial Hygienists Conference, Boston, Mass., where Healy contributed an invited paper. F. P. Seymour took part in Waste Disposal discussions at the Argonne National Laboratory. H. A. Kornberg represented the department at the Oak Ridge Biological Information Meeting, and R. F. Foster at the Fish Biologists meeting, Lake Quinalt.

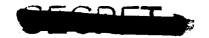
There was no known instance of overexposure of personnel. Seven incidents were investigated under the Special Hazards Class 1 system. These included three improper entries into Radiation Danger Zones, two instances of hand contamination, one of laboratory floor contamination, and one error in Canyon sampling.

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#### OPERATIONAL DIVISION

#### 100 Areas

#### Work Permit Summary

			1948
, two for	February	March	To Date
100-B	102	121	347
100-D	839	954	2564
100-F	<u>987</u>	1092	<u> 2936</u>
Total	1928	2167	5847

#### Retention Basin Effluent

The activity of the water leaving the Retention Basins was as follows:

-	100-D	100 <b>i</b> F
Power level	275	275
Average beta dosage-rate (mrep/hr)	0.8	0.9
Average gamma dosage-rate (mr/hr)	1.7	1.8
Average total dosage-rate (mrep/hr)	2.5	2.7
Average integrated dose in 24 hrs. (mrep)	60	65
Maximum integrated dose in 24 hrs. (mrep)	72	79
Maximum integrated dose in 24 hrs. (mrep)	1948 72	79

During excavation work along the effluent line from the 100-D Pile Building to the Retention Basin, active water was observed at several points along the line. No leak was found in the exposed portions of the pipe and further investigation was not attempted. Construction of a tile field outside the plant area about 200 yards north of the basin was started. Moist earth was uncovered by the excavation but no contamination was detected. Contaminated algae was encountered during work of heightening the north wall of the basin but was not a serious hazard.

Repairs were made to the west side of the 100-F Retention Basin and considerable contaminated algae and tumbleweeds were encountered. Increased activity was noted in the water leaving the operating side of the basin but the desage-rate did not exceed 4 mrep/hr. The Danger Zone adjacent to the north side of the basin was enlarged when considerable contaminated algae was blown over the wall

## 100-B Area

The Power Department added chlorine to the Retention Basin in an effort to kill the algae growth there. No radiation hazard was encountered. Otherwise only routine and incidental maintenance work was attempted at the 100-B Area

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## 100-D Area

Surveys at the top, far edge of the pile revealed that the lid of the pile has now raised to a point where the step arrangement no longer affords proper shielding. A gamma and neutron beam, emerging at about a 45° angle, showed an estimated exposure rate at the face of the pile of 500 mrem/hr., including about 350 mr/hr. Correction factors for the size of the beam were difficult to obtain at this point due to the background from the neoprens seal. The beam is approximately an inch wide at the face of the pile and spreads to four inches at a distance of three feet. In length, the beam extends over about three-fourths of the far side of the pile. Passage through this beam via the far stairs has been discontinued.

Technical personnel took measurements on the graphite lattice by emptying the "A" experimental hole. Temporary shielding inserted in the hole kept exposure of personnel to a minimum. Samples were removed from the "B" experimental hole with no unusual readings reported. A fast neutron survey on the experimental level showed uncorrected readings of 30 mrem/hr in front of the "A" hole and 7 mrem/hr to the right of the "B" hole. A fast neutron reading of 2.5 mrem/hr was reported on the #6 T-section seam several feet above the experimental level. No neutron reading could be detected through the biological shield between the #5 and #6 T-section seams.

During replacement of one of the process tubes, one tube section lodged on the 10 foot level catwalk in the Discharge Area. It was removed easily with poles in a field of 10 mr/hr. Two other process tubes were removed and not replaced and special shields inserted in each end. The shield in the front end of the tube was later removed while the gas in the pile was at a positive pressure. Radioactive graphite was blown out of the tube onto the elevator and tube caps below. The Van Stone flange work on the front and rear faces was completed with a moderate spread of contamination, other work to the process tubes was carried out without incident.

An exposure rate of 20 mr/hr at 20 feet was observed when the tip of rod #31 was removed from the thimble. The corrected beam reading from the open thimble was 2 roentgens per hour. Personnel, however, were exposed to only very low dosage rates. The vertical safety rod thimbles were pressure tested, and aligned by shimming the test plugs. Exposure rates were nominal.

The radiation level on top of the pile increased noticably when the doors to the 115 Building were less open. This increase was caused by the resultant breakdown of the exhaust air system at the top of the pile.





Mich of the contamination in the Drier room in the 115 Building was satisfactorily removed. Some contamination was observed in the transfer area in the vicinity of the center floor drain. Air contamination in the sample rooms persisted even after the installation of new seals in the drains. A part of this contamination may be coming from the Imas trees in these rooms.

#### 100-F Area

During the removal of samples from the "D" experimental hole, a large amount of loose contamination was dispersed over the experimental level and parts of the zero foot level below. This contamination was not immediately apparent and was carried on shoes to areas outside the Danger Zone. Ten persons received either high hand or shoe counts or both, and one pair of shoes could not be immediately decontaminated and was confiscated. All hand contamination and the remaining shoes were decontaminated to below the warning level.

High dosage-rates were observed during the burial of dummy slugs and tube sections. In one case a bucket of lead dummies read 2 roentgens per hour at 8 feet and 1 roentgen per hour through 12-15 inches of water as it was returned to the basin. Readings at the edge of the burial trench rose to 1.2 roentgens per hour and the Danger Zone boundaries were extended temporarily. Exposures to personnel did not exceed 100 mrep per day.

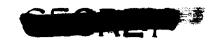
A beam of gemma radiation was discovered emerging from the step joint in the biological shield at the top far edge of the pile. The location and direction of the beam is similar to the one at the 100-D Area, but the beam is less intense and is not accompanied by neutrons.

Several tests in connection with the problems of the proposed segmented discharge were made. Surveys indicated that perforated aluminum slugs, used in the discharge operation, can be removed from the front end of process tubes, during the back-seating of the rear durmy charge, without causing any appreciable contamination problem. Also, surveys showed that the end caps of tubes loaded with the capshield pieces do not become activated by neutrons during pile operation.

The Technical Department radiography assembly was moved from the #2 purification room into the transfer area and lowered into the basin for an exchange of radioactive slugs. After relocation in the purification room a reading of 70 roentgens per hour at one foot was obtained in front of the open case. A memeritary exposure-rate of about 250 mr/hr occurs when the cask is opened or closed.







A beam of 225 roentgons per hour was observed over the loading slot at the "E" experimental hole assembly, during the loading of samples. Samples removed from the hole read up to 4 roentgens per hour at 2 feet. Personnel was exposed for short periods to rates up to 500 mr/hr. Neutron surveys on the experimental level showed readings of 25 mrem/hr, with about half due to fast and half due to slow neutrons.

Some difficulty was experienced in the removal of the special charge from tube #1481. The charge was freed from the rear face and subsequently removed by means of a push pole from the front face. Exposure to personnel was slight. Four process tubes were replaced without incident and Van Stone flange work was completed on both faces with only contamination as any particular problem.

High gas activity in the work area and hallway of the Pile Building resulted when the damper on the #3 fan was opened too wide.

## 200 Areas, T and B Plants.

#### General Statistics

	February			March			1948	
	T	B	Total	T	B	<u>Total</u>	To Date	
Special Work Permits Routine & special surveys Air Monitoring Samples Thyroid Checks	340	307 284 523 159	597 572 863 349	376 294 284 251	382 323 632 153	758 617 916 404	2116 1867 2630 1131	

#### Conyon Buildings and Fig.

The canyon air in the T Plant was highly contaminated on two occasions when cell blocks were removed in order to observe jetting operations in an effort to find a process leak. Filters from air samples taken showed surface dosage-rates of 200 and 125 mrep/hr and product results of 1 x 10<sup>-10</sup>/ug Pu/cc and 2.5 x 10<sup>-9</sup> ug Pu/cc, respectively. The 8-2 centrifuge was replaced in connection with this work without incident. The constant air monitor at R-19 was immediately driven off scale during the first instance of canyon air contamination, and much of the equipment must be replaced in order to put the instrument back in service.

Puffs of air were noted coming from connector #31 at Section 13 in the B Plant Pipe Gallery when it was opened for insertion of a blank and was undoubtedly the cause of personnel and protective clothing contamination received by workers in the vicinity. The contamination was easily cleaned. Considerable protective clothing contamination occurred during welding in cell was not spread. Attempts to weld the 14-1 tank stored in cell 19L were abandoned due to high radiation levels.



High radiation fields were encountered during sampler repair work in both canyons but work was well executed and controlled and no undue exposures resulted.

#### Control Laboratories

The T Plant laboratory was re-opened in order to train personnel for the Chemical Development program. No product or fission product work is planned in the building and only casual H. I. coverage.

In the B Plant, a total of 317 non-regulated items was found contaminated on surveys by Technical and H. I. personnel In addition 109 floor spots were detected. One instance of general floor contamination was found when routine shoe checks disclosed several pairs contaminated. Surveys of the entire building noted 20 spots in the hallway and 45 in the men's locker room where a maximum surface dosage-rate of 1.8 rep per hour was reported. The general pattern of spots was from the sample equipment windows, through the main hall, and into the locker room. The contamination most likely originated in the handling of sampling equipment in the entrance hall-way, which went undetected at the time.

There were 27 instances of skin contamination reported, all of which were successfully reduced.

#### Concentration Buildings

In the T Plant about 90 ug Pu was reported on surfaces in the deep section of C cell around the C-4 tank. Difficulty was experienced in jetting from Section 17 and vapor was observed emitting from around the C-4 agitator shaft which may account for the contamination. A scalp laceration was sustained when an employee struck his head against an air duct in cell. No contamination was found.

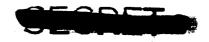
Three instances of hand contamination were reported in the B Plant, both at low levels and easily cleaned. A process leak in the D cell balcony caused general high level product contamination. Before the leak was detected contamination was tracked into the D cell balcony on rubbers which then were removed and carried down to G cell. The rubbers were put on again and entry made to G cell where further floor contamination resulted. The leak was repaired and decontamination completed.

#### Stack Areas

The #1 fan and duct work in the T Plant was removed and replaced with stainless steel equipment without incident. The inspection plate on the #2 fan was removed and regasketed. A brown, rust-like deposit



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was noted on the inside surface of the plate and analysis showed rather close similarity to active particles found in the areas, with a higher percentage of short lived fission products and correspondingly lower percentage of longer lived fission products.

Waste Disposal Areas

Ground contamination was reported near the vent pipe of the #1 crib in the 361-T Tank area, with dosage-rates up to 4.5 rep per hour noted. About 15 sq. ft. of ground was involved and it was thought that the contamination occurred in conjunction with the leak in Section 8 whereby increased activity could be expected in cell wash water.

The liquid in the sampling shaft adjacent to the 2nd cycle waste crit in the 241-B Area was pumped back into the crib. No detectable readings were found on equipment used or protective clothing.

#### General

A total of 5182 Martindale mask pads was checked with a G.M. probe in the T Plant of which 3036 were surveyed by film exposures. Active particles were suspected in 140 of the film checks and confirmed in 44 cases.

At the month end the use of Martindale pads was extended to include the "B" Plant exclusion area.

## The Isolation Building

#### Air Monitoring

There were 253 spot air samples taken of which 4 were above  $12^{-11}$  µg Pu/cc with the maximum result of 3.9 x  $10^{-11}$  µg Pu/cc obtained in cell 1 during a S.W.P. job. Sixty Little Sucker samples, run continuously by shifts, had as the high result 5 x  $10^{-12}$  µg Pu/cc and 15 samples of the 903 exhaust system had a high result of 2 x  $10^{-12}$  µg Pu/cc. In addition 85 special air samples in connection with filter media tests and canister tests were taken.

#### Surface Contamination

A total of 242 non-regulated items was found contaminated on surveys by Technical, H. I., and "S" Department personnel. Ton items above 20,000 d/m and two above 80,000 d/m were reported. There were 11 instances of floor contamination, and 2 instances of skin contamination reported.





