HW-7-6184-DEL [redacted]

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HW-7-6184-DEL

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May 12, 1947

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HANFORD ENGINEER WORKS

MONTHLY REPORT

APRIL 1947

[redacted]

Classification Canceled (Change to declassified with Deletions
By Authority of BLO-CG-4
WA Snyder 6/10/91
DG Kreshen 7/24/91
TL Burnside 8-8-91

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GENERAL SUMMARY

The power levels of the Piles at 100 D and 100 F were maintained at 250 MW and 200 MW respectively. The operating time efficiency was 90.9.

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

There were two major injuries during April. The first was a back strain which was an aggravation of a previous back injury received prior to employment at Hanford Engineer Works. The other injury was a broken right wrist caused by a brake wheel on a freight car being released, throwing employee off balance and while in the unbalanced position, a sudden gust of wind threw the man off the car to the ground, resulting in injury. The plant safety record as of April 30 was eleven days.

The extended program that is to be undertaken at Hanford Engineer Works has necessitated a priority on the various projects. The order of these priorities is as follows:

1. Tank Farm and Waste Storage

   Project is under construction and twenty-five percent complete. Another similar project will be initiated in early summer.

2. Housing, Village Facilities and Schools

   While the inter-relation of these three items causes them to be grouped together, housing represents the most critical and houses must be provided if personnel to operate the plant are to be obtained. Project for additional housing is now in the hands of the Area Manager. Village facilities and schools must be provided to meet the increased Village population requirements. Plans are being studied for the commercial buildings. Projects will be in the Area Manager's hands on additions to the High School and one of the Grade Schools within the next ten days. A project for the proposed Junior High School will be ready shortly.

3. Redox

   Cold demonstration unit will begin operation during the month of May.

4. Test Wells

   Wells to determine the underground spread of contamination are now being drilled with some eight wells being completed. Results are satisfactory and drilling is continuing.

5. Additional 100 Areas

   Work is proceeding on two additional 100 Areas. Critical material lists are being drawn up and a considerable amount of critical material will be ordered in the next ten days.

[redacted]

[redacted]

General Summary

6. Stack Gas Decontamination

Additional research work has been done on gas decontamination and a suitable solution should be reached soon.

7. Technical Building in 300 Area

Design studies are being made and plans should be completed shortly.

8. Additional Space for Design and Construction Department

Project approval has been granted for moving into the 700 Area a sufficient portion of the Administration Building from the old Hanford Construction Site to take care of the requirements of the Design and Construction group.

This represents a partial list only of the many projects before us but includes the most critical.

A meeting was held in Washington, D. C. with Carrol Wilson and the Commission to discuss Schenectady and Hanford problems. Hanford requirements were given number one priority. Advice was given on intention to build two additional 100 Areas. Commission was to notify General Electric formally on the requirements. Help was promised Hanford in recruiting necessary personnel and in securing assistance from companies capable of doing part of the work on metal recovery.

A general increase in salary rates effective April 14 was granted in accordance with the procedure of the Company after completion of bargaining with the CIO. No union is involved at Hanford.

[redacted]

STAFF

MANAGER	D. H. LAUDER
ASSISTANT MANAGER	G. G. LAIL
PRODUCTION SUPERINTENDENT	C. N. GROSS
TECHNICAL SUPERINTENDENT	A. B. GRENINGER
WORKS ENGINEER	W. P. OVERBECK
P DEPARTMENT SUPERINTENDENT	J. E. MAIDER
S DEPARTMENT SUPERINTENDENT	W. K. MAC CREADY
POWER SUPERINTENDENT	H. H. MILLER
MAINTENANCE SUPERINTENDENT	W. W. PLEASANTS
ELECTRICAL SUPERINTENDENT	H. A. CARLBERG
INSTRUMENT SUPERINTENDENT	H. D. MIDDEL
SERVICE SUPERINTENDENT	E. L. RICHMOND
TRANSPORTATION SUPERINTENDENT	R. T. COOKE
MEDICAL SUPERINTENDENT	W. D. NORWOOD, M.D.
DESIGN AND CONSTRUCTION SUPERINTENDENT	F. W. WILSON
WORKS ACCOUNTANT	F. E. BAKER

FORCE REPORT
APRIL 1947

	Non-Exempt		Exempt		Total	
	3-31-47	4-30-47	3-31-47	4-30-47	3-31-47	4-30-47
Management	-	4	6	7	6	11
Design & Construction	32	38	44	50	76	88
P Department	174	176	49	47	223	223
S Department	240	242	53	53	293	295
Technical	138	164	108	109	246	273
Power	351	351	79	79	430	430
Maintenance	546	618	101	107	647	725
Electrical	176	184	37	38	213	222
Instrument	108	114	38	39	146	153
Service	681	798	147	156	828	954
Transportation	600	647	64	63	664	710
Medical	276	330	116	115	392	445
Accounting	609	387	48	48	657	435
TOTAL	3931	4053	890	911	4821	4964

PERSONNEL DISTRIBUTION - APRIL 1947

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	Total
P DEPARTMENT									
Supervisors	5	15	12	-	-	11	-	4	47
Operators	10	38	41	-	-	85	-	-	174
Clerical	-	-	-	-	-	-	-	2	2
Total	15	53	53	-	-	96	-	6	223
S DEPARTMENT									
Supervisors	-	-	-	18	30	-	1	3	52
Operators	-	-	-	105	123	-	12	1	241
Engineer on Assignment	-	-	-	-	-	-	1	-	1
Clerical	-	-	-	-	-	-	-	1	1
Total	-	-	-	123	153	-	14	5	295
TECHNICAL DEPARTMENT									
Supervisors	-	5	-	5	5	10	-	8	33
Chemists-Engineers & Physicists	4	12	13	41	32	114	-	5	221
Clerical	-	-	-	-	-	16	-	3	19
Total	4	17	13	46	37	140	-	16	273
POWER DEPARTMENT									
Supervisors	7	25	22	5	9	-	2	9	79
Operators	32	98	94	24	32	8	-	35	323
Clerical	-	-	-	-	-	-	1	1	2
Others	2	5	5	-	8	4	-	2	26
Total	41	128	121	29	49	12	3	47	430

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	Total
MAINTENANCE DEPARTMENT									
Supervisors	1	2	12	4	13	5	6	26	69
Engineers	-	-	1	2	2	1	-	66	72
Mechanics	9	21	66	32	66	46	36	195	471
Clerical	-	-	-	-	-	-	2	33	35
Others	1	1	7	12	14	7	23	13	78
Total	11	24	86	50	95	59	67	333	725
ELECTRICAL DEPARTMENT									
Supervisors	1	2	3	2	2	1	11	9	31
Electricians	6	9	14	16	12	11	50	37	155
Clerical	-	-	-	-	-	-	-	4	4
Others	1	1	2	1	3	1	12	11	32
Total	8	12	19	19	17	13	73	61	222
INSTRUMENT DEPARTMENT									
Supervisors	1	3	4	1	4	6	-	6	25
Engineers	-	-	-	-	-	8	-	6	14
Mechanics	3	13	13	13	16	19	-	4	81
Clerical	-	-	-	-	-	-	-	3	3
Others	-	3	3	2	3	13	-	6	30
Total	4	19	20	16	23	46	-	25	153
SERVICE DEPARTMENT									
Supervisors	9	6	6	9	7	12	22	85	156
Patrolman	32	52	50	98	84	67	6	69	458
Laundry Operators	-	-	-	-	1	-	-	1	2
Inspectors	4	4	4	4	4	0	1	-	21
Janitors	2	4	4	6	10	9	3	41	79
Clerical	-	-	-	-	-	4	10	83	97
Others	13	-	-	-	11	12	27	78	141
Total	60	66	64	117	117	104	69	357	954

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	Total
TRANSPORTATION DEPARTMENT									
Supervisors	6	3	3	3	7	1	7	33	63
Drivers (Based on Area Served)	16	26	26	35	47	18	23	54	245
Mechanics	9	1	1	1	4	-	1	62	79
Trainmen	3	4	4	4	4	-	-	1	20
Laborers	6	6	6	7	6	2	-	81	114
Clerical	-	-	-	-	-	-	-	26	26
Others	13	9	9	10	19	5	-	98	163
Total	53	49	49	60	87	26	31	355	710
MEDICAL DEPARTMENT									
Physicians	-	-	-	-	-	-	7	12	19
Dentists	-	-	-	-	-	-	-	6	6
Nurses	-	4	-	3	3	1	8	75	94
H. I. Specialists	1	8	11	30	57	55	-	11	173
Technicians	-	2	-	2	-	1	-	20	25
Clerical	-	1	1	1	1	2	-	48	54
Others	-	-	-	-	-	-	-	74	74
Total	1	15	12	36	61	59	15	246	445
ACCOUNTING DEPARTMENT									
Supervisors	-	-	-	-	-	-	-	48	48
Clerks	2	5	6	5	12	6	-	181	217
Telephone & Teletype Operators	-	-	-	1	-	-	-	35	36
Others	-	1	3	3	5	5	-	117	134
Total	2	6	9	9	17	11	-	381	435

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	Total
DESIGN & CONSTRUCTION									
Exempt Employees	-	-	-	-	-	-	-	50	50
Non-Exempt Employees	-	-	-	-	-	-	-	32	32
Clerical	-	-	-	-	-	-	-	6	6
Total	-	-	-	-	-	-	-	88	88
MANAGEMENT									
Clerical	-	-	-	-	-	-	-	7	7
Total	-	-	-	-	-	-	-	4	4
	-	-	-	-	-	-	-	11	11
GRAND TOTAL	199	389	446	505	656	566	272	1931	4964

ARRIVALS AND DEPARTURES OF EXEMPT PERSONNEL

ARRIVALS

Name	Department	Physical Arrival	Origin
Eugene T. Sheehan	Management	4-12-47	Trf.Pittsfield
Benjamin F. Gerlach	Design & Const.	4-16-47	New
James C. Hamilton	Design & Const.	4-28-47	New
Vaughn D. Nixon	Design & Const.	4-28-47	New
Robert F. Plott	Technical	4-11-47	On Schenectady Roll
Dominic Venier	Maintenance	4-11-47	New
Lloyd B. Erickstad	Instrument	4-23-47	New
Harold B. DeVine	Service	4-1-47	New
Keith G. Novinger	Transportation	4-10-47	New
Dorothy A. Shaw	Medical	4-18-47	New

DEPARTURES

Name	Department	Date of Departure	Origin
H. A. Gauper	Technical	4-28-47	Trf.Schenectady Not on our roll
Ernest H. Dean	Transportation	4-11-47	Completion of assignment
Lawrence G. Solberg	Transportation	4-25-47	Vol-Quit
James S. Gold	Medical	4-7-47	Vol-Quit
Kladius Kuiper	Medical	4-10-47	Vol-Quit
S. D. Ewing	Accounting	4-30-47	Trf.Dupont Plant On Dupont roll

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P DEPARTMENT

APRIL 1947

I. GENERAL

The D and F Piles were operated at a nominal power level of 250 M.W. and 200 M.W. respectively except for scheduled outages and an unscheduled shutdown in each area. The B-Pile was maintained in standby condition with a water flow of 4000 g.p.m., except during the last week of April at which time the flow was decreased to determine the rate of heat generation in the pile.

The 300 Area production rate continued on a 60 ton per month basis to meet the 100 Area requirements.

II. ORGANIZATION AND PERSONNEL

One supervisor, B. M. Kaspar, terminated on April 30. One supervisor, J. G. Bradley, was transferred from the 100 Areas to the Technical Department on April 1. W. L. Sapper, a Supervisor in Training for the Design and Construction Department, was transferred to that department from the "P" Department rolls on April 1.

Two members of the Accounting Department were transferred to the "P" Department in a secretarial capacity. (Effective date, Monday, March 31).

One operator was transferred from 100-F Area to the Transportation Department. Two operators were transferred from the Service Department, (Patrol Division), to the 300 Area.

III. AREA ACTIVITIES

PILE SUMMARY	PILE B	PILE D	PILE F
Time Operated	-	91.0	90.8
Operating Efficiency	-	90.0	90.4
*Power level (MW)	-	250	200
*Inlet Water Temperature (°C)	10.0**	10.4	10.6
*Outlet Water Temperature (Maximum °C, 10 tubes, .240 zone)	10.0**	51.9	38.8
Number of Scrams	-	1	1
Number of Purges	0	1	1
Helium Consumption (cu. ft.)	20,941	56,412	47,730
Metal Discharged (tons)	0	32.9	32.1
Inhours Gained (this month)	0	13	13
*Inhours Poisoned	-	354	359
*Inhours in Rods	-	68	64

* Month end figures
** Water temperatures are as of April 21; water flows were reduced after this time.

[redacted]

PILE BUILDING

Outage Breakdown

Date of Outage	Scheduled Outages: Metal Discharges	Scheduled Outages: Maintenance	Unscheduled	Length of Outage (Hours)
4-6-47	D			23.2
4-6-47	F			23.3
4-14-47			D	0.5
4-14-47			F	0.4
4-15-47	D			22.7
4-23-47	F			19.8
4-29-47	D			19.3
4-30-47	F			22.9

The outages on April 6 were conducted on a Sunday to permit tests of the B.P.A. system during a time when the peak electrical demand was at a minimum.

The unscheduled outages on April 14 were caused by a complete failure of the 230 KV system.

Operating Experience

Details of irradiation of Special Requests processed during the month and of the monthly foil exposure in the B-Pile, which was made on April 9, may be found in the Technical section of this report.

One new bismuth stringer, Tube No. 1180-F, was established on April 6. The total bismuth loading is now as follows:

D-Pile	11 stringers of 50 pieces each
F-Pile	14 stringers of 45 pieces each

At the B-Pile, process water flow was decreased in conformance with Production Test No. 105-99-P to ascertain the rate of heat generation in the pile. The flow was reduced to 2000, 1000, and 550 g.p.m. on successive days commencing April 22. On April 28 the flow was reduced to 40 g.p.m. for a calorimetric measurement for a period of several hours. Following this the water flow was cut off entirely. During all these steps helium circulation and thermal loop water flow were stopped. No significant temperature rises have been observed. Upon conclusion of the test on May 2, normal standby flows will be resumed.

Following the scram at D-Pile at 2:08 P.M. on April 14, some difficulty was experienced with the upper limit switch on No. 32 vertical safety rod. Because of this, the unit did not get started until 2:31 P.M. A level of approximately 154 M.W. was reached but could not be maintained. The level dropped slowly until 4:24 P.M. at which time the pile was shutdown. Scheduled work planned for a shutdown on April 15 was begun at this time.

[redacted]

Operating Experience, Cont'd

In conformance with Production Test No. 105-85-P, Supplement A, three tubes at D Area containing graphite samples were discharged in a continuation of graphite exposure studies begun in February. The three tubes, Nos. 3469-D, 3478-D and 3574-D, were reloaded with graphite samples. In the order of tubes listed above, the exposure atmosphere is oxygen, helium, and carbon dioxide.

Ten tubes covered by Production Test 105-69-P (borderline material) were discharged from the F-Pile during the month of April. These were as follows: Nos. 1076-F, 1072-F, 1761-F, 1786-F, 3061-F, 3086-F, 3262-F, 3285-F, 3669-F, and 3678-F. All of the above named tubes were recharged with regular material. Tube No. 2385-F, containing "Papoose pieces", Production Test 105-1-P, was discharged April 23.

Eight production test stringers were charged into the F-Pile during the month of April. They are as follows: Tubes Nos. 3363-F and 3384-F, which contain annealed slugs, Production Test 107-95-P; Tubes Nos. 3580-F, 3670-F, and 3677-F, which contain 4" uranium slugs, Production Test 105-75-P; Tube No. 2386-F, corrosion tube, Production Test 105-9-P; and Tubes Nos. 2385-F and 1384-F, which contain "Papoose" slugs, Production Test 105-1-P, Supplement A.

In conformance with Production Test 105-80-P, Tube No. 2679-F was loaded with a special thermocouple slug on April 6. This loading is an exact duplicate of Tube No. 1367-F which was covered in an earlier report. On April 30, both of the above mentioned tubes were fitted with .175" instead of .240" orifices to reduce chattering effect and prevent damage to thermocouple wire casing. To study chattering effect six tubes with enlarged orifices, Nos. 4669-F, 4678-F, 4562-F, 4585-F, 4458-F and 4489-F, containing solid aluminum dummies were probed and borescoped, (Production Test 105-89-P). The orifices were returned to their normal .140" diameter on April 30.

Mechanical Experience

On April 6, Tubes Nos. 3396-D and 1252-F could not be discharged with the usual pneumatic equipment. Both tubes were then discharged successfully by using a hand type charger at the front face. Examination of the discharged metal revealed a warped, blistered slug in each stringer; borescopic examination of the tubes showed both to be gouged. Tube No. 3396-D was replaced and is in normal service. Tube No. 1252-F will be replaced early in May; currently it is filled with dummy pieces.

At B-Pile, the No. 9 Horizontal rod repairs were completed and the rod returned to the pile on April 21. (Refer to the "F" Department February and March, 1947 reports for additional details). All vertical and horizontal rods at the B-Pile are in operable condition. However, all rods were made immovable in the "all in" position on April 22 at the time the lowered water flow tests were started.

At D-Pile, considerable repair work was done on various rods as indicated below to offset the adverse effects of graphite expansion. All

[redacted]

Mechanical Experience, Cont'd

vertical and horizontal rods are in operable condition and are performing satisfactorily except that some vertical rods occasionally hang up on routine tests if not exercised daily.

Rods Nos. 10, 16, 24, 34, 35, 36, 37 and 38 hung up during the D-Pile scram on April 14. On subsequent tests made during operation, (test frequency increased from weekly to daily), their performance generally has been normal. To determine if the cold contour of the top shielding of the pile changes as the pile heats up during operation, level indicating brackets were mounted on the bumper plates of Rods Nos. 27, 34, and 37 for test observation on April 29. No data is available yet.

The No. 2 Horizontal Rod at D-Pile was completely replaced during April, the upper plates of the tip having been milled down 3/16" to provide proper clearance in the thimble. (Refer to Blueprint No. H-1-497 for dimensions). The preliminary steps for this major job were done prior to regular shutdowns and all other work was done during regular shutdowns thus preventing any lost time.

Vertical Rods No. 32 and No. 37 at D-Pile were returned to normal operating condition on April 6 by shimming one side of each step plug with three partial rings of gasket material, thus returning the plug, (and the rod guide) to a vertical position. These changes obviated the necessity of installing the "compensated" rod guides at this time.

At F-Pile, Vertical Rods Nos. 34 and 36 were repaired on April 30 by shimming the step plugs to restore them to a vertical position, (similar to the work done at D-Pile on rods Nos. 32 and 37). All vertical and horizontal rods now are in normal operating condition, except that No. 7 Horizontal Rod is temporarily out of service pending repairs to the 2-way-4-way valve in the hydraulic control line.

At all three piles, work was continued on a preventive program consisting of removing a small portion of graphite from the outermost piece of the rod track, (a section 2" long), in the horizontal thimbles to provide more clearance. This measure should minimize future troubles caused by buckling of graphite in these thimbles. Progress to date is:

Rod-Area	Amount protruding when rod gate was removed	Clearance provided
#A-B	3/16"	1/4"
2-B	-	1/4"
B-B	1/8"	1/4"
A-D	1/8"	3/16"
2-D	-	3/16"
B-D	-	3/16"
A-F	3/16"	1/4"
B-F	3/32"	1/4"
6-F	9/32"	1/4"

Mechanical Experience, Cont'd

At both D and F Piles the steel supporting framework of the horizontal rods in the inner rod rooms is slightly distorted because of the expansion of the near side of the unit. This expansion has sheared some of the dowel pins used to align the rod supports. An engineering study to determine the proper corrective measures has been begun.

Equipment for loading and removing special samples at the "E" test Thimble at the F-Pile was installed April 23.

Gas Processing Building

No helium was purified or added to storage during April.

Special Hazards

The reduction in cross sectional area of the No. 2 Horizontal Rods at D and F Areas has not resulted in any increased radiation hazard. Surveys indicate that there is no neutron beam in the Apparatus Room at any position of these rods.

The major repairs made on various rods during April were accomplished without incident or over exposure to any personnel.

300 AREA - METAL FABRICATION

Extrusion, Outgassing, and Machining

Extrusion, Machining, and Billet Yields were as follows:

	% Yield		
	March	April	To Date 1947
Extrusion	93.7	93.6	93.7
Machining	82.0	82.5	82.1
Billet	76.8	77.2	76.9

A portable, electrically-driven, rotary wire brush was designed to apply lubricant from the ram end of the extrusion press container as outlined in Production Test No. 314-46-M. Initial tests were made on the press container before lubrication and when the press was not in operation. The resultant polishing of the container wall caused excessive skirt formation on the dummy blocks for a short period after start-up of extrusion on April 22. The brush was tested during extrusion on April 23 with favorable results, both in oxide removal and application of lubricant.

A total of 1035 four-inch slugs was machined to "A" dimensions. Further machining of this material has been discontinued until canning yields are available. If the yields are satisfactory, approximately 4000 additional slugs will be processed to "A" dimensions.

Extrusion, Outgassing, and Machining, Cont'd

In conformance with Production Test No. 313-46-M, four thorium rods (Special Request 3-3), weighing 171.20 lbs. were machined to a nominal diameter of 1.360 $+^{.001}_{-.003}$ inches and 4.000 $\pm$ .010 inches in length. The resultant yield was forty-four slugs or 62.1%. The low yield was chiefly due to excessive rod diameters ranging from 1.574" to 1.576".

Chip Recovery and Oxide Burning:

The Chip Recovery yield was as follows:

	% Yield		
	March	April	To Date 1947
	91.1	91.7	91.6

Chip Recovery operated five days in April. An investigation is in progress to determine the amounts of oxide present in both turnings and briquettes.

The reduced operating temperature range of the oxide burner (1200 - 1400° F) continued to give favorable results. Except for three charges, the free metal content of all burned oxides was below the specified maximum of 2%. These charges were satisfactorily reburned.

The material burned was as follows:

	Weight Out - Lbs.		
	March	April	To Date 1947
Extrusion Floor Sweepings (D-2)	569	664	9362
Chip Recovery Floor Sweepings (D-2)	00	00	88
Chip Recovery Oxides (D-6)	352	941	2444
Extrusion Oxides & Skirts (D-6)	3933	3888	20152

Canning Operation:

Metal Slugs - Type canned and yields were as follows:

	% Canned			% Yield	
	April	To Date 1947		April	To Date 1947
New Machined - A's (Stripped Unbonded)	0.0	16.2		0.0	84.1
New Machined - MZ's	82.5	72.2		91.8	90.7
Recovered - Z's	13.1	7.7		90.5	88.4
Recovered - X's	4.4	3.9		92.1	93.5
	100.0	100.0	Ave.	91.7	89.5

One hundred and fifty bismuth slugs were canned. This completes the canning of the 2340 slugs received during February. There were 70 rejects; sixty-seven were broken as received, and three were damaged during processing.

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Canning Operation, Cont'd

Forty-four pieces of Special Request No. 3-3 (Thorium), 296 of Special Request No. 15-12 (Lithium Fluoride), 1 piece of Special Request No. 29-2 (Phosphorous Pentoxide), and 1 piece of Special Request No. 41 (Copper-Gold Alloy) were canned in April. Three additional pieces of Special Request No. 15-12 were rejected for bad welds and returned to the vendor.

Canning rejects, by cause, were:

	% of Total Canned (Regular)		
	March	April	To Date 1947
Non-Seating	1.9	2.7	2.2
Wrinkled Cans	0.5	0.5	1.3
Marred Surface	2.3	1.4	2.5
Al Si on Outside of Can	0.4	0.4	0.3
Air Pockets	0.1	0.1	0.1
Frost Test	1.2	1.1	1.0
Warp	1.2	1.2	1.5
Bad Welds	0.8	0.6	0.8
Miscellaneous	0.9	0.3	0.8
	9.3	8.3	10.5

The canning of 1050 four-inch "A" slugs was completed April 28. The inspection of this material is incomplete and yields will be reported next month.

A total of 10,100 lbs. of BFC_6 was recovered in April. It is expected that this program will be completed except for current material by the end of May. During the last two weeks of the month bronze recovered in the flux recovery operation was used successfully for butting bronze canning baths under controlled conditions. If this process continues to be satisfactory, the stock of 80,000 lbs. accumulated to date will suffice for normal plant needs for several months.

In conformance with Production Test No. 313-43-M, Lot No. 40, rolled MZ slugs, was canned. Sixty-four canned slugs from Lot No. 40, plus thirty-two canned "A" unbonded slugs, were shipped to Schenectady for testing purposes.

Four receptacle slugs were canned as the initial phase of Production Test No. 313-90-M.

Recovery Operation:

	% Recovered		Average Weight-Lbs.	
	April	To Date 1947	April	To Date 1947
Z Slugs	56.2	67.9	7.795	7.814
X Slugs	41.0	30.6	7.741	7.739
Rejects	2.8	1.5	--	--
	100.0	100.0		

7

[redacted]

[redacted]

Inspection and Testing:

There were no autoclave rejects during April.

	March	April	To Date 1947
New Machined - A's (Stripped Unbonded)	0.00/M	0.00/M	0.11/M
New Machined - MZ's	0.08	0.00	0.05
Recovered - Z's	0.00	0.00	0.00
Recovered - X's	0.00	0.00	0.00
	0.07/M	0.00/M	0.05/M

On April 23, canned pieces removed from the autoclaves showed evidence of white stains and surface pitting. All pieces affected were re-etched and reinspected with only three pieces being rejected for poor surface. An investigation indicated that the condensate had not been completely purged from the autoclaves prior to raising the steam pressure to the operating range.

The "As Received" quality of cans, caps, and sleeves inspected prior to use was as follows:

	% Useable (Regular)		
	March	April	To Date 1947
Aluminum Cans	80.4	85.2	79.1
Aluminum Caps	92.2	91.9	90.2
Steel Sleeves	69.9	72.8	68.6

A total of 5750 cans have been received for canning four-inch slugs. Of this number, 2628 have been inspected with a yield of 95.0%. Caps and sleeves inspected for use in the canning of four-inch slugs gave yields of 99.4% and 79.7% respectively.

300 Area - Test Pile

This unit was operated sixteen eight-hour days, making 81 regular tests on canned slugs, 61 tests on billet ends, and the following tests as indicated on Production Tests:

		No. of Tests
313-79-M	"Factors Affecting Reactivity"	26
314-42-M	"Evaluation of TX Material"	7
314-42-M	(Supplement A) "TX Material - Reverse vs. Normal Extrusion"	24
314-43-M	"Study of Rolled Material"	27
314-44-M	"Study of High T.D.S. Uranium - UM Material"	14

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S DEPARTMENT

APRIL 1947

I. GENERAL

Thirty-seven batches were started in the Canyon Buildings during April and thirty-six were processed through the Concentration Buildings. Thirty-six charges were completed in the Isolation Building with an average purity of 98.8%.

The material balances for T and F Plants averaged 99.1% and 102.7%, respectively, for a combined average of 100.9%. Average waste losses for both plants totaled 3.5%, a reduction of 0.6% over that obtained in March and a reduction of 2.0% as compared to September, 1946 performance.

Canyon and Concentration Building Production Performance Data - (4/1/47 - 4/30/47, inclusive)

	F Plant	T Plant	Combined
Number of charges started	19	18	37
Number of charges completed	18	18	36
For completed charges:			
Percentage of starting product in waste			
This month	3.8	3.3(a)	3.5
Last month	4.0	4.2(b)	4.1
Cumulative to date	6.1	6.3(c)	6.2
Percentage of starting product recovered			
This month	98.9	95.8	97.4
Last month	98.4	95.8	97.4
Cumulative to date	96.0	94.9	95.5
Percentage of starting product accounted for			
This month	102.7	99.1	100.9
Last month	102.4	100.0	101.5
Cumulative to date	102.1	101.1	101.7
G Decontamination Factor (log.)			
This month	7.48	7.39	7.43
Last month	7.34	7.18	7.27
Cumulative to date	7.27	7.24	7.26

(a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.05%-T Plant; 0.03%-F Plant. (b) 0.06%-T Plant; 0.03%-F Plant. (c) 0.21%-T Plant; 0.0019%-F Plant.

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Isolation Building Performance Data (4/1/47 - 4/30/47, inclusive)

	% of Incoming Product			
	Prepared for Shipment	Recycle	Losses	Material Balance
Average for this month	97.3	3.86	0.05	101.2
Average for last month	96.9	3.82	0.09	100.8
Average to date	96.8	3.9	0.14	100.8

II. ORGANIZATION AND PERSONNEL

Effective April 1, 1947 the following supervisory organization changes became effective:

> C. E. Foster and R. A. Hultgren, formerly Supervisors in Training, completed their training and assumed the full duties and responsibilities of Shift Supervisors in the S Department.

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants

Section 8 Extraction Waste Losses

The study of high extraction effluent waste losses commenced in February was continued through April in both Canyon Buildings. Eleven charges were reworked in both Plants according to the procedure described in the March report. An average recovery of approximately 0.40% was obtained in B Plant for the three runs so treated, while the T Plant saving for the eight runs reprocessed averaged 0.89%. The method could not be employed on all runs due to the longer time cycle required and the necessity for meeting scheduled production. Based on the observation that the waste losses of those runs processed in Section 8 immediately following a water or acid flush of the precipitator and centrifuge were noticeably lower than runs involving no flushing, the Technical Department has prepared Production Test 221-T-12 in order to thoroughly evaluate this and other factors pertinent to extraction effluent waste losses. Following approval, this test will be started in May.

Section 13 Skimming and Cake Washing Study

The effect of revising the cake washing and skimming procedure in Section 13 during the first cycle byproduct cake centrifugation was further evaluated during April. In T Plant four slurry washes in conjunction with 15 gallon skimming were employed while in B Plant three slurry washes of the cake were made. In neither case was there any appreciable improvement noted with respect to reducing the centri-

[redacted]

Section 13 Skimming and Cake Washing Study, Cont'd

fuge thermal overload trouble reported upon last month. No further action is contemplated with this study until the results of a proposed Production Test involving the settling and washing of the byproduct cake in the Section 13 precipitation tank are collected and evaluated in the near future.

Section 14 Wash Water Study

Special analytical data were being collected at monthend in both Canyon Buildings to determine the product content and fission product activity of the water used to wash the Section 14 product cake. At the present time this water, totalling 1000 lbs. per run, is combined with the effluent waste and sent to first cycle underground storages. Results of the analyses made to date indicate that it may be feasible to segregate this wash water and return it to Section 13 for use as dilution water for each subsequent run, thereby effecting an appreciable saving (120 gallons) in the volume of first cycle waste that must necessarily be stored in the Waste Storage Areas.

Reworking of Cell D Wastes

Effective with Runs B-7-03-D29 and T-7-03-F20 in B and T Plants, respectively, the Cell D lanthanum fluoride byproduct cake wastes were reworked with a product saving of approximately 0.40%. The cake slurry is returned from the solution tank to the precipitator vessel, reoxidized and digested for partial solution of the cake, re-precipitated, and then recentrifuged; the effluent being combined with the normal volume for processing in the next cell. The reprocessing has the disadvantage of increasing the Cell D time cycle; not a serious objection under the present production schedule, but one that would prevent its use in the event production levels were increased.

Cell E Waste Losses

Coincidental with the change in Cell D discussed above the Cell E process in both Concentration Buildings was changed from two strikes and three centrifugations to three separate precipitations and three centrifugations. This change lengthened the time cycle considerably but is feasible under the present production schedule. As a result of this change which was made within the established limits of the operating and technical standards, the Cell E effluent waste losses were reduced by approximately 0.15% - 0.20%.

T Plant Acid Wash

Acid Wash, T-7-04-AW1 was processed in T Plant following Run T-7-04-DC. Pickup of product was normal, indicating no undue hold-up in process equipment.

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Isolation Building

Production Test 231-7

Production Test 231-7, "Pre-reduction Conditions", was completed at the Isolation Building during April. No significant advantage was demonstrated by increasing the ammonium sulfite concentration used in the pre-reduction stage above the usual concentration of 0.05 M.

First Cycle Digestion

Commencing with Runs T-7-04-D8 and B-7-04-D7 the digestion period of the first cycle strike in the Isolation Building was increased from one to two hours. Ten runs from each plant will be effected in an effort to determine whether increasing the digestion time will decrease the quantity of product contained in the recycle solution. This change was made within the established limits of the operating and technical standards.

Waste Disposal

T and B Plants

Cribbing of Second Cycle Wastes

Excavation work for the proposed second cycle waste cribbing system in T Plant was essentially complete by monthend. The excavation for B Plant's similar installation will commence early in May. Eight test wells have been drilled on Project C-133. It is expected that preliminary evaluation of the feasibility of second cycle cribbing on the basis of well data will be possible during May.

Ph of First Cycle Decontamination Wastes

In an effort to obtain more complete carrying of product and fission product activity in the sludge that settles out in the first cycle storage tanks a reduction was made in March in the amount of caustic used for neutralization in Section 15. Samples of the waste effluent were taken during April from the waste storage tanks and on the basis of the results obtained a further reduction in caustic was made. Further analyses of the resultant activity in the storage tanks will be made and pH measurements taken to determine its effectiveness.

Flushing of Metal Waste Tie Line

Early in the month at T Plant an increase in the transfer times for jetting metal waste to the 241U Waste Storage Area was noted. At the same time a substantial increase in the background reading was indicated by the monitoring instrument maintained on the tie line near the 241U Waste Storage Area. A standard flush of the line with 10,000 lbs. of 10% sodium bicarbonate solution returned the conditions to normal.

Additional Waste Storage Facilities

The General Electric phase of Project C-112, providing for the installation of an additional Waste Storage Tank Farm, 241 BX, in B Plant was approximately 39% completed by the end of April. The sub-contractor portion of this project was estimated to be 17.5% complete. During the month a Project Request was issued to the Design and Construction Department to cover the construction of 241TX, an additional Waste Storage Tank Farm for T Plant. A Project Request was also issued to cover the construction of a second cycle tie line between the T Plant Canyon Building and the 241 U Tank Farm.