#### Garra Radiation

P.R. Container	6.5 mr/hr (moximum)
Process Hood	2.5 mr/hr (moximum)
S.C.	4.5 mr/hr (maximum)

### The 300 Area

#### General Statistics

			1948
	February	March	To Date
Special Work Permits	281	367	803
Routine and Special Surveys	162	165	512
Air Monitoring Samples	112	151	399

#### Metal Fabrication Plant

Twenty-nine air samples taken by "P" Department and 61 by H. I. personnel are summarized as follows:

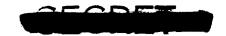
Location	No. Taken		Above -4 ug U/cc	Maxinum Concentration ug U/cc
Extruder Building	2.		2	$6.2 \times 10^{-4}$
Chip Recovery	9		1	$1.8 \times 10^{-4}$
Oxide Burner	9		5	$6.1 \times 10^{-3}$
Machining	3	•	1	$7.3 \times 10^{-4}$
Boxcar unloading	<b>6</b>		6	$1.2 \times 10^{-2}$
Melt Plant				. 1,52
Furnace Room	27	2	ļ.	6 x 10-3
Burnout Room	13.441	1.10 <b>1</b>	3	$6.4 \times 10^{-3}$
Machining & Sawi	ng 13	1	1	2.9 x 10 <sup>-3</sup>
Adjacent Extrude Building	r 8		5	$3.9 \times 10^{-4}$

Some samples were taken in areas where high concentrations were expected, others represent working conditions. Two respirator filters worn for 8 and 10 hours showed surface desage-rates of 5 and 45 mrep/hr, respectively. About 120 mg uranium exide was calculated as the deposit on the more active of the filters.

### Retention Pond

The maximum results obtained on samples taken by Site Survey were:





Location	alpha d/m/litor	beta uc/liter
Water, Inlet	1405 ± 40	6.5 x 10 <sup>-3</sup>
Water, N.W. Corner	220 ± 12	1.5 x 10 <sup>-4</sup>
	alpha d/m/g	beta_uc/kg
Mud, Inlet	30,464 <u>†</u> 502	4.1
Mud, N.W. Corner	840 <u>†</u> 22	0.18

Since startup of Chemical Development work in the Semi-Works, 238.3 lbs. of uranium has been discharged to the Retantion Pond.

#### Technical Building

No high air sample results were obtained. About 0.3 g U was found on the floor on the Instrument Shop adjacent to the counting room when a piece of contaminated equipment was brought in from the 303 Area. The spill was not spread and was easily cleaned.

## Laundry Decontamination and Hand Counting

A total of 139,411 items was monitored in the Plant Laundry, including 49,622 alpha checks. There were 30,672 coveralls, 39,632 gloves, 39,359 overshoes, and 3,422 slacks and jackets included.

Sixty-two spot and 43 Big Sucker air samples had as the high result  $4.4 \times 10^{-11} \mu g$  Pu/cc obtained while 300 and 200-West area clothes were being washed.

There were 38,570 alpha hand checks, and 57,459 beta hand checks recorded. About 0.29% of the alpha, and about 0.29% of the beta scores were above the warning levels. Most of this increase in high scores was in the 300 Area where uranium was the contaminant. A large number, 49 alpha and 98 beta scores, showed no attempt at reduction; all were in the 300 Area. Investigation disclosed that most of these had been reduced but not recorded. Where decontamination was attempted it failed in one instance of alpha and two instances of beta contamination according to the score cards. Investigation, however, showed all had been reduced.







### PERSONNEL METERS

Pencils	100-B 100-D	100-F	E&N 200	200-W	300	Total	1948 To Date
Total Pencils read: No. single readings: (100 to 280 mr)	10,962 56	13,869 52	31,412 69	40,912 120	36 <b>,0</b> 00 319	133,255 616	370,904 1,439
No. paired readings: (100 to 280 mr)	2	0	0	2	1	. 5	10
No. single readings: (Over 280 mr)	90	117	129	76	150	562	2,019
No. paired readings: (Over 280 mr)	2	3	. 2	1	3	10	30
Paired readings lost:	. 1	. 0	0	2	0	3	16

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

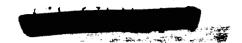
## Badge Resume, Construction Areas

		1948			
•	105-DR	241-TX	<u> 384</u>	Total	To Date
Badges Processed: No. of readings:	- 14,642 3	5,019 2	3 <b>53</b> 0	20,014 5	38,697 8
(100 to 500 mrep) No. of readings: (Over 500 mrep)	0	0	0	0	0
Lost Readings:	8	2	0	10	33

Four lost readings were attributed to lost in processing, one lost in area, one stuck film and four were partially lost when the sensitive film was not packaged.

					R.R.T.			
Badges	100-B	100-D	100-F	200-E	200-M	200-W	<u>300</u>	Total
Badges Processed:	2,881	4,939	5,016	4,393	590	6,734	6,304	30,857
No. of readings: (100 to 500 mre	1	0	3	. 0	1	12	142	160
No. of readings: (Over 500 mrep)	0	0	0	0	0	0	6	ú
Lost Readings:	0	2	4	1	Ó	3	1	11
Total 1948 Badges Lost readings wor	o to dat O accou	e were a nted for	65,527. r as fo	llowe:				



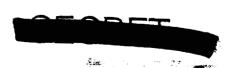


Badge lost in area	5
Badge dropped in water	1
Stuck film (open window only lost)	1
Sensitive film not packaged	1
No packet in badge	2
Sensitive film lost in processing	1
(Insensitive read 0-0)	

No readings over 500 mrep were attributed to radiation, they were accounted for as follows:

Defective film	4
Contaminated, recovered lost badge	1
Exposed to heat	1

In addition 2,629 items of non-routine nature were processed, 1948 total to date 4,954.







#### CCNTROL AND DEVELOPMENT DIVISION

#### Water Monitoring

Three hundred and fifty samples of drinking water were taken during the month. The maximum alpha contamination of about 9 dis/min/liter was found in the 300 Area #1 well. Positive alpha contamination was also detected in the #2 well in the 300 Area which had about 5 dis/min/liter and in the 300 Area samitary water which had about 5 dis/min/liter. No sample had beta activity as high as 5 x 10<sup>-5</sup> puc/liter.

Seven test well samples were taken with no detectable alpha or beta activity.

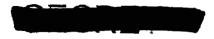
Sixty four samples were taken from the Columbia River. Slight positive indications of alpha activity amounting to about 2 dis/min/liter were found at 100-B, 100-D and Hanford, resamples did not confirm these results. Maximum beta activity was 5.5 x 10-4 /uc/liter in a sample from Hanford. Twelve samples were taken from the Yakima River and there was no detectable alpha or beta contamination.

#### Atmospheric Monitoring

The average dosage rates measured by means of integrons and "C" Chambers were:

	Integrons (mre	p/24 hours)	C Chambers	(mrep/24 hours)
Location	February	March	February	March
100-B	0.3	0.2	0.3	0.3
100-D		0.3	0.4	0.4
100-F	0.9	1.4	0.4	0.4
200-W	0.3	0.1	0.3	0.3
290-E	1.0	1.3	0.4	0.3
Riverland	1.2	1.3		
Hanford	1.0	1.3		
300 Area	1.3	1.3	0.3	0.3
700 Area	<b>o.</b> 8	< 0.1		
Kennewick	∠0.1	0.4		, <b>~~</b>
Pasco	0.1	<0.1		•
Benton City	0.1	<0.1		***

The maximum eight hour reading on a constant iodine monitor was  $4.4 \times 10^{-7} \, \mu c/liter$  at Gable Mountain. The highest average concentration for the month was measured at the 200-W Tower #4 which had  $1.7 \times 10^{-9} \, \mu c/liter$ . Sixty one rain samples were collected; the maximum activity being  $1.7 \times 10^{-2}$  to/liter in a sample from the 200-W Area. The maximum off area sample was again collected at Riverland which had  $7.0 \times 10^{-4} \, \mu c/liter$ 





#### Land and Vegetation Contamination

Three hundred and twenty-one vegetation samples were collected

Location	Average for February	nc I <sup>131</sup> per kg.  March		
		Moximum	Average	
North of 200 Areas	0.07	0.20	0.04	
Near the 200 Areas	0.24	3.75*	0.22	
South of 200 Areas	0.08	0.22	0.05	
Richland	<b>e.</b> c6	9.08	6.C4	
Pasco	0.04	0.10	∠0.04	
Kennewick	0.04	0.09	<b>6.</b> 09	
Benton City	0.07	0.05	0.05	
Richland Y	0.04	0.11	0.11	
Hanford	0.05	0.06	0.06	

\*Collected at Route 3 mile post 2.

Twenty-five samples were collected at Goose Egg Hill; maximum sample activity noted was 2.18 packg; the average was 0.22 uc/kg.

Fifteen vegetation samples were taken between 300 Area and Hanford; overall average was 0.04 µc/kg and the maximum was 0.09 µc/kg.

#### Well Drilling

Three wells located about 1000 feet from the 361-B dry well were drilled to completion to the water table during the month making a total of 6 wells around the dry well. Water samples from each have had positive alpha contamination and four of them have positive beta contamination. Maximum alpha contamination was about 160 dis/min/liter in the 351-B-1 well located 500 feet east of the dry well. This well also had beta activity of about 0.1 µc/liter. A value of 40 dis/min/liter was found in the 361-B-5 well located 1000 feet N.E. Two more wells #7 and #8 are being drilled at distances of about 2500 feet to the east and to the south in an attempt to establish boundaries for this contamination. Another well #9 is being drilled only 50 feet from the dry well.

All of the 7 wells in the 241-BX Area were perforated and are now complete.

Near the end of February, while jetting into the second cycle crib at 241-B, the laterals from the H. I. shaft overflowed flooding the shaft. Jetting was stopped and the laterals were capped and shaft was pumped out. Beta contamination of this solution in the shaft amounted to about 0.5 µc/liter. Jetting was again started but after about 8 hours the shaft was again observed to be leaking

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through the joints and around the bottom lateral. After again cleaning the shaft and coating all joints with water proofing compound jetting was started again on March 31 and no leakage was observed.

No significant contamination was observed in a soil sample obtained from well #241-T-1 at a depth of about 20 feet beneath the #3 crib.

### Bio-Assay

Four hundred and fifty-six urine samples were analyzed for plutonium. Two resamples were necessary this month because of low spike yield. All high samples have been resampled and re-run with the exception of the two for March and three in February; the latter samples are in process and the former samples were all less than  $0.6 \, \mathrm{d/m}$ .

A statistical analysis, based in counting about eighty  $l_2^{\frac{1}{2}}$  inch diameter stainless steel sample discs on the Low Background alpha counters indicated the overall average to be essentially zero counts per minute and would not contribute to the activity measured in the samples by our process.

Four-hundred thirty-one urine samples have been analyzed for beta activity. A spike consisting of Ruthenium, Yttrium, Cerium, and Cesium has been prepared and calibrated and is to be used by the Bio-Assay Group for checking the overall recovery yields on the beta process.

Sixty urine samples, one hundred and nine water samples, and sixtyone special hexone samples were analyzed by the fluorophotometer method.

The three high urine meadings previously obtained which were >40 /ug/liter were re-run and the following results were obtained:

#1. 7.5 and 8.3 ug/liter

#2. 6.4 ug/liter

#3. 1.8 pg/liter.

One high reading measured in March was 20.5 ug/liter; a resample and re-run showed 15.2 ug/liter.

#### Biological Monitoring

One of the rabbits being kept in cages near the T Plant stack escaped from its cage and was at liberty in the plant area for a period of five days during which time it fed on vegetation growing near the fans. The rabbit was sacrificed on Lecember 19, 1947 and various tissues were analyzed for radioactivity. A sample of bone had about 0.05 uc/kg which has been decaying with a half life of about 100 days. This half life and absorption curves suggest a mixture





of cerium, yttrium and strontium. A sample of marrow only had practically no activity so most of the activity was in the hard bone. The location in the bone suggests the presence of 55 day strontium but no half life as short as that can be found in the decay curve.

A rabbit which flad had radon seed implants in the testis and under skin of the back has been sacrificed, tissue preparation is not complete but no macroscopic changes were observable.

A female duck from the flock kept on the river at 100-F was sacrificed. All tissues had from 30 to 60% less activity than the one sacrificed last month. Two ducks now being fed algae from the 100-F Retention Basin will be sacrificed next month.

Four experimental rats of the second generation have been sacrificed. Although these rats had lived or Retention Basin water since birth the activities in the tissues were quite low. Liver and kidney were highest with about 2.5 x 10<sup>-3</sup> mc/kg.

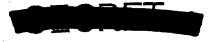
A namely goat was given several active specks early in January. Nine weeks later she was sacrificed and her tissues and those of her fetus were checked for activity. The mothers thyroid had only 1.3  $\mu$ c/kg and a bone sample had 2.3 x 10<sup>-2</sup>  $\mu$ c/kg; all other tissues had less than 1.0 x 10<sup>-2</sup>  $\mu$ c/kg.

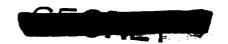
#### Fish Laboratory

Studies on the effect of area effluent water in strengths ranging from one part effluent in five parts of river water to one part effluent to two-hundred fifty parts river water have been continued but with a brief interruption during the latter part of the month due to equipment failure. Results are essentially the same as reported last month with the concentrations of 1:5 and 1:10 adversely affecting the fish. Prepile process water continues to cause mortalities in the fish similar to those caused by Retention Basin water, residual chlorine being a contributing factor. Continual exposure to 2.0 p.p.m. dichromate seriously affects the young salmon.

Eggs have thus far been obtained from 59 of the adult trout. Nearly all of them have been from fish exposed to Retention Basin water. These eggs are now incubating in the laboratory.

Tests with copper sulfate have shown that prolonged exposure of young chinook salmon to a concentration of 0.5 p.p.m. is lethal and that a concentration of 0.2 p.p.m. inhibits growth. Retention Basin algae is now being subjected to 0.2 p.p.m. copper sulfate in the laboratory to determine the effect.





Routine quantitative sampling of algae, higher aquatic plants, invertebrate animals and fish of the Columbia River has been continued in conjunction with the activity studies. Some forms of the bottom living invertebrate animals have shown a decided increase in abundance during the past two weeks. At the end of the month increasing numbers of young chinook salmon were being taken in the trap in the 182 Reservoir; indicating a successful spawning season for the salmon but also incomplete screening efficiency at the river pump house.

#### Methods Development

The use of a calorimeter bomb method for ashing of tissue and vegetation samples shows promise of being more sensitive than the present methods. The tests were run in conjunction with the study of long lived activities on vegetation samples

The measurements of  $C^{1h}O_2$  in the 100-3 pile gas are being continued. The results so far are still somewhat ambiguous. The interference from S35 has been eliminated but further analysis has not been too successful. Some of the chemical properties of the soft beta emitters are similar to those of lead.

Some work has been done to improve the recovery of fission products from urine samples using spikes of materials received from Clinton Laboratories. So far fair yields have been obtained for Zr-Cb, Sr, Ce and Y but not on Ru and Cs.

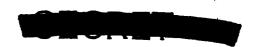
Point sources of Fa D, E, F have been prepared to serve as calibration standards for the beta sets in the counting rooms.

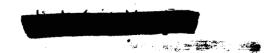
Some work has been done measuring filters contaminated with fission products to calibrate a C.P. meter so that it may be used to measure the amount of activity present in terms of uc. With a 4 inch disc of contaminated filter paper held  $\frac{1}{4}$  of an inch from the C.P. window a reading of 65 mrep/hr is observed per  $\mu$ c of Cerium and 32 mrep/hr is observed per  $\mu$ c of Cs.

#### Instrument Development

Six portable poppies were constructed and have been field tested for about two weeks. During that time there have been three battery failures, one switch failure and one probe failure. Performance seems to be satisfactory and the sensitivity is sufficient to detect 150 dis/min of alpha activity in the field.

The beta water monitor operated for a period of 15 days and although the CM tube did not become contaminated there was some increase in background due to contamination of the water chamter indicating a need for additional shielding.





The rebuilt "neut" survey meter has been in the field and performance seems to be satisfactory. Reduction in transients due to switching was accomplished by placing the switch in the grounded ends of the high resistors.

Proportional counter studies concerned with optimum probe wire voltage and input resistor values have revealed information apparently sufficient to allow operation of a probe with thin windows on both sides. This arrangement is to allow placement of GM tubes behind the probes so that both alphas and betas can be measured at the same time. This device is intended to be used first in hand counters.

#### Physics

The data obtained in the experiment with the neutron beam from the B hole in the 100-F Pile are being analyzed.

The collection and analysis of counter statistics is essentially complete and a separate report is to be written.

The extrapolation chamber is being studied and there are a few defects yet to correct before it will be ready for making measurements. The main trouble seems to be in the construction of a suitable cellophane diaphragm which serves as one of the electrodes.

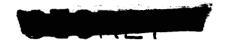
Number of Calibrations

#### Calibrations

The routine calibrations were:

DADWAY GATTED AGTORS	MULDER OF CETTDESCIONS		
RADIUM CALIBRATIONS	February	March	
Fixed Instruments:		•	
Gourma,	528	492	
Portable Instruments:			
Alpha	· 55	49	
Beta	87	92	
Gozma	340	424	
I-ray	3	· 2	
Neutron	_ 4	4	
Total	<u>489</u>	571	
Personnel Meters:			
Beta	1,162	1,470	
Gamma	8,659	8,780	
X-ray	2,774	3,468	
Neutron	18	56	
Total	12,613	13,774	
GRAND TOTAL	13,630	14,837	

226232



## MARCH 1948

#### GENERAL

There was no change in the total number of employees except for the addition of six physicians.

There was no evidence of occupational disease or injury as a result of exposure to radiation.

Sickness absenteeism of weekly employees reached a high of 2.82% due to a moderate incidence of influenza in addition to the usual general illness.

Employee physician examinations averaged 274 per working day. Treatments in the eleven first aid stations increased to an average daily of 700. Sixty percent of these treatments were for occupational injuries.

Fourteen major and sixty-eight submajor plant injuries were sustained by G. E. and subcontractor personnel. Seven of the submajor injuries and none of the major injuries were sustained by G. E. employees.

Mental health was discussed at the safety, health meetings.

The average daily hospital census dropped from 106 to 85 due to a lower incidence of influenza and other respiratory infections.

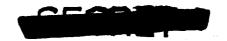
Clinic visits increased by 18%, the average daily being 211. The increase is probably due to an increasing use of medical facilities by subcontractors.

An average of 107 dental patients were treated each day by ten dentists.

As mumps began to subside, measles has taken the spotlight as the major contagious disease problem.

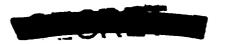






## MARCH 1948

Plant Medical Division			
Physical Examinations	Feb.1948	Mar.1948	Year to Date
Pre-employment (G.E.)	295 1	386 1	1036 2
Sub-contractors & Food Handlers	3481	4204	11596
Rechecks	629	628	2047
Interval Rechecks (Area)	767	947	2552
Terminations & Transfers (G.E.)	109 13	136 29	347 · 55
Assist to A & H Ins., Clinic, etc	0	0	. 0
Total	5295	6331	17635
	7-77	9,5,2	2,000
Laboratory Examinations			
Clinical Laboratory		•	·
Pre-employment, terminations, transfers	15483	15247	49978
Annual	6	8	14
Rechecks (Area)	3905	4894	13039
First Aid	23	20	97
Plant Visitors	0	0	12
Clinic	2149	2571	7090
Hospital Public Health (Inc. Food Handlers)	3233	2784	9056
Total	<u>493</u> 25292	<u>705</u> 26229	1744 81030
1002744444444444444444444444444444444444	2)272	20227	01030
X-Ray			
Pre-employment, terminations, transfers	2791	2806	9180
Annual	0	Q	0
First Aid	205	256	652
Clinic	205	303	841
Hospital	190	219	653
Public Health (Inc. Food Handlers) Total	<u>172</u> 3563	<u>153</u> 3737	<u>569</u> 11895
T C AGT = 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	ومور	777	11023
Electrocardiographs			
Industrial	4	4	8
Clinic	2	6	8 21
Hospital	15	25	53
Total	21	35	82
A 2.2 - m - m			
Allergy	•		
Skin Tests	53	55	151
CAGE SCUMPTER CORPORATION CONTRACTOR CONTRAC	,,		- A (A)







#### MARCH 1948

First Aid Treatments	Feb.1948	Mar.1948	Year to Date
Occupational Treatments  Occupational Retreatments  Non-occupational (Welfare) Treatments  Total	5422 6018	2696 7825 <u>5382</u> 15963	6060 18209 17037 41206
Absenteeism Investigation Report			
Total No. Calls Requested	64	26 26 1 1	130 130 1 1

#### General

Examinations increased from 5,295 in February to 6,331. First aid treatments also increased from 13,134 in February to 15,963. Two additional first aid stations were opened during the month, one at 101 Building, and one at the Central Shops Area in White Bluffs. First aid service at Hanford was discontinued during the month.

Major and submajor injuries treated were as follows:

	Major Injuries	Submajor Injuries
Atkinson & Jones	9	54
J. L. Hudson Co	' 2	1
Morrison-Knudsen	2	6
Graysport Co	1	0
General Electric Co	0	
Total	14	68

Some partial permanent disability will result from some of these injuries. One Graysport Construction Co. employee was fatally injured on the project when he was caught between the bed and body of a dump truck.

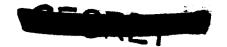
Two industrial physicians were added to the staff during the month.

The health topic for the month of March dealt with "Mental Health". Information on this subject was prepared and distributed throughout the plant.

The absenteeism report was as follows:

Total absenteeism weekly employees all causes	3.53%
Total absenteeism weekly employees sickness only	
Total days lost by male employees due to sickness	2344
Total days lost by female employees due to sickness	1103
Total days lost due to sickness	3447

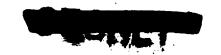
The lowest absenteeism was in the Project Engineering Department with 1.12% and in the Electrical Department with 2.54%. The highest absenteeism was in the Medical Department with 4.90% and in the "S" Department with 4.41%.



# MARCH 1948

Village Medical Division			Year
Clinic Section	Feb.1948	Mar.1948	to date
Men Women Children First Visits 576 434 287	1098	1297	3412
		5114	14002
Retreatments 1884 2343 887		6411	17414
Total	2441		T 1 44-7-74
Clinic Visits		•	
Medical	1018	1102	<i>3</i> 0 <i>5</i> 3
Pediatrics		591	1903
Surgical		838	2214
Gynecological	382.	493	1220
Obstetric (new)	, 60	- 91	236
Obstetric (recheck)		6 <del>9</del> 8	1850
Venereal Disease		652	2042
Ear, Nose, Throat		328	996
Eye	274	305	791
Visits handled by nurses(Hypo., Dressings).	. 291	716	1234
Night Clinic Visits	693	597	<u> 1875</u>
Total	5447	6411	17414
Total Clinic Visits per Day	. 188	207	191
Seen in Well-Baby Clinic	. 161	211	277
Home Visits			
Doctors	. 277	216	620
Nurses	· <u></u>	<u>141</u> 357	<u>272</u> 892
Total	. 350	357	892
Kadlec Hospital Section			
Census	•		
Admissions	. 525	477	1506
Discharges: Surgical	. 114	114	330
Medical	·		
Obstatric & Gynacologic			
Eye, Ear, Nose & Throat			
Pediatrics:	-		•
Children	. 49	55	168
Newborn		_	
Total Discharges		The second secon	-
Patient Days		2636	8500
Average Stay		5.5	5.6

5



## MEDICAL DEPARTMENT

# MARCH 1948

Census (Continued)	Feb. 1948	Mar.1948	Year to date
Average daily census  Discharged against advice  One-day cases	106.7 0 60	85 5 92	93.6 8 227
Operations			
Transfusions Eye, Ear, Nose, Throat Dental Casts Minors Majors	41 26 1 12 53 38	33 43 0 26 61 42	99 95 3 50 182 113
Vital Statistics			
Deaths Deliveries Stillborn	7 56 0	3 53 1	13 161 2
Physiotherapy Treatments			
Clinic	_	95 65	330 257
PlantPersonal	355 <u>40</u> 587	440 50 650	1165 140 1892
Pharmacy		•	
Number of prescriptions filled	2673	2606	8004
Patient Meals			
Regulars Lights Softs Surgical Liquids Tonsils & Adenoids Liquids Liquids Total	4368 64 1682 48 109 1004 345 7620	3163 23 1874 188 39 142 1047 6476	11431 178 5415 334 261 1545 1720 20884
Cafeteria Meals			
Noon	2307 328 2635	2620 <u>284</u> 2904	7464 <u>876</u> 8340



## MARCH 1948

Nursing Personnel	Feb.1948	Mar.1948	Year to date
First Aid Nurses	34	45	
Clinic Nurses	17	16	
Public Health Nurses	13	14	
Hospital General Nurses	94	84	
Aides & Orderlies	50	55	
Total	217	214	

### General

Clinic visits increased by about 18%. This increase was reflected about equally in new patients (first visits) and retreatments or old patients. Three clinical doctors joined our staff making medical service more readily available particularly for chronic patients.