Waste Status

The status of the Waste Storage Areas on April 30 is shown in the following table:

Bldg. 241 Tanks	Type Waste	% Full				Reserve Capacity in Batches to Process				Total
		B	T	C	U	B	T	C	U	
x101,2,3	Metal	100	100	100	82.8	0	0	0	46)	
x104,5,6	Metal	-	-	52.6	0	-	-	128	269)	663
x201,2,3,4	Metal	0	0	0	0	28	28	37	37)	
x109				0				90	)	
x107,8	1st Cycle	100	100	8.5	0	0	0	206	338)	
x110,1,2	1st Cycle	-	-	100	37.4	-	-	0	212)	756
x104,5,6	1st Cycle	-	100	-	-	-	0	-	-)	
x104,5,6	2nd Cycle	48.0	-	-	-	236	-	-	-)	
x110,1,2	2nd Cycle	100	100	-	-	0	0	-	-)	417
x105,6	2nd Cycle	-	40.2	-	-	-	181	-	-)	

MECHANICAL PERFORMANCE

T and B Plants

Process Leaks

At B Plant the conductivity meter indicated the presence of a small product leak in Section 8 of the Canyon Building. Upon investigation it was revealed to be in the "A" transfer jet assembly between the precipitator tank and the centrifuge. A replacement was made and tested, and operation was resumed. No appreciable leakage of product was incurred.

Replacement of F-10 Tank

Contamination on the top of the transfer can containing Run T-7-03-F18 led to the discovery of two pin hole leaks in the bottom of the final product tank F-10 at the T Plant Concentration Building. The tank was removed and replaced with a spare vessel.

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Replacement of F-10 Tank, Cont'd

The replacement vessel to be fabricated in May will be constructed of heavier sheet metal in an effort to achieve longer service life in the future.

Replacement of Section 8 Centrifuge

The Section 8 centrifuge in T Plant was replaced with a spare machine in April when it became evident that the skimmer was becoming increasingly more erratic and would imminently fail. No mechanical difficulties were encountered in making the change, but considerably high level contamination of certain deck areas occurred from contaminated iron rust falling from the removed machine. This contamination occurred despite the elaborate precautions taken to paper the deck areas. The removal of the paper and the decontamination of the areas were successfully accomplished without incident.

Section 8 Agitator

During the processing of the final run for the month in Section 8 at T Plant the precipitator tank agitator stopped, evidently through failure of the gear-reducer drive. The assembly was replaced with an available spare without incident.

North Area Crane Inspection

The annual inspection of the 30 ton crane in the 212N Building in the North Area was made in April. All parts were found to be in good condition with the exception of the roller bearing on the outer east end of the 6 inch drive shaft. This bearing was replaced.

Crane Cable Sheaves

During the month the cable guide sheaves on the 212N and 212P North Area cranes were lowered 55 inches. This completes the remedial measures suggested as the result of the difficulty encountered during February with the cable and cable drum of the 212R crane. As yet the remaining two drums have not been regrooved. This has been scheduled for May.

METEOROLOGICAL SECTION

A total of ninety forecasts were prepared for the T and B Plants and forty-nine forecasts were furnished other departments.

General weather conditions for April are shown in the following table:

Maximum average hourly wind velocity at 200'	55 mph on 4/20
Minimum average hourly wind velocity at 200'	0 mph
Maximum average hourly wind velocity at 50'	45 mph on 4/20
Minimum average hourly wind velocity at 50'	0 mph

[redacted]

Meteorological Section, Cont'd

Prevailing wind direction	WNW
Prevailing wind quandrant	W
Maximum air temperature (4 feet)	88° on 4/13, 27
Minimum air temperature (4 feet)	32° on 4/7
Number of days precipitation and/or fog occurred	9
Number of days precipitation occurred	7
Number of days snow occurred	0
Number of days fog occurred	2
Greatest duration of precipitation	7.2 hrs. on 4/19

[redacted]

TECHNICAL DEPARTMENT

April 1947

GENERAL

John Chipman, professor of metallurgy at the Massachusetts Institute of Technology, spent April 2 with the Department reviewing plant and laboratory facilities as applied to metallurgical development.

A number of discussions were held with the following group of pile design technologists from Schenectady who visited the plant April 14-18: W. R. Kanne, C. Mannal, J. H. Payne, V. C. Wilson, E. A. Lubke, and E. J. Wade.

A special 4-day educational program was presented April 21-24 to eleven students in the 1946-47 Nuclear Engineering Class of the G.E. Advanced Engineering Program, Schenectady: E. R. Boynton, D. Cochran, S. B. Dunham, D. M. French, D. R. Miller, J. H. Pigott, R. W. Samsel, H. E. Stevens, J. Gray, K. Kesselring, and D. M. Jacob. This group was under the leadership of L. Tonks and C. Dorsa.

Technical personnel made the following business trips during April:

R. H. Beaton spent the period April 5-11 visiting M.I.T. (Boston), the Research Laboratory (Schenectady), and the Standard Oil Development Co. (Bayway, N.J.) for consultations on solvent extraction techniques and equipment development.

W. W. Marshall spent April 4-12 visiting the Research Laboratory (Schenectady) in a study of infra-red spectrophotometric equipment and its application to the analysis of hexone.

During the week of April 11-18, J. B. Work visited the Arsenal at Edgewood, Md. to discuss adsorption of radio-iodine with the Chemical Warfare Service.

O. H. Greager spent the period April 14-17 attending the American Chemical Society convention at Atlantic City, N.J., followed by a visit to the New York office of the Atomic Energy Commission on April 18, and attendance at the Information Meeting held at Argonne National Laboratory April 21-23.

P. F. Gast attended the Information Meeting at A.N.L. on April 21-23.

ORGANIZATION AND PERSONNEL

Month-end personnel totals in the several divisions and groups were as follows:

	March 31	April 30
Pile Physics	11	11
Pile Engineering	9	8
200 Area Plant Assistance	9	9
Chemical Development	20	32
300 Area Plant Assistance	5	5
Metallurgy Laboratory	4	5
Laboratories Division	174	176
Statistics	4	7
Clerical	0	16
Administration	4	4
Total	240	273

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Most of the 33 increase in total force resulted from (1) the transfer of all assigned clerical personnel in the 300 and 700 Areas from the Accounting Department, and (2) the addition of 12 people to the Chemical Development Division: 4 technical men (2 new and 2 by intra-plant transfer), 6 operators from the S Department, and 2 Non-exempt analytical people from the Laboratories Division. One metallurgist was added to the Metallurgy Laboratory group.

PILE PHYSICS

General

Poison moments in rods and absorbing columns and corresponding temperature distributions in the F Pile have been analysed using data collected since September 1946. It was concluded that a change of 25 inhour lattice units in the poison moment will produce a change of 1% in the corresponding temperature moment. A residual temperature assymmetry of unknown origin exists in the pile which requires a permanent unbalance in the absorbing column pattern.

Both D and F piles were scrammed on April 14. F Pile, which had slightly more excess reactivity and began recovery sooner than D Pile, was able to return to full power whereas D Pile was not. These experiences agree satisfactorily with present interpretations of pile behavior based on xenon variations and power coefficients.

A periodic variation between the Selsyn Indicator and the true position of the control rod of the Test Pile has been discovered. This variation has the proper period, magnitude and phase to account for at least one half and possibly all of the previously reported "ripple" in the effect of this rod. Cracks in surrounding graphite blocks had no measurable effects on the poisoning power of a cadmium foil according to tests conducted during the month.

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

	D Pile	F Pile
In rods	68 ih	64 ih
In Special Requests		
within poison pattern	221	203
outside poison pattern	5	26
In Plant Assistance irradiations	20	0
In Lead-Cadmium Columns	57	50
In Bismuth Columns	49	72
In Dummy Columns	2	8
In Xenon	492	426
In Overall Coefficient	-95	-78
	819 ih	771 ih

Both piles gained 13 inhours during April.

Exposure of Expanded Graphite - Production Test 105-85-P

Data on changes in length and weight of expanded graphite samples which were exposed for roughly 100 MD/AT in atmospheres of oxygen, carbon dioxide, and helium show that all three gases produce roughly the same shrinkage and weight loss. The shrinkage was roughly one third of the expansion produced by previous exposure. The highest observed weight less was 0.12%. There is no precedent for the unexpected behavior in a helium atmosphere; however, it was found that

water vapor had entered the helium stream by some unknown means and had condensed on the plugs at the inlet end of the tube. This opens the possibility that the graphite in the helium-filled tube was attacked by the reaction $C + H_2O \rightarrow CO + H_2$.

A drying tube has been inserted in the helium supply system and the experiment is being repeated with fresh graphite samples. Definite conclusions about the effect of the gases must await the outcome of this test.

Reactivity Coefficients - Production Test 105-74-P and 105-97-P

During the next six months the measurement of reactivity coefficients and rod calibrations will be carried out under Test 105-97-P. A Final Report on 105-74-P was issued on April 3.

Coefficient tests were performed at the D Pile on April 1 and at the F Pile on April 2. During the test at D Pile the calibration of A Rod was checked and the result was used to evaluate the coefficient test of March 7 as well as the one of April 1. The power coefficients obtained from these two tests are not significantly different from those of nine months ago but the graphite relaxation period has increased by about 40% during this time. The graphite periods as measured by thermocouples have increased 28% during the same time interval.

The coefficient test at the F Pile on April 2 gave a value of the overall power coefficient 18% greater than that obtained at the D Pile. The graphite relaxation periods are about equal although the accumulated exposure of the D Pile is 20% greater than of the F Pile.

Reactivity of B Pile Under Shutdown Conditions - Production Test 105-58-P

The monthly foil irradiation in the B Pile, performed on April 9 gave nv = 105 neutrons/cm^2 sec. at a gas purity of 98.9%. No change in reactivity is indicated.

Special Irradiations

The status of the Special Request program on April 30 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 letters in parentheses after the Request Number indicate the source of the request. ANL, Argonne National Laboratory; Cl, Clinton Laboratory; Sc, Schenectady. The number in parentheses under P.T. indicates the Production Test, series 105-P and "Final" indicates that a final report has been issued. The letter suffix after a tube denotes the pile.

Req.No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
*3-2(Cl)	Thorium	41 pcs.		2/25/47	3179D	4/29/47		49-C	38
*3-3(Cl)	Thorium	31 pcs.		4/29/47	3179D	8/10/47T		49-D	
		13 pcs.	Awaiting more slugs before charging						
		379 pcs.	Not received						
6-(ANL)	U^{233}	1 slug	15 mo.	4/2/46	3282-1F	--	--	57	5

Technical Department

Req.No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
*11-1(ANL)	RaCl	1 g	Awaiting sample						
12-A(ANL)	U^{235}	Postponed							
12-B(ANL)	Pu^{239}	640 mg. 1 slug	14 mo.	4/18/46	3378F			39	3
13-1(ANL)	Be_3N_2	34	60 da.	Discharged awaiting shipment				70	
13-2(ANL)	Be_3N_2	60	6 mo.	30 slugs discharged, awaiting shipment				70A	
13-3(ANL)	Be_3N_2	250-	6 mo.					70B	
		40	6 mo.	2/4/47	1474-D				18
		40	6 mo.	2/4/47	2066-D				18
		40	6 mo.	2/4/47	2082-D				18
		40	6 mo.	2/4/47	3169-D				18
		45	6 mo.	2/12/47	3274-F				17
		45	6 mo.	2/12/47	2666-F				17
13-4(ANL)	Be_3N_2	35	6 mo.	2/12/47	1474-F			70C	16
*14-(C1)	Al-U Alloy	3 slugs	3 mo.	1/22/47	2074-F	4/23/47	Awaiting shipment	84	
			6 mo.	1/22/47	2970-F				5
			12 mo.	1/22/47	2977-F				5
15-9(ANL)	LiF	198 slugs	40-50 days	100 slugs shipped, 98 slugs awaiting shipment				55F	
15-10(ANL)	LiF	399 pcs.	40-50 da.	199 shipped, 200 awaiting shipment				55F	
*15-11(ANL)	LiF	466 pcs.	40-50 da.					55F	
		23		2/26/47	2066-F	4/23/47			
*		20		3/9/47	1569-F				10
		23		3/9/47	1579-F				26
		23		3/9/47	2082-F				26
*		29		3/9/47	2666-D	4/29/47			
*		34		3/9/47	2682-D	4/29/47			
*		34		3/9/47	2374-D	4/29/47			
		27		3/16/47	1569-D	4/29/47			
		25		3/16/47	3169-F				28
		29		3/16/47	2374-F				30
*		23		4/23/47	2066-F				26
*		29		4/29/47	2666-D				30
*		34		4/29/47	2682-D				34
*		34		4/29/47	2374-D				34
*		27		4/29/47	1569-D				29
		52	awaiting charging						
*15-12(ANL)	LiF	Canned, awaiting charging						55F	

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Technical Department

Req.No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Dis-Charged	Shipped	P.T.	ih absorbed
16-2(ANL)	95	1 slug (2 mg)	14 mo.	4/18/46	3378-F			59	2
27(C1)	CaO	1 slug 2 more slugs awaiting charging	100-300 da.	3/9/47	2383-F			93	0
*28A&B(C1)	Iron	2 slugs							
		A	4 wks.	2/4/47	3266-D	4/15/47		87	0
		B	150 da.	2/12/47	1772-F				
*29-1(C1)	P_2O_5	1 slug	4 wks.	3/16/47	3266-D	4/14/47	4/16/47	96	
29-2(C1)	P_2O_5	1 slug	60 da.	Awaiting charging (5-6-47)				96-A	5
-3	P_2O_5	1 slug	60 da.	Awaiting Samples					
-4	P_2O_5	1 slug	60 da.						
31(ANL)	Boron	3 slugs	60 da.	3/9/47	1569-F			94	11
32A(ANL)	$Np^{237}Ox$	50 mg	6 mo.	Awaiting Sample					
B	Cb met.	2 g	6 mo.	Awaiting Sample					
C	$Pu^{238}Ox$	2µgm	6 mo.	Awaiting Sample					
33A(ANL)	$Th^{230}Ox$	10 mg	6 wks.	Awaiting Sample					
B	$Pa^{231}Ox$	2 mg	6 wks.	Awaiting Sample					
C	Cb. met.	2 g	6 wks.	Awaiting Sample					
*34 A(ANL)	Er_2O_3	10mg	1slug	3 mo.	4/6/47	3677-D		98	
B	Lu Ox.	10mg							
*35 (ANL)	Eu_2O_3	(10mg)	1slug	3 mo.	4/6/47	3677-D		98	
*36A(ANL)	Ce Ox.	10mg	1slug	3 mo.	4/6/47	3677-D		98	7
B	Yb_2O_3	10mg							
C	Nd_2O_3 Ox.								
*37(ANL)	Gd_2O_3	(10mg)	1slug	3 mo.	4/6/47	3677-D		98	
*38(ANL)	Dy_2O_3	(10mg)	1slug	3 mo.	4/6/47	3677-D		98	
*39(C1)	Al-U^{235} Alloy	(15.4gU^{235})	5-6 mo.	4/15/47	3266-D			100	
40(Sc)	PuO_2	3.0mg	10 mo.	Awaiting Sample					
*41(C1)	Cu-Au Alloy		4 wks.	4/23/47	2074-F			101	
*42(ANL)	ThO_2	10g	3 wks.	Awaiting Sample					

PILE ENGINEERING

Cooling of the B Pile

The water rate in the B Pile was reduced in steps from an initial value of 4000 g.p.m. to a value of 40 g.p.m. attained on April 28. In no case was a significant rise in water temperature detected. After 7 hours of operation at 40 g.p.m. the water flow was stopped completely. At the end of April, 48 hours later, no indication of continued heat generation had been obtained and the test was continuing. It is concluded that the heat generation in the B Pile one year after the cessation of operations is at least less than 10% of the amount predicted from the Borst-Wheeler curves.

Corrosion and Blistering

On April 6 difficulty was encountered with the discharge of Tubes 3396-D and 1252-F because of a single badly blistered or warped slug in each tube. Both of these tubes were normal production tubes which were located in the smallest (0.140-inch) orifice zone and which were being discharged for the first time. Borescopic examination indicated that the swollen slugs were located in the 22nd and 19th slug positions, respectively, from the upstream end, and that the tubes were galled so severely as to warrant replacement. It is estimated that a force of about 4000 lbs. was required to discharge Tube 1252-F.

On April 6 two tubes were charged with 4-inch slugs of "A" diameter (Production Test 105-75-P, Supplement A) and three tubes were charged with slugs which had been annealed after canning (Production Test 105-95-P).

No badly or moderately blistered slugs were found during inspection of seven tubes which had been loaded in part with slugs of borderline quality with respect to reactivity.

Chattering Studies

In studies covered by Problem Assignment No. 3-P, slug chattering phenomena have been found to be highly irreproducible. An arrangement which chatters violently on one day may be quite free of chattering on a subsequent day under presumably identical conditions. Chattering studies are to be supplemented by long term tests of various slug combinations in flow laboratory tubes at specified flow rates.

Fringe tubes in the F Pile were initially loaded with solid aluminum slugs in place of perforated tubular slugs. Late in February, 1947, the flow rate in several of these tubes was increased by use of larger orifices, (Production Test 105-89-P). Inspection of the first 10 ft. at the inlet end of six of these tubes on April 30 indicated that no harmful chattering had been encountered. Examination of both ends of subsequent tubes will be made.

Operating Slug Temperatures - Production Test 105-80-P

A thermocouple assembly which essentially duplicates the assembly in Tube 1367-F was loaded into Tube 2679-F on April 6. Current equilibrium readings for tho two thermocouples are 106°C and 99°C, respectively, although temperatures as high as 140°C have been obtained during start-ups. The reproducibility of the data appears to have been demonstrated, but no further explanation for the

unexpectedly low temperature has been obtained. Experiments utilizing the thermal wave principle indicate that there is no significant difference in the thermal diffusivity of uranium samples cut parallel and transverse to the axis of the slug.

Development work is proceeding on two methods for studying the effect of irradiation on behavior of thermocouples. One method proposes to expose thermocouples in the pile and to remove them periodically for re-calibration outside the pile. Another method proposes to install thermocouples in the pile and to recalibrate them in place during pile shutdowns by means of an installed electric heater which will melt a eutectic mixture.

Graphite Expansion

Replacement of Tube 4385-B has been unsuccessful because of galling between the tube and the inlet gun barrel at a point about three inches from the inner end of the gun barrel. The inner end of the gun barrel has been smoothed with a hone, but after several feet of the tube had passed by galling was again encountered.

The operating difficulty with the No. 6 horizontal rod of the F Pile has disappeared (possibly because of re-alignment of the rod gate) and further technical work with this rod thimble has been postponed.

Tube 4674-D was found to be bowed vertically 2-13/16 inches on April 14, and Tube 4674-F was bowed 2-1/2 inches on April 30.

One-Tube Mock-Up

Design of this equipment has been completed and construction has been started. The equipment is to be installed in the 100-B Flow Laboratory. Complete installation is expected by the middle of May, 1947.

200 AREA PLANT ASSISTANCE

Canyon Buildings

Extraction has continued to receive major emphasis in the program to reduce waste losses. As time permitted, metal waste solutions were reworked with one-half the normal weight of sodium nitrite and one-tenth the standard amount of bismuth subnitrate, the resulting cakes being held in Centrifuge 8-2 for combination with the succeeding runs. This procedure recovered about 0.7% (8-1-MR basis) of the extraction waste from each run.

The observation that extraction waste losses (8-3-WS) were lower on runs following reworked runs than on those not following such an operation led to a brief program of flushing the 8-2 Centrifuge with water after each run. This has shown sufficient promise toward reduced losses that Production Test 221-T-12 is being written to expand the water flushing program to include Precipitator 8-1. A number of other process conditions may be subsequently varied in accordance with this production test if further work appears necessary to give satisfactory 8-3-WS losses.

Technical Department

Concentration Buildings

A procedure for routinely reworking the lanthanum fluoride by-product (D-4-BP) wastes has been placed in affect at both T and B Plants. The waste slurry is returned to Precipitator D-1, made 1.0N in nitric acid, treated with potassium permanganate, potassium dichromate, and hydrogen fluoride, and recentrifuged; the effluent from this recovery operation is sent on to Cell E for combination with the main effluent. The D-4-BP losses have been reduced from about 0.45% to less than 0.1% (8-1-MR basis) by this method.

A third centrifugation was adopted last January as a means of reducing lanthanum fluoride product (E-3-W) waste losses when extra time was available. Since this procedure had become routine and since previous experience had shown that three precipitations and three centrifugings were more efficient than two precipitations and three centrifugings (for a fixed amount of lanthanum), the procedure was altered slightly during April to divide the present quantity of lanthanum into three rather than two portions. A saving of about 0.1% (8-1-MR basis) per run was the result.

As a result of Production Test 224-T-10, by which metathesis wash wastes (F-9-WS) were recycled to metathesis solutions of subsequent runs, the level of the first metathesis waste (F-7-WS) has increased slightly. An attempt has been started, as Item 5 of the production test, to eliminate this increment by conducting metathesis at 60% instead of the present normal 70% of the standard start-up volume. First results indicate no saving at the lower volume.

Isolation Building

Comparison of the lanthanum content of the filtered lanthanum nitrate solution (P-1) with the subsequent weight of product recycled from Isolation on 41 runs indicated that the latter was not controlled by the former although both variables may be a common function of one or more of several other factors.

No significant decrease in the weight of product recycled was observed during Production Test 231-7 which evaluated variations in ammonium sulfite concentration. The possibility that a minor effect may have been masked by other variables during the final test item has led to consideration of the necessity for repeating the latter item.

REDOX DEVELOPMENT

Semi Works Design

With the recent issuance of the detail prints for the column assembly and piping, the design of the Demonstration Apparatus and its auxiliaries has been completed. The number of detail prints prepared by the Design and Construction Department and approved for release to the field for construction has totaled 140.

All of the design activities of this Division, and approximately one-half those of the Design and Construction Department Redox Group have been applied to the Reproducibility Apparatus during the past month. Several joint meetings have been held in an attempt to establish basic details of equipment arrangement. A series of study sketches has been prepared by each group for preliminary consideration. These sketches are being developed in the following order:

Technical Department

1) Flowsheet arrangement of tanks, pumps, valves, piping, etc., that satisfies all the objectives of the reproducibility studies as now planned;
2) Architectural arrangement of process equipment, control services, ventilation, drainage, shielding, etc.;
3) Details arrangement that provides a minimum number of "hot" valves and pumps and complicated structures.

Although the end results of the design planning described above are still pending, it now appears that the minimum space requirements for the Reproducibility Apparatus will be too large to permit any equipment development or scale-up studies to be carried on in the same building, if installed in the Semi-Works (321) Building. In addition, the prolonged construction work involved in its erection would seriously interfere with the operation of the Demonstration Apparatus in the same building. Since the demonstration, equipment development, and scale-up studies alone can fully utilize the space and facilities of the 321 Building, plans are being drafted to recommend the erection of the "hot" Reproducibility Apparatus in a new location. Location in the 200 Areas appears to be advantageous. There are also several reasons, to be enumerated in forthcoming memoranda, why the construction and operation of a carefully planned semi-works may replace the pilot plant originally scheduled in the development program, when coupled with sufficiently broad scale-up studies.

Materials and Equipment Procurement

All materials and equipment vitally essential to the completion and start-up of the Demonstration Apparatus and its auxiliaries have been received. Substitutions in design and operating procedures have or can be made to compensate for items not immediately available. In the process equipment class, only one air-driven agitator and the recording explosimeter are delayed in shipment. An agitator has been designed for local fabrication, to be powered with an explosion proof motor, and portable explosimeters are now on hand.

All electrical equipment has been received and installed except hoods for the canyon overhead lights and certain parts for the instrument signalling systems. In the former case, proper monitoring of the canyon atmosphere is considered adequately safe for use of the unguarded overhead lights. In the latter case, the instruments involved in the signalling circuits are not available, so the missing electrical parts are not a drawback.

Since practically none of the recording instruments have been received, arrangements have been made to substitute temporarily direct-reading instruments (thermometers, manometers, pressure gauges, etc.) for the continuous recorders. This is also true of the elaborate signalling system planned for the permanent installations. Parts and instruments for this temporary arrangement are on hand or immediately available.

Construction Progress and Schedules

Construction of the Semi-Works Demonstration Apparatus and its auxiliary equipment is nearing completion. All steelwork and architectural revisions have been finished. All process tanks, seal pots, condensers and headers have been installed. The bulk of the remaining work is concerned with pipefitting.

The Electrical Department has completed all explosion-proof power, lighting, and signalling circuit installations as far as the availability of material permits.

Approximately four man-days of work on the grounding system remains. Only two man-days are required to complete the lighting circuits when the overhead hoods arrive and approximately ten man-days are required to complete the signalling circuits when parts and instruments are available. Neither of these latter two jobs is necessary for start-up.

The Maintenance Department has approximately 225 man-days of work in back-log for the 25 men on the job. Piping of the pretreatment room, displacement feed pots, gauge boards, feed tanks, receivers, water fog, carbon dioxide, and vent systems, and the column enclosure are in varying stages of completion.

The Instrument Department has scheduled approximately 50 man-days of work for completing the installation of the direct-reading instrumentation.

Completion of all construction activities is now scheduled for the week beginning on May 18, 1947.

Equipment Development and Testing

Pressure testing of small-size stainless steel threaded joints made up with Sauereisen cement as a pipe "dope" or lubricant has uncovered many leaks in assemblies already installed. Several series of tests were carried out with other lubricants and refined techniques of thread-cutting. Rough-cutting of threads on the lathe, followed by finished die-cutting, produces threads that, when used with graphite paste during make-up, have passed all leak tests after washing with hexone, nitric acid, and IAS solution. This technique is now being used for all pipefitting.

The double-seated Chapman blunt needle valves being installed in the Demonstration Apparatus were found to leak severely through the back seats. All valves, installed or in stock, are at present having these seats ground in at the shops.

The program of equipment development and testing is being expanded, with a group now organized in both this Division and the Design and Construction Department to cooperate closely. Increased space is being allotted inside the Semi-Works Building to enlarge test bench facilities. It is hoped that work on the study of other types of solvent extraction contacting equipment besides the packed column can be actively initiated in the near future.

A recent consultation with Dr. M. A. Edwards, of the General Engineering and Consulting Laboratory at Schenectady, has resulted in a request to initiate a project there for the design of a special pump for the "hot" service requirements of the Redox process equipment.

A new type of pierced plate column has been designed by the Standard Oil Company of New Jersey to combine successfully the certainty in scale-up of batch agitators and settlers with the simplicity in design of counter-current columns. Arrangements are being made to obtain all of the development experience available on these columns.

Laboratory Studies

Continued studies on the oxidation of hexone by hexavalent chromium have confirmed preliminary findings that the stripping of chromium from the hexone phase by the scrub solution in the IA column is sufficient to minimize oxidation of the IAP solution during reasonable hold-up periods. In addition, batch tests

indicated no effect of chromium on the uranium equilibria in the IA column system. The 16-stage horizontal extractor was consequently run through approximately three through-puts with IAF feed solution containing no chromium, at which time equilibrium had been established. All stage phases were sampled and are at present being analyzed for uranium, nitric acid, and ammonium nitrate distribution.

Infra red spectrophotometric examination of raw and pretreated hexone at the Schenectady Research Laboratory failed to detect the presence of any impurities. A complete report on the tests and their results is at present being prepared by W. W. Marshall of the Laboratories Division.

Laboratory pilot runs on the proposed method of recovering uranium from the ICU solutions in the Semi-Works by concentration through atmospheric evaporation have resulted in total decomposition of the hexone in the solvent-saturated solution. Vacuum distillation at 50 mm. pressure (35°C. B.P.) resulted in almost quantitative recovery of the hexone in the distillate. Vacuum distillation at 10 mm. pressure flashed off all the hexone, but the azeotropic vapor could not be condensed in the vacuum system used. Equilibrium studies are being carried out with the recovered uranium solutions for comparison with the equilibria for fresh uranium solutions.

STACK GAS DISPOSAL

The first of two scrubbers in series removed essentially all radioactive iodine from samples of the B Plant stack gas when potassium sulfite, sodium thiosulfate, or sodium carbonate were used in the scrub solution. These solutions and other solvents will be compared as to relative efficiency.

Three series of runs have been made with a small fraction of B Plant stack gas passed through the electrode chamber of the device furnished by L. R. Koller to study the electrostatic behavior of the radioactive iodine. In all cases the amount of activity deposited on the silver electrodes was greater when no charge was applied than when a 300 volt potential was used. Lower potentials gave intermediate results.

Modification of the scrubbing equipment in the Stack Gas Monitoring Building (292-B) has been continued to provide simpler, safer, and more flexible operation. Design of the adsorption canister bank has been agreed upon and fabrication arranged for. Rough calculations on refrigeration requirements for test and full-scale condensation units have been made. Shielding calculations have also been started.

A summary of the information obtained from the Chemical Warfare Service at Edgewood Arsenal has been written. Samples of C.W.S. activated charcoal for the canister bank have been received.

300 AREA PLANT ASSISTANCE

Metal Fabrication

The following work was carried out as a preliminary to Production Test 313-89-M, "Reduction of Uranium Turning Scrap":

(1) Measurements were taken of diameter variation of normal extruded rods (die dia. = 1.455") after straightening. On the basis of these measurements, a die having a throat diameter of 1.403" was fabricated for first trial in the Production Test.

(2) Checks were made on the throat condition of used dies. It appears that the dies become elliptical with continued use, and that radial cracks develop in the Stoodite facing of normal dies during extrusion of the first few billets. Although spalling may not occur until much later, the edges of such cracks tend to curl upward, causing longitudinal striations in the extruded rods. The new 1.403" die was made with an extra heavy Stoodite facing in the hope that its radial cracking might thereby be reduced.

(3) Several sections of rods with "as-extruded" surfaces were put through the standard pickle operation to determine what changes in diameter might be expected to result from pickling. The maximum loss in diameter was 0.006". Passage of similar pickled rod sections through the dipping baths gave a bonding layer which appeared equivalent in all respects, including metallographic structure, to that produced on machined surfaces under similar conditions.

(4) To determine the effect of air cooling time immediately following extrusion, upon the surface condition, four extruded rods were held on the cooling table for times ranging from zero to three minutes before water quenching. The surface was found to improve with respect to smoothness and freedom from pits in inverse proportion to the time of air cooling. Quick quenching aggravated rod warping, but no cracking was evident.

A trial was made of the extrusion press container lubricator brush (Production Test 314-46-M). Pre-extrusion runs with this motor-driven device so burnished and lubricated the container with graphite that exceptionally large fins were formed during the first two hours of extrusion. In operation, the rotating wire brush removed all loose scale, but left a thin film of uranium on the container walls. It was concluded that this brush would do a better job of lubricating than the manual swab normally used, but that improved lubrication is not desirable because of excessive fin formation. In view of this finding, consideration is being given to the possibility of extruding without container lubrication.

Test Pile reactivity determinations were completed on all bare metal slugs included under Production Tests 314-42-M, 314-42-M (Supplement A), 314-43-M, and 314-44-M. Reactivity testing of the canned slugs covered by Production Test 313-79-M also was completed.

The 25 canned slugs being held at 300°C under PT-314-47-M show no visible distortion after two months.

Technical Department

Canning

Special Requests R-29-1 and R-41 were successfully canned by a modified "B" Process. Forty-four pieces of Myrnalloy were machined and canned under Request 3-3. This material processed satisfactorily, but the yield of slugs from rod was only 62.1% because of the excessive diameter (1.6") of the Myrnalloy rods as received.

Four "receptacle" slugs have been completed under Production Test 313-90-M. These special slugs, designed for use in fast-neutron irradiation of special samples, were made with an aluminum-lined axial well extending through the length of the slug. They are to be capped after loading with a crimped closure similar to that used in the preparation of "Papoose" capsule pieces.

Production Test 313-84-M, "Period of Use of Final Etch Bath" was completed. This test demonstrated the feasibility of using the final etch bath acid for a period of three weeks under present throughput conditions, and the process specifications are being revised accordingly.

Preliminary to setting up a Production Test for further evaluation of the lead-dip canning process, small scale studies were begun to determine the rate of alloy or compound formation between lead and uranium. Certain of these experiments indicate the formation of a fine grain near the surface of the uranium. Whether this grain refinement is due to the heat treatment or to diffusion of lead into the metal has not yet been determined.

METALLURGY LABORATORY

Lead-Uranium Alloys

A series of lead-uranium alloys have been made to determine the composition range in which these alloys are pyrophoric. It is planned also to use them as standards for chemical analyses. Compositions of 1, 2, 3, 4, 5, 6, 15 and 30 per cent uranium have been made. Analytical results on the first four alloys show 0.7, 1.2, 2.9 and 3.1 per cent uranium, respectively.

Of the eight alloys made, only the 30 per cent composition appears to be pyrophoric. An unintentional slow cool through the freezing range appears to have caused segregation, and analyses of the pyrophoric portion may show a considerably higher uranium content.

Uranium appears to go into solution in lead with difficulty. Solution of the uranium metal was accomplished in all cases, except for the 1 and 2 per cent alloys made at 815°C, by heating the metals to 1150°C and 1315°C and holding at temperature for 2 to 4 hours; the temperature and the time used depending on the alloy composition. Melting was accomplished in an electrically heated muffle furnace, with the graphite crucible and melt bathed in a reducing atmosphere.

Etch Pits for Orientation Studies

Experimental work is proceeding to obtain a suitable etchant for etch-pit determinations of orientations obtained in uranium slugs. A goniometer for use in these studies has been designed and is ready for shop construction. Etch pits have been obtained in the metal. The efficiency of the etchants to give satisfactory reflections are to be determined by a temporary set-up involving a telescope, collimated light source and a sample holder.

Miscellaneous

Etching studies made on slugs to reveal the microstructure indicate that the ease with which the slugs etch is determined to some extent by the iron and carbon content of the metal.

Observations of a slug which failed in the autoclave test indicated that the failure was due to penetration in the neighborhood of a thin part of the can wall.

A metallographic study revealed that an uranium rod quenched from 670°C immediately after extrusion has a much smaller grain size than material given the usual air cooling period prior to quenching. After outgassing, the grain sizes of the quick-quenched rod and the normal rod are approximately the same size.