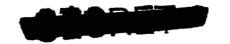
Hospital admissions decreased by about 10% and the average hospital census dropped from 106.7 in February to 85 in March. The mild influenza epidemic of February subsided, accounting for the decrease in use of hospital beds.

## Public Health Section

Administration	Feb. 1948	Mar.1948	Year to date
Newspaper Articles	15	20	47
Committee Meetings		4	7
Attendance		21	41
Staff Meetings	2	4	7
Lectures & Talks	7	13	2.C
Attendance	200	1075	1275
Conferences	12	15	37
Attendance	28	35	93
Immunizations			
Diptheria	30	82	157
Influenza	4	. 1	29
Rocky Mt. Spotted Fever	Ö	5	5
Schick Test	0	0	0
Smallpox	14	36	95
Tetanus	5	4	17
Typhoid	3	2	6
Whooping Cough	<u> </u>	$\frac{43}{173}$	<u>87</u> 396
	,		,,,

## Social Service

Thirty-seven new cases were admitted to the Social Service Section during March. This figure added to the fifty-four cases carried over from February brought the total to minety-one cases. Eight cases were closed.



## MARCH 1948

## Social Service (continued)

Sources of referrals included the following: Public Health - 6, Doctors - 5, Interested Persons - 2, Other Social Agencies - 12, Juvenile Court - 4, Personal Application - 2, Church - 1, Schools - 1, Crime Prevention Office - 1, Hospital Accounting Office - 1, Vocational Rehabilitation Program - 2.

Follow-up work included 103 house visits, 57 office interviews, 109 conferences, and 11 meetings.

Sanitation	Feb.1948	Mar.1948	Year to date
Inspections Made (Richland)	76 44	130 33	333 77
Bacteriological Laboratory			
G. C. Culture  Fungus Culture.  Vincent's Examinations  Trichomonas' Examinations.  Sputum for Tuberculosis Organisms.  Bacterial Cultures.  Examinations for Parasites.  Throat Smear & Culture  Blood Cultures.  Eye Smears.  Examinations for spermatozoa.  Quantitative determination of blood alcohomology for pneumococcus.  Treated water samples.  Untreated (raw water) samples.  Wilk samples (Inc. milk, cream, ice cream)  Sewage Samples.  Examinations for ecsinophiles.  Dark field examinations.  Virulence tests.  Stool cultures.	30 24 24 1 17 20 65 24 103 2 1 0 0 117 0 161 7 14 0 0 8 618	23 21 37 2 28 25 51 22 81 7 3 0 0 200 0 185 7 13	77 62 79 6 53 65 162 63 332 14 6 9 451 9 521 21 32 9 1961
Communicable Diseases			
Amoebic Dysentery	0 18 0 0 14 3	0 13 0 0 15	0 59 0 0 34 3



#### **MARCH 1948**

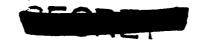
Communicable Diseases (continued)	Feb.1948	Mar.1948	Year to date
Gonorrhea (Fichland)	18	6	35
Gonorrhea (North Richland)		9	9
Impetigo (Richland)		í	5
Impetigo (North Richland)		ī	í
Influenza (Richland)	41	16	57
Influenza (North Richland)		. 1	1
Messles (Richland)		74	81
Measles (North Richland)	ó	3	3
Meningococcic Meningitis		Ó	· o
Mumps (Richland)	170	253	573
Mumps (North Richland)	2	9	ii
Paratyphoid 'B'		ó	0
Pediculosis		i	ì
Pinkeye		3	3
Policayelitis		ó	ó
Rheumatic Fever		ō	ō
Ringworm		ō	ō
Scabies		9	27
Scarlet Fever		á	4
Syphilis (Richland)	20	15	50
Syphilis (North Richland)	0	10	10
Thrush	ā	0	ō
Tuberculosis (Richland)	Õ	ō	ė
Tuberculosis (North Richland)	0	. 1	1
Vincent's Infection	Ô	ō	Ō
Whooping Cough	4	8	25
Total	313	451	984
Nursing Field Visits (Richland)	1441	1445	4055
Nursing Field Visits (No. Richland)	15	106	12).
Total	1456	1551	4180

#### General

During the month of March the number of home visits made by the Public Health Nurses has remained the same. There has been a marked decrease in morbidity calls and a sharp rise in communicable disease control visits. The biggest rise was seen in mumps and measles.

The Richland Community Health Council is sponsoring a food demonstration show for April 8th and 9th at the Sacajawea School. Miss Clare Hartnett, Nutritionist with the State Health Department, visited on March 12th and conferred with the committee working on the food show. Many outstanding demonstrators in the state are to be on the program.





#### MARCH 1948

#### General (continued)

Dr. Emily A. Pratt, Head of the Conservation of Hearing Section of the State Health Department, visited during the month to confer on the development of the program in Richland.

The Social Service staff was increased by the addition of another counselor during the month of March. This was due to the service expanding in several different areas. Increasing service is being requested by a number of social agencies, both Public and Private, from all sections of the United States. These requests are largely cooperative planning between men working on this project and their families living at remote distances. Child Welfare Services have been expanded to include adoptive studies, planning for foster home placements, cooperative work with the Juvenile Courts, and planning with the expectant unwed Mother. These are in addition to previous services given to children in their own homes. Service to children in need of medical and orthopedic care has long been a part of the children's program.

Miss Helene Sesenich, Supervisor of Social Service, and Miss Carolyn Bowen, Orthopedic Consultant Nurse from the State Health Department, visited on March 30th. Conferences were held in regard to the State Crippled Children's Program.

Considerable time was spent this past month in the inspection and sampling of new water lines and water systems over the entire project area. Also included in this work was inspection of sewage systems in construction areas. Bacteriological analyses of water samples collected from new water lines has indicated satisfactory line sterilization.

The physical condition of the majority of the food-handling establishments remains critical. This condition is created by operations beyond capacity with basic sanitary inadequacies. Building or equipment deficiencies were pointed out, and we are awaiting corrections.

The milk supply has continued to be satisfactory both as to quality and quantity. Laboratory and field tests of the product obtained from the individual producers indicate satisfactory compliance with health regulations with the exception of two which were eliminated for failure to meet standards established by this department. One pasteurization plant has recently completed structural changes to increase processing capacity.

The mosquito control crew assigned to this department has been actively engaged in ditch cleaning operations and clearing and burning of dead vegetation in swamp areas. The swamp drainage project commenced in February on the Yakima River was completed this month and will materially eliminate one large breeding area in the south part of the Village.



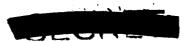
MARCH 1948

Dental Division

Patients Treated

Year <u>Feb.1948 Mar.1948 to date</u> 2273 2884 7815

DECLASSIFI



MEDICAL DEPARTMENT PERSONNEL SUMMERY

March 31, 1948

	втей.									-	79		***************************************		65
	Office Morkers		1	-			-	1	1		76				66
•	Тесһпісівпя		5*	2*			2**	24*	2**		31				34
:	Aides & Orderlies										55				55
	Nurses	^	(7		2	Ţ	£ .	3	2	3	123	-	15	2	159
	Bisitned										10		•		01
	Physicians										18		12		Uε
	AKEAS	JOO-B	0-001	100-100 L	100-108	101	200-F.	M-000	000	3000	700-1100	Pasco	Plant General	White Bluffs	TP CPTA I

per week	Week	
ber -	per	
day	days	
One	Two	,
	*	



#### ACCOUNTING DEPARTMENT

### MARCH, 1948

## GERERAL

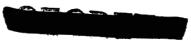
Volume is rapidly increasing. Problems in connection with CPFF Sub-contractors, including determination and clarification of employment and travel policies, issuing instructions, and furnishing assistance to Subcontractors in establishing CPFF accounting and payroll procedures, required a great deal of time. This work included requesting and following the Construction Department and Commission for necessary approvals to advances and provisional reimbursement to subcontractors, salary rates paid, wage rates schedules, overtime, and employment policies.

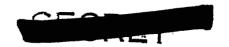
Calculation of General Profit Sharing Payment for year 1947 required overtime work in the Weekly Payroll Division.

### STATISTICS

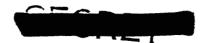
		Total	
<u>General</u>	March	to Date	
H. W. Instruction Letters issued	12	80	
Office Letters issued	1	31	
Organization Announcements issued	1	88	
Supplements and Revisions issued	1.	21	
1		Monthly	Weekly
Employees and Payrolls	Total `	Payroll	Payroll
Employees on payroll at beginning			
of month	7 660	1 498	6 152
Additions and transfers in	321	71	250
Removals and transfers out	(145)	(11)	(134)
Transfers from Weekly to		•	, , ,
Monthly Payroll		14	(14)
Employees on payroll at month end	7 836	1 572	6 26+
Gross amount of payroll \$2	919 595.	\$696 362	\$2 223 233
Average salary rate per hour	\$1.829	\$2.476	\$1.664
Average salary rate previous month	\$1.821	\$2.410	\$1.678
Overtime Payments		February	March
Weekly Payroll			
Number		2 394	3 652
Amount		\$36 548	\$61 634
Monthly Payroll		\$19 708	\$23 344
Number of changes in Salary Rates			
and Job Classifications and transf	ers		
between departments		8c1	1 409
•			* +07







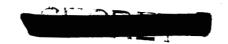
$\cdot$		
Employee Plans	February	Merch
Fension Plan		
Number participating at beginning of month	4 174	4 253
New participants and transfers in	,99	145
Removals and transfers out	(20)	$\frac{(17)}{\sqrt{262}}$
Number participating at month end	4 253	4 381
% of eligible employees participating	97.6%	97.7%
Employees Retired	March	Total to Dato
Number	1	18
Aggregate Annual Pensions including.		•
Supplemental Payments	\$15	\$2 745
Amount contributed by employees retired	\$38	\$ 578
• • •		
Group Life Insurance	<u>February</u>	March
Number participating at beginning of month	5 137	5 327
New participants and transfers in	301	133
Cancellations	(62)	(44)
Removals and transfers out	(49)	<u> (66)</u>
Number participating at month end	5 327	5 350
% of eligible employees participating	75.7%	75.5%
Insurance Claims	March	Total to Date
Number of deaths	1	12
Amount of Insurance	\$5 243	\$66 648
Amount contributed by employees	\$ 79	\$ 553
Group Disability Insurance - Fersonal	February	March
Number participating at beginning of month	6 187	6 385
New participants and transfers in	295	158
Cancellations	(7)	(25)
Removals and transfers out	(90)	<u>(83)</u>
Number participating at month end	<u>6 385</u>	6 435
% of eligible employees participating	91.0%	91.1%
Group Disability Insurance - Dependent		
Number participating at beginning of month	3 917	3 996
Additions and transfers in	130	67
Cancellations	(13)	(39)
Removals and transfers out	(38)	(31)
Number participating at month end	<u>3 996</u>	<u>3 993 </u>
7 71 -1-11 7		
Group Disability Insurance - Claims	ner	RECULLIN
Number of claims paid by insurance company:		
Employee Benefits		305
Weekly Sickness and Accident	57	125
Daily Hospital Expense Benefits	79	97
Special Hospital Services	70	100
Surgical Operations Benefits	37	50
Dependent Benefits Paid	00	
Daily Hospital Expense Benefits	82 80	153
Special Hospital Services	80	152
122b245 Amount of claims paid by insurance company:	AG 013	413 363
La Langue de La La	\$7 219	<b>\$1)</b> 260
Dependent Benefits	A 11411	