LABORATORIES DIVISION

Work Volume Statistics

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

	March		April	
	Samples	Determinations	Samples	Determinations
Routine Control, 200 Areas	1796	2793	1492	2391
Routine Control, 300 Area	780	2366	1048	3697
Water Control, 100, 700 Areas	10204	18438	9925	18451
Process Reagents, 200 Areas	707	1298	612	1118
Essential Materials	246	1483	243	1311
Special Samples	1099	3053	738	2065
Totals	14832	29431	14058	29033

200 Area Process Control

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

Laboratory	Geometry	No. of Tests
B Plant	50.58%	197
Isolation Building	50.54%	57

The following tabulation summarizes the precision for the last 100 routine analyses on the starting solution in the B and T Plants (sample 8-1-MR) and the starting and final solutions in the Isolation Building (samples P-1 and AT, respectively):

	March		April	
Sample	Precision ± %	No. out of Control	Precision ± %	No. out of Control
8-1-MR	1.62	15	1.54	16
P-1	1.19	5	1.53	4
AT	1.11	5	1.26	7

The decrease in precision on the analyses of the P-1 sample is under investigation. No pertinent results are available at this time.

The standard iron solution used as a means of checking the accuracy of the chemical titration method for plutonium assay in the Isolation Building was analyzed a total of 140 times. The average precision for duplicate titrations was ± 2.87%. Of these titrations, 62, 57, and 21 were within ± 1%, ± 2% and outside ± 2%, respectively. The following tabulation summarizes the data obtained from each of the four iron solutions which were used:

Assay Value	Group Ave.	% Diff.	No. Dets.	Precision (±%) Single	Duplicate
10.76	10.78	+ 0.18	34	5.14	3.63
15.93	16.02	+ 0.56	34	4.98	3.52
14.84	14.81	- 0.20	36	3.08	2.18
10.18	10.22	+ 0.39	36	3.04	2.15

300 Area Process and Essential Material Control

Billet Analysis Program

The procedure for the determination of cobalt in uranium metal has been investigated. It appears that it will be possible to detect 1 ppm of cobalt in uranium by wet chemical means.

A volumetric procedure for the determination of uranium in various samples has been established. This method is not only more precise, but it is faster than other procedures.

Some work has been done on determining the composition of lead-uranium alloys. No undue interferences have been noted and it appears that the method will be satisfactory.

Spectrochemical Analysis

Preparation of new standards for uranium was begun. The grinding together of borax and uranium oxide for boron standards did not result in a homogeneous mixture despite several approaches to the problem. This method was reported as successful at Chicago. Another method as recommended by the Bureau of Standards is now being tried in which a measured quantity of borax solution is added to the oxide. The resulting mixture is then dried and ground.

In addition to the seven elements routinely determined in uranium metal, namely boron, magnesium, chromium, manganese, copper, lead and tin, analysis for cadmium is now being made. In addition, cobalt is being determined in BT metal (recovered solid extrusion scrap).

Miscellaneous

A number of unusual samples were evaluated during the report period. Some of these are listed below:

Die-facing alloys - Complete chemical analyses were made on two samples.

Borax solution - Assayed for boron.

Technical Department

Construction materials - Particle size on aggregates for concrete and macadam.

Soft solder - This material was identified and its composition determined.

Air samples - Analyzed for per cent of lead dust present.

Rust inhibiting oil - Cold rolled steel samples were checked with and without this oil for corrosion effects.

Acid and Alkali Resistant Paints - Several different types of paints were tested under corrosive conditions.

Redox Analytical Development

Low Concentration of UNH

A modified procedure has been developed for the determination of low concentrations of UNH in hexone samples. Instead of removing hexone by evaporation as heretofore, methanl is added to give a continuous solution, and UNH is precipitated by the addition of carbonate-free ammonium hydroxide.

Tests have been made to determine the sensitivity of the analyses of UNH in other solutions in the Redox process. It was found that by increasing the amount of ammonium persulfide, increasing the heating time three-fold, and by doubling the amount of ammonium hydroxide, that it was possible to estimate the UNH present in an IAW solution in concentrations as low as 0.15 g/l. Information developed from analyses of IAW samples submitted by the Chemical Development Division indicated that iron may be present in sufficient concentrations to interfere with this determination.

A few preliminary trials were made using Amberlite H-100 to remove UNH from aqueous Redox solutions. However, quantitative recovery of the UNH was not obtained.

Low Concentration of Chromium

A colorimetric method for the determination of trace quantities of chromium in the oxidized state (Cr^{+6}) in hexone solutions has been developed.

Water in Non-Aqueous Redox Solutions

Investigation of the Dean-Stark method for the determination of water in non-aqueous Redox solutions was continued. The components present in these solutions which affect this determination are hexone, UNH, nitric acid, and water.

Hexone in Aqueous Redox Solutions

The colorimetric procedure for the determination of hexone in aqueous Redox solutions is based on the reaction of nitroprusside and hexone. This method is quite long and requires careful technique, consequently some attention is being given to an iodimetric method which is based on the reaction of hexone with free iodine. It is hoped that this approach will yield a better method.

Impurities in Hexone

No differences were found in the several hexone samples tested on the infrared equipment at Schenectady, despite informal information from other sites to the effect that significant impurity differences do exist. This matter is continuing under study.

Nitric Acid

At present five methods are being studied for the determination of HNO_3 in Redox solutions. These methods are as follows: anhydrous titration methods, oxalate precipitation, ion exchange methods, and potassium ferrocyanide precipitation. In addition, work has continued on the Chicago method which is a titration procedure. No pertinent information has been developed as to which of these methods will be adopted for use.

Iodine from Stack Gases

Analysis for radioactivity due to iodine by standard methods has indicated that in all samples received to date, the entire activity (both beta and gamma) is due to I^{131}. This has been confirmed by studies of the decay and adsorption curves. Studies are underway to improve the accuracy of the method which is now considered to be ± 25 to 50%. The larger part of the inaccuracy is probably due to the fact that no corrections are made for adsorption. Studies are underway to establish the amount of this correction.

STATISTICAL STUDIES

Test Pile Precision

A routine procedure for keeping a continuous record of Test Pile precision has been set up as follows:

(1) The difference in dih between duplicate stringers is used to measure the combined errors due to sampling the slugs for testing, placement in the pile, and operation of the pile. Based upon the past 100 duplicate stringers, the combined error is ± 0.07 dih for the average of duplicate stringers. Two stringers are tested from each of the two canning lines (G & H). The precision for the average of all four stringers is ± 0.05 dih. This includes all errors except day-to-day differences. Arrangements have been made to obtain data routinely for estimating the day-to-day errors.

(2) The difference in dih between duplicate readings on each stringer is used to measure the reading error on each stringer. Based upon the same data as above, the reading error is ± 0.025 dih for the average of duplicate readings on each stringer.

Control charts have been constructed and will be maintained for all future testing.

Metal Quality

A routine procedure has been set up for maintaining control charts for TDS, iron, nitrogen, and manganese of incoming uranium metal. A monthly metal quality report will be made routinely showing the quality trends for the previous 12 months.

[redacted]

Technical Department

Using data obtained under Production Test 314-43-M, a significant linear correlation coefficient (0.9286) was obtained between slug position in rolled uranium rods and Test Pile reactivity, indicating a linear decrease in metal quality

Technical Department

River Water Sampling

The statistical study of Columbia and Yakima river water sampling for chemical analyses has been completed. Data collected over a period of one year revealed no significant difference in either river due to effluents from the plant areas or the Village.

A revised sampling procedure was recommended which would reduce the number of chemical determinations from 294 to 56 per week without loss of information. A similar study will be made of sampling for radioactivity and bacteriological determinations.

200 Area Yield, Waste Losses, and Material Balance Data

To minimize the amount of resampling and retesting which has been practiced in obtaining reliable yield, waste and material balance figures in Canyon and Concentration Building operations, the B Plant Control Laboratory submitted data for establishing the type of precision control previously found effective with P-1 and AT analyses in the Isolation Building. This control consists of a continuous record of the precision of the past 100 analyses to indicate (1) the precision of the method, (2) any evidence of erratic results, and (3) any improvement in precision that occurs due to changes instituted by the Laboratories Division.

This method of control was set up on three process solutions during April. The following is a summary of the precision estimates at present:

Solution	Precision (±%)	No. of Results Beyond Precision Limits
13-4-BP	7.01	6
8-4-P	1.42	8
8-3-WS	27.51	1

When more than 1 result in 100 is beyond the precision limits, it is an indication of lack of control. The initial aim of the program is to identify and remove the causes of the out-of-control results.

POWER DEPARTMENT
APRIL 1947

GENERAL

Power operations in all areas continued on a normal basis throughout the month.

ORGANIZATION AND PERSONNEL

The operating force was reduced 1.+% due to transfers to other departments.

100 AREAS

Our program of reducing water treatment chemical costs continued to give satisfactory results with a coagulant dose of 15 ppm or less in the B, D, and F Areas during the greater part of the month as compared with coagulant feeds of 25 to 35 ppm for the same month last year. This reduction in coagulant feeds has reduced sludge formation in the filter plant settling basins to such an extent that a revised schedule for de-sludging these basins has been put into effect. In the D and F Areas the de-sludging schedule has been reduced from two basins per week to one basin per week, and in the B Area from one basin per week to one basin per month.

On April 6 in the D Area boiler house, a minor explosion occurred in the ash pit of the No. 1 boiler while the fire was being cleaned. Apparently, a small pile of partially burned coal had been dropped into the ash pit and the gaseous interior of the pile ignited on coming into contact with live coals, resulting in a "puff" which upset a number of the removable furnace grates. No difficulties were encountered in maintaining normal steam pressure. Standard procedures pertaining to the fire cleaning operation have been publicized and stressed to prevent a recurrence of this incident.

In collaboration with the Technical and "P" Departments, process water flow rates to the B Area Pile were varied for several days while technical data was being obtained.

On April 29 in the D Area process pump house, during a startup of the No. 11 process water pump, arcing was observed in the motor stator windings by members of the Power and Electrical Departments. This failure was similar to the ones which previously occurred in the B and F Areas and is recognized as being an inherent weakness of these units.

200 AREAS

The boiler feedwater deaerator in the West Area was given an annual internal inspection, repairs made, and returned to service on April 30. It was necessary to replace approximately sixty percent of the deaerator vent condensor tubes due to failure from corrosion.

Power Department

Temporary connections to steam and water lines, for supplying these services to the contractor on tank construction in the Canyon Area, were completed and made available on April 1.

On April 6 several power voltage surges affected some power equipment in both areas, which was re-started without serious consequences.

300 AREA

Power operations were normal throughout the month.

700 AREA

One boiler was removed from service on April 14 due to seasonal load decrease; however, it was necessary to return it to service on April 26 due to the inability to handle steam peak load demands on one boiler.

1100 AREA

No. 3 Village irrigation station was placed in operation on April 3. Irrigation water is now available from all six stations.

Installation of irrigation water piping, landscaping, and seeding of the fenced area around the consumers reservoir pump house was completed on April 11.

On April 24, No. 12 well was removed from service due to pump shaft failure. Nedessary repairs were made and the pump returned to service on April 29.

On April 21 work was started on a project, which covers the installation of additional irrigation outlets to Village residences and seeded vacant areas. Sixty-three such outlets were installed on the No. 2 system as of April 30.

POWER DEPARTMENT STATISTICS

From: April 1, 1947
Thru: April 30, 1947

			100-B	100-D	100-F
River Pump House (Building 181)					
River Stage	Feet above sea level	(max)	394.6	385.3	372.4
		(min)	389.1	381.0	367.4
		(avg)	391.9	382.4	368.8
River Temperature	avg. ° F		43.8	44.2	44.1
Water Pumped to Reservoir	gpm avg. rate		6167	41341	38154
Water Pumped to Refg. Condensers	gpm avg. rate			0	0
Reservoir (Building 182)					
Water Pumped to Filter Plant	gpm avg. rate		5691	34423	33438
Water Pumped to Condensor System	gpm avg. rate		476	3929	3420
Water Pumped to Export System	gpm avg. rate		0	2989	1296
	gpm normal rate		0	4285	4285
Chlorine Added at No. 1 Inlet	pounds		0	12072	0
Filter Plant (Building 183)					
Filtered Water to Power House	gpm avg. rate		60	292	255
Filtered Water to Process	gpm avg. rate		3796	30509	30804
Filtered Water to Fire & Sanitary	gpm avg. rate		105	131	179
Chlorine Used in Water Treatment	pounds		2182	2148	9380
	ppm avg.		1.06	.98	.78
Lime Used in Water Treatment	pounds		8085	46000	56586
	ppm avg.		3.9	3.7	4.7
Coagulant Used in Water Treatment	pounds		28366	178718	184300
	ppm avg.		13.8	14.4	15.3
Raw Water pH	pH avg.		8.13	7.91	8.0
Finished Water pH	pH avg.		No Anal.	7.41	7.37
Alkalinity, M. O. - Raw	ppm avg.		62	62	54
Finished	ppm avg.		56	55	61
Residual Chlorine - Settled	ppm avg.		.40	.16	.24
Finished	ppm avg.		.10	.12	.12
Iron - Raw	ppm avg.		.17	.26	.23
North Clearwell	ppm avg.		No Anal.	.02	.017
South Clearwell	ppm avg.		No Anal.	.02	.018
Hardness - Finished	ppm avg.		66	73	70
Turbidity - Raw	ppm avg.		8.9	9.8	11.0
Filtered	ppm avg.		0	0	0
Refrigeration (Building 189)					
Refrigeration Produced	tons per day			0	0
Temperature, Process Water In	avg. ° F			-	-
Temperature, Process Water Out	avg. ° F			-	-

Power Department

			100-B	100-D	100-F
Power House (Building 184)					
Steam Generated - Total	M pounds		19490	99293	92956
Average rate	lbs./hr.		27069	137907	129105
225 psi Steam to Plant (est.)	M pounds		17100	86417	81448
15 psi Steam to Plant (est.)	M pounds		51	961	353
Coal Consumed	tons		1392	7410	6835
Coal in Storage (est.)	tons		13828	48425	42479
Demorator Plant (Building 185)					
Water Flow	gpm avg. rate		3546	30259	30554
Chemicals Consumed:					
Dichromate	pounds		2400	23800	24700
Sodium Silicate	pounds		28716	231328	235600
Chemical Analysis:					
pH	pH avg.		7.65	7.65	7.66
Dichromate	ppm avg.		No Anal.	1.9	2.0
Silica	ppm avg.		No Anal.	6.3	5.7
Dissolved Iron	ppm avg.		.03	.02	.014
Free Chlorine	ppm avg.		.11	.13	.10
Process Pump Room (Building 190)					
Total Water Pumped	gpm avg. rate		3160	30084	30379
	gpm normal rate		3511	31422	31218
Water Temperature	avg. ° F		48.3	46.9	46.8
Valve Pit (Building 105)					
Chemicals Consumed:					
Solids	pounds		0	2250	3100
Chemical Analysis:					
A, B, C & D Headers					
Standard Limits					
pH 7.5 7.8	pH	(max)	7.70	7.75	7.70
		(min)	7.60	7.60	7.60
		(avg)	7.50	7.64	7.64
SiO_2	ppm	(max)	7.0	7.0	6.5
		(min)	4.5	5.5	5.0
		(avg)	5.4	6.5	5.8
$Na_2Cr_2O_7$ 1.8 - 2.2	ppm	(max)	2.0	2.0	2.1
		(min)	1.9	1.8	1.9
		(avg)	1.9	1.9	2.0
Iron	ppm	(max)	.04	.03	.02
		(min)	.01	.005	.01
		(avg)	.02	.02	.014
Chlorides	ppm avg.		1.5	1.4	1.0

Power Department

		200-E	200-W
Reservoir (Building 282)			
Raw Water Pumped	gpm avg. rate	2091	2129
Filter Plant (Building 283)			
Filtered Water Pumped	gpm avg. rate	468	385
Chlorine Consumed	lbs.	313	226
Alum Consumed	lbs.	2450	2700
Chlorine Residual - Sanitary Water	ppm	.62	.65
Power House (Building 284)			
Steam Generated - Total	M lbs.	14041	20508
Steam Generated - Avg. Rate	lbs./hr.	19529	28523
Coal Consumed (est.)	tons	1425	1749
Coal in Storage (est.)	tons	12137	15979

		300	700	1100
Power House (Buildings 384 and 784)				
Steam Generated - Total	M lbs.	6631	13924	
Steam Generated - Avg. Rate	lbs./hr.	9223	19366	
Coal Consumed - Total	tons	529.5	1084	
Coal in Storage (est.)	tons	2381	8785	
Sanitary and Fire System (1100)				
Well Water Pumped - Total	gals.			122043000
Well Water Per Day	gal./day			4068000
Well Water	gpm avg. rate			2829
Chlorine Residual	ppm			0.2
Sewage Treatment Plant (1100 Area)				
Total Sewage Treated	gals.			54200000
Sewage Treated Per Day	gal./day			1806000
Sewage Flow	gpm avg. rate			1256

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MAINTENANCE DEPARTMENT

APRIL, 1947

GENERAL:

The first major injury for the Maintenance Department in 1947 occurred on April 10th when a mechanic strained his back and had to be hospitalized. The injured was making repairs to one of the stores in Richland and received a strain while moving his ladder into position. The exact cause of the strain is not known and it appears to be an aggravation of previous difficulties dating back for a number of years.

The Maintenance Department picnic was held in the public park on April 26th at which time the Works Manager presented a trophy to the 300, 700, 1100 Area group which won the recent four month safety contest. This trophy will be awarded annually to the contest winner and will provide a great incentive for efforts in connection with these contests. It is significant to note that there were no major injuries in the department during the recent four month contest period.

A series of safety conferences is being carried on during April and May. The conferences include the foremen and all higher supervision up through and including the Superintendent, and consists of a two hour informal discussion on safety problems. Conferences have been successfully completed in the 100, 200 and 700-1100 Areas and the 300 Area and Minor Construction are being scheduled.

Several Minor Construction jobs were started during April. Work started on the addition to 314 Building, which will house the billet casting equipment, with the erection of a temporary end closure for the building. Only preliminary work was done in connection with alterations to the Municipal Building in Richland. Most of the foundation work and underground drainage piping for the addition to the Instrument Shop in the 300 Area was completed. Approximately 30 new outlets were installed in connection with the project for extensions to the irrigation system in Richland.

Work completed during the month included the remodeling of the old Fire Station, Building 126-X, to accommodate the new Red Cross headquarters. Two tract houses within the city limits of Richland were remodeled and made ready for occupancy. The program of replacing wooden gates with steel pipe gates, according to safety recommendations, is progressing in all areas.

ORGANIZATION AND PERSONNEL:

The total personnel of the Maintenance Department increased from 646 to 725 during the month. 84 employees were added to the roll as follows:

2 Engineer Assignment	4 Painters
3 Draftsmen	4 Laborers
35 Clerical	1 Machinist
11 Carpenters	1 Welder
4 Pipefitters	1 Bricklayer
2 Millwrights	16 Helpers

50 of the above were transferred from other departments and the remainder

were hired from outside. Five men were terminated. Two men were upgraded to foremen.

WORK ORDER SUMMARY

FIELD FORCES

Area	Work on Hand 3/31 No. of Orders	Work on Hand 3/31 Estimated Man days	Work Completed in April No. of Orders	Work Completed in April Estimated Man days	Work on Hand 4/30 No. of Orders	Work on Hand 4/30 Estimated Man days
100-B	100	144	157	191	57	124
100-D	47	183	208	342	64	258
100-F	91	218	235	339	42	114
Overhaul	180	1554	224	1246	215	1859
200-E	272	843	309	915	298	977
200-W	577	1722	522	1335	639	1915
300	275	1555	220	1247	311	1236
700/1100	1012	4628	1053	4311	955	4096
Minor Const.	31	887	21	1379	47	3530
TOTAL	2585	11739	2949	11309	2628	14114

ENGINEERING SECTION

	Work on Hand 3/31 Est. Man Days	Work Completed in April Est. Man Days	Work on Hand 4/30 Est. Man Days
Studies	265	122	242
Projects	2627	534	2963
TOTAL	2892	656	3205

The Work Order Summary indicates an average backlog of 30 days for all groups except Minor Construction and the Engineering Section. The backlog for the Minor Construction group represents 77 days work and for the Engineering Section 147. The Minor Construction personnel will be gradually increased in order to satisfactorily handle several jobs which have definite time limits for completion; also the volume of work for this group is expected to increase during the summer months while the weather is ideal for construction. The Engineering Section backlog is still increasing and additional personnel are being acquired from time to time but no significant change can be made to reduce this backlog because of office space limitations.

100 AREAS:

A new electric lead melting furnace was fabricated and an exhaust fan and duct were provided to carry harmful fumes away from the work area.

A lathe, shop-made ball mill, exhaust system, and Shori metallizing equipment have been set up in the 1717-B Shop to undertake the coating of horizontal rod cooling tubes.

#9 H.S.R. was removed from the 105-B unit in February because of a water leak and no repair was attempted until this month. The first two sections of plates on the nose end of the rod were removed and a hydrostatic test was made to determine where the leaks were. The leak was located on the top side of the center tube and about 5/8" from the distributor block. This tube was split open for internal inspection, and seemed to be in good condition on inside walls. The opening was closed and welded to hold pressure. When the rod was being turned over for some special work, a leak developed in one of the outside tubes; this tube was welded for pressure. A hydrostatic test of 150 p.s.i. was made and then the two sections of plates were replaced. Again the pressure test was made. The rod was placed into the unit and connected for regular operation. Hydrogen gas and 2S-AL welding rod were used in this repair.

The graphite in H.S.R. thimbles #A, #@, and #B in both the 105-B and 105-D units was under stress from expansion. The shielding gate was removed from the mouth of the thimble and the first section of graphite track which is 2 inches long was removed, and cut off to a dimension of 1-9/16". This piece of graphite was replaced and now gives 1/4" clearance for further expansion. Similar work was done on thimble A at 105-F.

The cable idler pulleys on the 30 ton transfer are crane in 105-D were lowered to 54 inches from the drum so that the cable could not be pulled into a sharp angle when the load was near the top of its normal ascent. All sharp edges on the drum grooves were smoothed down with a hand file. The cable on this crane was in good condition. This work was also completed in 105-F Building.

V.S.R. 32 and 37 in the 105-D unit would not descend under power because the rod guides were not vertical due to top of the unit bowing. Step plugs #32 and #37 were loosened from the unit and tapered. Gaskets were installed so that when flanges were bolted down tight the step plugs and rod guides were in a true vertical position. The rod guides were removed from these two step plugs so Technical could boroscope the aluminum thimble at a point where the lower end of rod guides could be touching the walls of the thimble. No defective places were found. These rods were tested for operation. The tests were satisfactory.

#2 horizontal shim rod was removed from the unit and placed in shields on floor of H.S.R. monorail extension. This rod was removed because it was too stiff to pass through the curved thimble inside the unit. A new shim rod was secured from spare parts and 3/16" was machined from the top of the top plates on all plates except the tip end and the end where the rod and rack bolt together. The end plate was left full thickness for approximately 10" from the end and was then cut 3/16" undersize. The section that bolts to the rack was not touched but the next section was left full thickness for 2" and undercut 3/16" for the rest of the section. This rod and rack was installed, tested and put in operation.

Permanent leveling brackets were installed on #27, #34, and #37 V.S.R. bumper spring bolts. These brackets were set level on the cold unit and will be rechecked while the unit is in operation. This device consists of a 3/8" x 4" x 28" steel plate which was bolted to the bumper plate limit switch bracket with the 28" dimension extending through the handrail.

The north clearwell in Building 183-D was drained and an inspection was made

on all expansion joints. A section of expansion joint on the east gunnite wall was repaired by pressing a 1" wooden board into the joint, with mastic compound underneath. One place on the inlet flume wall was very porous. This was first caulked with lead wool and then given a coating of "Aquella". Two places underneath gates to the pump flume were caulked with lead wool.

1/16" orifice check valves were installed in the air lines which provide air for the forward stroke on the charging machines. These orifice checks will make charging strokers more uniform and prevent any extreme fast stroke.

Two Staynew air filters were installed on the air lines to the charging machine under "C" elevator. Considerable trouble has been experienced by water, dirt and grit in the solenoid valves on the charging machines.

An opening was made through the concrete block wall from the stairs of the accumulator room into the hall just outside the control room door. This opening provides access to instruments controlling the air conditioning unit without the use of a ladder in the hall leading into the control room.

Guides were welded on the plates at the sandwich wall which hold the I-beams. These I-beams carry the rollers for the horizontal rods. The guides will prevent any laterial movement of the I-beams which might throw the rollers out of alignment. These I-beams were previously held in place by dowel pins which were sheared due to the fact that the near side movement of the unit was transmitted back to these dowels.

Swing joint piping on air and solution lines between the five 3-X flood tanks was installed to allow the tanks to move with unit bowing without putting a strain on the piping.

A monorail and 2 ton chainfall were provided for removing tunnel plug in Building 115-F. Previous to this, it was necessary to rpovide rigging each time a plug was removed. This plug weighs approximately 2 tons.

200 AREAS:

Changes were made in the221-B gallery caustic line to permit pumping direct from the tank farm to the concentration building. Standby 15 HP gear reducer 7-1 failed to operate on routine test. It was replaced with a unit from maintenance shop that had been previously prepared and run in as a replacement unit. Centrifuge 14-2 became inoperable because of bent dip tubes. It was stored and replaced with the machine from 19-2. Repairs on the damaged unit may be attempted at a later date. Because of contamination it was necessary to replace a gang valve assembly in Sec. 13.

Foundations are being prepared for additional H.F. storage facilities in the tank farm. Tank and scales are being dismantled at the heat treating and pickling building in preparation of relocating them.

The H.F. system in the "B" concentration building was drained and tank and piping inspected. Rupture disc and control valves were replaced. A 2" valve was installed in relief line. To improve operation of the F-2 centrifuge skimmer a new type control stop was made and installed.

In order to prevent further wear on the lead drum cable grooves on the "P" area

crane, the guide sheaves were lowered 55" and adequate lubrication fittings installed. To permit safer working conditions when on this crane additional hand rails were installed around the load trolley. The mechanical load brake is continuing to test satisfactorily. Therefore, the light weight A-18 oil will remain in service.

The annual inspection was made on the "N" Area crane. The hoist drum drive shaft bearing on the driven end was found to be in bad condition and was replaced. This shaft was removed and checked in the shop for possible run out but found to be satisfactory. During this shutdown the guide sheaves to the load cable were lowered and additional handrails were provided similair to the "P" crane.

To provide additional facilities for H.I. site survey group, the one time maintenance shop building, east of the boiler house, is being reconditioned for their use. This involves dust proofing and painting interior.

Foundations are being prepared in the "T" Area tank farm to receive the additions to H.F. storage facilities. Scales and tanks are being removed from the building for outside installation.

The West support of the SQ 143 storage tank in "T" area settled sufficiently to endanger the tank. Temporary shoring was provided until a decision on permanent repair can be reached.

The F-10 weigh-tank in "T" area developed a leak through a welded joint. The "U" area tank was installed as replacement and a new tank will be shop fabricated.

Following acceptance of a safety suggestion, a safety shower was installed at the laundry building. Prior to this, persons handling acid at this location were not adequately protected.

The first instance of a steam line support post failing occurred recently when a post rotted off at the ground line and was replaced. Other posts are giving indications of becoming weak and a program of inspection and replacement will be initiated soon.

As weather permits, the general exterior painting program is being continued. Most buildings have to date received two spray coats, and a third will be added soon. Trimming is in progress.

Locomotive No. 39-3719 is being given a three year inspection at the Maintenance shop. This involves removing all running gear, complete dismantling and replacement of worn plates and bearings, turning wheels back to standard, testing all air equipment, cleaning, painting, and drying out all motors and generators, replacing all brake shoes and reassembling.

Nine all-aluminum "poppy" buggies were completed and delivered to the Instrument Department from the maintenance shop.

300 AREA:

The overhaul of the air conditioning units in Building 313 is being continued. All of the main rotating shafts on these units have been replaced and the

bronze sleeve bearings replaced with ball bearings. Copper coils were installed in the unit south of the chip recovery and new copper coils have been ordered for all of the other units. The present units are showing corrosion due to their having been fabricated of steel.

Two stump shear piston rings which were bent during the operation of the extrusion press were made up and replaced. The trolley stops for the Shaw box crane in Building 314 were moved to accommodate the expected construction work at the west end of the building.

The addition of two painters to the area has enabled the outside trim painting to progress rapidly. The Cyclone separators north of Building 314 have also been repainted.

Underground gas and water lines were laid to the 3706 Building addition during the month. The duct work for the air conditioning system in this building is being fabricated in the shop and actual installation will start about May 5th.

Several hundred tote boxes were revised to accommodate 4-inch material, and one hundred storage blocks were built tohandle material in 314.

Desert coolers were installed on Building 301 and the 321 Hutment, and are being placed on the 3713 Shop.

The construction work in the 321 Building is progressing satisfactorily and should be completed in May, unless additional work or revisions are added.

700 AREA:

The piping for the pop-up irrigation system in front of 703 Building is complete.

The painting in 703 Building is 92% complete.

1100 AREA:

The hutment on Perkins Avenue is now complete and ready for the outside painter group. The hut on Hunt Avenue will be ready by the 15th of May.

150-gallon electric hot water heaters were installed in the Lewis & Clark, Marcus Whitman, Sacajewea and Columbia High Schools to eliminate the necessity of keeping boilers fired up during the summer months.

Orders for the replacement of furnace smoke pipes in the homes are beginning to come in, indicating that these pipes are beginning to rust out. This problem has been discussed withthe Village Engineer and a program is being set up to inspect and replace these pipes where necessary. This program will start in June.

All the irrigation pumps have been overhauled and are now in operation. Irrigation pump No. 1, on Lee Boulevard, is operating with a cracked end bearing housing. A new housing is on order and delivery is expected the last of May.

The hot water pump ordered for the heating system in Tract House K-777 was

received and installed. This completed the work on Tract House K-777.

Number 12 well pump shaft broke just above the turbine. This well was pulled and a new turbine, new shafts, and new bearings were installed. The well is now pumping 100 gallons per minute over the full capacity of the old turbine.

The three pumps at the Sewage Lift Station were worn to such an extent that they were barely able to handle the sewage flow, leaving no pump for a spare. These three pumps have been overhauled and new suction ells and impellers installed. New larger impellers recommended by the Project group have been ordered and will be installed when they arrive.

Fifty-three renovations were completed during the month with six orders now on hand.

Ninety-four house interiors were painted by the two area paint groups during the month. It is expected that all units south of Comstock will be completed by May 14th, at which time the crews will start on outside paint work for the summer.

Six permanent house exteriors were painted as samples for various color combinations to be used in the Village. As soon as these color combinations can be decided upon and paint received, the exterior house paint program will be started.

PROJECT ENGINEERING GROUP

Projects, Suspense Codes Authorized and Under Construction

100 AREAS

Project Number	Title	% Phys. Complete	Auth.	Estimated Cost
C-116	Lightning Protection for Communication Circuits 100-B-D-F	0	12/19/46	$ 4,600
C-118	Outside Ponds - Fish Laboratory	95	1/9/47	11,775
C-124	"B" Test Hole Facility	15	1/30/47	7,900
	Total Estimated Cost 100 Area Projects			$ 24,275

200 AREAS

C-100	Portable Fan Shielding and Replacement Equipment 291 T-U-B	57	10/22/46	$ 9,600
C-103	Remodel 2713-W into Transportation Garage (Part II being circulated)	100	9/20/46	4,400
C-112	Additional Underground Waste Tank Facilities (G.E.Portion only-Does not Include Subcontract)	39	11/25/46	211,260

C-120	Divert Second Cycle Waste from X-110	10	1/14/47	$ 134,200
C-126	Install Central Lint Catcher for 2723-W Laundry	5	1/9/47	2,525
C-133	Special Test Wells 200 E&W	9	1/30/47	135,000
	Total Estimated Cost 200 Area Projects			$ 496,965
	300 AREA			
C-131	Addition to 3706 Laboratory Building	43	2/18/47	$ 79,500
C-122	Additional H.I. Instruments	12	1/15/47	105,200
C-142	Metal Casting Facilities	0	2/26/47	140,000
C-141	Addition to 3717 Instrument Shop	5	3/24/47	90,000
C-132	Seven Hutments for Temporary Office Space - Part I	97	2/13/47	19,900
	Total Estimated Cost 300 Area Projects			$ 434,600
	700-1100 AREAS			
C-97	Street Paving - Village	50	8/16/46	$ 10,450
C-102	Schools - Install Sixteen Hutments	100	8/30/46	24,960
C-105	Build 20 Zeuto Instruments	85	9/11/46	1,900
C-108	Village Walk-In Refrigerators - Thermometers	0	11/5/46	4,350
C-111	Sewage Lift Station - Revise Pumps	0	11/4/46	2,200
C-113	Relocate Disconnect Switc h - Substation 251	100	11/21/46	3,275
C-115	Dorms - Install Fire Alarms	7	12/19/46	4,100
C-119	Dorm W-13 - Conversion to Apartments (Part I)	85	12/30/46	12,450
C-123	Tract House K-777 - Reconditioning	100	12/24/46	2,450
C-125	700 Administration Area Ground Improvements	70	2/12/47	4,975
C-134	Richland Village Dust Control and Landscape Program 1947 to June, 1948	12	12/19/46	250,000

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MAINTENANCE DEPARTMENT

C-140	Village "Shot & Cover" Paving	0	3/21/47	22,700
C-143	Alteration to Municipal Bldg.	0	4/7/47	6,450
C-145	Remodeling of Bldg. 126-X	100	3/14/47	5,875
C-146	Irrigation Extensions-Village	2	3/28/47	90,000
SC-10117 (-121)	Dorm W-10 - Educational Building (Susp. Code-Project has been routed for authorization)	100	12/16/47	7,000
SC-10162	Expansion of Printing Shop - Bldg. 717	0	3/21/47	23,000
	Total Estimated Cost 700-1100 Area Projects			$ 476,135

MULTIPLE AND MISCELLANEOUS AREAS

C-110 (Part I)	3000 Area Barracks - Construct Coal Bunker	100	11/13/46	$ 4,700

Total Estimated Cost for Active Approved Projects ALL AREAS $1,426,080

Projects Being Routed for Authorization

E.R. No.	Title	Estimated Cost
854 (C-127)	300 Area - Increased Capacity Dial Telephone Exchange	$ 30,000
827 (C-121)	Dorm. W-10 - Conversion to Educational Bldg.	7,000
828 (C-138)	Building 702 - Automatic Dial Telephone Exchange - Richland	470.500
861	Erect Hangar Adjacent to Bldg. 734 (Cancelled)	80,100
900 (C-144)	Additional Telephone Cables - Richland	45,000
C-119 (Pt.II)	Dorm W-13 - Conversion to Apartments	14,000
C-110 (Pt.II)	3000 Area Barracks - Construct Coal Bunker (Total - Part I & II is $7,000)	2,300
925(C-148)	Combined Maintenance Shops - 700 Area	170,700
C-103 (Part II)	Remodel 2713-W into Transportation Garage	4,100

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MAINTENANCE DEPARTMENT

Project Engineering - Area Reports

100 AREAS

E.R. No.	Title	% Engineering Complete
A-1004	Downcomer Design 105-F	20
A-1006	Dry Air Supply to Test Holes	10
A-1007	Vertical Rod Cleaning Device (to redesign)	60
A-1008	Mattress Plate Design	75
A-1011	Transfer Car Stop	90
A-1012	Physical Tension Testing Machine	37
A-1013	Physical Bend Testing Machine	37
A-1017	Horizontal Rod Aluminum Tube Replacement	80
A-1021	Study Graphite Track in Horizontal Rods Thimble	50
A-1022	Study Replacement of Sperry Exactor System	100
A-1023	Design & Install dual Pressure Regulating System at Hanford	20
A-1024	Design & Install Remote Control Station at 101 Bldg.	10
A-1025	One tube Mock-up 100-B Area Flow Lab.	75
A-1026	Design for Proposed "C" Elevator Extension "F" Area	100
A-1027	Study and Estimate Reactivation of 101 Bldg.	55

200 AREAS

2264	211-224 - T-B HF Pumping and Piping	85
2265	Convert Buffalo Unit to Wet & Dry Unit 222-T-B	80
2267	Study 231 Ventilation System	80
2270	Design Unloading Cages for Recycle	95
2273	Move HF Scale Tank 6Y, 7Y, and Y-305 from 271-T to 211-T	100
2279	Prepare Project for Regasketing Facilities 221-T-B	55
2281	Study Brake Shaft Failure 221-B-75 ton Crane	85
2282	Design Steel Handling Crane & Trolley 272-E	100
2285	Design & Estimate R.R. Bumper 200-N	100
2287	Study Rail Alignment of 200-N Cranes	60
2295	Make Composite Maps of Water, Sewer & Steam Lines 200 West	50
2296	Study & Recommend Repairs to 291-T Stack Drain and Acid Proof Lining	75
2297	Move Caustic Tank From 273-E to 211-B & Move 3 Tanks from Power Plant 100-D to 211-B Two to 211-T	80
2299	Stack Alignment Survey 291-B-T (Long Term)	80
2303	Design Air Intake & Filter for Furnace Blower 273_E	0
2305	Study & Recommend Facilities & Procedure for Working Diversion Boxes	20
2306	Design Sampler Equipment Per Sketches 221-B	20
2307	Set Stakes to Locate 241-T-U Waste Line Markers at Curves	0
2308	Design Additions to Experimental Facilities Bldg. 292	35

1200502

11 MAINTENANCE DEPARTMENT

2309	Study & Estimate Cost of Water Supply & Plumbing - Bldg. 622	10	
2310	Design Service Platform at No. End 224-T-B	50	
2312	HNO_3 Tank Farms for East And West Areas	5	
2313	Design Material Handling Equip. for Disolver	80	
2314	Design Air Sampler for 2707-E	0	

300 AREA

A-3001	Technical Drafting	0	
A-3003	Stump Shear	40	
A-3008	Alarm System on Existing 3706 Bldg. Sprinkler System	10	
A-3010	Rotary Hearth Furnace Lubrication Study	35	
A-3012	Alarm System on Existing 3717 Bldg. Sprinkler System	0	
A-3013	Oxide Burning	30	
A-3016	313 Bldg. Etch Dryer Air Study	0	
A-3017	Study 313 Bldg. Drying Equipment	0	
A-3018	313 Building Ventilation	40	
A-3019	Housing for X-Ray Machine Cost Study	30	
A-3020	Security Fencing for 321 Bldg. & 3706 Bldg.	80	

700-1100 AREAS

714	Richland Theater - Air Conditioning	10	
741	Freight Elevator - Bldg. 703	100	
785	Cafeteria - Air Conditioning	5	
812	Irrigation Extensions - Village	100	
814	Bldg. 1125 - Heating	100	
822	Pop-up Sprinkler System - Village Public Grounds	35	
834	Building 720 - Air Conditioning	90	
839	Header Pipe - Village Walls to Reservoir	90	
842	Replace Switchgear - 351 Substation	80	
844	Addition to Equipment Room - Commercial Laundry	90	
849	Consolidation of Transportation Dept. Richland	35	- Cancelled
861	Erect Hangar Adjacent to Bldg. 734	70	- Cancelled
871	Lighting Installation - Tennis Courts - Richland Park	100	
872	Repair & Improvement of Administratinn Bldgs. All Areas	10	
879	Overhead Doors - 1131 Garage	10	
882	Fluorescent Lighing - Dorm. W-8	100	
891	Additional Bldg. - Commercial Garage	35	
892	Water Supply - B-Y- Telephone Exchange	5	
896	Construction & Expansion of Parking Compounds Village	3	
897	Installation of Paint Booth - 716 Garage	100	
903	Study of Lighting - 272 Shops	100	
904	More Hutments Adjacent to Bldg. 729 for Spare Parts Storage	0	- Cancelled
905	Parking Lot - 700 Area	100	
906	Additional Toilet Facilities - 720 Bldg.	0	
912	Acid Handling Facilities - Bldg. 706	5	
913	Air Conditioning Bldg. 69-X	100	

1200503

914	Air Conditioning Bldg. 716	100
917	Design Ladder for Servicing Coolers on Hutments	100
918	Dormer for Cooler - Kadlec Hospital	100
920	Air Conditioning Dorms M_1 to 5 E W-2,3,5,6,7,9	85
923	Improvement to Air Conditioning System Bldg. 703	0

ENGINEERING STUDIES GROUP REPORT

Studies Completed This Month -

E.R. No.	Title	Date
4288	G X Gasket Survey	4/30/47
4292	Record Duplicating Facilities	4/17/47
4293	100-B and D Effluent Line Survey	4/11/47

Active Studies

4277	Use of Wall Tile in Village Bathrooms
4284	Steam Line Support Replacement
4291	Village Heating Survey
4294	Prefab Roof Repairs
4295	Pressure Relief Valve Stanardization
4296	Oil Reclamation Survey
4297	Tract House Survey - Part II
4298	Shop & Equipment Painting
4299	J.I. Sheet - "Y" Pump Handling
4300	Economics of Lumber and Pole Treatment

BLUEPRINT CONTROL GROUP

	This Month	Last Month
Drawings & Sketches Completed	284	216
B & W and Blue Prints Produces	4,438	4,375
Photostats Produced	73,243	57,674
Portagraphs	35	44
Other Prints Handled	7,745	6,354

ELECTRICAL DEPARTMENT

APRIL, 1947

GENERAL

Work Order Summary:

Area	Work on Hand March 31		Work Completed in April		Work on Hand April 30	
	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
100-B	37	91.7	38	114.4	41	109.4
100-D	24	116.9	59	167.0	25	132.3
100-F	48	210.9	53	250.6	55	222.1
200-E	131	377.4	117	290.5	122	300.9
200-W	141	203.0	74	226.8	136	144.3
300	39	113.9	61	240.5	41	145.0
700-1100	114	325.8	117	330.7	108	331.0
Distribution	144	751.8	135	886.2	144	963.0
Telephone	16	262.6	14	266.4	19	266.7
Minor Const.	27	409.1	24	219.9	19	500.4
Hanford					4	12.0
Total	721	3063.1	692	2993.0	714	3127.1

The trend of work order backlog during the last few months has been towards leveling off at these values, the previous tendency to increase having been offset by net additions to personnel

A photostat of load chart for the highest peak day, April 3, is herewith attached showing 41 MWH peak. A photostat of chart for April 21, showing the lowest peak day at 38 MWH, is also attached for comparative purposes to indicate that present day by day peak fluctuations are relatively small. This second chart will not be included in subsequent reports unless wider peak fluctuations are shown.

Further observation of conductor tension at dead end points of four pole 230 KV structures, as reported last month, indicates that relief of guy tension has been a satisfactory solution, and bowed cross arms have partially returned to initial position. If there is later opportunity during declared critical power periods, it is intended to reverse some of the bowed cross arm heel boards as a further measure.

Actual salvage of electrical materials from Hanford, including distribution items, is now under way.

Investigation of a near Electrical accident, Distribution Division, has resulted in the design of a new clearance card, clearly marked "hold off" and giving explicit instructions regarding removal of the card and re-energizing circuits, only with permission of the Chief Dispatcher. Investigation of the near accident revealed a misunderstanding of the use of the formerly used card. The lock and tag procedure will be re-issued, based on the new card, which we believe is definitely more explicit.

As a result of the electrical power interruption on A6-8 line on April 14, as will be discussed later under 100 Areas, a requisition has been placed for automatic oscillograph equipment to be placed in station A-8 (dispatch) to enable prompt and more exact studies of system disturbances which may occur in future.

Studies of pole butt rot in Richland and plant areas has been completed indicating necessity of replacing all fir poles in the near future as well as a considerable quantity of cedar poles, especially in 100-F, 200-E, 200-W Areas and in 2.3 KV lines. Poles in the 230 KV loop are generally in good condition. All poles as installed by H.E.W. construction were without butt treatment. We estimate 1500 poles will require replacement in one year out of a total of approximately 8000. An order has been placed for 2500 poles (including 500 for new lines), but to date no promise of delivery has been obtained and indication are of the order of one year. Current delivery situation led to the placing of a second requisition for 2500 poles additionally to take care of replacements estimated for the second year. We consider that this situation is serious, and special efforts are now being made towards obtaining deliveries.

During the month, the Electrical Department has gradually taken over all electrical work pertaining to barricades; this work having been done previously by the U.S. Government Engineers.

Extensive load checks were made in Richland and in the 300 Area preliminary to preparation of load study report pertaining to future load requirements of the 66 KV system.

ORGANIZATION AND PERSONNEL

Three Helpers and two Electricians were added to the payroll during the month. There were no terminations.

One Electrical Foreman was transferred from the Area (100-D) to the Village. He was replaced by an Electrician (100-F) upgraded to position of Foreman.

AREA ACTIVITIES

1. 100 Areas

A. General

The division of responsibility agreement between Electrical and Maintenance Departments was reviewed and re-issued. The principal change concerns cranes, a decision having been reached that in the future the line of division of responsibility between the two departments would be at the motor couplings in contrast to the former understanding that the Electrical Department would be entirely responsible for the cranes. Therefore, in the future Electrical Department reports will be concerned only with electrical component parts of cranes.

Continuing the series of tests on B.P.A. system, Critical Power Grade "S" was established on April 6 to enable B.P.A. to complete the series of tests.
2 A number of heavy power surges did occur during these tests but did not influence operations since arrangements had been made to shut down the Pile Buildings.

On April 14 at 2:08 PM, a power surge occurred on the 230 KV lines, tripping the safety circuits and shutting down both "D" and "F" piles which were then in operation. This was the first emergency shut down experienced on the 230 KV system and hence has been subject of extensive investigation. The cause was a brush fire under the 230 KV line just outside the 100-F Area, occasioned by Transportation crews burning tumble weeds. Flame and gasses appear to have created a path to permit one phase to arc to ground, and then the arc apparently blew upward to the static wire. The conductor was lowered at the first opportunity and inspection indicated the arc had spread along approximately forty feet of line, but no where was the conductor damaged beyond 10% cross section area of any one strand. The line was considered safe and replaced in service without change. Interpretation of oscillographs received from Midway show that breaker at A-6 opened in 4-1/2 cycles, but the breaker at A-8 did not open until 29 cycles functioning in backup to complete isolation of the fault. This was too slow for the 15 cycle time delay relay in the 105 (Pile) Building safety circuit, which should not have functioned had A-8 opened in 4-1/2 cycles also. Investigatio indicates that 67-66 G relay closed its contacts but they did not pass current. A report on this failure is being made up to be sent to General Electric Co. for study by the Switchgear Engineering Division at Philadelphia.

B. 100-B Area

Considerable electrical work was done in 1717 Maintenance shop in connection with the installation of machinery for rod repair work.

In line with program previously established, cable guide pulleys on 30 ton transfer crane in 105 (Pile) Building were lowered 54 inches in an attempt to reduce wear on cable drum grooves.

C. 100-D Area

On April 29 at 11:50 AM, process pump motor #11 (800 H.P.) in the 190 Process Water Building failed on startup. As in the three previous failures of this type motors, the failure was between coils rather than to ground. The stator is being rewound in the 100-D Area shop.

The limit switches on the horizontal rod gates were checked and adjusted on April 6. All limit switches on the vertical safety rods were checked on April 15. When the Pile unit safety circuit operated on April 14 due to the surge on the 230 KV line, eight vertical rods failed to go in. This failure was due to mechanical trouble. The rods involved were No's. 10, 16, 24, 34, 35, 36, 37, and 38.

Referring to report for March, electrical circuits in the 184 (Coal Handling) Building remain under observation but no further trouble has been experienced.

D. 100-F Area

The No. 3 mixer motor in 183 Filer Plant was found to be nearly one-third full of oil. This oil syphoned up from the gear case due to a defective oil seal at the pinion shaft. The motor was thoroughly cleaned, baked and returned to service.

Electrical Department

Electrical circuits in the 184 (Coal Handling) Building were inspected and many showed indications of water entry similar to experiences in 100-D. Leaks were repaired and new gaskets installed.

As a result of an area voltage check, it was decided to raise the voltage 5% on the 13.8/2.3 KV transformer in Substation C6-S5. This raised the voltage on the power and lighting circuits in Building 105 and the lighting and 440 volt power in Building 190.

E. Status of Major Work Orders

Project	Location	Item	Comments
C-116-E	100 Areas	Lightning protection, signal and instrument circuits.	Still held up for materials

2. 200 Areas

A. General

Except for work already accomplished, no further reports will be made relative to mechanical equipment on cranes since it has also been agreed between Electrical and Maintenance Departments (new division of responsibility agreement having been issued) that in future the motor couplings will establish the line of division of responsibility.

B. 200-E Area

On April 3, the 40/10 H.P. centrifuge No. 14-2 in the 221-B Canyon Building tripped off by operation of the motor thermo-guard relay. Careful tests on the motor indicated no motor trouble but an extremely heavy overload was indicated which prevented the motor from coming up to speed. A definite thumping sound from the centrifuge indicated mechanical trouble in the centrifuge tank. The centrifuge was removed to Section 1 and replaced by the centrifuge from Section 19. Centrifuge 19-2 will be replaced by the spare unit in the 272 shop.

On April 15, the dual high and low pressure switch on the 222-B Control Building freon compressor failed to operate. A new switch was installed and the compressor was put back in service on April 17.

Eighteen motors were rewound in the motor shop. All but two were from the 700, 1100, and 3000 Areas.

C. 200-W Area

The four pole floodlighting tower at 241-T Building was removed because of tank farm excavations, and because of badly rotted condition of poles underground. It is being replaced with a simpler two pole structure.

A diesel electric locomotive was brought into the 200-W Area shops for a complete maintenance overhaul. Motors and generators are being disassembled, cleaned, treated with insulating laquer, painted and reassembled. All wiring and control devices are being thoroughly overhauled and tested. Work is approximately 50% complete.

Electrical Department

On April 2, an emergency outage occurred to the 231 Isolation Building when a side arm tractor operated by the Transportation Department ran into and tore down some secondary wires in that area. Approximately three hours were required to restore complete service through temporary wiring. The entire circuit from the break to the transformer was so badly annealed that it had to be replaced. The line was rebuilt on a scheduled outage on April 9. In rebuilding the line, it was shortened considerably by re-routing it and fused disconnects were installed in the secondary.

During the same outage on April 9, transfer arms and wire were transferred to nine new poles which had been set to replace poles badly butt rotted in the normal and emergency lines to Building 231 (Isolation).

Centrifuge 8-2, Building 221-T (Canyon) was removed from service on April 16 due to mechanical difficulty. Centrifuge 7-2 was put in Cell 8 and a spare centrifuge will be set in place in Cell 7. For the present, the centrifuge 8-2 will be placed in storage.

An inspection of the 622 tower guy cables showed rusting of the cables and anchors. A report was submitted to "S" Department supervision.

D. Status of Major Work Orders

Project	Location	Item	Comments
Design Ch. G1	221 (Canyon)	Adding three 440 V Air Circuit Breakers	Complete in 221-B Started in 221-T
Design Ch. G2	224 (Concentration)	Emergency lighting service	Complete in 224-B Started in 224-T
Design Ch. G3	271 (Canyon)	60 HP Air Comp. control	Awaiting material - expected 6/1
Design Ch. G5	184 (Coal Handling)	Separate lighting feed	50% complete - 284-E 70% complete - 284-W
Design Ch. G6	222-B (Control Lab.)	Emergency lighting and instrument supply	100% complete
Design Ch. G7	283	Installation of switches in interlock circuits of Rowan OCB's.	Held up awaiting materials
Design Ch. G8	284	" " "	" " "
C-103	2713-W	Conversion to garage	97% complete - completion awaiting arrival of minor items
C-126	200-W	Filters to laundry driers	Not yet started
C-112	200-E	Tank farm	Additional 300 KVA 3-phase trans. added for temporary service to contractor

1200309

3. 300 Area

A. Continuing from March, layout of electrical equipment for metal induction furnace is 100% complete. All required materials have been ordered, or are in the process of being ordered.

B. A set of jumpers and dead ends was installed in the 66 KV line feeding the 300 Area to enable isolating Substation 351-A or 351-B individually, which was not possible with the former arrangement.

C. Status of Major Work Orders

Project	Location	Item	Comments
10,109 E 31	321 Bldg.	Alterations to process	Relay equipment with necessary conduits and a number of explosion proof lighting fixtures are still undelivered 90% complete to date.
C 131 E	3706 Bldg.	Additional wing (Lab.)	15% complete
C 132	300 Area	Office Hut	98% complete
C 141	3717 Bldg.	Addition to Inst. Dept. shop	0% complete - (Const. has been started by Maint. Dept.)
C 142	314 Bldg.	Addition to Bldg.	Take-off completed

4. 700-1100 Areas

A. Search for sources of radio reception interference was continued, two major sources having been eliminated in Village lines.

B. One hundred and seventy six pole top transformers were taken out of service and all primary and secondary connections were checked. A ground to case was added, oil was sampled, and cores were inspected. This work is now 55% complete.

C. Status of Major Work Orders

Project or W.O.	Item	Comments
C-102	4 school huts	92% complete
C-111 E	Changes at Sewage Lift Pump Station	No equipment has been delivered.
C-115	Fire alarm extension in all dormitories	10% complete
C-119	Conversion of Dorm W-13 to apartments	90% complete - ten mandays required to complete after painters are finished

6

Electrical Department

Project or W.O.	Item	Comments
C-119 E	Air conditioning Dorm W-13	30% complete
C-137	W-4 lighting	100% complete
C-143	Alterations to Municipal Building	5% complete
C-145	Alterations to 126X Bldg. for Red Cross headquarters	98% complete - (Two elec. ranges to be installed. Wiring for these is complete.)
19829	Additions to basement wiring "L" houses	70% complete
21640	Improvement in Drug Store (3) lighting	100% complete
31080	Electric heating, 1407 Thayer	75% complete (This work was completed as per original design. Changes were made after completion by the D.&C. Division.)

5. Telephone Group

A. Installation was completed on thirty additional lines on the Richland Exchanges. This completes the total of 200 lines on which installation was started in February.

B. The Military Police Private Branch Exchange at the 3000 Area was removed from service and service is now provided to perimeter outposts from other exchanges.

C. As a result of a study of the telephone requirements of the Richland Bank, and automatic exchange has been ordered for use at this location. This permits dialing of local calls within the Bank as well as dialing the Richland Exchange on outside calls.

D. During the month, 103 telephone instruments were installed and 99 removed in the 700-1100 Areas. In the process areas, 27 instruments were installed and 115 instruments were removed.

E. Projects for installation of dial equipment in the Richland Exchange and increasing capacity of 300 Area Exchange have been approved. The equipment for the 300 Area will be ordered immediately with promise of seven months delivery. Quotations are now being received for 3000 lines of equipment to replace the manual Richland Exchange and will be ordered within the next month. Delivery promises range from 18 to 24 months with cut overs after installation scheduled in 24 to 27 months. Therefore, the telephone service situation in view of expanded construction will remain critically acute for the next two to three years.

Electrical Department

6. Power Supply Interruptions

Date	Area	Circuit Affected	Duration	Remarks
April 2	200-W	P&L Bank, Line E8-L1	2 hrs. 40 min.	Buldozer ran into secondaries
April 14		A6-8 Line, 230 KV	2 min.	Line fault, fire
April 17	Richland	D1-L3 300 Blk. Bernard	2 hrs. 46 min.	Damaged Trans. due lightning
April 19	Hanford	O.C.B. 175	Momentarily	Tauton line relayed on ground
April 26	Hanford	D5-X3 Single Phase	5 hrs.	Fuse blown

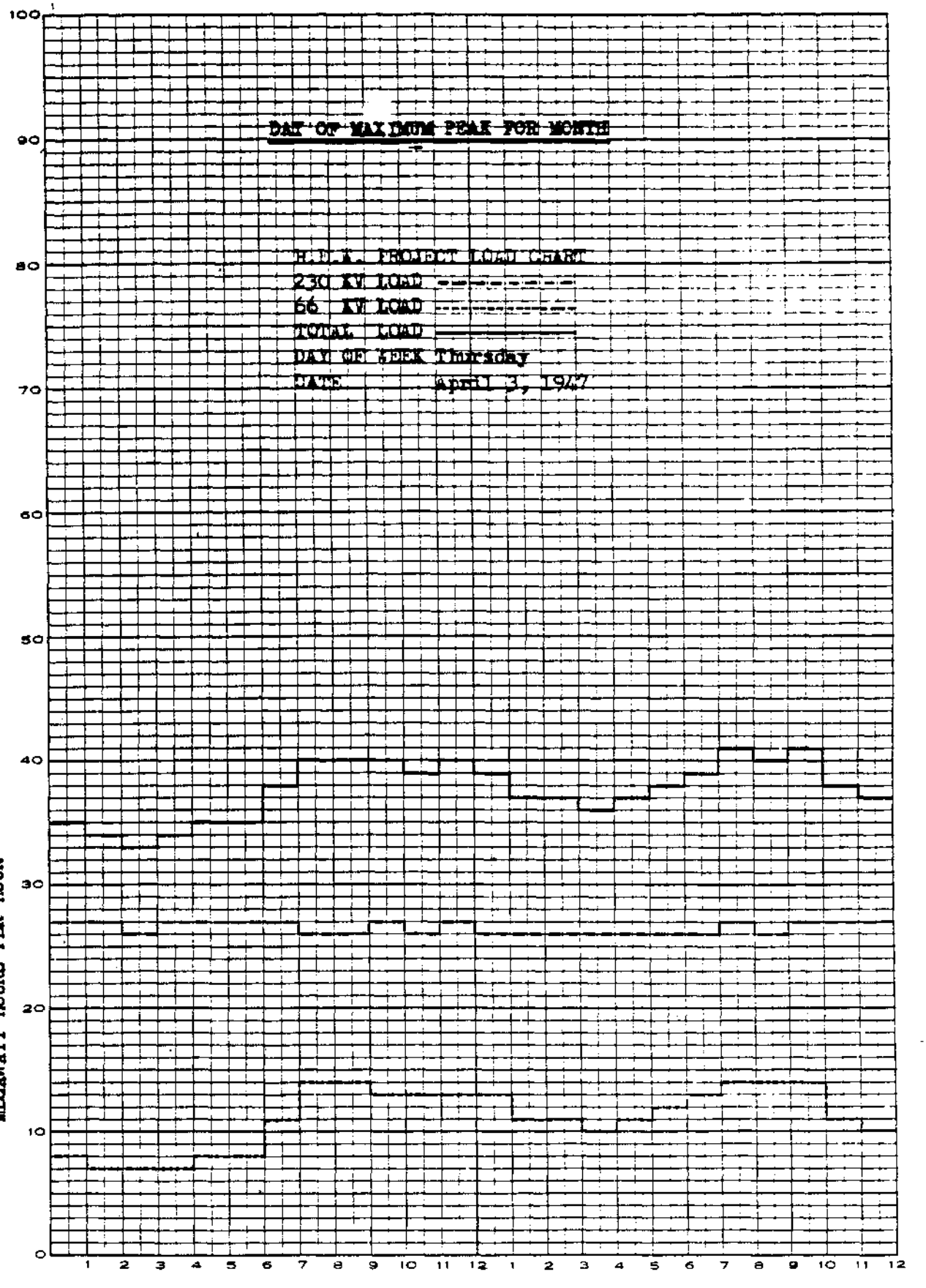
POWER STATISTICS - ELECTRICAL DEPARTMENT

FOR MONTH ENDING APRIL 30, 1947

ITEM	ENERGY - MWHRS. March	ENERGY - MWHRS. April	MAX. DEMAND - KW March	MAX. DEMAND - KW April	LOAD FACTOR - % March	LOAD FACTOR - % April
230 KV SYSTEM						
151 B Out	1,590	1,310	3,600	3,000	59.4	60.6
151 D Out	7,640	7,350	12,000	12,200	85.6	83.7
151 F Out	7,130	6,960	10,900	11,400	87.9	84.8
251 Out	2,050	1,920	3,500	3,300	78.7	80.8
TOTAL OUT	18,410	17,540	30,000**	29,900**	-	-
MIDWAY IN	18,727	17,811	28,000*	27,600*	89.9	89.6
Transm. Loss	317	271	-	-	-	-
Per Cent Loss	1.7	1.5	-	-	-	-
66 KV SYSTEM						
1151 A Out	2,405	1,946	6,000	4,600	53.9	58.8
1151 B Out	2,140	1,767	5,800	4,400	49.6	55.8
751 A Out	2,275	2,102	4,797	4,797	63.7	60.9
351 A Out	277	272	564	552	66.0	68.4
351 B Out	236	248	840	1,040	37.8	33.1
Hanford Out	179	218	400	400	60.1	75.7
TOTAL OUT	7,512	6,553	18,401**	15,789**	-	-
Hanford In	220	652	400*	400*	-	-
Pasco In	7,326	5,946	15,200*	14,200*	64.8	58.2
TOTAL IN	7,546	6,598	15,600**	14,600**	65.0	62.8
Transm. Loss	34	45	-	-	-	-
Per Cent Loss	.5	.7	-	-	-	-
PROJECT TOTAL						
230 KV (Item 5)	18,410	17,540	30,000**	29,900**	-	-
66 KV (Item 15)	7,512	6,553	18,401**	15,789**	-	-
TOTAL OUT	25,922	24,093	48,401**	45,689**	-	-
230 KV (Item 6)	18,727	17,811	28,000*	27,600*	89.9	89.6
66 KV (Item 18)	7,546	6,598	15,600**	14,600**	65.0	65.0
TOTAL IN	26,273	24,409	41,600*	41,200*	84.9	82.3
Transm. Loss	351	316	-	-	-	-
Per Cent Loss	1.3	1.3	-	-	-	-

* Coincidental Demand
** Non-Coincidental Demand

Average Power Factor - 230 KV System---99.7
Average Power Factor - 66 KV System---95.2



EUGENE DIETZGEN CO.

NO. 340 13 DIETZGEN GRAPH PAPER
ONE DAY BY HOURS

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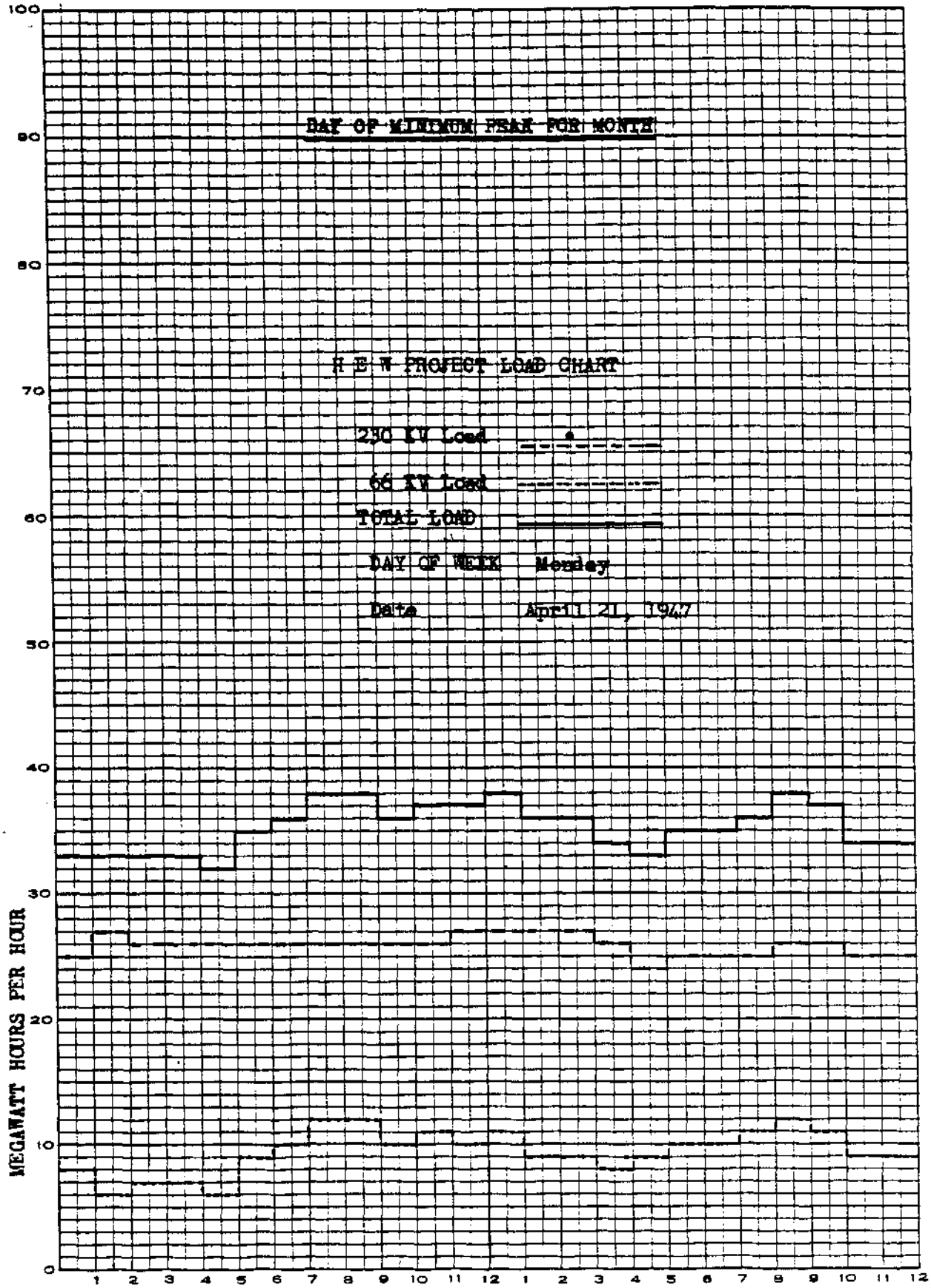

EUGENE DIETZGEN CO.

NO. 340-T3 DIETZGEN GRAPH PAPER
ONE DAY BY HOURS

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DECLASSIFIED

INSTRUMENT DEPARTMENT

APRIL 1947

GENERAL

Approval has been received to reorganize the 300-700 Area Instrument groups. In the future the 700 Area organization will be headed by an Area Engineer. In the absence of an Area Engineer, Mr. C. A. Hansen, Jr., Assistant Superintendent, will act in this capacity during the remainder of his assignment to H.E.W. During this period he will select and train a man to assume the title of Area Engineer of the 700 Area.

Approval has also been received to have two Assistant Superintendents in the Instrument Department—one acting as general Assistant, and the other, Mr. Hansen, acting in the capacity above mentioned.

The Instrument Department was represented at the Atomic Energy Commission Information Meeting in Chicago on April 21st - 23rd.

Work Order Summary:

	Work on Hand Apr. 1		Work Completed in Apr.		Work on Hand Apr. 30	
Area	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
100-B	53	36.1	49	61.3	47	43.9
100-D	73	99.8	114	236.2	75	100.1
100-F	59	153.3	56	252.5	76	156.7
200-E	69	93.8	243	238.0	57	94.0
200-W	75	91.6	231	236.2	68	120.0
300	79	3380.7	75	494.3	116	3745.6
700	58	150.8	100	160.3	74	192.9
Totals	466	4006.1	868	1678.8	513	4453.2

100 AREAS

The helium filled gas thermometer in "C" hole at 100D Area no longer agrees with the temperature indicated by the thermocouple. The "F" Area installation still shows close agreement. These two thermometers have not been checked since installation as they are gas sealed tube systems connected to pressure recorders and are very difficult to make absolutely tight. A program for checking these has been worked out with the Technical Department and will be started at 100F Area when schedule permits.

Some alterations were made to the temperature monitor control circuit in the 105B Building to improve its operation and to standardize the circuit for all areas.

The flow rate of water through the pile was reduced in several steps and finally stopped entirely as part of some special tests in the 105B Building. A manometer was installed at the top of the unit to indicate whether water was reaching the top tubes at low flows. With no flow, temperature inside

the unit was measured by regular graphite couples plus a special couple installed in hole of tube 4385 (Tube removed) and pressed against graphite.