	Plans (continued)		February	March
	Disability Insurance - Fremiu	<u>ms</u>	420 000	112 162
Per	rsonal - Employee Portion		\$10 853	\$11 163
	- Company Portion		6 590	6 744
	- Total		\$17 442	\$17 907
Der	endent - Employee Portion		3 596	3 652
	- Company		398	398
	- Total		\$ 3 994	\$ 4 C48
Gre	and Total		\$21 437	\$21 9-5
Annu	ity Certificates (For DuPont Se	rvice)	March Tot	tal to Date
	ber issued		-0-	. 46.
				., .
	Savings Bonds		February	March
	mber participating at beginning	of morth	2 368	2 351
	authorizations		109	335
	luntary cancellations		(50)	(55)
	movels and transfers out		(76)	(7)
	mber participating at month end		2 351	2 625
	participating		30.7%	33.5%
Box	nds issued - maturity value		\$140 400	\$172 425
	- number		3 543	4 497
	funds issued		38	28
Ret	visions in authorizations		64	45
Sugge	estion Awards		March Tot	tal to Date
Nur				
	1		13 \$75	92 \$976
· Tot	nber of awards tal amount of awards		13	92
Tot <u>Secur</u>	nber of awards tal amount of awards rity Slogan Awards		13 \$75	92
Tot Secur Nur	nber of awards tal amount of awards tity Slogan Awards nber of awards		13 \$75	92 \$970 7
Tot Secur Nur	nber of awards tal amount of awards rity Slogan Awards		13 \$75	92
Tot Secur Num Tot	nber of awards tal amount of awards tity Slogan Awards nber of awards		13 \$75	92 \$976 7 \$175
Tot Secur Num Tot	nber of awards tal amount of awards tity Slogan Awards tal amount of awards		13 \$75 4 \$100 March	92 \$976 7 \$175 1
Secur Num Tot Emplo	nber of awards tal amount of awards rity Slogan Awards nber of awards tal amount of awards oyee Sales Plan	 Tot	13 \$75 4 \$100 March Major al Appliances	92 \$976 7 \$175 1 Traffic 3 Appliances
Secur Num Tot Emplo	nber of awards tal amount of awards rity Slogan Awards nber of awards tal amount of awards typee Sales Plan ctificates issued	30	13 \$75 4 \$100 March Major al Appliances 9 92	92 \$970 7 \$175 1 Traffic Appliances 217
Secur Num Tot Emplo	nber of awards tal amount of awards rity Slogan Awards nber of awards tal amount of awards oyee Sales Plan	30	13 \$75 4 \$100 March Major al Appliances	92 \$976 7 \$175 1 Traffic 3 Appliances
Secur Num Tot Emplo Cer	mber of awards tal amount of awards rity Slogan Awards mber of awards tal amount of awards typee Sales Plan rtificates issued rtificates voided	30	13 \$75 4 \$100 March Major al Appliances 9 92 2 25	92 \$976 7 \$175 1 Traffic Appliances 217 27
Secur Num Tot Emplo Cer Cer	mber of awards tal amount of awards rity Slogan Awards mber of awards tal amount of awards ty Sales Plan rtificates issued rtificates voided ry Checks Deposited	30	13 \$75 4 \$100 March Major al Appliances 9 92 2 25 February	92 \$976 7 \$175 1 Traffic Appliances 217 27
Secur Num Tot Emplo Cer Cer Selar Wee	mber of awards tal amount of awards rity Slogan Awards mber of awards tal amount of awards tal amount of awards byee Sales Plan rtificates issued rtificates voided ry Checks Deposited	30	13 \$75 4 \$100 March Major al Appliances 9 92 2 25	92 \$976 7 \$175 1 Traffic Appliances 217 27
Secur Num Tot Emplo Cer Cer Selar Wee	mber of awards tal amount of awards rity Slogan Awards mber of awards tal amount of awards ty Sales Plan rtificates issued rtificates voided ry Checks Deposited	30 5	13 \$75 4 \$100 March Major al Appliances 9 92 2 25 February	92 \$976 7 \$175 1 Traffic Appliances 217 27
Secur Num Tot Emplo Cer Cer Selar Wee	mber of awards tal amount of awards rity Slogan Awards mber of awards tal amount of awards tal amount of awards byee Sales Plan rtificates issued rtificates voided ry Checks Deposited	30	13 \$75 4 \$100 March Major al Appliances 9 92 2 25 February	92 \$976 7 \$175 1 Traffic Appliances 217 27
Secur Num Tot Emplo Cer Cer Selar Wee Mor	mber of awards tal amount of awards rity Slogan Awards aber of awards tal amount of awards cal amount of awards byee Sales Plan rtificates issued rtificates voided ry Checks Deposited ekly athly	30 5	13 \$75 4 \$100 March Major al Appliances 9 92 2 25 February	92 \$976 7 \$175 1 Traffic Appliances 217 27
Secur Num Tot Emplo Cer Cer Selar Wee Mor	mber of awards tal amount of awards rity Slogan Awards aber of awards tal amount of awards tal amount of awards byee Sales Plan rtificates issued rtificates voided ry Checks Deposited ekly athly	30 5	13 \$75 4 \$100 Major al Appliances 9 92 25 February 871 736 1 607	92 \$976 7 \$175 1 Traffic 8 Appliances 217 27 Merch 920 779 1 699
Secur Num Tot Emplo Cer Cer Selar Wee Mor	mber of awards tal amount of awards rity Slogan Awards aber of awards tal amount of awards cal amount of awards byee Sales Plan rtificates issued rtificates voided ry Checks Deposited ekly athly	30 5	13 \$75 4 \$100 March Major al Appliances 9 92 2 25 February	92 \$976 7 \$175 1 Traffic Appliances 217 27
Secur Num Tot Emplo Cer Cer Salar Wee Mor	mber of awards tal amount of awards mber of awards mber of awards tal amount of awards tal amount of awards  byee Sales Plan  tificates issued tificates voided  ty Checks Deposited tally mathly  tal Absence Allowance Requests mber Submitted to Pension Board  atteeism (Weekly Paid Employees)	30 5	13 \$75 4 \$100 Major al Appliances 9 92 25 February 871 736 1 607	92 \$976 7 \$175 1 Traffic 8 Appliances 217 27 Merch 920 779 1 699
Secur Num Tot Emplo Cer Cer Salar Wee Mor	mber of awards tal amount of awards mity Slogan Awards mber of awards tal amount of awards tal amount of awards  ty Sales Plan  tificates issued tificates voided  ty Checks Deposited ekly mithly  tal Absence Allowance Requests mber Submitted to Pension Board	30 5	13 \$75 4 \$100 Major al Appliances 9 92 25 February 871 736 1 607	92 \$976 7 \$175 1 Traffic Appliances 217 27 March 920 779 1 699







•		
Subcontractors' Payrolls	February	March
Number of Subcontractors Employees on Fayroll		
At End of Month:		
Cost-Plus-A-Fixed Fee Subcontractors		
Guy F. Atkinson Company and J. A. Jones		,
Construction Company	8 351	9 121
Sub-subcontractors		
Newbery-Neon Company	634	735
Urban, Smyth. Warren Company	1 054	1 137
*Newport, Kern & Kibbe	14	25
*Mehring & Hansen	გ9	109
*Peninsula House Movers	82	91
*V. S. Jenkins Company	42	62
*Graysport Construction Company	17	135
*E.L. Knight Electric Company	25	18
*Emrire Electric Company	3	-0-
The Kellex Corporation	325	365
Giffels & Vallet, Inc.	83	106
National Carbon Company	200	215 -
C. C. Moore & Company, Engineers	28	30
J. A. Terteling & Sons, Inc.	76	199
Morrison-Knudsen Co., (Tank Farm)	454	601
Sub-subcontractors		
Trowbridge & Flynn Electric Company	18	12
Morrison-Knudsen Co., (Track Maintenance)	93	103
,	73	
Lump Sum Subcontractors		
C. C. Moore & Company, Engineers	4	3
John L. Hudson	117	402.
Sub-subcontractors		
Twin Cities Construction Company	5	5
Payne Plumbing Company	58	. 1 <u>1</u>
E. L. Knight Electric Company	12	9
Elmondson's Blind & Shade Company	1	9 1
Permawall Construction Company	9 <del></del> 6	147
B. K. V. Heating Company	28	21
Western Sheet Metal		<u>l</u>
J. P. Head	3	e.
L. D. Reeder	2 9 66	83
H. D. Hacker	-0-	63 2 3 45 8
Pacific Roofing Supply Company		<u>-</u>
J. Gordon Turnbull, Inc.	) hs	ر ک
Curtis Gravel Company	φ,	77 77
Dewitt C. Griffin & Associates	3 45 8 8	10
Mario C. Gillim & Resourates	12 000	13 808
	14 (1)	13 11

<sup>\*</sup>Lump Sum Sub-subcontractor operating under a Cost-Plus-A-Fixed Fee Subcontractor.

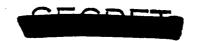


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General Accounting	February	March	Total to Date
Charges to Cost			
Payrolls - GE Only	\$ 2 29K 866	\$ 3 002 037	\$ 34 292 261
Other Expenditures & Accrua	ls 10 320 052	12 217 962	63 900 827
Covernment Cost Transfers	2 391 049	6 033 793	19 001 168
Gross Charges	\$15 007 967	\$21 253 792	\$117 194 256
Less Revenue:			•
Village	230 170	241 322	4 017 328
Medical	66 569	711 177	949 245
Telephone	4 461	4 497	124 033
Other	7 259	<u> </u>	<u>94 785</u>
Net Charges to Cost	\$14 693 508	\$20 922 236	\$112 008 865

# Payments Made to Subcontractors thru March 31, 1948

				Amount
	·		mount Paid	Withheld
	Contract No.		To Date	3/31/49
Morrison-Knudsen Co., Inc. Costs (Track Fixed Fee Maintenance)	PEX-13693	CPFF \$	873 957.97 51 975.00	
Atkinson - Jones	G-133	CPFF		
Payrolls				726 225.76
Materials*			- 063 <b>875.</b> 38	
Morrison-Knudsen Co., Inc.	G-110 \$1	. 807 394.25 1	. 807 394.25	Retainer Poid
X-Ray Products Corp.	G-115	59 238.40	59 233.40	Retainer Paid
Lone Pine Roofing Co.	G-134	52 875.13	52 875.13	Retainer Paid
National Carbon Co., Inc.	G-135	' CPFF		
Materials**		]	604 197.35	-0-
Payrolls			5 759.44	-Q- <sup>1</sup>
G. A. Pehrson & Associates	G-137	18 700.00	15 395.00	-0-
John S. Villesvik	G-138	3 675.00	763.75	-0-
H. Brandt Gessel and Assoc.	G-139	11 719.50	2 787.50	-0-
DeWitt C. Griffin & Assoc.	G-141	148 330.00	126 822.15	14 091.35
John L. Hudson & Assoc.	G-142 3	761 631.64	3 668 455.68	93 175.96
Catlow Transport Co.	G-143	310 840.92	295 298.87	15 542.05
Northwest Hauling Co.	G-144	155 403.07	155 403.07	Retainer Paid
Sperry Products	G-147	1 875.00	1 875.00	-C-
The Kellex Corporation	G-148	CPFF		
Materials***			370 534.34	-0-
Payrolls			251 931.90	
Catlew Transport Co.	G-149	25 426.00	20 442.50	
Giffels and Vallet, Inc.	G-151	CPFF		
Advance			50 000.00	-0-
Payrolls			52 942.27	14 824.32
D. A. Whitley Co.	G-152	27 C46.76	27 046.76	-·)-
Roy L. Bair Co.	G-153	34 447.00	34 447.00	-0-
C. C. Mccre Co., Engineers	G-157	CPFF		
Materials			-0-	<b>-</b> '; -
Payrolls			29 468.86	9 120.38
Curtis Sand & Gravel Co.	G-159		23 253.21	. 2 583.59
Morrison-Knudsen Co., Inc.	G-160	CPFF		
Materials			142 736.46	<b>-</b> 0 <b>-</b>
Payrolls	150	-	435 219.00	48 531.84
•				-



## General Accounting

# Payments Made to Subcontractors thru March 31, 1948 (continued)

		Amount of	Amount Paid to Date	Amount Withheld 3/31/48
Great Lakes Carbon Co., Inc.	Contract G-167	No. Contract \$ 192 500.00	192 500.00	
J. A. Terteling & Sons, Inc.	G-173	CPFF		a 050 0C
Fayrolls		20 539.87	20 539.87 -3-	2 959.86 -0-
Materials		\$6 611 102.67	\$39,391 446.28	\$934 101.53

\*Amount Paid includes Provisional Reimbursement in the amount of \$12 907 629 87 of which \$11 224 848.32 was liquidated by audited Atkinson-Jones billings.