Due to low flow (1000 g.p.m. and less) in the 185B Building, it was very difficult to properly proportion the chemical additions for good pH control. The integrator disc turned so slowly that the one impulse per revolution meant long periods of no chemical feed which resulted in the pH meter going to both ends of the scale each cycle. A second magnet was added to the integrator discs which permitted decrease in chemical pump time per impulse but more frequent operation. This gave satisfactory results.

A work order has been received to measure the losses of a boiler on bank in the 184D Building. A 1-1/2 inch by-pass line with an orifice will be installed in feedwater line to one boiler to measure the flow. The orifice has been calculated for a 53 inch differential so that it can be connected to existing boiler meter. The purpose of the test is to determine if over-all efficiency can be improved by increasing the load on two boilers while operating one on bank.

A revised procedure for standardizing the pH meters in 183D Building has been instituted. A buffer solution of 7.5 pH has been supplied by the Technical Department and is used for this purpose. A weir box has been installed at each flow cell so that the flow through the cell can be accurately regulated. Results to date show much improvement.

The installation of a second slug equipped with a thermocouple to measure internal temperature of active metal was installed in tube 2679 in Building 105F on April 6, 1947. Final connections were made to recorder in "A" sample room which now reads temperature of both slugs (1367 and 2679).

An attempt to measure displacement of No. 6 Horizontal rod thimble was made on April 6, 1947 in 105F Building. A graduated illuminated target was made which was inserted in the thimble and movement followed by a transit set up on the centerline of the opening. The target stuck about one foot into the shield and could not be inserted further. The target has been modified to provide greater clearance and test will proceed when schedule permits.

Tests were conducted to determine the feasibility of series-parallel connecting the resistance elements in each of the four inlet risers of the Leeds and Northrup Company power level recorder in 105F Building. This will provide a resistance proportional to the average inlet water temperature and will reduce the error involved when the refrigeration system is used. A report of these tests were made to the "P" Department with a request to make these connections on the instrument.

The Power Department requested a means of conveniently selecting the operation of either the chilled or unchilled system of master loading air relays from the loading air of any of the four master regulators in 190F Building. These selections have previously been made from the rear of the panel. The work involved was outlined to the Power Department and a work order was issued to proceed with the installation of Foxboro Air Switches which are on hand rather than purchase of Republic equipment to match the existing design.

Instrument Department

A memorandum was prepared covering the changes in the pile instrumentation required if the gas composition were changed to 90% He - 10% CO_2. These changes are easily made and require no additional instrumentation.

At present no satisfactory method is available to check the performance of the main dryers for the absolute water content of the gas. A General Electric Laboratory type Dew Point Potentiometer has been ordered.

200 AREAS

A request was received from the H.I. group to install an Alpha Standard Offner unit in the well driller's tool house just north of the 231 Isolations Building. After installation was made, operation of the set proved unsatisfactory because of excessive vibration created by the drilling. Samples removed from the well are being tested at another location at the present time. Plans are being made to relocate this equipment when suitable space is available in the vicinity of the wells.

Effects of warm weather are being evidenced in an abnormal amount of inking trouble at the several outside monitoring stations. A temporary correction of the condition was made by selecting charts with high grade finish and insuring proper viscosity of the ink used in these locations. The advisability of converting these recorders to print type units has been discussed with field supervision of the Site Survey group.

Relays were installed in the primary circuit of the regulated voltage supply for the 222-B Counting Room. This circuit will now be automatically changed over to the emergency supply in case of power failure.

The scope of Extended Special Work Permits for the Instrument Department has been broadened to include non-scheduled inspection and repair. The several permits have been considered and departmental limitations have been established to insure personnel protection under the liberalized plan.

The Electrical Department has assumed responsibility for the radio receiver at the 622 Meteorological Station. The problems of grounding and installation of noise suppression networks were formerly the responsibility of the Instrument Department.

300 AREA

Projects

C-141 - Addition to 3717 Instrument Shop

Formal approval for this project has been received. Work was started on a preliminary approval. To date the footing and sewer lines are in with the fill prepared for pouring the floor. Most of the machine tools required are on requisition.

In the absence of housing, the ever mounting backlog is forcing serious consideration of a six day week on all non-project work.

C-105 - Twenty Modified Zeuto (Juno) Instruments

No work has been done on this project for the past two months following a request from the Health Instrument Department to hold up the work until further development was completed on the Juno instrument. A model Juno, using a vacuum type circuit box, is now being constructed for test purposes. The first vacuum box which was built employed a soldered top which was difficult to seal, and the heat required for the soldering operation damaged the polystyrene insulator within the box.

A box is now constructed which employs a ground joint for the top seal and is being tested for vacuum leakage.

Work on the project will be resumed when the Health Instrument Department give their approval on Juno design, and estimates can be prepared on the cost of producing the approved instrument.

C-122 - Additional Health Instruments

Queenie Instruments - Construction of the eight units required for this project and one additional unit is approximately 60% completed. They are scheduled for completion during the coming month.

Cutie Pie Survey Meters - The prototype is being tested in the field and is apparently satisfactory. Five of the twenty-five units to be built are scheduled for completion during the coming month.

Juno Instruments - No work has been done on this part of the project.

Five-fold Beta Hand Counters - The electronic units and the hand chamber of the prototype are completed but the register bank is held up by late delivery of registers. Lack of tube sockets and Jones plugs is holding up further work of the scaling units. The prototype is scheduled for completion on May 15th.

Four-fold Alpha Hand Counters - The electronic units of the prototype are completed and work is in progress on the hand chamber. Twenty-eight amplifier units for these hand counters have been wired and tested.

Aluminum chassis ordered from a Spokane fabricator have been delivered and are satisfactory. We are endeavoring to divert more work of this type to outside firms and thus relieve the shop load.

Five Higginbotham scalers were received from the Instrument Development Laboratories of Chicago. Frequent 1N5 tube failures on these units because of arcs across the tubes have made it necessary to alter the high voltage regulating circuit so that it now corresponds to our regular Higginbotham circuit.

An illuminated target for use in determining the horizontal deflection of a horizontal rod thimble was made for the Technical Department. An attachment was also made for a transit to permit the observer to view the target when standing at one side of the transit. This was necessary to eliminate the possibility of exposure while measuring the rod thimble deflections.

Instrument Department

Eight interface level controllers, four special bubblers, and several smaller items have been completed for 321 Building.

The shop load is steadily increasing. Much of the new work is for 321 Building and is being given first consideration.

With the growing activities of the Technical Department in the 300 Area, particularly in the counting room, comes the need for more extensive instrument maintenance coverage. One additional man has been assigned to Building 3706 so that a second man can devote his full time to the counting room.

700 AREA

The demand for G.M. tubes is increasing. Project C-122 alone requires 300 Thin Window glass tubes. To take care of this demand some activities, such as repair of Simpson chambers, wiring of Poppy probes, etc., which were formerly handled in the 717-A Shop are being diverted to the field maintenance shops.

Four Mass Spectrometer type Leak Detectors were received from Oak Ridge, making a total of five now on hand. One of the new units has been put in working order and reaches a vacuum of 10^{-5} mm. of Hg using dry ice and carbon tetrachloride. The response is sluggish, requiring 5 to 10 seconds for detection instead of 1 or 2 seconds.

REDOX

Dr. M. A. Edwards, of the General Engineering and Consulting Laboratory at Schenectady, has agreed to design pumps that will fulfill the requirements of the process. If these approach predicted performance, their rather high cost will be more than compensated by savings in tanks and space that would be required for displacement pumping.

Dr. W. Marshall has reported favorably on the results of the tests with the X-Ray Photometer at Schenectady. It may be applied to current plant analytical problems.

The Instrument Department, through proper channels, has attempted to establish contact with K-25 at Oak Ridge and receive the benefit of the large amounts of money spent for that project on special valves.

Drawing approvals have been obtained on instrumentation for:

a. Pretreatment room
b. Distilled water
c. Displacement Feed Room
d. A, B, and F cells
e. IAW Flow Controller
f. Ventilation draft gages
g. Panel enclosures and piping details

Approximately 10% of the instruments have been received with promises for the balance from April 1 to May 1, 1947. A, B, and F cells will be complete as of May 1, 1947.

DEVELOPMENT DIVISION

Xenon Computer Design

The functional schematic of the Xenon Computer has been completed and has been carefully checked for proper operation, correct direction of gear rotation, and correct functioning for solving the required differential equations. Dimensioning and detailed construction design is proceeding.

The functional "Gearing Schematic" has been submitted to W. P. Overbeck for approval.

Underwater Photographic Periscope

Some time has been devoted to the preliminary design of the underwater photographic periscope.

Borescope Panoramic Viewer

The Borescope Panoramic Viewer was completed during the month and delivered to the Technical Department.

Crane Periscope

The first modified crane periscope has been tested and demonstrated in the 200-U Building. Satisfaction with the modification has resulted in orders for five additional improved periscopes.

The use of a supplementary fixed stereoscopic periscope was considered; however, after a study was made of the crane and its operations such a device was found to be impractical.

A proposal to build a direct vision mirror type periscope was investigated to allow direct view from the cab over the parapet. The shortest distance from the cab operator's eye over the wall and around existing obstructions is eighteen feet. As there is no place where a mirror can be placed larger than a foot square, the optical effect is similar to looking down an eighteen foot pipe with a one foot aperture. The limited field of view is less than approximately four degrees and not useful.

Automatic Sample Changer

The design on this is complete. All drawings have been sent to files. Prints have been assembled in book form for use in the shop.

Profilometer

Details of converting surface irregularities into electrical signals proportional to displacement have been completed. A work order has been received from Technical for preliminary design of the mechanism for rotating and scanning the slug. A six inch lathe has been ordered which will be adapted and redesigned to permit the rotation and scanning of slugs under water. A modified Bailey Position Transmitter is to be used on an adjustable probe feeler which will contact the side of the slug. Side scanning is chosen to allow clearance for inserting and removing slugs for test.

SERVICE DEPARTMENT

APRIL 1947

PERSONNEL

ORGANIZATION AND PERSONNEL

Employment and Investigations

During the month of April four additional office helpers were added to the Employment and Investigations group.

One typist was transferred to the Security group of the Protection Division - Service Department on April 16.

Industrial Relations

No organization changes were made in this division during the month of April.

Public Relations

Effective April 21 one junior clerk was transferred from the Employment and Investigations group to the Public Relations group.

Education and Training

Effective April 1 the Section Supervisor in charge of Training was transferred from the Industrial Relations group to the Education and Training group.

Compensation and Insurance

No organization changes were made during the month of April.

ACTIVITIES

Employment and Investigations

A total of 1071 personnel files was reproduced during the month of April. This brings the cumulative total to 3477 files, leaving slightly over 2000 to be reproduced. It is estimated that this reproduction program for the Personnel Division will be completed by July 1.

A total of 98 Morrison-Knudsen Company subcontractor employees was processed through the Employment Division during the past month.

Service Department

There continued to be an acute shortage of nurses, stenographers and typists on the local labor market and considerable difficulty has been encountered in engaging the necessary personnel in these categories. An effort to recruit such individuals in Spokane during the early part of April met with rather disappointing results, primarily because of inclement weather.

During the latter part of the month advertisements were inserted in the Seattle, Portland, Spokane, Walla Walla, and Yakima newspapers for persons with these qualifications. Starting rates were included in these advertisements for the first time and early responses were quite encouraging.

Employment interviews and the volume of new cases received for investigation continued to be heavy; however, both showed a slight decrease as compared with the previous month. A total of 1191 applicants for employment were interviewed during April as compared with 1285 during the previous month. New cases received for investigation decreased from 566 in March to 507 in April.

At the beginning of the month there were 299 open requisitions for weekly salary personnel, 247 of which were covered with interim commitments. At the end of April there were 327 open requisitions, 230 of which were covered with interim commitments. A comparison of these latter figures indicates the increase in requests for additional personnel.

One hundred and forty-three requests for interdepartmental transfers were reviewed by the Procurement group during the month of April. One hundred of these employees were interviewed by this group and twenty-two actual transfers as a result of these requests were consummated.

Procurement problems have increased as the result of the establishment of the Atomic Energy Commission security clearance procedure. This is particularly true in those instances where prospective employees are not in a position to visit Richland for personal interviews. In such instances it is necessary to have the required Atomic Energy Commission forms completed via mail. In addition, clearances have not been granted by the Commission as quickly as it was originally anticipated. As evidence of this fact, fourteen interim "S" clearances were requested between March 1, 1947, and March 26, 1947, inclusive. As of April 30, eleven of these requests were still pending. Sixteen class "Q" clearances, requested between February 26, 1947, and March 17, 1947, inclusive, also were still pending at the end of April.

Industrial Relations

During the month of April 943 contacts were made by Industrial Relations counselors. These contacts are summarized as follows:

Service Department

Policy	232
Military Service	16
Group Life Insurance	110
Group Disability Insurance	108
G. I. Bill of Rights	8
Social Security	38
Recreation	49
Richland Housing	48
Other Housing	17
Municipal (Facilities)	24
Municipal (Social)	19
Municipal (Personal)	20
Grievance	1
Personal	96
Miscellaneous	126
Income Tax	36
Total	948

Twenty-three exit interviews with male employees were conducted by the group.

Fourteen meetings were attended by the area counselors at which time various employee benefit plans were explained. A total of approximately 625 employees attended these meetings.

Effective April 1 the Industrial Relations group assumed the responsibility of orientating new employees previously handled by the Training group. During the month of April 186 new employees were orientated. Of this total 92% elected to participate in the Group Disability Insurance plan, and 73% elected to participate in the Group Life Insurance plan.

During the past month a tentative rating form for weekly personnel was

summer. A total of 46 employees advised they would be definitely interested in such an undertaking. The practicability of offering these classes is now being investigated.

Numerous comments and recommendations made by the individuals attending the training program resulted in the following changes being made in Stores supplies:

1. Spiral bound shorthand notebooks will replace stitched notebooks.
2. Typewriter ribbons will now be ordered specifying the type of inking instead of the degree of ink unspecified.
3. White bond paper will be cut the same size as General Electric letterhead so that it will be of uniform size.

On April 17 the employees' handbooks entitled "You and General Electric at Hanford Engineer Works" were forwarded to each department in order that they might be distributed to all employees. On April 28 the employees' handbooks were first distributed in orientation to new employees.

Out of the 5000 handbooks received, approximately 150 had to be returned because of duplication or omission of pages.

Approximately 63 female employees contacted the Women's Activities group for assistance.

Public Relations

Arrangements for two speaking engagements outside of Richland were made by this group during the past month. These talks were as follows:

April 14 - Student chapter of the American Society of Chemical Engineers at the University of Idaho, by Roy C. Hageman, Technical Adviser to the Atomic Energy Commission Area Manager.

April 22 - Kiwanis Club, Yakima, Washington, H. E. Callahan, Assistant Service Superintendent - Personnel. Subject: General Electric - Your New Neighbor at Richland.

The following releases were made by the Public Relations group to the Richland Villager:

1. Advance publicity on the talk given by Vincent J. Schaefer for publishing in the April 3 and April 10 issues.

2. Results of clean-up campaign for April 10 issue.

3. Picture and material concerning the participation of a village representative in the Inland Airways inauguration for the April 10 issue.

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4. News story concerning the Area and Works Managers' talks before the Banking Conference at Pullman for the April 17 issue.

5. Daylight saving time announcements for April 17 issue.

6. News stories concerning the visit of Dr. Lewi Tonks and C. Dorsa, together with eleven student engineers, to Hanford Engineer Works for the April 24 issue.

A talk by Vincent J. Schaefer, General Electric Research Laboratory scientist, arrangements for which were made by this group, was held on April 19. This talk was attended by approximately 100 people and was well received. The small size of the audience in all probability was due to the fact that this talk had to be scheduled for Saturday evening.

The "World's Largest Electrical Workshop", a General Electric film, was shown to the Richland chapter of the Business and Professional Women's Club during their annual meeting. Arrangements for this picture were made by the Public Relations group and an Industrial Relations counselor gave a twenty minute introductory talk on the background material for this film. In addition this film was also exhibited to six different area employee meetings at which approximately 400 attended.

Four issues of the H.E.W. News were published during the past month, one on each Friday. Arrangements were made to procure "For Thinkers Only", feature syndicated by the Apparatus Department Employee Information Division, and to receive sufficient copies of "Candid Camera" for insertion in H.E.W. News on the last Friday of each month.

One bulletin board notice was prepared and turned over to the Industrial Relations Division for posting on general information bulletin boards throughout the project. The subject of this notice concerned the distribution of copies of the annual report to those interested employees.

Assistance was rendered to the chief supervisor of the 100-F Area during the past month in designing a program to be presented in that area in recognition of the completion of its second year without a major injury.

Education and Training

For the spring term of 1947, a final total of 179 paid students have been enrolled. These individuals are distributed among the various classes as follows:

Beginning Algebra	34
College Algebra	42
Differential Calculus	24
Differential Equations	26
General Inorganic Chemistry	19
Advanced Inorganic Chemistry	18
Theoretical Physics	16

5

Service Department

This paid enrollment insures that the program for the term will be entirely self-liquidating with a generous margin to spare.

During the month negotiations were carried on with the Washington State College in order that the college level classes might be adopted by that institution as extension classes, thus insuring college credit for those who desire it. This involved a preliminary conference followed by a group visit to Washington State College by all instructors involved for conferences with the several departments concerned. Although formal and official approval has not yet been received, it is unofficially understood that approval will be forthcoming.

Similar preliminary negotiations with the University of Washington are being made with the same objective in mind, and also with the important addition of obtaining credit for work at the graduate level.

On April 23 Dr. Lewi Tonks of Schenectady gave the first general lecture to the student body participating in the educational program.

On April 3, 1947, the Supervisory Conference Training program was inaugurated by the Management staff group. During the month of April the following conferences were held by this group:

Date	Subject
4/3	Introduction to the Supervisory Conference The New Employee
4/10	Confidence - How the Supervisor Can Gain and Maintain It.
4/17	Maintaining Discipline Supervisor's Problems
4/25	The Qualities of a Supervisor

Subsequent to these conferences corrections and additions as the result of recommendations made by this group are being incorporated in the proposed training program which will be scheduled for all supervisors at some future date.

Compensation and Insurance

Position Schedule Bond (Deputy Sheriff Bond): There was an increase in the total number of patrolmen during the month. After notification to the bonding company, "Acceptance of Notice Nos. 6 and 7" were forwarded and have been received.

A trip was made to the Traveler's Insurance office in Seattle on March 24 for the purpose of discussing pending claims and obtaining information in regard to the status of matters in litigation.

Service Department

March 25 to April 4 was spent in the office of the Department of Labor and Industries in Olympia, Washington, for the purpose of discussing pending claims and matters before the Joint Board. A review of all claims on which payments have been made between June 30, 1946, and February 28, 1947, was made, these files being reviewed from both an audit and claim standpoint. In addition, considerable discussion was held on the proper procedure to be used in terminating the present agreement with the State of Washington under the Industrial Insurance Law and Medical Aid Act. Discussions were also held with regard to employment of minors at Hanford Engineer Works.

Several conferences have been held during the past month with regard to the insurance furnished to sub-subcontractors on the Morrison-Knudsen subcontract. These conferences were attended by representatives of the Design and Construction Department, Morrison-Knudsen Company, Western Pipe and Steel, Consolidated Steel Corporation, and X-ray Products Corporation. Western Pipe and Steel, after being awarded a contract by Morrison-Knudsen, assigned its interest therein to Consolidated Steel. This assignment was contrary to the contract and was made without the knowledge of the General Electric Company or Morrison-Knudsen. Consolidated Steel commenced work at the job site and thereafter demanded that they be furnished proof of compliance with the State Workmen's Compensation laws. Subsequently the assignment by Western Pipe and Steel Company to the Consolidated Steel Company was disapproved by the General Electric Company and the Morrison-Knudsen Company. Because of the fact that during March it had been reported to the Department of Labor and Industries that the sub-subcontractor employees were Western Pipe and Steel whereas actually they were employees of Consolidated Steel, it was necessary that a trip be made to Olympia on April 25 to explain this error and see that the report was properly corrected.

During the past month approval was obtained from the Department of Labor and Industries to enter into a contract for an extension to the Design and Construction building without furnishing insurance coverage to the successful bidder. This is the first time that modification No. 2 under our agreement with the State Department of Labor and Industries, which provides for the letting of contracts without furnishing Workmen's Compensation Insurance, has been placed in effect.

An investigation was conducted and conferences held relative to an employee of the X-ray Products Corporation, a sub-subcontractor, who was injured while en route from Los Angeles to Richland. As a result of this investigation it was determined that this employee was in the course of employment of this corporation at Los Angeles, rather than in the course of employment at Richland, thus not entitling him to be covered under the Workmen's Compensation agreement on this project.

Three formal accident investigations were attended during the past month.

7 Compensation and Insurance statistics for the month are as follows:

Service Department

1. Claims

	Reported in April	March	Total since Sept. 1, 1946
Workmen's Compensation	18	3	47
Liability	2	2	16
Not Reported	13	11	39
Handled for du Pont	3	1	

2. Compensation Payments Approved - Department of Labor and Industries

	April		March		
	No. of Claims	Amount	No. of Claims	Amount	Total since Sept.1, 1946
Medical Aid	6	$ 187.50	6	$ 400.74	$ 3,644.68
Pension Fund	23	2,916.24	23	2,039.57	11,553.66
Accident Fund	10	1,974.36	7	2,074.39	30,543.46

3. Liability Payments Approved - Travelers

	April	March	Total since Sept. 1, 1946
Allocated Claim Expenses	$ 0	$ 0	(Statements for
Claim Expense	28.72		(September 1, 1946,
Losses Incurred			(to February 28, 1947,
Payments	7.92		(incl. were rejected
Reserves	0		(because of error.

STATISTICS

Employment and Investigations

Number of Employees on rolls	3-31-47	4-30-47
Exempt	890	911
Non-exempt	3931	4053
Totals	4821	4964

ADDITIONS

	Exempt	Non-exempt	Total
New Hires	8	174	182
Reinstates	0	0	0
Transfers from other Works	1	0	1
Net Additions	9	174	183
Payroll Changes	16*	0	16
Gross Additions	25	174	199

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* Transferred from Weekly Salary Roll

TERMINATIONS

	Exempt	Non-exempt	Total
Actual Terminations	4	36	40
Payroll Exchanges	0	16*	16
Gross Terminations	4	52	56

* Transferred to Monthly Salary Roll

Nearly all actual terminations were on a voluntary basis, and most of the reasons were: (a) entering business for self, (b) personal, and (c) other employment.

GENERAL

	March	April
Applicants Interviewed	1,285	1,191
Photographs Processed	1,526	2,398
Fingerprint impressions taken (in duplicate)	607	628
Absenteeism Statistics (Weekly Salary Roll)*		
Male	2.03%	2.02%
Female	3.16%	2.67%
Total Plant Average	2.25%	2.14%

*Figures furnished by Weekly Payroll Division

INVESTIGATION STATISTICS

	March	April
Cases pending at beginning of month	601	916
Cases received during the month	566	507
Cases closed	251	349
Cases pending at end of month	916	1074
Number found satisfactory for employment	340	191
Number found unsatisfactory for employment	26	27

DISTRIBUTION OF PERSONNEL

Exempt Personnel

Assistant Superintendent - Personnel	1
Chief Supervisor - Personnel	1
Chief Supervisor - Education and Training	1
Division Supervisors	3
Assistant Division Supervisor	1
Section Supervisors	7
Industrial Relations Counselors	3
Total	17

Service Department

Non-exempt Personnel

Investigators	3
Interviewers	3
Fingerprinter	1
Photographer	1
Jr. Clerks	6
Secretaries	3
Stenographers	5
Typists	6
Office Helpers	9
Total	37
GRAND TOTAL	54

All the personnel listed above are assigned to the 700 Area with the following exceptions:

One Industrial Relations Counselor assigned to 100 Areas.
One Industrial Relations Counselor assigned to 200 Areas.
One Industrial Relations Counselor assigned to 300-700-1100 Areas.

Personnel Force Breakdown:

	Plant General	700-1100	Total
Supervisors	3	14	17
Others	0	37	37
Total	3	51	54

PROTECTION

SAFETY & FIRE PROTECTION

Safety

Plant Safety Record - 11 days

Injury Statistics

	March	April	Year to Date
Major Injuries	0	2	3
Non-Tabulatable Major Injuries	0	0	0
Sub-Major Injuries	2	2	7
Minor Injuries	326	345	1255

Major Injury No. 34

April 10, 1947 - , an employee of the Maintenance Department in the 700 Area, received a back strain which was an aggravation of a previous back injury received prior to being hired at this plant. The injured and another employee were raising a light ladder over a stairwell to do some patching on the ceiling in Drug Store "A". While raising the ladder, the injured felt a pain in his back. Four previous back injuries preceded this injury before it progressed to the point where hospitalization was necessary.

Major Injury No. 35

April 19, 1947 - an employee of the Transportation Department, railroad crew, suffered a broken right wrist. This accident was caused by the injured climbing to the top of a stationary box car which had been spotted in the 300 Area. He started releasing the hand brake by turning the wheel clockwise; then knocking the dog loose that was holding it. When the dog was knocked loose, the brake wheel spun to the left and caused the injured to be thrown off balance. While in this off-balance position, a sudden gust of wind caused the injured to fall to the ground, landing on his stomach with his right arm under him which resulted in a broken wrist.

Sub-Major Injury No. 81

April 3, 1947 - , an employee of the Maintenance Department in the 300 Area, received deep lacerations of the flesh and a fracture of the nasal bone. The injury occurred while the injured was helping another employee place a one-half inch pipe through a sleeve in a wall between two rooms. The pipe stuck in the sleeve momentarily, and, at this point, the injured realized that he was not wearing gloves. He released his hands from guiding and bending the pipe to put on his gloves. The pipe was suddenly released from where it was stuck and struck the injured on the nose causing the injury.

Service Department

Sub-Major Injury No. 82

April 22, 1947 - , an employee of the Power Departme in the 100-F Area, received a transverse fracture of the distal phalanx of the right thumb with separation. Preliminary investigation shows that the injured was opening a discharge valve in the 190 Building. He had his left hand on the rim of the wheel and his right hand on a spoke on the opposite s The mechanic who was helping him had both hands on the rim of the wheel when the jammed wheel released by efforts of both men. When the wheel released, the injured's right hand slipped along the spoke toward the hub, pinching the right thumb between the wheel spoke and a nut on the yoke of the valve, causing the injury.

During the month, 464 Safety Meetings were held, with a total attendance of 6,704.

Orders were placed for 51 pair prescription safety spectacles; 90 pair were received, checked and fitted; and 143 adjustments and repairs were made to all types of safety spectacles.

There were 812,671 exposure hours from March 31, 1947, to and including April 30, 1947. There were 297,979 exposure hours since the last tabulatable major injury, April 19, 1947.

Experiences

300 Area

Minor Injuries	64
Sub-Major Injuries	1
Major Injuries	0
Days since last tabulatable major injury	168
Days since last Sub-Major Injury	27
Days without a minor injury	8
Safety Meetings conducted	78
Number in attendance	936
Safety suggestions received	18
Safety spectacles delivered	15
Safety spectacles serviced	28

An intensive program has been started to reduce unsafe practices and enforce safety rules relative to the use of personal protective equipment which have been found to be the causes behind many of the injuries occurring in this Area. Supervisors and foremen in a number of departments are conducting short safety instruction meetings each morning before starting work, and a noticeable improvement has been observed due to their efforts.

Special meetings were held by the majority of departments in the areas for the purpose of the Clean-Up Campaign and good results have been shown.

Recommendations were submitted to the Health Instrument Department to provide proper facilities for a new method of work involving the use of flammable and toxic materials.

Service Department

A new and more satisfactory location and method of storing janitor equipment has been set up in 3706 Building. A write-up and photograph were submitted to the H.E.N. News on this improvement.

A study has been made of the various types of respirators used by the "P" Department for their efficiency and compliance with regulations governing their use.

A survey was made of the number and use of bulletin boards in the Area. Supervision was again reminded of their responsibility for maintaining bulletin boards in their Areas and keeping them up to date.

Work has been started to set up rules and regulations for the new laboratory group who will be working with a large volume of flammable liquids. This will include handling, storage and disposal of samples, regulations relative to equipment of an electrical nature, control of open flame apparatus, etc., and a review of methods of fire extinguishment for personnel involved.

100-B Area

Minor Injuries	11
Sub-Major Injuries	0
Major Injuries	0
Days since last Tabulatable Major Injury	936
Days since last Sub-Major Injury	473
Days without a minor injury	22
Safety Meetings conducted	10
Number in attendance	54
Safety suggestions received	2
Safety spectacles delivered	11
Safety spectacles serviced	2

100-D Area

Minor Injuries	14
Sub-Major Injuries	0
Major Injuries	0
Days since last Tabulatable Major Injury	260
Days since last Sub-Major Injury	90
Days without a Minor Injury	19
Safety Meetings conducted	34
Number in attendance	366
Safety suggestions received	20
Safety Spectacles delivered	10
Safety spectacles serviced	1

100-F Area

Minor Injuries	21
Sub-Major Injuries	1
Major Injuries	0
Days since last Tabulatable Major Injury	735

100-F Area (Cont'd)

Days since last Sub-Major Injury	8
Days without a Minor Injury	14
Safety Meetings conducted	39
Number in attendance	403
Safety suggestions received	64
Safety spectacles delivered	0
Safety spectacles serviced	5

Activities for 100 Areas

All Area Supervisors were contacted relative to issuing instructions to all supervisors and foremen to contact each man at the beginning of each shift and give a few words of caution and instruction on working safely during the shift.

For the month there was a considerable decrease in the number of injuries in 100-D and 100-F Areas. The minor injuries were investigated by the Safety Engineer. In all instances the injuries resulted from routine work, indicating a lack of attention to detail.

The Safety Hazard Inspection Committee System, which has been so successful in 100-F Area, was put into effect in 100-B and 100-D Areas by the Area Councils.

Increased activities at the Patrol Target Range are being given special attention.

The Chemox Oxygen Breathing Apparatus has been placed in the field in 100-F Area. The training program on the use of the masks was completed prior to installation.

100-F Area completed two years without a tabulatable major injury as of April 24.

200-E Area

Minor Injuries	48
Sub-Major Injuries	0
Major Injuries	0
Days since last Tabulatable Major Injury	197
Days since last Sub-Major Injury	125
Days without a Minor Injury	7
Safety Meetings conducted	38
Number in attendance	488
Safety Suggestions received	21
Safety Spectacles delivered	8
Safety Spectacles serviced	35

[redacted]

200-W Area

Minor Injuries	65
Sub-Major Injuries	0
Major Injuries	0
Days since last Tabulatable Major Injury	474
Days since last Sub-Major Injury	140
Days without a Minor Injury	6
Safety Meetings conducted	58
Number in attendance	673
Safety suggestions received	10
Safety spectacles delivered	11
Safety spectacles serviced	60

Survey of water tower in Riverland was made and recommendations were sent to 200-W Maintenance for safe methods to do this job.

700 & 1100 Areas

Minor Injuries	105
Sub-Major Injuries	0
Major Injuries	2
Days since last Tabulatable Major Injury	11
Days since last sub-major Injury	33
Days without a Minor Injury	2
Safety Meetings conducted	261
Number in attendance	3686
Safety suggestions received	2
Safety spectacles delivered	35
Safety spectacles serviced	12

Project for a freight elevator in the 703 Building was revised and is being prepared.

Expansion of the fire alarm system was discussed with Project & Design.

Recommendations on the design of parking area at the hospital were given to the project engineer.

The following special topics were discussed at the Staff Meetings of the Safety & Fire Protection Division:

1. Common Explosion Hazards (2 meetings)
2. Automotive Traffic and Control (2 meetings)
3. The Health Topic for April - Cancer

A special Staff Meeting was called on April 7 to consider means for curbing the rising trend in injuries.

Work is started on cataloging and cross-card indexing all material in the Department Library.

Special investigations were conducted on two major injuries (Maintenance and Transportation Departments); two sub-major injuries (Maintenance and Power Departments); and two near-serious incidents (Maintenance Department).

On April 26, 1947, the Maintenance Department held a safety picnic in the Richland Park. The Safety Division was asked to prepare a display of safety and fire protection equipment in connection with the First Aid Emergency Truck that was operated by the representatives of the American Red Cross. A fire engine was spared for a few hours, and displays of fire extinguishers, gas masks, oxygen breathing apparatus, and fireman's knot board were shown. The Universal Safety Flag was flown; also the American Red Cross Flag.

During the week of April 14 to 18, the safety unit of the General Electric Training Program for women clerical employees was presented to the ten group meetings for discussion of office safety.

The Pre-School Parent Teachers Association asked for a showing of an appropriate film and supplementary safety material applying to children of the pre-school level. This showing was conducted by the Safety Division for they feel that effective safety education should begin at this early age.

Hanford Area

Minor Injuries	17
Sub-Major Injuries	0
Major Injuries	0
Safety Meetings conducted	4
Number in attendance	98
Safety suggestions received	0

Hanford is composed of a new group of men. They are 60% equipped with safety shoes and 90% equipped with hard hats to date.

Activities

Upon request from the Safety Division, the Project Engineering Group have prepared a standard design for safety chain on trailers being pulled by truck, tractor or car.

A new tractor crane was approved for use on the Plant.

Schools

The safety flag will be flown this month by the Sacajawea Grade School.

The monthly inspection revealed that very few hazardous conditions exist at three of the Grade Schools.

A safety program in line with the National Safety Council requirements is being closely followed by the Richland Grade Schools.

[redacted]

241-BX - MK Construction Area

Minor Injuries	11
Sub-Major Injuries	2
Major Injuries	4

Fire Protection

Fires

	Number of Fires		Estimated Damage	
	March	April	March	April
Village	13	8	$3,362.00	$53.00
Plant Area	2	1	-	-
Miscellaneous	2	2	-	-
TOTAL	17	11	$3,362.00	$53.00

Village

April 10, 1947 - One of three employees working for Union Oil Company and occupying a room in the Transient Quarters fell asleep while smoking a cigarette. The burning cigarette ignited the sheets, blankets and mattress; also slightly burned wooden rail of bed. Fire was extinguished by other occupants of the room. Estimated damage to furniture and fixtures was $43.00.

April 25, 1947 - R. R. King, occupant of home at 309 Benham Street, fell asleep while smoking a cigarette. Burning cigarette ignited and burned government-owned mattress. Estimated loss was $10.00.

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

Activities

The total loss from fires during 1947 is $3,515.00. The loss during the same period in 1946 was $6,656.45.

During the month, 150 homes and 165 buildings on the Village Area were inspected.

Routine inspection was conducted of buildings in the Plant Areas.

A work order was issued to install buzzer alarm in Patrol Gate House at east entrance to 700 Area. Buzzer is operated from Fire Station No. 1. This buzzer was installed to insure prompt opening of gate at time of emergency.

A work order was issued to complete demonstrating units to be used in educational lectures on Fire Prevention.

Excessive material, supplies and equipment are being excessed from the Hanford Fire station and a base inventory is being prepared.

Report of Clean-Up Campaign for 1947

Village

1. On 4-6-47 a survey was made of the yards around all homes in the Village. This survey revealed that 96% of the occupants had cleaned up their yards, or were in the process of doing so, and planted and beautified them with flowers, vegetable gardens, grass and shrubbery. Also, many attractive and neat fences have been erected.

2. Transportation Department reported hauling away 1,621 cubic yards of trash and rubbish during the week. There were no excessive piles of dead grass, weeds and rubbish observed around the homes during the survey; only a few small piles that had been cleaned up during Saturday and Sunday remained.

3. The contribution of the school children to the campaign was outstanding. They had turned in to their teachers 3,200 of the Home Inspection Report blanks. A large majority of the returns showed a clean-up inside of the homes, along with the yards and gardens.

4. Accumulated trash and rubbish was observed being moved from several of the commercial facilities during the week.

5. Photographs were taken during the week of the Fire Inspectors pointing out hazardous conditions to the occupants of homes, commercial facilities and Plant buildings. Two hundred and fifty feet of 16 m.m. movie film was taken of various sections of the Village in which the clean-up campaign showed outstanding progress in pretty lawns and decorative flower beds.

6. On March 27, 28, and 29, 3,800 copies of the "Clean-Up Campaign for 1947" bulletins were distributed to the homes by uniformed Firemen from No. 1 and No. 2 Fire Stations in Richland.

7. The clearing of dead grass and weeds from the open spaces on the Village has been promised by the Housing Division at an early date.

Safety Meetings

Verbal reports from many safety meetings held during the Clean-Up Campaign week showed considerable activities throughout the Plant Areas on clean-up around the outside of the Plant buildings.

Early verbal reports indicate that some top soil and grass seed is to be placed around some of the buildings in the 100 and 300 Areas.

Publicity

The publicity given the campaign in the Villager and G.E. News was very outstanding and worthy of recognition. It consisted of front page articles in two issues of the Villager prior to start of the campaign and outstanding articles and cartoons in two issues of the G.E. News. This publicity was considered very helpful in making the campaign successful.

Fire Extinguishers

Inspected	2,714
Installed and Relocated	55
Refilled	163
Repaired	4

Gas Masks

Serviced and Inspected	46

Fire Drills and Lectures

Outside	157
House Drills	174
Auxiliary Brigade	39
Safety Meetings	51

All Fire Alarm Boxes on Village and Plant areas were tested.

Hanford, 3000 Area Barracks and M & K Labor Camp were set up as individual areas on the Monthly Summary of Fire Alarms.

GENERAL DIVISION

Laundering volumes were as follows:

Plant Laundry (Bldg. 2723)	March	April
Coveralls - Pieces	14,600	15,769
Towels - Pieces	4,793	5,243
Miscellaneous "	27,418	27,753
Total Pieces	46,811	48,765
Total Dry Weight - Lbs.	66,049	69,052

Richland Laundry (Bldg. 723)	March	April
Flatwork - Pieces	36,702	36,029
Rough Dry - Pieces	17,526	19,327
Finished - Pieces	2,713	2,538
Total Pieces	56,941	57,894
Total Dry Weight - Lbs.	32,456	32,999

CLASSIFIED FILE

The revised catalog of library reference material available on the plant was issued during the month. This catalog contains not only a listing of the material purchased for the library at the 300 Area, but also material in the Kadlec Hospital library and books purchased at plant expense upon the request of individuals. As indicated in the catalog, the reference material available includes some 1100 volumes at present with new books being ordered at the rate of approximately 20 volumes per week.

Duplication of the Hanford Technical Manual is progressing slowly due to the present overload on the Printing Department, however, the work will be completed by August 1, as anticipated.

Following is a breakdown of the volume of work handled during April as compared with March:

	March	April
Classified Documents Received (In Mail)	425	735
Unclassified Documents Received (Total)	3,501	4,053
Classified Documents Issued	3,428	3,219
Inter-Area Transfer (Classified)	4,251	4,385
Documents Routed (Classified)	5,078	5,978
Requests - File Documents (Classified)	3,179	3,268
Requests - Technical Library	490	450
Books Routed - Library		661
Documents sent to Area Manager on special requests from offsite	45	494
Total	20,397	23,243

As indicated above, the total handling again increased over the previous month. The April figure is the highest since October, 1946, when only 16,612 items were handled.

A listing of all the classified offsite reports at present in the Central Files is being prepared. This list should prove beneficial to interested individuals in locating reference material.

The files of six persons were checked prior to their termination or transfer during the month.

PATROL AND SECURITY

General

On April 1, 1947, the Patrol Division assumed the responsibility of manning the following perimeter barricades and patrols, formerly under the jurisdiction of the Military Police:

1. The Midway sub-station barricade and the Midway roving car patrol is manned by the 100-B Area 24 hours daily.

2. The Hanford Ferry Barricade is covered from 8:00 A.M. to 4:30 P.M. daily by the 100-F Area.

3. The 1-A, 1-B and 1-C Construction barricades are manned 24 hours daily by the 200-E Area.

4. The Richland and Prosser barricades are manned 24 hours daily by the 300 Area.

5. The Yakima barricade is manned 24 hours daily by the 200-W Area.

6. The River and Desert Patrols are handled by the Richland Area on the day shift only.

7. A patrolman is posted at the Richland airport by the Richland Area from 4:30 P.M. to 8:00 A.M. daily, except Saturday, Sunday and Holidays, when it is manned 24 hours.

On April 1, the handling of the Outer Area Traffic Patrol was transferred from the Richland Area to the 300 Area and works in conjunction with the Richland barricade. Due to this move, classified escorts will be handled through the 300 Area Patrol.

Upon assuming the responsibility of the perimeter barricades, a procedure was made effective whereby contraband held in excess of 24 hours is forwarded to the Patrol Emergency Officer in Richland for disposition.

The responsibility of the Arsenal located at Hanford was assumed by the Patrol on April 1.

Effective 1:00 P.M., April 11, one patrolman is posted at the 3000 Area barracks 24 hours daily by the 300 Area.

On April 28, the Richland Area manned the vehicle gate at the north entrance to the 700 Area. This post is manned from 7:00 A.M. to 7:00 P.M., Monday through Friday.

The protection of the No. 213 Storage Area was assumed by the Patrol on April 28, and periodical checks are made by the 200-North Area sergeant from 4:00 P.M. to 8:00 A.M.

Two sedans and four jeeps were obtained to facilitate the handling of additional posts and patrols.

Organization

The clerical personnel in the Security Division has been expanded to handle the Personnel Security Questionnaires.

PATROL

Eleven special duty escorts were handled.

The 200-East and 200-West Areas handled 350 special escorts within the 200 Areas.

Requests handled totalled 914, mainly consisting of opening doors and gates for employees of other departments.

A total of 318 unusual incident reports was received, which consisted mainly of unlocked and open doors, windows and files, traffic violations, and emergency first aid treatments in the areas.

Practice evacuations were held in the 100-B Area and the 100-F Area on April 2, and in the 100-D Area on April 17.

Training

On April 3, six M-8 light armored cars were received from the Ordnance Department. They were delivered to the Patrol Training Section for assembly of armament, consisting of 37 mm rifles, 30 and 50 caliber machine guns. Training Section Supervision are receiving an extensive course in assembly and operation of the vehicles.

Basic training is being given to new patrolmen. Advanced training and the target range has been discontinued during this period.

Richland Area

	March	April
Check on absentees	1	0
*Persons assisted	227	219
Doors and windows found open in commercial facilities	48	80
Lost children found	9	6
Ambulance runs	35	30
Lost dogs reported	4	4
Dog and cat complaints	57	53
Persons injured by dogs	16	12
Totals	397	404

*Includes: Escorts 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 Parking Lot for individuals.

SECURITY

Security Education

Security Bulletin No. 8, entitled "Jeers, Jitters and Jabbers" was distributed on April 8, 1947.

A total of 333 Security Meetings was held and attended by 5,318 employees throughout the entire plant and administration areas.

The following is a statistical summary of persons cleared for classified information:

	March	April
Visitors Cleared	5	4
Authorization cards issued	18	45

Protection of Plant Facilities

A statistical summary of outstanding area badges is shown below (A, B and C denote type of clearance).

March					April				
Area	A	B	C	Total	Area	A	B	C	Total
100-B	369	776	460	1605	100-B	368	736	505	1659
100-D	628	684	488	1800	100-D	624	690	539	1859
100-F	588	615	475	1678	100-F	582	622	527	1731
200-E	793	776	419	1988*	200-E	796	805	467	2068*
200-W	813	887	411	2111	200-W	822	911	457	2190
200-N	65	566	144	775	200-N	56	573	139	768
300	817	695	288	1800	300	838	699	236	1873
241-BX	175	158	-	333	241-BX	250	183	-	433

*Includes 26 "A" badges at Riverland Yards.

Temporary Badges

Area	Temporary Access	
	March	April
100-B	13	22
100-D	32	30
100-F	22	31
200-E	18	27
200-W	53	49
200-N	0	0
300	37	47
241-BX	36	45
Total	211	251

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Service Department

[redacted]

Plant Visitors

Name - Organization	Purpose of Visit	Access To Areas Classified	Unclassified
Schenectady Office Personnel			
E. R. Boynton	Inspection and Consultation	X	
D. Cochran	Inspection and Consultation	X	
C. Dorsa	Inspection and Consultation	X	
S. B. Dunham	Inspection and Consultation	X	
D. M. French	Inspection and Consultation	X	
J. Gray	Inspection and Consultation	X	
D. Harker	Inspection and Consultation	X	
J. H. Hollomon	Inspection and Consultation	X	
J. P. Howe	Inspection and Consultation	X	
D. M. Jacobs	Inspection and Consultation	X	
W. R. Kanne	Inspection	X	
K. Kesselring	Inspection and Consultation	X	
E. A. Luebke	Inspection	X	
C. Mannel	Inspection	X	
D. R. Miller	Inspection and Consultation	X	
J. H. Payne	Inspection	X	
J. H. Pigott	Inspection and Consultation	X	

[redacted]

[redacted]

Service Department

Name - Organization	Purpose of Visit	Access to Areas: Classified	Access to Areas: Unclassified
Outside Service Personnel (Cont'd)			
E. S. Hicks Wessix Heater Company Portland, Oregon	Company Business		X
A. W. Huff Bonneville Power Administration Walla Walla, Washington	Company Business		X
W. L. LaRue Wessix Heater Company Portland, Oregon	Company Business		X
E. R. McMillan Northwestern Improvement Company Seattle, Washington	Company Business		X
C. A. Marten Graybar Electric Company Seattle, Washington	Company Business		X
L. Valiquette Continental Coal Company Spokane, Washington	Company Business		X
P. Van Vaulkenburg North Electric Company Galleon, Ohio	Company Business		X
L. D. Wilson E. I. du Pont de Nemours & Co. Wilmington, Delaware	Auditing		X
General Service Personnel			
J. Christensen Progressive Cafeteria Chicago, Illinois	Company Business		X

PATROL DIVISION - TRAFFIC CONTROL STATISTICS

Motor Vehicle Accidents

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	March	April	March	April	March	April	March	April
Plant	3	1	0	0	0	0	0	0
Richland	10	11	0	0	1	0	1	4
Totals	13	12	0	0	1	0	1	4

Accident Causes

	Negligent Driving		Failure to Yield Right-of-Way		Reckless & Drunken Driving		Miscellaneous Causes	
	March	April	March	April	March	April	March	April
Plant	3	1	0	0	0	0	0	0
Richland	6	10	3	1	1	0	0	1
Totals	9	11	3	1	1	0	0	1

Plant Warning Traffic Tickets Issued

	Speeding		"Stop" Sign		Parking		Improper License		Defective Equip.		Totals	
	March	April	March	April	March	April	March	April	March	April	March	April
Plant	3	0	0	0	0	0	0	0	2	0	5	0
Richland	11	17	15	14	132	59	7	3	39	61	204	154
Totals	14	17	15	14	132	59	7	3	41	61	209	154

Court Citation Traffic Tickets Issued

	Speeding		"Stop" Sign		Drunken Driving		Reckless Driving		Negligent Driving		Other Violations		Totals	
	March	April	March	April	March	April	March	April	March	April	March	April	March	April
Plant	3	1	0	0	0	0	0	0	0	0	0	0	3	1
Richland	8	2	16	11	0	0	0	2	2	3	0	2	26	20
Totals	11	3	16	11	0	0	0	2	2	3	0	2	29	21

Traffic Volume

	March	April
Richland - Downt[illegible] Street (average car count - 24 hour period)	[illegible]31	11,519

PATROL DIVISION - RICHLAND OFFENSES

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Offenses March	Actual Offenses April	Offenses Cleared By Arrest	Offenses Cleared By Other Action	Perpetrators Involved
Assault	0	0	0	0	0	0	0
Attempted Suicide	0	0	0	0	0	0	0
Burglary-Breaking and/or Entering	2	0	7	2	0	0	(u)
Larceny-Theft (except auto & bike):							
(a) - $50.00 and over value	1	1	1	0	0	0	0
(b) - Under $50.00 value	9	3	12	7 (a)	0	2	6
Auto Theft	1	1	1	0	1 (b)	0	1
Bicycle Theft	0	1	9	0	0	0	0
Destruction of Government Property	2	0	3	2 (c)	0	2	4
Destruction of Personal Property	5	0	2	5	0	0	(u)
Disorderly Conduct	2	1	0	1	0	1	2
Drunkenness	3	0	2	3	3	0	3
Embezzelment and Fraud	0	0	0	0	0	0	0
Forgery	0	0	1	0	0	0	0
Missing Persons	2	1	1	1 (d)	0	1	1
Offense against family & children	1	0	0	1	0	1	1
Prowlers	0	0	1	0	0	0	0
Rape	0	0	0	0	0	0	0
Sex Offenses	1	0	1	1	0	0	(u)
Vagrancy	0	0	0	0	0	0	0
Violation State Game Laws	0	0	0	0	0	0	0
Miscellaneous	0	0	1	0	0	0	0
Juveniles (other than reported above) Disorderly Conduct	7	0	4	7 (e)	0	8	30
	36	8	46	30	4	15	48

(a) - Two of the offenses were perpetrated by six juveniles, ages 13, 15 and 16 years.
(b) - The one offense was perpetrated by a juvenile, age 15 years.
(c) - Two offenses were perpetrated by four juveniles, ages 9, 10 and 12 years.
(d) - The one offense was perpetrated by a juvenile, age 14 years.
(e) - The eight offenses cleared were perpetrated by thirty juveniles, ages 9 through 16 years. Juvenile of age 10 years is the same juvenile of age 10 years cleared in item "c".
(u) - Represents "unknown".

Value of property recovered during the month of April was $1,[illegible]05 (includes one automobile).

PATROL DIVISION - COMPARISON CHART OF RICHLAND OFFENSES

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

Classification	Wash., Oregon & Calif. Six Months (Jan-June 1946)	Wash., Oregon & Calif. One Month Average	Richland Six Months (Jan-June 1946)	Richland March	Richland April
Murder	.198	.033	0	0	0
Robbery	3.87	.645	0	0	0
Aggravated Assault	1.85	.308	0.66	0	0
Burglary	31.14	5.19	2.65	4.66	1.33
Larceny	131.31	21.89	40.98	15.33	4.66
Auto Theft	27.75	4.63	7.99	0.66	0

Number of offenses known to police, per 10,000 inhabitants, regardless of whether offenses occurred in cities or rural districts:

Classification	State of Washington Six Months (Jan-June 1946)	State of Washington One Month Average	Richland Six Months (Jan-June 1946)	Richland March	Richland April
Murder	.225	.038	0	0	0
Robbery	6.15	1.03	0	0	0
Aggravated Assault	1.41	.234	0.66	0	0
Burglary	35.59	5.93	2.65	4.66	1.33
Larceny	92.01	15.34	40.98	15.33	4.66
Auto Theft	34.89	5.82	7.99	0.66	0

The portion of offenses committed by persons under the age of 25 years is shown by the following figures:

Classification	National Average (Jan-June 1946)	Richland Six Months (Jan-June 1946)	Richland March	Richland April
Robbery	55.6%	0	0	0
Burglary	62.2	25%	29%	0
Larceny	47.0	25	9	28%
Auto Theft	76.8	40	0	100

Note: Statistics of juvenile offenses throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation, which states: "It should be remembered that the number of arrest records is doubtless incomplete in the lower age groups because of the practice of some jurisdictions not to fingerprint youthful offenders."

In Richland every delinquent juvenile is entered in the records.

Service Department

Name - Organization	Purpose of Visit	Access to Areas: Classified	Access to Areas: Unclassified
Schenectady Office Personnel (Cont'd)			
W. E. Ruder	Inspection and Consultation	X	
R. W. Samsel	Inspection and Consultation	X	
H. E. Stevens	Inspection and Consultation	X	
L. Tonks	Inspection and Consultation	X	
E. J. Wade	Inspection	X	
V. C. Wilson	Inspection	X	
Other General Electric Personnel			
G. M. Clifton Seattle, Washington	Consultation		X
J. Brown Pittsfield, Massachusetts	Consultation		X
L. R. Brown Pittsfield, Massachusetts	Consultation		X
L. B. Robinson Seattle, Washington	Consultation		X
D. E. Thorpe Walla Walla, Washington	Consultation		X
Allied Project Personnel			
J. Chipman Massachusetts Institute of Technology Cambridge, Massachusetts	Inspection	X	
E. L. Zebrosks Irradiation Laboratory University of California Berkeley, California	Inspection	X	
Outside Service Personnel			
G. H. Edwards DeWitt & Griffins Consulting Engineers Portland, Oregon	Consultation		X

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Service Department

VILLAGE

GENERAL

Housing Situation

As of April 30, all village dwellings were either occupied or assigned for occupancy and the number of unfilled applications for housing had risen to 219 as compared to 202 at the end of March.

Future Housing

Final recommendations relative to practicability of moving and renovating tract houses in the Hanford, White Bluffs, and Richland areas, to Richland were presented. In summary, the report reviewed classes of houses which, by their design and construction, would be desirable to move into or on the outskirts of Richland, and classified 14 houses and two structures suitable for club houses as suitable for moving and renovation. No one-bedroom units were included in the number recommended.

The conversion of Dormitory W-13 to housekeeping apartments is now scheduled to be completed May 15.

House Exchanges

A program has been put into effect to permit tenants to exchange houses in cases where such an exchange would be mutually beneficial. This program, designed to permit some flexibility in the tight housing situation, is one in which responsibilities of moving and making necessary arrangements will be borne completely by the tenants.

Policy Memoranda and Regulations

Two Village regulations were published during the month. Village Memorandum No. 67, dated April 21, dealt with control on firearms in the village, setting forth the instructions for all residents to register firearms with Patrol and stating the rules laid down by the Area Manager prohibiting the carrying or discharge of loaded firearms in the village and the prohibitions on discharging arms within the limits of the Hanford Military Area.

Village Memorandum No. 4, Revision 1, also dated April 21, set forth in detail the regulations for the control of dogs in Richland. The regulation re-defined the established rules relative to the registration of dogs, the control and disposition of stray dogs, and the measures to be taken with respect to biting dogs and dogs suspected of rabies infection. It pointed out that village authorities will maintain control only over stray and biting dogs and will take no action in nuisance cases which may be handled by local Justices of Peace or other legal authorities of Benton County.

Service Department

Village Information

Articles on the following subjects were released for publication during the month of April in the "Richland Villager" in conformity with the policy of keeping residents informed on matters of interest to them:

1. Extension of irrigation lines and outlets in residential areas.

2. The installation of eight new neighborhood softball diamonds in order to provide more adequate play facilities. This same release reminded residents of the current regulation against erection of outbuildings, sheds, and garages, which cause unnecessary fire and safety hazards and present an unsightly appearance.

3. Announcement of the availability of varnish for distribution to residents for purposes of interior decoration.

4. Information concerning the cultivated orchards, fields and vineyards, both within the village limits and the Hanford Military Area. Residents were informed in this article that the products of cultivated areas are the property of the United States Government with the exception of certain orchards within the village limits which are open to residents for the picking of fruit.

5. Care of plants, shrubs and trees. This release set forth briefly the applicable provisions of the Horticultural Law of the State of Washington. It emphasized the responsibility of residents in the spraying and care of fruit trees planted by the residents and gave a summary of the type of sprays necessary for control against infection.

Dust Control and Landscaping

A total of ten neighborhood groups indicated their desire, during the months of March and April, to take advantage of project assistance in establishing grassed areas in the inner blocks. With respect to the ten requests received, one block area has been completely finished, one was cancelled by mutual agreement and detailed plans for seven inner block areas have been drawn, approved, and submitted to the field for action.

The dust control program of seeding inner block areas by project forces has been started in the southwestern prefabricated section and eight blocks have been staked out in preparation for the physical work to follow.

Interest of residents in sowing and repairing lawns is evidenced by the distribution of 4854 pounds of grass seed during the month.

Inasmuch as the tree planting season terminated by the end of March, no further planting was done in April nor will be done until the autumn season.

A program of burning off and removing noxious weed growths in public areas of the village was completed during April.

Service Department

Work was started on the extension of the irrigation system in order to remove the drain upon the domestic water supply caused by the use of domestic water in the irrigation of lawns.

Village Safety Committee

Recommendations have been submitted relative to the membership of the recently authorized Village Safety Committee which will be responsible for all aspects of the safety program dealing exclusively with the operation of the village. It has been recommended that the committee be patterned after the Central Safety Committee with representatives from all departments actively concerned with village functions and that sub-committees be appointed for studying and making recommendations on specific subjects.

Representation at Official Ceremonies

The Assistant Service Superintendent, Village, was a member of the official party at the inauguration of the opening flight of Inland Airways on April 5, and represented the General Electric Company at the McNary Dam Ground-Breaking ceremonies at Umatilla, Oregon, April 15.

Surveys and Recommendations

Design and Construction Department was requested to proceed with final plans and construction of the new lighted softball field and additions to the commercial garage.

A report to the Design and Construction Department listed the facilities recommended for inclusion in the Junior High School and was reviewed in a conference with the architect. A report was also submitted upon the contemplated addition to the Columbia High School.

Village Improvements

There follows a listing of village improvements and their status as of the end of the month:

1. Remodeling and air conditioning of the Municipal Building started just prior to the month end.

2. Remodeling of Building 126-X, at 513 Barth Avenue, was completed.

3. Recommendations have been received relative to the paving of certain bus stops where no sidewalks exist.

4. Parking compounds at Dormitories M-7 and M-8 were completed.

5. Remodeling of tract houses L-899, L-906 and N-1135 was finished early in the month.

6. The car pool for governmental vehicles was moved to a location inside the 700 Area fence immediately west of the Patrol Headquarters, (Building 720). The previous location facing Goethals Drive is now in use for parking of private cars, thus easing the downtown parking situation.

Village Population

The total population as of April 30, 1947, was 14,166; an increase of 32 during the month. Population groups are as follows:

Females over 18	4,516
Males over 18	4,363
Total	8,879
Children under 18	5,287
TOTAL POPULATION	14,166

NOTE: The above census figures are based upon the statistics gathered as dwellings and dormitory rooms are leased. They do not include persons who may be renting rooms in village dwellings, additional members of families who have come to Richland, and children born since information forms were submitted by present tenants.

ORGANIZATION AND PERSONNEL

As of the first of April, employees of the Accounting Department who were previously assigned to the Village Organization were transferred to the Service Department. The breakdown of the Village Organization roster as of the end of April is as follows:

Supervision:		
Asst. Superintendent	1	
Division Supervisors	4	
Section Supervisors	3	
Sanitary Foreman	1	
Total		9
Non-Exempt, Service:		
Matrons		3
Clerical:		
Clerks	7	
Junior Clerks	6	
Secretary	1	
Chief Stenographer	1	
Stenographers	5	
Typists	4	
Office Helpers	2	
Total		26
TOTAL PERSONNEL		38

Service Department

DIVISIONAL ACTIVITIES

HOUSING

Following is a report of the housing utilization as of April 30, 1947:

Houses Occupied by Family Groups	Conventional	Prefab	Tract	Total
Operations	2202	1138	29	3369
Facilities	115	92	5	212
Government	145	84	27	256
Total Occupied Houses	2462	1314	* 61	3837
Houses utilized for special purposes	3	-	1	4
Houses Assigned - (leases written)	4	3	1	8
Houses Assigned - awaiting tenants' move	31	13	-	44
Government Houses - Unassigned	-	-	**45	45
Operations Houses Unassigned - Vacant	-	-	-	-
Operations Houses to be released by moves	-	-	-	-
TOTAL HOUSES	2500	1330	108	3938

* Includes four houses occupied by Bonneville Power employees in Priest Rapids and White Bluffs.

**Includes fourteen tract houses offered for sale as salvage by Government Property and some houses which are unfit for occupancy.

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional	2469	24	31	2462	Minus 7
Prefabricated	1295	47	28	1314	Plus 19
Tract	58	5	2	61	Plus 3
TOTALS	3822	76	61	3837	Plus 15

Dormitory Experience

Following is the record on dormitory occupancy as of April 30, 1947:

Dormitories			Occupants	Vacancies	Total Beds
Men, Occupied	6*		222	12	234
Women, Occupied	6		192	18	210
Total		12	414	30	444
Men, Unoccupied	1		0	39	39
Women, Unoccupied	4**		0	194	194
Total		5	0	233	233

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Service Department

Dormitories Occupied by:

Community Organizations	3	
Medical Department	1	
Government Offices	1	
G. E. Offices	1	
Sub-Contractors' Offices	1	
Education	1	
Total		8
TOTAL DORMITORIES		25***

* Dormitory M-6 is being used temporarily by the Military Police.
** Includes W-13, which is being converted to housekeeping apartments.
***Possible occupancy 17 dormitories: 7 men's; 10 women's.

A work order has been issued for the installation of deser cooling systems in the eleven occupied dormitories.

Tenant Service and Village Maintenance

Following is the experience on the processing of work orders during the month of April:

	Incomplete April 1	Issued During April	Incomplete May 1	% Change Backlog
Work Orders	1321	543	1762	+33
Patrol Orders, Maintenance and Electric	1485	2608	1650	+11
Patrol Orders, Transportation	28	272	55	+96
Back Charges Issued	169	133	196	+16
Totals	3003	3556	3663	+22

Since accepting furniture repair pick-up and delivery service from the Maintenance Department on March 24, 1947, 230 pieces of furniture have been picked up for repair and replaced by a similar unit.

Tabulation of house renovations by types, for the month is as follows:

Tract	A	B	D	E	F	G	H	L	Prefab	Total
1	6	6	0	3	6	1	0	0	29	52

During the month, project forces painted the interiors of 96 conventional type dwellings and two prefabricated houses. Including the houses painted in April, the interiors of 254 conventional dwellings and 163 prefabs have been finished since the start of the 1946-1947 interior painting program. Paint distribution (Kemtone) during the month was 863½ gallons. Varnish distribution to tenants in two and three quart quantities was 1176 gallons. Five hundred gallons of ivory enamel were distributed and to date outstanding unfilled tenant requests for enamel amount to 884 gallons. These figures include gallonage distributed to certain community organizations and commercial facilities for interior painting.

Seventy gallons of white paint and 15 gallons of turpentine have been also issued to clubs and facilities for use in exterior painting.

Service Department

The exteriors of six village homes were painted during the month on an experimental basis with new color schemes. These colors were applied to provide a visual test of certain color combinations chosen in an endeavor to formulate an exterior painting program designed to add color and variety to the appearance of the village.

Requests for topsoil deliveries during the month amounted to 22 as compared with 150 the previous month.

Eighteen alteration permits were issued during the month of April for basement excavations and miscellaneous changes, as noted in the following breakdown:

Basement excavations	7
Air conditioner installations	5
Miscellaneous	6
Total	18

A proposal has been made to change the policy on the renting of project-owned furniture under which no more such furniture will be rented to new tenants of conventional type dwellings. The proposal also contemplates that government-owned furniture will be withdrawn from conventional type homes when they are vacated.

COMMERCIAL FACILITIES

The following figures indicate trends in commercial activity as related to various basic items:

	March	April
Cafeteria Meal Customers	40,945	41,977
Percent of room-day occupancy Transient Quarters	92.00%	96.04%
Gallons of ice cream sold	6,606	7,614
Gallons of milk and cream sold	51,909	50,956
Theater Customer Count	45,956	36,603
Cases of soft drinks sold	4,794	7,393
Gallons of gasoline sold	112,288	109,541

Service Department

The following represent activities relating to commercial facilities during the month:

Permission was granted Midstate Amusement Corporation to relocate, at their own expense, confection stands in the two theater lobbies.

Arrangements were completed to drill a new well at Riverside Stables, to provide an adequate, sanitary water supply. The work has been started.

The Village Taxi was given permission to locate two taxi stalls and telephone call stations in the downtown area to provide improved service.

A work order was issued to install additional lighting in the working area of the Post Office.

The Carnation Company improved service to residents by making milk ticket coupons available on retail delivery routes.

A work order has been issued to provide needed repairs and improve sanitary conditions at the Richland Kennels.

A work order was issued to provide signs to be placed at the three main entrances to the village informing peddlers and solicitors of village regulations.

CONTRACTS AND NEGOTIATIONS

No contracts were renegotiated during the month.

Inventory and Property

The annual 1947 inventories of government equipment at the following locations were completed:

Columbia Service
Richland Laundry and Dry Cleaners
Robley L. Johnson Photographic Studio
Western Union
Youth Center, W-16
Hi-Spot, W-17
Sacajawea Rifle and Pistol Club

All facilities and organizations have executed 1946 property inventories except School District No. 400.

Requests for Establishment of Businesses in Village

A number of individuals expressed a desire during the month to establish and operate businesses in the village. The interest manifested in this

connection and the types of establishments desired are shown in the following list:

Men's Store	Service Station
Furniture and Hardware	Barber Shop
Stationery and Supply, Printing	Photo-Finishing Shop
Children's Shop	Sporting Goods Store
Drug Store	Gift and Floral Shop
Roller Skating Rink	Firestone Store
Mattress and Upholstery Shop	Western Auto Store

Written permission was granted to eight village tenants to conduct the following part-time businesses in their homes:

Sale of Soft Flow Faucet Model Water Softener	Care of Children
Sale of Real-Silk Hosiery	Typewriter Repair work (2)
Sale of Shoes	Sale of Kristee Home Products
	Sale of Stanley Home Products

COMMUNITY FACILITIES

General

Headquarters of the Benton County Chapter of the American Red Cross, originally located at the corner of Lee Boulevard and George Washington Way, were moved to a new location at 513 Barth, which was formerly an auxiliary fire station. The building has been completely redecorated, partitioned and rewired.

At the April 15, 1947, meeting of the Recreation Advisory Committee the committee recommended for approval the P. E. O. (a women's social organization) and the Three Rivers Mineralogy Club. This recommendation was approved by the Area Manager on April 25.

Richland Boy Scout troops participated in a three-day Camporee at the new permanent camp site Friday Through Sunday, April 25 - 27. Court-of-Honor ceremonies were held at the camp site Sunday afternoon; and the District Committee held its regular meeting on the Camporee grounds Friday evening. All local scout troops were represented at the Camporee with a total of 151 scouts encamped. Also, a large number of parents, scout executives, and others interested in youth activities visited the camp site during the Camporee.

The Sacajawea Pistol and Rifle Club and the Richland Kiwanis Club jointly sponsored the formation of a Junior "NRA" Rifle Club. Membership now totaling 56 is limited to children ages 14 through 18.

During the month, renovations were completed within the Hi-Spot Club (Dormitory W-17) including reinforcing of floors and installation of an additional fire excape from the ballroom.

Service Department

Paint was issued for the interior and exterior painting of the Co-Ordinate Club, Camp Kiwa, Rifle and Pistol Club, Rod and Gun Club, and Riders Club. This painting was performed by volunteer crews.

In addition to the regular monthly inspections of community buildings, special inspections were made to determine the required summer maintenance.

During the month of April, the Youth Council reported the largest attendance in handicraft during the past 12 months. Over 600 were actively enrolled in this program. In addition, the Saturday morning square dance classes have an average enrollment of 46 and the Saturday evening square dance classes have an average enrollment of 115.

The Junior Chamber of Commerce sponsored the Cancer Drive during the month of April with a collection of approximately $1,700.00.

On April 30, the "Richland Villager" office reported that there were 2,500 paid subscriptions and 500 additional copies printed for direct village sale.

Schools

The enrollment for School District No. 400 on April 30, 1947, was as follows:

Sacajawee Grade School	930	
Lewis & Clark Grade School	754	
Marcus Whitman Grade School	651	
Jefferson Grade School	322	
Total, all Grade Schools		2,657
Columbia High School		650
Nursery School		84
TOTAL - ALL SCHOOLS		3,391

On April 30, the enrollment, not including the Nursery and Extended Day Care Schools, was 3,307. This was an increase of two over the enrollment for the fall term as of September 3, 1946, and a decrease during the month of 30 pupils; nine high school pupils and 21 grade school pupils. There were 70 children enrolled in the Richland Nursery School with an average attendance of 56. This is an increase in enrollment of two children during the month. On this day there were 14 children enrolled in the Extended Day Care program of the Nursery with an average attendance for the month of 11; a decrease in enrollment of one child since last month's report.