\*\*Amount Faid includes \$1 000 000.00 in advances.

\*\*\* Amount Paid includes \$350 000.00 in advances.

Construction Commitments and Expenditures July 1, 1947 to February 28, 1948 July 1, 1947 to April 3, 1948 Number of Accounts Payable Vouchers Entered	\$63 171 153 74 853 471 February	Expenditures \$34 565 363 47 120 971 March
General Electric du Pont Total  Amount of Accounts Payable Vouchers Entered General Electric du Pont Total	\$10 544 843.82 \$10 548 014.72	5 624 11 5 635 \$12.871.684.96 44 576.48 \$12.916.261.44
Amount of Checks Issued General Electric du Pont Total	\$10 281 531.41 5 454.57 \$10 286 985.98	\$12 759 324.22 568.37 \$12 799 892.59
Number of Checks Issued General Electric du Font Total	3 133 11 3 144	3 711 3 714
Fublic Vouchers (1034) Submitted to AEC  Vouchers not reimbursed at beginning of month  Vouchers submitted for reimbursement during month  Vouchers reimbursed during month  Vouchers not reimbursed at end of month	\$ 5 222 245.98 10 834 637.77 16 056 883.75 7 567 072.04 \$ 8 489 811.71	\$ 8 489 811.71 14 880 723.92 23 370 535.63 17 611 650.17 \$ 5 758 885.46



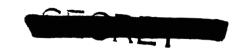
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General Accounting (continued)	February	March
Public Vouchers (1034) Submitted to AEC		
Number of vouchers not reimbursed		
at beginning of month	135	133
Number submitted during month	<u> 255</u>	375
	390	<u> 508</u>
Number reimbursed during month	<u> 257</u>	<u>385</u>
Number of vouchers not reimbursed at		
end of month	<u>133</u>	123
		<del></del>
Public Vouchers not Submitted to AEC		
Pre-Audit Vouchers (1035) Issued	\$3 380 787.19	\$ 5 332.7733.33
Pre-Audit Vouchers (1035) not Issued	8 col 291.90	6 056 803.61
Total Unbilled Items	\$11 382 079.09	\$11 309 576.64
Number of Pre-Audit Vouchers Issued		
	139	128
Awaiting AEC Approval	±37	220
Items Over 60 Days Old Not Billed to		
AEC on Public Voucher (1034)		•
Accounts Payable	\$ 347 113.16	\$ 308 378.30
Accounts Receivable	4 029.20	
Freight	23 693.59	
Payroll Deductions	23 073.77	0 143.17
F.O.A.B. Taxes	4 030.92	26 924.10
	275 516.09	
Salaries	190 949.83	_ <del>-</del>
Subcontractor's Payrolls		
Subcontractor's Retainers-Accrued	291 309.49	
U.C. Taxes - Federal	1.11	CR. 1.11 CR.
U.C. Taxes - State	-0-	
Continuity of Service - Accrued	-0-	159 709.70
Total	\$1 128 582.77	\$1 296 410.14
Coch Boodston Commel Blockwich		
Cash Receipts - General Electric Accounts Receivable		
·	\$7 567 072 Oh	\$17 611 650.17
U. S. Government		78 477.29
Rents	49 088.52	54 533.02
Hospital	3 951.85	5 162.60
Telephone	1 476.84	2 297.83
Miscellaneous	1 242.24	
Employee Sales		1 645.31
Bus Fares	7 934.95	9 253.55
Educational Program	282.51	2 840.34
Advances from U. S. Government	-0-	5 000 000.00
All Other	6 961.51	9 984.77
Total	\$7 703 081.80	\$22 775 844.68
<u>Cash Receipts - du Pont</u>		
U. S. Government	\$ 371.09	\$ 3 916.46
Hospital	44.50	65.00
Vendor's Refunds	161.50	151.20
All Others (Collateral Fund)	-0-	43 469.75
	ı	
Total	\$ 577.09	\$ 47 602.41

Ceneral Accounting (continued)	February	March
Cash Advances and Expense Accounts	400 033 N	Alia 006 63
Cash Advance Balance at end of Month	\$23 911.04	\$41 076.61
Cash Advance Bulances Outstanding	(00 0)	20# 22
Over one month	656.64	387.02
Travel Orders Received	113	117
Traveling and Living Expenses	as Cal me	22 5/2 50
Paid Employees	21 624.55	33 541.72
Billed to Government	21 979.98	35 880.80
Balance in Variation Account at		an for he m
end of month	10 351.34 CR	. 12 690.42 mm.
Kadlec Hospital Accounting		
Accounts Receivable Balance at	•	
Beginning of Month	\$ 50 035.85	\$ 49 816.78
Total Invoices During Month	66 803.67	74 415.14
Total	\$116 839.52	\$124 231.92
Less Cash Received and Payroll	Ψ±±0 03/./c	
Deductions	67 022.74	77 096.26
Accounts Receivable Balance at end	<u> </u>	_11_5/0.50
of Month	\$ 49 616.78	\$ 47 135.66
OI MOMOI	<del>47</del> <u>010. 10</u>	<u> </u>
Property		
Number of Transfer Notices Received	1 055	1 428
Number of Items Affected	11 811	14 704
Number of Receiving Reports Classified	11 660	14 174
Number of Receiving Reports Vouchered	2 272	3 546
Number of Purchase Orders Classified	2 857	ь 611
Number of Items Tagged at Beginning		•
of Month	181 163	189 293
Number of Items Tagged this Month	8 161	13 107
Number of Items Recorded by Quantity On	ly 157 171	157 683
Number of Items Dropped During Month	-93	-62
Total Items on Record	346 402	360 021
Inventories Balance	•	Balance
Beginning		end of
Inventories of Month Recei	vedDisbursed	Month_
Essential Materials 2 644 349 420 9	933 449 356	2 615 926
Memo Employee Sales 10 435 20 8	351 2 497	28 789
Precious Metals 41 797 -(	00-	41 797
	1 599	18 020
Spare Parts 1 485 649 14 6		1 472 161
Stores for Cash Sales	•	
to Employees 28 117 12 9	938 8 502	32 153
Stores - General 2 283 238 425 1		2 469 209
	L30 239 159	2 409 209
,	• • • • • • • • • • • • • • • • • • • •	,
Stores	February	March
Stores Number of Items added to Stores Stock	February 1 109	March 462
Stores  Number of Items added to Stores Stock  Numbers of Items deleted from Stores Stock	February 1 109 k 76	March 402 5
Stores  Number of Items added to Stores Stock  Numbers of Items deleted from Stores Stock  Items in Stores Stock at month end	February 1 109 k 76 49 825	March 462 5 50 282
Stores  Number of Items added to Stores Stock  Numbers of Items deleted from Stores Stock  Items in Stores Stock at month end  Receiving Reports issued	February 1 109 k 76 49 825 6 769	March 462 50 282 4 656
Stores  Number of Items added to Stores Stock  Numbers of Items deleted from Stores Stock  Items in Stores Stock at month end	February 1 109 k 76 49 825	March 462 5 50 282



•		
Stores (Continued)	February	March
Material Exception Reports open at month end	58	46
Certificates of Inspection issued	43	52
Certificates of Inspection cleared	38	57
Certificates of Inspection open at month end	47	42
Store Orders filled	19 770	23 312
Emergency Store Orders filled	3	5
Returnable Containers received (a)	1 094	739
Returnable Containers shipped (a)	450	589
Returnable Containers on hand at month end (a)	6 607	5 201
Returnable Containers on hand over 6 months (a)	1 390	1 612
Returnable Container Return Orders received (a)	38	. 14
Returnable Container Return Orders closed (a)	8	30
Returnable Container Return Orders on hand at		
month end (a)	266	223
Shipping Orders Received (a)	79	92
Shipping Orders closed (a)	86 .	88
Shipping Orders on hand at month end (a)	28	30
(a) February figures included Construction, Marc		<b>3</b>
figures include operations only.		
Tight of the same		
Furchasing	•	
Operations Requisitions Received	2 443	2 778
Operations Requisitions placed	2 223	2 533
Operations Requisitions assigned AEC for		
Procurement	189	246
Operations Requisitions on hand at month end	750	749
HW Orders placed	1 387	1 664
Alterations issued to HW Orders	184	177
Orders placed by Government	118	179
Orders placed for material controlled locally by		
the Government	0	1
Requests to Expedite received	186	239
Orders placed for Government surplus stock	8	24
Miscellaneous Clerical	200	ó6a
Office Machines repaired in shop	300	263 230
Office Machine service calls	246 331	239
Telephone Lines working as Class A	321	331
Telephone Lines working as Class C	<u>330</u> 4=1	<u>337</u> 668
Total Official Telephones	001	
Telephone Lines Working as Class B-1	1 306	1 272
Telephone Lines Working as Class B-2	95	113
Total Non-official Telephones	1 401 148	1 335 147
Telephone Lines vacant	140	51 692
Items of First Class Mail received	•	
Items of Parcel Post received	T 003	1 186
Items of Registered Mail received	203 149	319 213
Items of Insured Mail received	201	
Items of Special Delivery Mail received		311
Amount of postage used on meter machines	182	4 \$2 094.15
Multilith orders received		216 205
Multilith orders completed	195	205 44
Multilith orders on hand at month end	33	3 049
Mimeograph orders received and completed	2 212 6 758	5 616
Ditto orders received and completed	6 758	2 070



PERSONNEL AND ORGANIZATION	February	March
Number of employees on Payroll		
at beginning of month	642	658
Removals and transfers out	(23)	(72)
Additions and transfers in	39	25
Number at end of month	39 6 <u>5</u> 8	<u>25</u> 611
Net increase (or decrease) during		
month	16	('\7)
% of termination and transfers out	3.6%	10.9%
% of absenteeism	4 2%	2.8%

Reasons for <u>decrease</u> of 47 in number of Accounting Lepartment employees during March are as follows:

General: Sne additional employee to replace employee removed in February on illness absence.

General Accounting: Ten additional employees. Nine to handle increased volume of Construction work in Accounts Payable Section, and one employee returned from Illness absence.

Weekly Payroll: Decrease of two employees. One stenographer transferred to Sub-Contractors' Payrolls Section and one typist transferred to Monthly Payroll Section - to fill existing vacancies caused by terminations.

Monthly Payroll: One additional employee. Employee transferred from Weekly Payroll Section to handle increase volume of work.

Sub-Contractors' Payrolls: No increase or decrease. One employed terminated and one employed transferred from Weekly Payroll to fill position.