A student Vocational Conference was conducted in the Columbia High School, April 21, 22, and 24, under the direction of the High School Counselors and the Kiwanis Club vocational committee. Members of the high school faculty and local business and professional men and women took part. The three-day conference stressed community services, the field of medicine, and commercial and technical topics. Each speaker explained the preparation and qualifications necessary for his profession.

Service Department

The inspection rating for schools during the month were Marcus Whitman, Sacajawea, and Jefferson: 98; Lewis & Clark: 95; and Columbia High: 70.

Facilities Personnel

The number of full time paid personnel employed by village commercial and community facilities and organizations as of April 30, 1947, is listed as follows:

Commercial facilities	639
Schools	193
Churches	15
Community Organizations	23
Total	870

Major Activities during the month included:

April 1-30	Cancer Drive (Jr. Chamber of Commerce)	Village
April 2	Benton County Education Association	Columbia High
April 4	Good Friday Services	All Churches
April 6	Special Easter Services	All Churches
April 7	Toastmasters Banquet	Lewis & Clark
April 9	Junior Class Review	Columbia High
April 11	Washington State College Booster Dance	Recreation Hall
April 11	Carolyn Long Concert (Community Association)	Columbia High
April 16	High School Band Concert	Columbia High
April 17-18	Jaycee Jubilee	Columbia High
April 19	"Snow in the Sky" (G.E. Lecture)	Columbia High
April 21-24	Vocational Conference	Columbia High
April 25	Veterans of Foreign Wars Benefit	Village
April 25-26	High School Senior Carnival	Columbia High
April 25-27	Boy Scout Camporee	Scout Camp
April 26	Maintenance Department Picnic	Village Park

MONTHLY INJURY ANALYSIS

Period - April 1 through April 30, 1947

Minor Injuries

	Misc. Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Unclassified	TOTAL APRIL	TOTAL LAST MONTH
Production P	9*	7	2	5	3	0	0	0	1	26	18
Production S	3	4	1	6	1	1	4	1	0	21	17
Technical	2	7	0	7	4	1	0	1	1	23	27
Power	5	0	2	0	0	2	0	2	0	11	16
Maintenance	11	28	13	27	13	18	5	7	7	129	110
Electrical	0	5	2	4	3	1	1	0	0	16	15
Instrument	3	1	0	5	1	1	0	0	1	12	6
Service	1	10	3	9	2	3	3	2	1	34	16
Transportation	1	11	3	9	3	0	3	3	3	36	55
Medical	3	9	1	12	4	0	1	1	0	31	32
Accounting	0	0	0	4	0	0	2	0	1	7	13
Design & Construction	0	0	0	0	0	0	0	0	0	0	0
TOTAL	38	82	27	86	34	27	19	17	15	345	326
LAST MONTH'S	31	77	33	73	21	24	13	20	21		320

MONTHLY INJURY ANALYSIS

Period - April 1 through April 30, 1947

Major Injuries

Major Injury #34

4-10-47 An employe of the Maintenance Department in the 700 Area received a back strain which was an aggravation of a previous back injury received prior to being hired at this Plant. The injured and another employe were raising a light ladder over a stair well to do some painting on the ceiling in Drug Store "A". While raising the ladder, the injured felt a pain in his back. Four previous back injuries preceded this injury before it progressed to the point where hospitalization was necessary. This major injury is retroactive to April 10, 1947, the day of the injury.

Major Injury #35

4-19-47 An employe of the Transportation Department railroad crew suffered a broken right wrist. This accident was caused by the injured climbing to the top of a stationary box car which had been spotted in the 300 Area. He started releasing the hand brake by turning the wheel clockwise, then knocking the dog loose that was holding it. When the dog was knocked loose, the brake wheel spun to the left and caused the injured to be thrown off balance. While in this off balance position, a sudden gust of wind caused the injured to fall to the ground landing on his stomach with his right arm under him, resulting in a broken wrist.

Sub-Major Injuries

Sub-Major Injury #81

4-3-47 An employe of the Maintenance Department in the 300 Area received deep lacerations of the flesh an a fracture of the nasal bone. The injury occurred while the injured was helping another employe place a one-half inch pipe through a sleeve in a wall between two rooms. The pipe stuck in the sleeve momentarily and at this point the injured realized that he was not wearing gloves. He released his hands from guiding and bending the pipe to put on his gloves. The pipe was suddenly released from where it was stuck and struck the injured on the nose causing the injury.

Sub-Major Injury #82

4-22-47 An employe of the Power Department in 100-F Area received a transverse fracture of the distal phalanx of the right thumb with separation. Preliminary investigation shows that the injured was opening a discharge valve in the 190 building. He had his left hand on the rim of the wheel and his right hand on a spoke on the opposite side. The mechanic who was helping him had both hands on the rim of the wheel when the jammed wheel released by effort of both men. When the wheel released, the injured's right hand slipped along the spoke toward the hub pinching the right thumb between the wheel spoke and a nut on the yoke of the valve causing the injury.

VILLAGE ENGINEERING

APRIL 1947

GENERAL

The normal duties of consultation, inspection and scheduling were carried on as usual. Under scheduling - priority lists have been established with certain Works Engineering Departments to determine the order in which the items of work will be brought to completion.

PERSONNEL

There has been no change under this heading.

ACTIVITIES

Tract houses L-899 and L-906 reached physical completion, were inspected and turned over to housing for rental. The renovation of these houses was important in that they were experimental and indicated a guide to future tract house renovation work as to what can be done with structures which are in a dilapidated condition.

A study was made and a recommendation forwarded to the Village Organization that Van Giesen Street be redesigned and rebuilt to a twenty-eight foot width from shoulder to shoulder with a twenty foot paved section between Perkins Avenue and the Yakima River Bridge. If completed, this work will be in line with the contemplated county program which is scheduled for this year.

Plans were made and necessary work order issued for the installation of underground tanks for waste oil at the filling stations. It is hoped that this will eliminate the unsightly conditions and the accumulation of old oil drums and waste at the four stations in the Village.

The renovation work on building 126-X, the new headquarters for the Red Cross organization, was completed on April 28, 1947, and the Red Cross organization was moved into the building on April 30, 1947.

The experimental outside painting program, including six houses in the Village, was completed in the latter part of the month and an inspection was made with a committee appointed by the plant manager. The recommendations of this committee were passed on to the Village Council in a letter dated April 30, 1947, and signed by W. P. Overbeck and G. G. Lail. The final determination as to the extent of the outside painting program is dependent upon an estimate now being made which will include the possibility of the complete outside painting of the houses, including the shakes.

A paint survey has been made by this office encompassing the complete projected picture for the painting of all structures in the Village. The result of this survey will be reviewed with the Maintenance Department and applicable recommendations made.

Village Engineering

A survey has been made this month, by this office, of the condition of all Village roofs and recommendations made to the Maintenance Department for their repair.

The tract house study prepared by the Maintenance Department - Engineering Section has been reviewed quite completely in the field and a recommendation letter has been forwarded to supervision in which it is recommended that specific houses be moved to the Village.

At the request of Management, a study is being made with a view toward choosing a suitable permanent location for the Village kennel.

Inspection of all schools in the Village is being made by this office so that any necessary work or preventive maintenance work may be accomplished during the school vacation period.

A work order was issued to the Maintenance Department to install an additional fire escape from the dance floor in the Teen Age building so as to provide ample exit facilities in the event of a panic.

A total of eighteen estimates were made during the month, of which eleven were back-charge estimates.

2

SECRET

TRANSPORTATION DEPARTMENT

MONTHLY REPORT

APRIL 1947

GENERAL

Absenteeism in the Department for the month of April was 2.11%. This was an increase of 0.22% over the month of March.

The work order control system continued with no change. Work on hand as of April 30, 1947 amounted to 1171 work orders, estimated at 13,121.6 man days.

Plant injury No. 35, which was the 5th tabulatable Major Injury in the Department since the start-up in May, 1944, occurred April 19, 1947 when an employee in the Railroad Division suffered a broken wrist. The Department up to this time had established a record of 462 days, or approximately 1,494,000 man hours without a major injury. In the Railroad Division a record of 35 months of safe operation without a lost-time or Sub-Major injury was broken.

During the month the following railroad officials visited Richland:

Union Pacific Railroad Co.-
- J. C. Albright, Executive Asst. to President
- L. A. Collins, General Manager
- C. W. Evers, Traffic Manager
- V. E. Buchanan, General Agent

Northern Pacific Railway Co. -
- R. W. Clark, Vice President
- F. J. Berry, Western Traffic Manager
- Otto Kopp, Freight Traffic Manager
- C. E. Fulton, District Freight Agent
- R. V. Custer, Local Agent

Milwaukee Railroad Co. -
- O. N. Harstad, Vice President - Operation
- L. K. Sorenson, General Manager, Lines West
- R. J. Middleton, Chief Engineer
- M. H. McEwen, Western Traffic Manager
- E. B. Crane, Asst. Chief Engineer
- L. Wiley, Superintendent
- W. G. Powrie, Supt. Maintenance-of-Way

ORGANIZATION AND PERSONNEL

1. Mechanical and Labor Division - K. G. Novinger reported to work April 10, 1947 as Assistant Chief Supervisor. T. M. Jones, Labor Foreman, was up-graded to General Foreman in charge of heavy equipment effective April 15, 1947. M. L. Roller was up-graded from Clerk to Labor Foreman.

2. Railway and Automotive Division - T. B. Bobo and E. A. Boisoneau were up-graded to Shift Foremen to fill vacancies created by voluntary terminations of E. H. Dean on April 11, 1947 and L. G. Solberg on April 25, 1947.

Because of an increase in the volume of work other than routine, requisitions for weekly salaried personnel were issued during the month to increase the force in total number of employees by 99 laborers, 9 auto mechanics and 1 tractor operator. Forty-eight laborers will be high school boys between the ages of sixteen and eighteen, and 35 laborers will be high school and college boys over eighteen, all of whom are the sons of Project employees. A special rate has been established which is somewhat lower than the regular rate paid mature laborers. Youths will be taken on the rolls on temporary assignment for the performance of heavy seasonal work during the school vacation period. Total actual force as of April 30, 1947 is 710.

Forces of Morrison-Knudsen, Sub-Contractors, were decreased 2 in total number, and the actual force as of April 30, 1947 is 88.

OPERATIONAL ACTIVITIES

Railway Operations, Repairs, and Track Maintenance

1. Railway Operations - Railway operations continued on a normal basis, and train movements were effected as scheduled. The following items are of interest:

   a. Successful experiments were conducted during the month with two-way frequency modulation radio contact between the train dispatcher at Riverland Yard and operating train crews. The feasibility of adopting this method of dispatching is now being considered.

   b. There were 1,937 cars handled during the month.

2. Repairs - Routine repairs and inspection of railway equipment were made as scheduled. General Electric locomotive No. 39-3719 is still in process of overhaul.

3. Track Maintenance - Railway track maintenance continued in a routine manner in the Areas by Department forces, and outside the Areas by Sub-Contractor's forces. The following items are of interest:

   a. A total of 342 ties were replaced at various locations.

   b. The 221-C track, totaling approximately 1700 feet, was removed in the 200-East Area.

   c. A Spur track 362 feet in length was constructed in the 300 Area.

   d. In order to protect the new spur and main line in the 300 Area, 120 feet of sand fence was built.

   e. The railroad maintenance Sub-Contractor performed the following work:

      1) Repaired warehouse track at White Bluffs and Riverland.

      2) Replaced the turn-out at Riverland with 85-lb. rail.

3) Relined and graded 10 turn-outs.

4) Renewed 4 crossings.

AUTOMOTIVE OPERATIONS AND REPAIRS

1. Automotive Operations

a. This Department received 114,344 gallons of gasoline, 23,150 gallons of Diesel fuel and 2,644 gallons of kerosene during April for Project use.

b. The extent of automotive equipment usage for the period is indicated by the total monthly mileage of 906,008 miles for all types of equipment.

c. Area and Village local bus systems operated during the month as scheduled. Effective April 1, 1947 a new scheduled run on three shifts, seven days a week, was started to the Hanford Area for Minor Construction personnel working at Hanford and for firemen working at the 3000 Area and Hanford fire stations.

d. The extent of area bus traffic is indicated by the total monthly passenger count of 82,435, and the extent of Village local traffic is indicated by the total monthly passenger count of 60,380.

e. Miscellaneous automotive operations services including (a) Motor Pools, (b) Inter-Area Shuttle Service, (c) Inter-Area Freight, Mail and Express Service, (d) Towing and Wrecker Service, were rendered during the month with no change.

f. Off-the-Plant special automobile trips (Company business and official visitors) totaled 82.

g. The relocation of the Administration, Medical, Engineers and Repair Motor Pools within the 700 Area in the vicinity of the 716 garage was effected during the month.

2. Repairs - Automotive maintenance and repairs functioned in a routine manner. Equipment for painting automotive vehicles has been installed at the airport hangar for use when paint is received.

LABOR ACTIVITIES

1. General - Spring Planting of trees and shrubbery in the Village for the 1947 season was completed.

Four hundred fifty-two cubic yards of concrete were poured throughout the Project on miscellaneous work. Road maintenance crews hauled all sand and gravel required.

2. Areas

a. General - Work in the Areas continued on a routine basis, except as noted.

b. 100-D - A gravel walk-way was constructed at the Area gate on both sides of the railroad for the purpose of eliminating a safety hazard to patrol-

men while inspecting trains entering the Area.

Seventy-five cubic yards of top soil were placed and prepared for seeding around six buildings.

c. 100-F - The Fish Hatchery Project has been completed with the erection of a fence around the tanks.

Eighty cubic yards of top soil were placed and prepared for seeding around six buildings.

d. 200-W - The following materials were transported to the Area during the month: (a) 1200 feet of 10" well casing from 200-East Area. (b) 2,000 feet of 3" seamless steel pipe and 25 sections of 24" tile from White Bluffs. (c) One 20' x 20' building from Hanford.

Fifty cubic yards of earth were excavated to provide a sump for waste disposal at 231 Building-Project C-133.

Excavation continued on the Second Cycle Project at 241-T Tank Farm, and 1100 cubic yards of earth were removed during the month. Excavation is approximately 80% complete.

Two hundred cubic yards of earth were required to cover contamination at burial ground.

Work is in progress on Project C-133-231-Well Site. Wells 1, 3 and 4 have

Grass seeding of public areas started April 18, 1947 and the plots at Jefferson School and the area adjacent to the Women's Dormitories have been completed.

Two hundred twenty cubic yards of top soil were delivered to Village residents.

Work on establishing the new Village Nursery started April 19, 1947 and the soil has been disked, smoothed and rilled for water.

Distribution of grass seed to Village residents continued and 4795 pounds were delivered during the month.

Three new gang-mower units with two tractors were serviced and put into operation.

A new Roto-Tiller was received and put into operation.

EQUIPMENT CONTROL

Control of Government cars which have been authorized for overnight parking in the Village by individuals to whom they are assigned, is now in effect and under the supervision of this Section.

Thirty-five units formerly charged to Military Police, which were turned back to Stores, have now been requisitioned and received, and 21 of the units have been assigned to Patrol.

Seven pieces of fire fighting equipment were transferred to the Area Manager; one stretch-out bus was transferred to Prison Industries, and one motor crane was excessed to Stores.

A total of 40 units were requisitioned and on April 30, 1947 there were 92 units on order. Twenty-eight units were received on orders placed before April 1, 1947, and 31 units were received on orders placed during the month.

Twenty-three units were permanently assigned to departments from the Reserve Pool and 13 units were received into the Pool.

TRAFFIC DIVISION

Traffic Division activities and operating procedures continued during the month on a routine basis. The following items are of interest:

1. On April 7, 1947 Inland Air Lines inaugurated new air service between Walla Walla, Kennewick and Seattle, with two round trips daily between these points.

2. On January 13, 1947 the Purchasing Department, at our request, eliminated Carloading Companies entirely in routing instructions on shipments from the East, and all such shipments have been routed via l.c.l. freight to Hanford, Washington. On April 28, 1947 we re-established routing of l.c.l. freight from the East to Hanford via five of the major Carloading Companies because of substantial reductions in freight rates via carloading companies which were made effective April 21, 1947, and also because of action taken by the Carloading Companies in removing from their tariffs certain objectionable features which we had to their service to this Project.

3. On April 4, 1947 we submitted two proposals to Lee & Eastes Truck Line for consideration by the carriers at the Rate Docket Meeting of the Pacific Inland Tariff Bureau held in Portland, Oregon on April 22, 1947.

The first proposal was a request to establish the same basis of class rates between Spokane and Richland which at present apply between Spokane and Pasco and Kennewick. We have now been informed that this proposal was approved without a dissenting vote. As a result, the savings in freight charges on truck shipments between Spokane and Richland will be as follows:

Savings in Cents per cwt.

Classes				
1st	2nd	3rd	4th	5th
8	8	6	6	5

The second proposal requested cancellation of truck rates now published in all Pacific Inland Tariff Bureau tariffs to and from Hanford or to Hanford Engineer Works, and concurrently therewith, we requested publication in such tariffs of a rate arbitrary of 21¢ per cwt. on deliveries made to an area of the Hanford Engineer Works beyond the limits of Richland. This request was necessary because with deliveries again being made to areas beyond Richland there is no uniform basis established for assessing freight rates. For example, between San Francisco and areas of the Hanford Engineer Works the first class rate is 58¢ per cwt. higher than the rate to Richland, while from other points to the areas in many instances the rates are much higher than the rates to Richland. In some tariffs no rates are named to the areas and the only proper charge which could be assessed would be on a mileage basis from Richland, and this would result in exorbitant charges. Our proposal as presented was accepted by the carriers and will be published in all tariffs on statutory notice.

4. As a result of rate reductions secured from the carriers there was a total saving in freight charges for the month of April amounting to $29,829.96. This makes a total saving to date of $201,706.68.

MEDICAL DEPARTMENT

APRIL 1947

GENERAL

There were no organization changes. There was no significant exposure of any employee to radiation during the month, and no evidence of sickness due to radiation exposure.

H.M.Parker, J.W.Healy and W.D.Norwood attended the A.E.C. Informational Meeting at the Argonne National Laboratory (4-21-47 to 4-24-47). Messrs. Parker and Healy contributed papers to the meeting and briefly visited Clinton Laboratories.

H.M.Parker has been appointed chairman of the Subcommittee on Radio-isotopes and a member to the Subcommittees on External Permissible Dose and Internal Permissible Dose; while J.W.Healy was appointed to the Subcommittee on Instruments of the National Committee on Radiation Protection under the chairmanship of L. S. Taylor.

Security clearance requirements have accentuated the difficulties of a lagging personnel procurement problem.

Absenteeism due to sickness showed a nice decrease for the month.

The average daily hospital census dropped from 68 to 61.6, an expected seasonal change, while the visits to the out-patient section increased slightly.

HEALTH INSTRUMENT SECTION

Organization

The composition and distribution of the force remained essentially unchanged as follows:

H. I. SECTION FORCE REPORT AS OF 4/30/47

	100-B	100-D	100-F	200-W	200-E	300	700	P.G.	Total
Supervisors	0	1	3	5	5	11	4	0	29
Engineers	1	3	4	16	6	7	0	0	37
Others	0	4	4	35	18	38	9	0	108
Total	1	8	11	56	29	56	13	0	174

Personnel recruitment continued far below the planned schedule at all levels of employment. The condition was apparently accentuated by revised procedures which increased the interval between candidate contact and clearance to hire. This seemed to result in the escape of potential employees to other jobs. Captain J. Brennan, U.S.Army, was assigned to the Section for an extended training period.

Medical Department

General

J.W.Healy and H.M.Parker attended the A.E.C. Information Meeting at the Argonne National Laboratory (4-21-47 to 4-24-47), and briefly visited the Clinton Laboratories to review the Health Physics activities there. A separate report on the findings will be submitted.

In the Biology Division of the Information Meeting, J.W.Healy contributed a paper on the H.E.W. bio-assay development for measurement of plutonium, uranium and fission products in urine. H.M.Parker discussed the findings on accumulation of I^{131} in animal thyroids on the reservation.

Progress was made on the acquisition of a 2 MEV X-ray machine on a loan basis from the War Department. A review of the original plan to house this equipment in the Standards Building has revealed many difficulties. This study was facilitated by the loan of a scale model of the machine by the Swedish Hospital, Seattle. Plans have been prepared for a suitable additional building which would cost about 20% of the normal purchase price of the equipment.

J.W.Healy has been appointed to the Subcommittee on Instruments of the National Committee on Radiation Protection, under the general chairmanship of Dr. L. S. Taylor, National Bureau of Standards. H.M.Parker has been appointed chairman of the Subcommittee on Radio-isotopes, and is a member of the subcommittees on External Permissible Dose and Internal Permissible Dose.

OPERATIONAL DIVISION

100 Areas

Work Permit Summary

	March	April	1947 To Date
100-B	95	90	505
100-D	400	513	1957
100-F	584	651	2223
Total	1079	1254	4685

Retention Basin Effluent

The activity of the water leaving the Retention Basins was as follows:

	100-D	100-F
Power Level	250	200
Average beta dosage-rate (mrep/hr)	0.6	0.5
Average gamma dosage-rate (mr/hr)	1.2	1.3
Average total dosage-rate (mrep/hr)	1.8	1.8
Average integrated dose in 24 hrs. (mrep)	44	42
Maximum integrated dose in 24 hrs. (mrep)	46	48
Maximum integrated dose in 24 hrs. (mrep) 1947	53	55

Medical Department

Pile Buildings

100-B Area

Nothing more than incidental maintenance work was attempted during the month.

100-D Area

The #2 regulating rod, previously pulled from the pile to the inner rod room, was removed during operation, and stored on the miscellaneous storage building roof. Personnel exposure was not excessive since all manipulation of the rod was done remotely. Most of the radiation escaping the empty thimble was absorbed by the rod gates at the face of the pile and at the sandwich wall, but readings totaling 650 mrem/hr were noted in front of the sandwich wall. A well defined fast neutron beam could be followed along the rod rack to the building wall. Installation of a paraffin and lead shield in front of the sandwich wall gate reduced this effect, but fast and slow neutrons were easily detected immediately in front of the shield and a reading of about 1 rem per hour was found just to the left of the shield. Two film badge results for H.I. personnel, who made surveys in the outer rod room after the rod was removed, showed a darker shielded portion than open window. This effect was reproduced by exposing similar badges in a flux of neutrons filtered with paraffin and lead. The radiation dose which caused a film result similar to that recorded for these men was estimated to be less than 50 mrem. The maximum exposure as recorded by the pencils was 60 mr.

It was necessary to re-enter the discharge area after a tube discharge was started when the column became lodged and could not be pushed. Fortunately, only three dummy slugs had been discharged and it was possible to enter the discharge area and free the column by reverse pushing the entire charge a few inches. The remaining slugs were discharged by hand pushing from the charge side. No unusual radiation readings were encountered during this work.

On another occasion, personnel were present in the discharge area when unusual water pressure was discovered on one tube during pre-startup operations, and it was necessary to discharge the tube. According to discharge schedule, this tube had been pushed earlier in the day and it was decided to collect the metal at the rear face under constant monitoring. The tube proved to be inactive as expected and no exposure was encountered. However, with personnel present in the discharge area, such non-routine pushes are potentially extremely hazardous and require careful planning.

The steel rod guide for the #37 thimble was removed in an effort to improve the alignment and rod operability. Both the rod tip and guide were removed from the pile by remote handling means such that the closest approach was 10 to 15 feet. A dosage-rate of 25 mr/hr was recorded 25 feet from the rod guide, and at 1½ inches the reading was 10 roentgens per hour. Personnel exposure did not exceed 50 mr.

Medical Department

Unusual readings were detected at the corner of a step plug to the gas tunnel outside the outer instrument room. No unusual readings were recorded on the G.E. chamber immediately below the plug, and the effect was finally traced to a small piece of thermocouple wire lodged in the asphalt packing around the plug. Presumably, the wire was dropped into this spot during the removal of the chamber and thimble from the "B" experimental hole some months ago.

Fast neutron surveys at the rod rail on top of the pile disclosed higher readings than ever obtained before in either area. The intensity of all readings and the location of the maximum reading varied with successive surveys, but the maximum reported in each instance was about 40 mrem/hr.

Contamination from an unknown source was spread over all the areas on the far side of the pile. It appeared to be a very soft beta emitter, and was more concentrated in the vicinity of the exhaust air duct.

100-F Area

While the pile was being shutdown on 4/22/47, a vertical rod "scram" occurred and dispersed large quantities of active dust into the air over the top of the pile. Personnel in the area at the time were contaminated before they could leave. Contamination was readily removed, and calculations based on the amount of air breathed indicated no overexposure resulted.

On another occasion (4/14/47) when both the vertical and horizontal rods were scrammed, two vertical rods failed to function properly and were inspected from the balcony. Dosage-rate at the point of inspection was 200 mrep/hr.

No unusual radiation fluxes were found around the "E" experimental hole following the installation of a special sample charger. Dosage-rates up to 5 roentgens per hour were recorded during various work on the experimental level, but individual exposures were kept below 50 mr.

200 Areas - T and B Plants

General

Two Special Hazards Meetings were held with all members of Maintenance Department supervision in the Areas. These meetings were arranged at the suggestion of Maintenance area supervision in order to better acquaint all Maintenance supervision handling SWP jobs with radiation problems. The reaction was favorable, and the meetings will be continued into May.

Agreement among the seven area groups concerned with radiation problems was reached on the release and transfer of equipment.

Medical Department

General Statistics

	March			April			1947
	T	B	Total	T	B	Total	To date
Special Work Permits	251	528	779	371	399	770	3231
Routine & Special Surveys	344	443	777	371	393	764	3103
Smear samples for alpha counts	272	255	527	277	39	316	2782
Smear samples for beta counts	272	255	527	277	39	316	2719
Air monitoring samples	385	303	688	372	306	678	2768
Thyroid checks	249	171	420	223	188	411	1570

Canyon Buildings

Difficulty was experienced with sampling at the 13-4 port in the T Plant in that a highly contaminated trombone resulted with each sample taken. Dosage-rates above 15 rep per hour at 1 inch were reported. The extended Special Work Permit was voided for sampling at this port, a separate SWP issued for each sample taken, and constant monitoring provided. Toward the end of the period, the riser was replaced and the condition corrected. It was found that one of the lines into the riser was plugged.

Installation of a new 8-2 centrifuge in the T Plant resulted in excessive contamination of the Canyon deck due to contaminated rust and dust from the replaced equipment. The deck was carefully covered with paper as a precautionary measure, and surface dosage-rates above 20 rep per hour were found at several points between sections 7 and 10. The paper was removed by remote handling methods to prevent overexposure, and a fine spray of water was used in an effort to hold down the loose contamination on the paper. Despite these precautions, considerable contamination was spread to the deck proper and it was necessary to place lead shielding around the 8-3 port in order to take samples there. Such shielding was temporary until cleanup could be effected. Seven positive air samples for fission product were obtained during this work with a maximum result of 1.4×10^{-6} μc/liter.

A technical overexposure occurred in the T Plant when finger ring results indicated exposures of 140 mrep (beta) and 60 mr (gamma) to the hands. A review of the employee's work for the day disclosed that he had taken samples at the 5-6, 6-1 and 13-4 ports, and moved the lead plates at the 8-3 sampler. The 13-4 sample was done under constant monitoring and showed a possible exposure-rate of 5 rep per hour for the short period that a contaminated trombone was wrapped in paper. Pencil results showed an exposure of 40 mr but the pencils had been dropped and film result for the entire week was 35 mrep.

Five sampling incidents occurred in the B Plant during the month. In one case it was discovered that the pipette was still in the trombone rather than the doorstop when the sample was delivered to the laboratory. The dosage-rate on the trombone was recorded as 550 mrep/hr at 4 inches when it was removed

from the sample port riser. Apparently it had not been rechecked when placed on the samplers' tray for removal from the Canyon. No evidence of personnel overexposure was found. The other four cases involved "hot" samples which required special monitoring and handling when removed from the Canyon to the laboratory. Of particular interest in one of these cases was the fact that the assault mask worn by a supervisor handling the sample showed 10,000 d/m alpha activity. However, no personal contamination was found. This instance, along with the discovery of four pairs of contaminated samplers gloves which were ready for reuse, pointed the need for review of the problem of clothing monitoring. This problem will receive special emphasis during the month of June.

Due to unusual difficulty in the replacement of the depleted H.I. Laundry staff, it has been necessary for some time to operate with test times shorter than those required for statistically reliable detection of counts at the conservative warning levels. Some technically contaminated items are therefore returned to the operating areas, with a natural loss of morale when they are accidentally discovered by other checks. In the absence of an outright failure to test a piece, it is virtually impossible to release a really dangerous article in this manner. However, the present condition should be known to all groups concerned and should be corrected soon. To this end, the cooperation of the Personnel Division has been secured to study the job requirements in the field, with the objective of a more factual solicitation of suitable employees.

A general background dosage-rate of 25 mrep/hr was found over a large area in the Canyon end of the B Plant R.R. tunnel. Such readings are unusual in this location and the movement of a centrifuge from section 14 to storage in section 1 was thought to be a possible source of contamination giving rise to the readings. The area was cleaned.

Control Laboratory

About 15 µg Pu was found on non-regulated items as a result of surveys by Technical and H.I. personnel. Approximately 240 items were involved. An exposure-rate of 15 mr/hr to the hands was noted during routine operation of the primary sampler. The inside surfaces of several drying lamps showed alpha activity above 200,000 d/m.

A film badge was surveyed upon request of Personnel Meters when an unusual film result and a positive four-fold check was found. The badge showed a surface dosage-rate of 25 mrep/hr, uncorrected for source size, and poppy readings which indicated about 0.5 µg Pu. In view of this incident, badges will be included in the daily clothing checks. In the same connection, work is proceeding on the application of stripping compound to badges so that such contamination could be expeditiously removed.

Medical Department

Concentration Buildings

Two T Plant "step-off" mats were found contaminated and replaced. These mats are included in the protective clothing removal procedure when leaving cells and are maintained contamination-free.

One waste can in the F-10 room showed about 1.5 μg Pu over a 32 sq. inch area of the cover. Cell surveys revealed a total of approximately 25 μg Pu, most of which was on the cell floors.

Two instances of contaminated hands were possibly caused from use of contaminated gloves as returned from the laundry. In both cases, the hand contamination was small and readily removed by standard methods. It is not clear how contamination, aherent to gloves throughout the vigorous laundry process, could transfer to the hands and then be easily removed.

A small spot of product contamination was detected outside the F-10 chained area in the B Plant. One assault mask, used in F cell, was contaminated, but no personnel contamination was detected.

One air sample result of 1.6×10^{-6} μc/liter was obtained at the air intake filter while dissolving was in progress.

Fan House

Contamination was spread over the panel, piping and floor of the B Plant stack monitor building when residual scrubber solution ran out during equipment repair. Slight protective clothing contamination occurred, but without undue exposure. The building was cleaned before work was resumed.

Waste Disposal Area

Excavation for new waste lines was continued down to about 8 inches above present lines at a point where the new lines cross the old lines. Dosage-rates as high as 2 roentgens per hour were experienced in this work. At one point, lead shielding was used to reduce exposure, and a dosage-rate of 5 roentgens per hour 1 foot from the shield was recorded. However, the vicinity where welding in the field was done showed only 12 mr/hr. An employee inadvertently entered this region and knelt upon the aforementioned lead shield. The error was corrected before an overexposure resulted.

Excavation down to waste lines entering the 154-B diversion box was completed without incident.

Medical Department

The Isolation Building

Air Monitoring

The maximum result found of 246 spot air samples taken was 2×10^{-10} µg Pu/cc in Cell 4. The cell was inactive at the time and no explanation for such unusual high result was advanced. Two hundred thirty-eight results were below 10^{-11} µg Pu/cc.

Fifty-five Little Sucker air samples, run continuously by shifts, had as the high result 6×10^{-11} µg Pu/cc also in Cell 4 but at a different time than when the high spot sample was obtained. Twelve Big Sucker samples of the 903 exhaust system were taken, and the high result was 6×10^{-12} µg Pu/cc.

Surface contamination

A total of 395 non-regulated items was found contaminated on surveys made by Technical, "S" Department, and H.I. personnel. There were 4 items above 20,000 d/m but none was above 80,000 d/m.

Small areas of floor contamination were found in 14 instances during the month. The maximum involved in any spot was about 0.3 µg Pu in room 34. Other rooms, where contamination was detected were 6A, 9, 31, 32, 35 and 45.

Gamma Radiation

	mr/hr	
P.R. container	12.5	(maximum)
Process hood	3	"
S.C.	5	"

THE 300 AREA

General Statistics

	March	April	1947 To Date
Special Work Permits	116	107	431
Routine & special surveys	68	137	379
Smear samples for alpha counts	195	229	844
Smear samples for beta counts	136	123	679
Air monitoring samples	107	119	464

Metal Fabrication Plant

A total of 42 air samples was taken in the Extruder Building, of which 17 were above 1.5×10^{-4} µg U/cc. Two of the high results were above 10^{-3} µg U/cc, both obtained at the oxide burner operation. Fifteen air samples were taken in the Machining Building, and one result of 2.3×10^{-4} µg U/cc at chip recovery was the only high result.

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Associated Laboratories

Two of eleven samples taken were above 1.5 x 10^{-4} µg U/cc, one in room 13 and one in room 33. General uranium contamination was found in rooms 7, 8, 9 and 13.

Retention Pond

The maximum results reported on samples taken by Site Survey were as follows:

Location	alpha	beta
Water, inlet	944 d/m/liter	5.5 x 10^{-4} µc/liter
Water, N.W.corner	60 d/m/liter	1.3 x 10^{-4} µc/liter
Mud, inlet	880 d/m/g	8.6 µc/kg
Mud, N.W.corner	180 d/m/g	0.9 µc/kg

These values are higher than any observed for several months.

Technical Building

Seventeen of 46 air samples taken had results above 2 x 10^{-11} µg Pu/cc with the maximum result of 4 x 10^{-11} µg Pu/cc obtained in room 62.

Product contamination of about 12 µg in room 62, about 5 µg in room 66, about 4 µg in room 59 and about 2 µg in room 64 was reported.