Purchasing: Decrease of one employee. One employee removed from payroll on illness absence.

Stores: Decrease of fifty employees. Forty-one employees transferred to Construction Department to handle Construction Receiving. Seven employees terminated. One employee transferred to Service Department. One employee transferred to Field Clerical Division of Accounting.

Clerical: Decrease of two employees. One voluntary termination and one employee transferred to the Instrument Department.

Field Clerical: Decrease of four employees: Five employees terminated. One employee transferred from Stores.

Injuries	February	March
Ma jor	 0	0
Sub-Major	٥	0
	7 =	7 7



# PERSONNEL AND OFGANIZATION (Continued)

Number of Accounting Department employees and open employment requests as of April 1, 1948 were as follows:

				C	ment Requests		
				Replacements			
		Employe Exempt		For Employees Removed	For Employees Leaving	Additons	Total
General	5	8	13	0	0	0	0
General Accounting	119	11	130	10	0	13	23
Weekly Payroll	47	.6	53	4	0	2	6
Monthly Payroll	10		12	0	0	0	0
Subcontractors' Payrolls	13	1	14	0	0	8	8
Purchasing	24	7	31	1	0	9	1
Cost	27	3	30	0	C	6	6
Stores	156	11	167	0	0	0	0
Clerical	88	14	92	7	2	4	13
Field Clerical	66	1	67	O	0	0	Õ
Methods	0	2	: 2	_0	0	0	0
Total	<u>555</u>	<u>56</u>	611	22	2	<u>33</u>	<u>57</u>

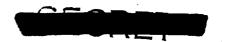
Open replacements may be summarized as follows:

Senior Clerk Clerk	3
Junior Clerk	16
Office Machine Operator	7
Telephone Operator	4
Stenographer	3
Typist	8
Office Helper	8
Messenger	14
Total	57

- A. C. Beltzner, formerly Supervisor of Cost Divison, now heads up Cost Analysis work.
- J. Christensen was promoted from Assistant Supervisor to Supervisor of the Cost Section.

Construction Receiving Activities were transferred from the Accounting Department to the Construction Department. This move allowed the transfer of 41 Stores Division people. This move also made possible the transfer of several additional stores personnel to other work.

Approval was obtained to assign all Field Clerical employees to those departments for which they have been performing work, and these transfers will be made effective in April.



#### SECTIONAL ACTIVITIES

#### Cost

As a result of the joint efforts of General Electric and the Atomic Energy Commission, the large backlog of unbilled Government orders and transfers was reduced substantially during March. Government Cost Vouchers covering these orders and transfers in the amount of \$6 137 368 were received and processed. Of this total, \$5 530 420 was for equipment and materials procurred for the major construction program and \$606 948 was for equipment and materials procurred for operations.

Representatives of the New York City Office of Lybrand, Ross Brothers and Montgomery, Public Accountants, audited Village Cost Reports for the period September 1, 1946, through February 29, 1948. This firm was retained by the Commission to perform this audit. A considerable amount of time was spent with the auditors assisting them with the detail and in reviewing the manner of assessing costs to Village operations. The audit was completed in the week ended March 28.

Arrangements were made during the month for the Design and Construction Department to assume responsibility for the Construction Cost Ledger effective April 1, 1948. Instruction was given Construction personnel in the operation of posting machines and in the system of filing posting media.

All outstanding Work Orders issued prior to January 1, 1948 were tabulated in preparation for returning such Work Orders to issuing departments for review and for their reissuance or cancellation. This work was done in connection with the revised Work Order procedure which becomes effective April 1.

Considerable time was spent in preliminary work necessary to accomplish desired revisions in report forms, and also in studies made of various methods of distributing overhead costs to all areas and facilities.

#### General Accounting

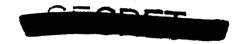
#### Accounts Payable

A total of 5624 accounts payable vouchers valued at \$12 871 684 were entered this morth. Vouchers were premptly processed, and at the end of the month vouchers on hand numbered 1809 and totaled \$2 996 172.

Provisional reimbursements to Atkinson-Jones total \$12 907 629. Of that amount, \$1 682 782 has not yet been liquidated. This balance substantially consists of current advances as only \$308 922 is over 60 days old.

Arrangements were made which provided for payment and government reimbursement of Giffels and Vallet billings prior to audit. The AEC will periodically audit this work at the subcontractor's home office.





#### General Accounting

## Accounts Receivable

The  $8\frac{1}{2}$  million receivable account with the U. S. Government as of 2/29/48 was reduced during March. The present balance due from the Government is \$5.758.885 and for the most part represents current billings.

The Telephone Receivable Unit is now controlling charges for approximately 2300 telephones. In March, billings totaled \$15,624. March credits comprised of \$5,162 in cash collections and \$10,130 in payroll deductions. Uncollected accounts as of March 31, total \$2,435. The newly installed procedure providing for cycle posting to subscribers' statements is developing to be much more efficient and desirable than the former method of statement posting and control.

Rents receivable saw little change during March. Ninety-five (95) new leases became effective. The change in the method of maintaining accountability records which was made this month has proven beneficial. The work formerly done by the Addressograph Section has been eliminated and the file of approximately 5000 addressograph plates used in this connection has been discontinued. March rental income totaled \$280 971 (including North Richland rentals).

#### Billings to the Government

March billings to the Government, in the amount of \$14 880 724, represent an increase of \$4 646 087 over February billings. Reimourseable charges booked amounted to \$14 888 221 as compared with \$12 303 459 in February, an increase of \$2 579 762. However, the total unbilled items increased only \$7 497 and now amount to \$11 389 576.

# Cash Advances and Cash Change Funds

Total cash advanced for traveling and living expenses was \$43 668 as compared with \$25 564 in February. The outstanding balance in the Cash Advance Account is now \$41 C77. As a result of continued expediting of settlements of advances made, the entire outstanding balance represents March advances except for two accounts representing February advances.

The 36 active Cash Change Funds total \$3 785.

# Kadlec Hospital Accounting

Even though charges during the month increased from \$66 803 in February to \$74 415, the outstanding balance in Accounts Receivable decreased from \$49 816 to \$47 135. Credits received comprised \$54 533 in cash collections and \$18 950 in payroll deductions.

The full time of one employee was eliminated by the adoption of a revised method of recapitulating the cost codes of invoices. A saving in time of at least one hour daily for each cashier also resulted from



### General Accounting

#### John L. Hudson & Associates

Supplemental Agreement to Subcontract G-142 was entered into between John L. Hudson & Associates and General Electric Company on March 7, 1948, effective March 6, 1948.

Prior to the above agreement, progress payments were had Eudson & Associates in the amount of	
1948 in the amount of	8 138.17
thereby increasing the total payments	<u> </u>
made by progress billing to	3 288 810.48
Under the terms of the supplemental agreement, current costs of Hudson (including those of sub-subcontractors) have been paid by General Electric	88 137.72
Since March 6, additional payments have been made to Hudson covering change orders to their subcontractors for charges that were incurred prior to March 6, in the amount of	51 507.48
Additional payments to Hudson are being made for accounts payable items appearing on the Hudson records as of March 6. These payments are made in accordance with supplemental agreement, upon certification by the public accounting firm of Peat, Marwick, Mitchell & Company, who is at present performing the audit required by terms of the supplemental agreement. Certifications are based on the excess of audited Hudson costs over the total progress payments made to Hudson by General Electric. Payments made by General Electric to Fudson based on certification of auditors as of March 31, 1948 aggregated.	
Merch 2r, 1340 aggregated	240 000.00

Payments by General Electric to Hudson covering change orders from Hudson to the sub-subcontractors, as well as current costs are being approved by Construction Department and checked by the Accounting Department.

All checks drawn by Hudson, except payroll, are distributed by General Electric Accounting Department representative.





#### General Accounting

#### Property

A letter dated March 26 was sent to the Commission containing the following recommendations:

- 1. That Class B Property Records include no items with a value of less than \$50.00.
- 2. That tires, transformers, and electric motors be removed from Class B Property Records.
- 3. That the placing of metal property tags on major equipment be discontinued.

All class & Property was recorded and tagged as received during the month by the sixteen men engaged in handling this work. Receipts were exceedingly heavy at North Richland and Richland. Volume of clerical work is continuing heavy. Twenty people were required to handle office work which largely consisted of handling the necessary papers to process and record the property transfer notices received during the month.

#### Miscellanecus Clerical

Work on compilation of a new Telephone Directory was almost completed at month end. Distribution of new directories is tentatively set for April 12. Considering the numerous mives and reassignments of telephone numbers that had to be taken into account, compilation of this directory presented several problems not usually encountered.

During the last week of the month, work on completing three additional positions on the central telephone switchboard was begun. When completed these positions will provide increased facilities for operators to handle telephone calls. Several surveys of telephone traffic were made during March and these together with contemplated surveys will firmish data for study of additional trunk and toll lines.

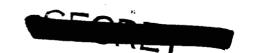
Arrangements were concluded during the month to transfer all Accounting Department Field Clerical personnel to other departments. Approximately 66 employees are involved in this transfer to be effective April 5.

#### Payrolls

The following "Request for Reimbursement Orders" have not yet been approved by the Atomic Energy Commission:







## Peyrolls (continued)

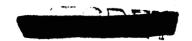
Date of Pequest	Bate Transmitted to Commission	Items Covered by Request
8/26/47	8/27/47	Seven exampt job classifications
8/26/47	8/28/47	for Design and Construction  Five exempt job classifications
8/26/47	8/25/47	for Construction Purchasing Exempt job classifications for
5/2/47	9/3/47	Expediting Supervisor and Expeditor Revised job rates for weekly paid
9/10/47	9/10/47	employees Exempt job classifications for Construction Purchasing

All AEC Forms-37 covering Merit Salary Increases, Promotional Increases, Additions to Payroll and Changes in Classifications have been approved by the AEC through the month of February 1948, including forms for the Design and Construction Department.

There were no errors reported by the Government Audit Section in connection with the audit of the Monthly Payroll for February. Complete audit by the Government Audit Section of Weekly Payrolls for February revealed the following errors:

- 1. Explanation of adjustments and premium hours was not shown on the Payroll in one instance.
- 2. Six postings were illegible on the Government copy of the payroll.
- 3. There were nine cases of deductions posted incorrectly.
- 4. Hours were posted incorrectly in seven instances two of which resulted in underpayments to employees totaling \$2.80. There were no overpayments.
- 5. There were eight rates shown incorrectly on the Payroll slthough, no error in payment occurred in any of the cases.
- 6. There was one error in calculation of the gross payment resulting in an underpayment to the employee amounting to \$.30.

HW Instructions Letter No. 76 was issued on March 26, outlining the plan for sales to employees of products of General Electric Company and the procedure for carrying out the plan at Hanford Works. Waiting lists of employees desiring to purchase General Electric Appliances under the plan were discontinued as of April 2. Certificates were issued to all employees on the lists and in the future certificates will be issued immediately upon request of employees.



## Payrolls (continued)

HW Instructions Letter No. 73 was issued on March 17, 1948, covering new procedure announced by the Metropolitan Life Insurance Company whereby a Statement of Health of Employee and/or a Statement of Health of Dependent may be submitted to the insurance company in lieu of a medical examination for the purpose of determining insurability of an employee or his dependent.

Office Letter No. 31, covering eligibility of employees to participate in the distribution under the General Profit Sharing Plan for the year 1947 was issued on March 10, 1948. Checks covering payment to eligible employees under the plan were prepared in March and distributed to employees on April 2. In this connection it was necessary for the Weekly Payroll Division to work overtime on Saturday, March 20, and on Saturday, March 27, to complete the preparation of the Profit Sharing Payroll. No overtime was necessary in the Manthly Payroll Division.

Monthly Payroll Division will use National Cash Register Payroll Machine for posting of payrolls beginning with the month of July, 1948. New payroll forms and salary checks for use on the National Cash Register Machine were designed and ordered in the month of March.

#### Subcontractor's Payrolls

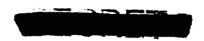
During March, sudit of Atkinson-Jones payrolls Nos. 29 to 32 inclusive covering the period of February 8 to March 6, 1948, amounting to \$2 761 307.04 (gross amount to date \$10 921 895.33) was completed except for the final audit of those manual rates not yet approved, and various amounts of overtime for which approvals have not been received.

Atomic Energy Commission Reimbursement Orders Nos. 10 to 14 inclusive, authorizing rates of pay for various manual classifications being used by Atkinson-Jones were received during the month. However, approval of the following is still needed in order to have complete approval for all rates appearing on Atkinson-Jones payrolls.

Approval. needed are rates for Painter Apprentices, Carpenter Apprentices, a \$0.25 per hour differential to Carpenters for hazardous and onerous work. Leadmen in lator crews handling creosted material, Blacksmiths and helpers, Plasterers, Locomotive Branemen, Teamster Foremen Differential, Bricklayer Apprentices, Linemen Foremen, Equipment Operators, Line Truck Drivers, and the policy to regard hours paid to non manual employees for accrued leave as hours worked when computing overtime for hours worked in excess of forty hours in any week.

Information is also needed to definitely determine that the foremen differential of \$0.25 per hour as approved by the Atomic Energy Commission for Carpenters is applicable to other Journeymen reporting to the Carpenters and Joiners Union.





## Subcontractor's Payroll (continued)

Requests for Reimbursement Orders for the majority of the above have been submitted and are undergoing processing by the Atomic Energy Commission at Hanford and in Washington D. C. The balance are being prepared by the Construction Department and the Subcontractor.

An additional 1 104 Personnel Records (13 351 to date) for Atkincon-Jones and their CPFF Subcontractors were processed for accuracy during March. A total of 921 reclassifications for manual employees were also processed during the month.

During March an additional 589 A.E.C. Forms 37 for Atkinson-Jones non-manual employees were received and processed for accuracy. The total A.E.C. Forms 37 processed to date by this livision is now 2 786 of which those for non-exempt employees have been approved by the Accounting Department and those covering exempt employees have been submitted to the Construction Department for approval and transmittal to the Atomic Energy Commission. No A.E.C. Forms 37 for Atkinson-Jones exempt employees have been received from the Atomic Energy Commission to date.

Effective March 29, 1048, in compliance with Project General Managers Procedure No. 8, all A.E.C. Forms 37 are being submitted direct to the Salary Standardization Unit of the Construction Department and the responsibility of the Accounting Department to preaudit these applications prior to approval has ceased. However, a post audit after approvals have been obtained will be initiated.

Reimbursement to Atkinson-Jones for payrolls during March, exclusive of their CFFF Subcontractors totaled \$2 904 112.41 which brings the total reimbursement to date to \$11 815 002.89.

During the month audit of Urban, Smyth and Warren Co. and Newbery-Nech Electric Co. payrolls Nos. 19 to 22 inclusive, covering the period February 8 to March 6, 1948, was completed except for those rates as yet unapproved, and various amounts of overtime for which approval has not been received.

Reimbursement to Atkinson-Jones this month for Urban, Smyth and Warren Co. payrolls totaled \$417 548.82 (to date \$1 208 195.37), and for Newbery-Neon Electric Co. payrolls \$265 923.86 (to date \$636 370.41).

f (Audit of C. C. Moore & Company payrolls Nos. 11 to 14 inclusive, covering the period February 19 to March 17, 1948, in the gross amount of \$11 539.07 (to date \$29 468.86) was also completed during March except for those manual rates not yet approved.

Approval was received March 18, 1948, from the Atomic Energy Commission to reimburse approximately 90% of C. C. Moore & Co. payrolls. As a result of this approval reimbursement to C. C. Moore for the first fourteen payrolls amounting to \$23 300.00 was effected during March.

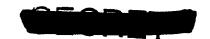
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### Subcontractor's Payrolls (continued)

Notification was also received from the Atomic Energy Commission on March 24, 1948, that the Appendix "C" to the C. C. Moore Company, Engineers Sub-contract had been approved. A survey of the C. C. Moore payrolls indicates that all manual rates being paid are either authorized by the Department of Labor of Determination for Benton County, Washington dated June 24, 1947, or as a result of Reimbursement Orders issued to Atkinson-Jones.

During the month, payrolls for February were received from the Kellex Corporation and reimbursement for the month totaled \$200 593.71 (to date \$251 931.93).

Reimbursement Order No. 2 approving the additional classifications, of Head Armed Guard and Welder "B" for the National Curbon Co. at Morgantown, North Carolina has been received. Salary and Wage Schedules and Employment Policies of National Carbon have not yet been approved by the Atomic Energy Commission.

Reimbursement for National Carbon Co. payrolls at present is still limited to only those payrolls assured by their New York office. Amounts reimbursed this month to National Carbon Co. for these expenditures were \$1 532.96 (to date \$5 759.44).

Audit of Mcrrison-Knudsen Payrolls Nos. 12 to 16 inclusive, covering the period February 15 to March 20, 1948, amounting to \$248 404.40 (to date \$465 605.63) was made during the month except for the final audit of some manual rates and various amounts of overtime for which approvals have not been received. Reimbursement to Morrison Knudsen Co., Inc. for payrolls this month totaled \$223 728.70 (to date \$419 688.66).

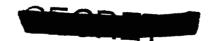
Approval was received on March 18, 1948 from the Atomic Energy Commission to reimburse Morrison-Knudsen for approximately 90% of Trowbridge & Flynn Electric Co. payrolls. As a result of this approval reimbursement to Morrison-Knudsen for Trowbridge & Flynn Electric Co. payrolls Nos. 1 to 9 inclusive, covering the period January 14 to March 13, 1948 was effected in the amount of \$16 130.40.

During March a payroll procedure in detail was prepared for J. A. Terteling & Sons, Inc., and upon receipt of approval dated March 23, 1948 from the Atomic Energy Commission, a 100% reimbursement policy of payrolls was effected.

Reimbursement to J. A. Terteling & Sons, Inc. for their first three payrolls covering the period March 1 to March 21, 1948 totaled \$20 533.87.

A reimbursement procedure for Giffels & Vallet payrolls was established during March and reimbursement to Giffels and Vallet for payrolls covering the period October 3, 1947 to February 28, 1948 was made in the amount of \$82 942.27.





## Subcontractor's Payrolls (continued)

This procedure provides for a post audit of payrolls each three months period by the representatives of the Atomic Energy Commission from Dayton with any corrections or alterations in reimbursement resulting from the post audit being corrected on subsequent Giffels & Vallet vouchers.

#### Purchasing

During March 2.778 purchase requisitions were received as compared with 2 443 received during the previous month; 1 664 purchase orders were placed as compared with 1 337 placed during February. Purchase requisitions on hand at month and totaled 749 as compared with 750 on hand at end of previous month.

The scope of work was enlarged to include the handling of sub-contract negotiations for plant and village work relating to existing operations. This additional work includes all details incidental to sub-contract negotiations, obtaining AEC approvals, invitations to bid, evaluating bids in conjunction with a representative of one of the Engineering Departments, preparation of formal sub-contracts, obtaining approvals and signatures, etc. J. W. O'Rourk was assigned full time to work on subcontracts.

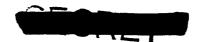
Due to the shut-down of the coal mines, shipments of coal have not been made since March 15. All interested departments were advised by memorandum on March 18.

As of March 1, there was on hand an 8.7 month's stock of steam coal and only a few day's supply of domestic coal. However, there were approximately 24 carloads, roughly 1 000 tons, of domestic coal in transit. This tonnage is being held for emergency use only.

#### Stores

On March 29, the responsibility for receiving all materials other than operations materials was assumed by the Construction Department. Effective the same date, the Construction Department assumed responsibility for making shipments against Construction Return Orders, both for materials and for containers. This resulted in a large decrease (1 406) in the number of returnable containers recorded. To provide the Construction Department with experienced personnel for these functions, 41 employees were transferred from the Stores Division to the Construction Department on March 29.

Considerable effort was expended in relocating materials during the month because of inadequate warehouse facilities in the 700 Area. All finished lumber and surplus hospital supply stocks were moved to Warehouse Number d at Pasco in order that proper storage could be provided. In addition, arrangements were made to warehouse 30 000 gallons of print ordered for the Village painting project. The Froject Engineering Department was requested to study warehouses numbers 5 and 6 in the 1100 Area and make recommendations on the repairs necessary to place these buildings in good condition. The Project Engineering Department was also



## Stores (continued)

requested to determine the cost of rearranging the interior of these buildings so as to provide better functional arrangements.

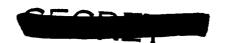
In the past 18 months, 9 314 new items have been added to Stores stocks. At the end of the month there were 50 282 items in stores stock including spare parts. This represents a total inventory investment of \$4 020 332.00.

During March, approximately \$8 000.00 worth of Stores stock was redeemed from the Operations Salvage Yard. In addition, approximately \$22 000.00 worth of material was disbursed to various departments and areas directly.

Sufficient progress was made on the physical inventory of Spare Parts during the month to permit compilation and publishing of Status Reports covering Division A, Air Conditioning, Gas Handling, Heating and Ventilating Equipment. These Reports will be distributed to interested departments on April 1. Progress was also made on other divisions of stock to the extent that items have been rearranged in orderly storage and inventoried. Additional Status Reports will be issued next month, however, it will require from six to nine months to complete this inventory.



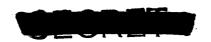




# PROJECT AND RELATED PERSONNEL

GOVERNMENT EMPLOYEES	2-27-48	3-31-48	
Civilian Personnel - Atomic Energy Commission Civilian Personnel - G. A. O.	313 3 315	322 2	324 ′
Total .			
RICHLAND VILLAGE PERSONNEL		07.5	
Commercial Facilities Organizations, Clubs, Etc., Schools Churches	899 88 235 24	935 73 240 24	
Total .	124	6	1272
MCRRISCN-KNUDSEN PERSONNEL (Benton City)	9:	2	105
CONSTRUCTION GUB-CONTRACTORS		-	
Atkinson-Jones Newport, Kern & Kibbe John L. Hudsen Co., Twin City Construction Ce., B. K. V. Heating Co., Chicago Canteen Co., Dewitt C. Griffin & Assoc., Catlow Transport Co., Newberry Neon Uruan, Smyth, Warren Co., Payne Plumbing E. V. Knight Electric J. B. Head Co., L. D. Rieder H. D. Hacker Kellex Corp., J. Gordon Turnbull Giffels & Vallet, Inc., Fermawall Construction Co., Stabberts Morrison-Knudsen Co.,	7913 14 21 5 7 541 8 5 634 974 8 23 9 10 - 291 45 83 25 3 432	8480 15 396 5 26 308 4 - 606 1000 12 27 3 27 5 365 45 106 147 - 607	







CONSTRUCTION SUB-CONTRACTORS	2-27-48	3-31-48	
Pierson-Architects	3	-	
C. C. Moore	29	• 30 ~	
Mahring & Hanson	89	111	
V. S. Jenkins Insulating Co.,	42	63	
Curtis Sand & Gravel	8	8	
National Carbon/Carbide Co.,	186	186	
Trowbridge & Flyn Electric Co.,	17	14	
J. A. Terteling & Son	65	249	-
Grayoport Construction Co.,	22	129	
Peninsula House Movers	67	88	
Estap Electric	1	1	
Faxton Painting Co.,	· <b>-</b>	<b>5</b> 6	•
Wilson Flooring Co.,	-	5	
Bailey Plumbing Co.,	-	12	
King Electric Co.,	-	2	
Head Plumbing Co.,	•	13	
Edmondson	-	4 /	
Pacific Rocfing Co.,	-	3	•
Chicago Bridge Co.,	-	1	, ~
X-Ray Products Co.,	**	14	(S)
Total	11,	,330	15,173 / 17
	,	070	. 200
GENERAL ELECTRIC FERSONNEL	7.	, 678	7,806
GRAND TOTAL	20	711	22,680
GIGHT TOTAL		, <del>-</del>	15 7 18
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