Eighteen of 192 pairs of shoes checked were found contaminated; all were readily cleaned. Two dust mops, in the janitor's closet, were found contaminated with alpha activity.

Laundry, Decontamination and Hand Counting

There were 53,634 items monitored in the Plant Laundry, of which 46,119 were checked for alpha radiation. There were 10,778 coveralls, 17,761 gloves and 16,664 overshoes included in these totals.

Considerable difficulty was experienced by static electricity effects on the poppies. In an effort to get the clothing through, the geometry was adjusted to readily detect about 1,000 d/m instead of 500 d/m, which allowed some contaminated rubber gloves to be missed and sent out as clean. When this was discovered, the geometry was readjusted but at the end of the period the backlog of work was excessive.

There were 44 spot and 22 Big Sucker air samples taken. As in the past the high result occurred while processing 300 Area clothes and represented an air concentration of 2 x 10^{-5} µg U/cc.

There were 33,841 alpha hand checks and 35,834 beta hand checks recorded. About 0.16% of the alpha and 0.35% of the beta counts were above the warning limits. There were 5 high alpha scores and 1 high beta score where no attempt at decontamination was recorded. Where decontamination was attempted, it failed in one case of beta contamination.

Medical Department

PERSONNEL METERS

Pencils	100-B 100-D	100-F	H&N 200	200-W	300	Total	1947 To date
Total Pencils read:	10,077	12,167	27,631	29,621	21,504	101,000	361,462
No. of single readings: (100 to 280 mr)	35	49	96	145	60	385	1,408
No. of paired readings: (100 to 280 mr)	0	0	3	5	2	10	45
No. of single readings: (Over 280 mr)	55	88	185	217	142	687	2,411
No. of paired readings: (Over 280 mr)	2	0	0	0	2	4	33
Paired Readings Lost:	0	0	0	1	0	1	10

No paired pencil reading above 100 mr was confirmed by the badge result. One film result of 20 mr coincidental with a pencil reading of 120 mr was for the entire week's exposure.

The paired reading lost occurred when both the pencils and badge were lost. A review of the employee's activity revealed no possible chance of overexposure.

The work load in the 300 Area has steadily increased to the point at which it is double that of a 100 Area gatehouse and approaching that in the 200 Areas. As the 300 Area gatehouse contains the central film developing and metering service the previous overcrowding has been amplified. Safe and efficient operation is to be restored by the provision of an additional hutment.

Badges	100-B	100-D	100-F	200-E	200-N	200-W	300	Total	1947 To Date
Badges Processed:	2,220	3,718	3,166	4,844	701	5,023	3,758	23,430	87,146
No. of readings: (100-500 mrep)	0	2	0	1	0	2	74	79	384
No. of readings: (Over 500 mrep)	0	0	0	1	0	0	0	1	4
Lost Readings:	0	0	1	2	0	2	3	8	23

The one result above 500 mrep was caused by the contaminated badge discussed under the Control Laboratory section of this report.

Of the lost readings, 3 were for 8-hour periods when no film was in the badge; one was lost in processing, and the remainder due to mishandled meters.

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Medical Department

CONTROL AND DEVELOPMENT DIVISION

Water Monitoring

One hundred forty-four samples of drinking water were taken this month. Positive values were obtained for alpha contamination for the 300 Area sanitary water and wells. The maximum value was 6.4 $\pm$ 1.6 dis/min from a sanitary water supply. Samples are now being taken every other day to follow the trend here. This occurrence of alpha contamination seems to appear following the annual rise of the water level in the river and consequent rise of the water table in the 300 Area. The present levels of contamination are not dangerous. Other positive values were obtained for 4 other drinking water samples, but these were not confirmed by resamples. One positive result for beta activity indicating 10^{-4} µc/liter was obtained from a Kennewick sample.

Only 4 test well samples were taken, and one of these had a positive result for beta activity which was 1.1×10^{-4} µc/liter for a sample from Ranch 13.

Forty-six samples were taken from the Columbia River. Two of these samples had positive alpha contamination, one from Richland had 2 $\pm$ 1 dis/min/liter, and the other from the D Area pump house had 30 $\pm$ 15 dis/min/liter. This latter sample also had a high beta activity of 4.4×10^{-2} µc/liter. Subsequent samples from the same location were negative. The next highest beta reading was 1.2×10^{-3} µc/liter in a Hanford sample. Eight samples were taken from the Yakima River, and 7 of these gave negative results and one had an unusually high unexplained result of 1.3×10^{-3} µc/liter.

Atmospheric Monitoring

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

Location	Integrons (mrep/24 hrs)		C Chambers (mrep/24 hrs)	
	April	March	April	March
100-B	0.4	0.2	0.4	0.4
100-D	0.2	0.1	0.3	0.4
100-F	0.5	0.5	0.3	0.4
200-W	0.2	0.3	0.4	0.4
200-E	2.0	1.9	0.6	0.5
Riverland	1.8	1.8	---	---
Hanford	1.7	1.0	---	---
300 Area	1.1	1.0	0.4	0.4
700 Area	3.5	2.0	---	---
Kennewick	1.0	0.8	---	---
Pasco	1.0	0.9	---	---
Benton City	< 0.1	0.3	---	---

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The average reading of 8 chamber stations in the BX Construction Area was 0.07 mrep/hr.

Five constant iondine monitors were in operation. The maximum concentrations as averaged over 8-hour periods were: 4.8×10^{-7} µc/liter at the SE corner of the 200-E Area; 2.0×10^{-6} at Tower 18 in the BX Construction Area; 4.8×10^{-7} on Gable Mountain, and 1.8×10^{-7} at Benton City. No positive result was obtained on the Richland instrument.

One hundred eight rain samples were collected, and the maximum results were 4.1×10^{-2} µc/liter in the 200-W Area, 0.1 µc/liter in the 200-E Area, and 3.2×10^{-3} µc/liter in Richland.

Land and Vegetation Contamination

Levels of vegetation contamination dropped at all locations. The only location with an average value above the calculated tolerance limit was near the 200 Areas. The values were:

µc I^{131} per kg.

Location	March Average	April Maximum	April Average
North of the 200 Areas	0.24	0.54	0.11
Near the 200 Areas	0.88	4.90	0.51
South of the 200 Areas	0.28	0.78	0.11
Richland	0.22	0.36	0.06
Pasco	0.13	0.10	0.05
Kennewick	0.21	0.29	0.07
Benton City	0.16	0.07	0.03
Richland "Y"	0.15	0.31	0.10
Hanford	0.27	0.53	0.18

The low level activity which has been found in soil samples in the BX Construction Area was proved to be due to the presence of naturally occurring radioactive potassium.

Eight wells have been put down around the Isolation Building waste disposal cribs in an attempt to determine the distribution of active waste material in the surrounding soil. The wells were placed radially on three lines spaced 120 degrees apart and were at distances of 18, 28 and 48 feet from the center of the #1 crib. Contamination of a very low order was found in 4 of the wells, all at depths of 35 or 40 feet. Maximum contamination was about 1 µg Pu/kg soil on a sample from the #5 well, which is located 18 feet south and 60 feet east from the crib. The other three contaminated wells were all along the line leading due west from the crib. The findings indicate that very little

contamination managed to escape the region immediately surrounding the crib. The region directly under the crib is not available for study but it is very unlikely that water flowing out the bottom of the crib would not move laterally as much as 18 feet in dropping vertically a distance of 150 feet. None of the information so far obtained would indicate that this method of waste disposal which was used would not be satisfactory for disposing of larger amounts of material. Further tests with fission products are being started.

Bio-assay Laboratory

Three hundred forty-three urine samples were collected, and 336 samples were analyzed. Results were obtained for 460 samples. One resample was taken although the original result was statistically within the control limits when the slightly high background was subtracted because of the possibility of an erroneous background. No other sample had more than 0.6 dis/min.

Biological Monitoring

Two goats from the island in the Columbia River north of 100-D were checked with a portable counter. It was estimated from these tests that each had about 0.25 μc of I^{131} in its thyroid. One of these goats, a female, was then killed, and its thyroid was examined in the laboratory where it was found to have 0.2 μc I^{131}. No other tissue from the goat had any appreciable activity. One sheep, a wether, was fed a solution containing 53 μc of I^{131} as sodium iodide. Uptake of activity in the thyroid was not particularly large inhibited possibly by the excess inert iodine (about 0.5 gram) which was also present. Active iodine concentrations as measured externally with a G.M. probe were reduced with a half-life approximating 1.5 to 3 days for all locations except the thyroid which was still gaining slightly after 14 days. The animal unfortunately had to be sacrificed after 14 days because of an accident. Examination of the thyroid indicated a total of only 1.2 μc I^{131} which was uniformly distributed through the gland in contrast to that reported last month where the activity was concentrated in the outer portion. Two other experiments were tried with I^{131}. In the first, a guinea pig was injected with a solution of I^{131} and died 15 minutes later; cause of death was not determined. A goat was then injected with about 17 μc of I^{131}, and will be sacrificed soon to determine the take-up.

Two badgers, three jack rabbits, one prairie dog, two magpies and one gull were obtained, and various tissues were checked. The only very high activities were in the rabbit thyroids which had up to 75 μc/kg.

About 40 fish have been taken from the Columbia River for activity studies. About 40 to 70% of the activity in these fish seems to be due to Na^{24} which is surprising because fish taken last summer did not have much Na^{24} in them. The maximum activities are in kidney tissues which have about 8×10^{-2} μc/kg. This level is about one-third that of algae in the river, and 30 times that in the water. Two sets of experiments were tried in exposing salmon fingerlings to active water for various lengths of time. Peak activity is reached

after about 40 hours immersion after which in one case the activity leveled out at a slightly lower value; in the other case, the level remained at about the same maximum point.

Fish Laboratory

The silver salmon studies have been continued with results similar to those obtained last year. The fry which hatched in the refrigerated effluent water soon began to die in great numbers and are subnormal in size and development. The mortality of fish in the 1:5 dilution continues at a high rate and an appreciable mortality has also been experienced in the 1:10 dilution. During the latter part of the month, the number of fish in each trough was reduced to 500 to prevent overcrowding.

Methods Development

A method of analyzing urine for fission product activities is being worked out and a spike solution containing known amounts of Sr, Ru, Zr, Cb and Ce has been made up. The presence of calcium in the urine is a considerable handicap in removing small amounts of these activities. The fluorophotometer which was made in the Instrument Shop has been set up, and the photo tube amplifier seems to work properly. Uranium standards are being made for calibrating this instrument. Methods of ashing vegetation samples so that the residue can be analyzed for Pu are being investigated; the best means so far found involves digestion in concentrated nitric acid.

Instrument Development

The electronic work on a scaler and an alpha amplifier, both portable battery operated units, has been completed, and they will be tested in the field as soon as cases are finished. A satisfactory register for the scaler has not yet been obtained. The product container monitor is not yet completed because of difficulties in balancing the gamma component. Preliminary search of the literature is being undertaken to determine the most feasible method to use in building a pulse analyzer for use in air monitoring equipment to allow immediate determination of plutonium alpha particles in the presence of the natural radioactive elements which are collected at the same time. A circuit to prevent over-voltaging of G.M. tubes on the conventional scalers in the event of a tube failure has been completed, and will be tested for use with the new hand counters which are being built.

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Medical Department

Calibrations

Routine calibrations were:

	Number of Calibrations		
RADIUM CALIBRATIONS:	March	April	1947 To Date
Fixed Instruments			
Gamma	672	614	2559
Portable Instruments			
Alpha	62	50	234
Beta	37	33	152
Gamma	396	413	1570
X-ray	6	9	20
Neutron	1	4	11
Total	502	509	1987
Personnel Meters			
Beta	294	653	1962
Gamma	7,312	7,691	30,851
X-ray	7,451	7,672	31,511
Neutron		22	22
Total	15,057	16,038	64,346
GRAND TOTAL	16,231	17,161	68,892

Plant Medical Division

Physical Examinations	March	April	Year to date
Pre-employment (G.E.)	316	282	1029
Annual	371	310	1434
Sub-contractor (food handlers, etc.)	162	162	514
Rechecks	205	213	678
Interval rechecks (Area)	896	1040	3987
Terminations & Transfers (G.E.)	40	43	172
Army & Government	60	35	172
Assist to Clinic, A & H Ins., Etc	0	0	7
Total	2050	2085	7993

Laboratory Examinations

Clinical Laboratory

Pre-employment, terminations, transfers	2887	2820	9935
Annual	2742	2244	10577
Rechecks (Area)	4568	5220	20031
First Aid	34	13	82
Plant Visitors	144	168	669
Clinic	2138	2342	9363
Hospital	1914	1475	6986
Public Health (including food handlers)	315	192	847
Military	34	13	106
Total	14776	14487	58596

X-Ray

Pre-employment, terminations, transfers	518	510	1793
Annual	392	353	1535
First Aid	42	34	147
Clinic	217	208	924
Hospital	136	103	490
Public Health (including food handlers)	39	20	84
Military	2	0	40
Total	1346	1228	5013

Electrocardiographs

Industrial	54	28	189
Clinic	5	11	31
Hospital	2	14	38
Military	0	0	2
Total	61	53	260

Allergy

Skin Tests	21	25	137

First Aid Treatments	March	April	Year to date
Occupational Treatments	391	398	1477
Occupational Retreatments	1255	1159	4218
Non-occupational (welfare) Treatments	3767	3488	13259
Total	5413	5045	18954

Absenteeism Investigation Report			
Total number calls requested	40	27	148
Total number calls made	40	27	148
Number absent due to illness in family	2	0	7
Number not at home when call was made	1	0	7

General

The health topic for the month of April was on "Cancer" to coincide with the National Campaign for the Prevention of Cancer. Material on this subject was distributed throughout the plant and used for group discussions.

During the month, x-ray technicians were given a refresher course in technique by the Technical Service Department of the General Electric X-Ray Corporation. Several hours a day were spent for a period of one week, the purpose being to review and standardize advanced technical procedures.

Two major lost time injuries occurred, one being a fractured arm and the other a back injury. No partial permanent disability is expected in either case.

Village Medical Division

Clinic Section	Men	Women	Children	March	April	Year to date
First Visits	186	198	201	460	585	2236
Retreatments	1343	1912	763	4042	4018	15079
Total				4502	4603	17315

Clinic Visits			
Medical	595	708	2570
Pediatrics	412	483	1863
Surgical	690	698	2669
Gynecological	351	329	1332
Obstetric (new)	39	47	204
Obstetric (recheck)	456	499	1831
Venoreal Disease	46	44	212
Ear, Nose & Throat	230	203	1022
Eye	235	217	941
Visits handled by nurses(hypo.,dressings)	800	617	2439
Night clinic visits	648	758	2232
Total	4502	4603	17315

Medical Department

	March	April	Year to date
Total clinic visits per day.....	145	153	
Home Visits			
Doctors.....	242	160	726
Nurses.....	116	53	422
Total.....	358	213	1148
Kadlec Hospital Section			
Census			
Admissions.....	337	284	1284
Discharges:			
Surgical.....	64	60	264
Medical.....	46	39	167
Obstetric & Gynecologic.....	82	58	263
Eye, Ear, Nose & Throat.....	62	45	252
Pediatrics:			
Children.....	50	30	185
Newborn.....	39	36	148
Total Discharges.....	343	268	1279
Patient Days.....	2116	1849	7987
Average Stay.....	6.2	6.8	6.2
Average Daily Census.....	68	61.6	64.7
Discharged against advice.....	4	0	5
One-day Cases.....	51	45	211
Operations			
Transfusions.....	30	11	72
Eye, Ear, Nose & Throat.....	42	37	186
Dental.....	0	1	1
Casts.....	13	8	35
Minors.....	42	45	179
Majors.....	35	27	141
Deaths.....	1	1	6
Deliveries.....	43	44	156
Stillborn.....	0	1	1
Physiotherapy Treatments			
Clinic.....	112	87	416
Hospital.....	93	26	205
Army.....	6	1	12
Industrial:			
Plant.....	111	94	421
Personal.....	29	12	125
Total.....	351	220	1179

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Medical Department

Pharmacy	March	April	Year to date
Number of prescriptions filled	1762	1437	6595
Patient Meals			
Regulars	2560	2128	10012
Lights	97	46	478
Softs	1255	1043	4148
Surgical Liquids	63	37	216
Tonsils & Adenoids	119	130	709
Specials	461	324	1767
Liquids	419	300	1305
Total	4974	4008	18635
Cafeteria Meals			
Noon	1252	1140	5034
Night	131	203	617
Total	1383	1343	5651
Nursing Personnel			
First Aid Nurses	21	22	
Clinic Nurses	11	12	
Public Health Nurses	6	6	
Hospital General Nurses	53	54	
Aides & Orderlies	40	40	
Total	131	134	

General

The average daily hospital census dropped from 68 to 61.6, an expected seasonal change, while the visits to the Outpatient Section increased slightly.

Public Health Section	March	April	Year to date
Communicable Diseases			
Amoebic Dysentery	0	0	0
Chickenpox	42	21	297
Diphtheria	0	0	0
German Measles	26	9	56
Gonorrhea	0	2	3
Impetigo	2	2	5
Influenza	79	34	113
Measles	2	1	4
Meningococcic Meningitis	0	0	0
Mumps	1	1	4
Pediculosis	0	0	1
Pinkeye	1	2	4
Poliomyelitis	0	0	0

Communicable Diseases (continued)	March	April	Year to date
Rheumatic Fever	0	0	0
Ringworm	1	3	6
Scabies	13	7	35
Scarlet Fever	2	5	26
Syphilis	1	0	5
Thrush	0	1	1
Tuberculosis	0	2	2
Vincent's Infection	0	0	0
Whooping Cough	104	25	196
Total	274	115	758
Total Number Field Nursing Visits	1119	573	3300
Immunizations			
Rocky Mt. Spotted Fever	0	4	4
Smallpox	11	54	81
Diphtheria	25	90	178
Whooping Cough	106	102	322
Schick Test	6	4	21
Tetanus	3	3	37
Influenza	1	1	8
Typhoid	0	0	0
Total	152	258	651
Administration			
Newspaper Articles	16	12	48
Committee Meetings	7	3	15
Attendance	106	65	276
Staff Meetings	3	5	14
Lectures & Talks	11	11	30
Attendance	1392	643	2441
Conferences	25	10	50
Attendance	60	20	125
Sanitation Inspections	157	165	648
Bacteriological Laboratory			
G. C. Smear	22	19	88
G. C. Culture	20	13	68
Fungus Culture	20	15	80
Vincent's Examinations	3	2	9
Trichomonas' Examinations	17	10	69
Sputum for T. B. Organisms	14	4	36
Bacterial Cultures	460	72	713
Examinations for Parasites	18	25	100
Throat Smear & Cultures	49	18	105
Blood Cultures	8	3	17
Stool Cultures	4	3	48

Bacteriological Laboratory (continued)	March	April	Year to date
Eye Smears	7	0	12
Examinations for spermatozoa	1	1	3
Quantitative determination of blood alcohol	1	0	4
Type for pneumococcus	0	0	1
Treated water samples	90	128	371
Untreated (raw water) samples	0	0	0
Milk Samples(Incl. milk, cream, ice cream).	87	89	365
Sewage Samples	9	8	34
Examinations for Eosinophiles	4	3	15
Dark field examinations	0	0	0
Virulence Tests	0	1	9
Total	834	414	2147

General

There was a drop of approximately 50% in morbidity of all types. There was also a 50% drop in the number of communicable diseases reported; influenza, whooping cough and chickenpox again being the most frequently encountered. There was a drop of 20% in home visits made by public health nurses for sick persons.

A social service case worker was added to the staff of the Medical Department and assigned to the Public Health Section. Through her services it is hoped that some service may be rendered for many social, economic and medical problems which are constantly being met in the village.

Water samples have been taken from all of the tract house wells during the past month. Five wells indicated the presence of contamination. Barrel water is being delivered to the tract houses involved and the inhabitants have been instructed as to the extent that the well water may be safely used.

The janitorial service in inadequate in some of the schools both from a quantitative and qualitative standpoint. There appears to be a lack of supervision and coordination in these activities.

A survey of the artificial light in the schools indicates the need of a thorough renovation throughout all school rooms by use of a flat base high reflection value paint. This step is conducive to recommended lighting practices which favorably affect students both physically and psychologically. Practically all rooms have areas which are marginal or sub-marginal with respect to the quantity of light at the present time.

The status of the food-handling establishments has not changed materially from last month. Considerable work remains to be completed, depending on the completion of engineering studies.

General (continued)

Dog bite cases continue to average approximately two a week. The practice of picking up dogs involved in dog bite cases and holding for observation at the dog pound is being continued.

One milk producer was eliminated in the month of April for failing to comply with the sanitation standards. This figure is against the three new producers which were accepted after completion of entirely new units. Bacteriological results of both the producer supply and pasteurized supply were very favorable.

Larviciding with oil of mosquito breeding areas around Richland has increased considerably during the latter part of April due to the rise in the Yakima and Columbia Rivers, and also due to increased irrigation. Few adult mosquitoes have been observed so far this season, however, the river bank vegetation has been sprayed with a DDT residual by means of aircraft and ground equipment.

Dental Division	March	April	Year to date
Patients treated.....	1498	1261	5914

General

There was a reduction in dental patients treated due to the loss of three dentists, who have not as yet been replaced.

MEDICAL DEPARTMENT PERSONNEL SUMMARY

April 30, 1947

Areas	Physicians	Dentists	Nurses	Aides & Orderlies	H. I. Specialists	Technicians	Office Workers	Others
100-B					1			
100-D			4		8	2	1	
100-F					11		1	
200-E			3		30		1	
200-W			3		57	2	1	
200-N								
300			1		55	1	2	
Plant General	7		8		11			
700-1100	12	6	75	40		20	48	33
Total	19	6	94	40	173	25	54	33

GRAND TOTAL - 444

DESIGN AND CONSTRUCTION DEPARTMENT

MONTHLY REPORT - APRIL 1947

Personnel

During the month of April, two draftsmen were added to the staff of the Design Section.

P. P. Barr was transferred from the Transportation Department to Design and Construction in the assignment of Project Engineer-Field. J. C. Hamilton and V. D. Nixon became members of the department as Senior Engineers-Field, both having been released by du Pont at Martinsville, Virginia for purpose of joining this organization. B. F. Gerlach joined the organization as an Engineer-Field. Gerlach was a new employee.

The total number of employees in this department is now 88, with five additional employees on assignment from other departments.

PROJECTS

I. DESIGN SECTION

Redox

Design of demonstration unit is 99% complete and construction is 80% complete. Estimated completion date is June 1, 1947. The semi-works program is being developed and consideration is being given to the construction of a new building for this unit instead of attempting to use existing facilities.

Housing

Work has progressed on the layout of the streets, walks, sewers, water lines and electrical utilities. Consideration is being given to the plan of constructing a considerable portion of the new housing using one-floor apartment type units in order to keep the construction cost within a reasonable amount. It is felt that this type of housing would fill a definite need of small families and groups of persons who are now occupying single unit houses desiring this type of living quarters rather than dormitory facilities. Preliminary approval of submitted plans was requested of the AEC in order that the Architect-Engineer may complete detail design of the units which he is commissioned to design.

D&C Bldg. Addition

Plans for the construction of the addition to the Design and Construction Building have been abandoned due both to the high cost of construction and to the additional space required occasioned by the present rush expansion program. It is considered more economical to move units of the Hanford construction camp administration building to a location just north of the 700 Area administration building. A project has been submitted to the AEC with the hope of immediate approval in order that the program will not be held up due to lack of facilities for the Design and Construction Department.

Design and Construction Department

Design Section (Continued)

Commercial Facilities

Bids have been received from Architect-Engineers on the construction of the most urgently needed village commercial facilities. These bids are being tabulated and Architect-Engineers will be selected on the basis of price and ability to perform and a project will be prepared requesting the appropriation of funds for these facilities. The facilities for which we are requesting funds for immediate construction are: General Store of the Sears-Roebuck type; a furniture store; a grocery store; bakery and delicatessen; printing shop; two auto sales and service buildings; tavern; additional bowling alleys and billiard room; and a fire station.

Village Community Facilities

Several plans and locations have been considered for the Junior High School and it is hoped that these questions can be settled immediately in order that the Architect-Engineer may proceed with the final design. In addition to the Junior High School, plans are being prepared for additions to the existing Senior High School and the Jefferson Grade School. It may be pointed out that immediate plans must also be prepared for an additional grade school to meet the need that will arise due to the increase in personnel as required by the expanding program.

300 Area Office Building

A preliminary schedule and plot plan have been prepared for the 300 Area office building and conferences will now be held to determine if the most logical arrangement has been arrived at. Particular consideration is being given to the interdepartmental relationships that might exist in order that the most desirable plan may be arrived at. It has been found desirable to locate the cafeteria in a separate building.

Assignment Group #2

This group has been continuing to study the proposed 400 Area operation. A layout of the entire procedure has been completed and a study of each station has been carried out to make certain that construction and operation will be satisfactory without any radical departure from existing practice. Discussion meetings have been held and it was decided that the men working on this study shall visit the present site of operation in order to be certain that all vital factors will be considered.

New 100 Areas

A group has been assigned to a study of the most desirable program to expedite the construction of these areas as much as possible. It has been recommended that a decision be made regarding material for which orders can be immediately placed, even without complete specifications, in order that suppliers may be advised of the type and size of forthcoming orders and corresponding space be assigned in their production schedules. In the meantime, a study of the overall project is being carried on and preparation made to start redesign of those buildings or facilities where changes are desired, it being understood that revisions

Design and Construction Department

Design Section (Continued)

New 100 Areas (Continued)

will not be made where such changes might increase the time required for completion of the project.

Warehouses, 700 Area Stores Requirements

A study is being made of the 700 Area Stores requirements with a view to consolidating the presently scattered store housing condition. It appears that the use of two or three surplus hangar type buildings may provide sufficient space to provide storage for all materials not requiring storage separate from general warehouse areas.

Softball Park

Drawings have been completed and estimate prepared for a new lighted softball park with concrete stands. A project is being prepared and will be submitted immediately.

II. CONSTRUCTION SECTION

Project C-112 Tank Farm 241-BX

Field progress continued satisfactorily during the month, all foundation slabs being completed and steel tank erection developing in an active manner. At the close of the month one tank lining was completed and under x-ray inspection. A second was essentially complete and being raised preparatory to inspection and steel erection was under way in various stages on seven additional tanks.

Excavation for diversion box, catch tank, and piping started during the month.

On April 1, 1947, a subcontract was awarded to X-Ray Products Corporation of Los Angeles for x-ray inspection of tank welding. During the month the subcontractor's organization was established in facilities at the site and x-ray work under way.

Project C-137

Bids were received April 11, 1947 for construction of an addition to the Design and Construction Building but were subsequently rejected as too high. The project is under restudy.

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ACCOUNTING DEPARTMENT

APRIL 1947

Statistics

General	April	Total To Date
H.E.W. Instructions Letters issued	3	38
Office Letters issued	2	15
Organization Announcements issued	2	35

Employees and Payrolls	Total	Monthly Payroll	Weekly Payroll
Employees on payroll at beginning of month	4,779	884	3,895
Additions and transfers in	197	12	185
Removals and transfers out	(55)	(5)	(50)
Transfers from Weekly to Monthly Payroll	--	16	(16)
Employees on payroll at month end	4,921	907	4,014
Gross amount of payroll	$ 1,386,389	$ 364,333	$ 1,022,056
Average salary rate per hour	$ 1.748	$ 2.310	$ 1.618
Average salary rate previous month	$ 1.758	$ 2.320	$ 1.627

Employee Plans	March	April
U. S. Savings Bonds		
Number participating at beginning of month	1,974	1,958
New authorizations	26	20
Voluntary cancellations	(39)	(30)
Removals and transfers out	(3)	(2)
Number participating at month end	1,958	1,946
% participating	41.0%	39.5%
Bonds issued - maturity value	$ 115,300	$ 131,600
- number	3,042	3,543
Refunds issued	27	37
Revisions in authorizations	36	27
Group Life Insurance		
Number participating at beginning of month	3,345	3,392
New participants and transfers in	104	111
Cancellations	(29)	(30)
Removals and transfers out	(28)	(25)
Number participating at month end	3,392	3,448
% of eligible employees participating	77.9%	76.9%

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Accounting Department

	March	April
Group Disability Insurance - Personal		
Number participating at beginning of month	4,054	4,143
New participants and transfers in	123	140
Cancellations	(9)	(6)
Removals and transfers out	(25)	(21)
Number participating at month end	4,143	4,256
% of eligible employees participating	95.2%	95.0%
Group Disability Insurance - Dependents		
Number participating at beginning of month	2,780	2,828
Additions and transfers in	63	88
Cancellations	(6)	(10)
Removals and transfers out	(9)	(11)
Number participating at month end	2,828	2,895
Group Disability Insurance - Claims		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	76	57
Daily Hospital Expense Benefits	68	63
Special Hospital Services	63	59
Surgical Operations Benefits	41	40
Dependent Benefits Paid		
Daily Hospital Expense Benefits	106	96
Special Hospital Services	103	92
Amount of claims paid by insurance company:		
Employee Benefits	$ 7,435.39	$ 7,006.81
Dependent Benefits	3,385.21	3,203.59
Total	$ 10,820.60	$ 10,210.40
General Accounting		
Number of Accounts Payable Vouchers Entered		
G. E.	2,942	2,888
du Pont	118	78
Total	3,060	2,966
Amount of Cash Disbursements (Accounts Payable)		
G. E.	$1,500,575.67*	$1,395,604.20
du Pont	20,838.42	62,395.80
Total	$1,521,414.09	$1,458,000.02
Number of Checks Issued		
G. E.	1,886	1,947
du Pont	60	50
Total	1,946	1,997

* Includes $500,000 reduction of U. S. Government Advance

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Accounting Department

General Accounting (continued)	March	April
Public Vouchers submitted to Area Manager-G.E.		
Amount of 1034 Public Vouchers not reimbursed at beginning of month	$1,028,836.10	$ 400,675.30
Amount of 1034 Public Vouchers submitted during month	1,795,564.51	2,438,304.96
Total	$2,824,400.61	$2,838,980.26
Amount of 1034 Public Vouchers reimbursed during month	2,423,725.31	1,623,180.86
Amount of 1034 Public Vouchers not reimbursed at month end	$ 400,675.30	$1,215,799.40
Number not reimbursed at beginning of month	49	35
Number submitted during month	113	140
Total	162	175
Number reimbursed during month	127	133
Number not reimbursed at month end	35	42
Amounts for which 1034 Public Vouchers have not been submitted to Area Manager-G.E.		
1035 Pre-Audit Vouchers issued and outstanding	$ 579,317.98	$1,470,747.70
1035 Pre-Audit Vouchers not issued	1,849,651.60	784,407.51
Total (unbilled items)	$2,428,969.58	$2,255,155.21
Number of Pre-Audit Vouchers issued and outstanding	66	84
Public Vouchers submitted to Area Manager-duPont		
Amount of 1034 Public Vouchers not reimbursed at beginning of month	$ 56,828.66	$ 9,602.32
Amount of 1034 Public Vouchers submitted during month	10,720.57	49,579.48
Total	$ 67,549.23	$ 59,181.80
Amount of 1034 Public Vouchers reimbursed during month	57,946.91	45,083.78
Amount of 1034 Public Vouchers not reimbursed at month end	$ 9,602.32	$ 14,098.02
Number not reimbursed at beginning of month	34	26
Number submitted during month	14	19
Total	48	45
Number reimbursed during month	22	13
Number not reimbursed at month end	26	32
Amounts for which 1034 Public Vouchers have not been submitted to Area Manager-duPont		
1035 Pre-Audit Vouchers issued and outstanding	$ 30,121.40	$ 1,405.56
1035 Pre-Audit Vouchers not issued	20,914.58 CR	8,748.02
Total (unbilled items)	$ 9,206.82	$ 10,153.58
Number of Pre-Audit Vouchers issued and outstanding	3	3

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Accounting Department

	March	April
Cash Receipts - General Electric		
Accounts Receivable		
U. S. Government	$2,423,725.31	$1,623,180.86
Rent	47,385.46	48,075.93
Hospital	33,875.58	29,641.05
Telephone	2,657.64	2,845.99
Miscellaneous	525.98	1,850.25
Advance of U. S. Government Funds	-0-	-0-
Employees Sales	1,330.41	1,571.88
Bus Fares	6,950.30	7,354.45
All Others	5,530.89	5,995.48
Total	$2,521,981.57	$1,720,515.89
Cash Receipts - du Pont		
Accounts Receivable		
U. S. Government	$ 57,946.91	$ 45,083.78
Hospital	594.25	477.98
Miscellaneous	755.35	1,229.57
All Other	14,025.78	42,679.62
Total	$ 73,322.29	$ 89,470.95
Property		
Number Transfer Notices Received	332	364
Number of Items Affected	898	1,015
Number of Items Tagged		
New Items	235	2,159
Replacements	1,748	1,239
Total	1,983	3,398
Inventories		
Essential Materials	$1,856,643.18	$1,986,437.68
Excess Materials	571,316.44	474,728.47
Memo Employee Sales	5,382.40	6,736.44
Precious Metals	40,602.97	40,676.99
Returnable Containers	13,584.92	12,477.40
Spare Parts	1,426,965.26	1,430,713.84
Special Process Material	457,923.25	450,084.61
Stores for Cash Sales to Employees	25,487.46	27,152.29
Stores - General	1,135,770.02	1,173,191.40
Stores - Material Held for Future Use	75,405.73	131,490.13
Inventory Disbursements		
Essential Materials	$ 361,331.25	$ 291,486.30
Excess Materials	7,674.31	96,591.33
Memo Employee Sales	1,103.70	1,361.92
Precious Metals	-0-	-0-
Returnable Containers	1,690.55	1,663.50
Spare Parts	8,004.68	17,865.97
Special Process Material	29,071.54	2,753.97
Stores for Cash Sale to Employees	2,810.14	4,042.75
Stores - General	111,269.10	121,448.00
Stores - Material Held for Future Use	2,312.95	2,638.11

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Accounting Department

Stores	March	April
Number of items added to stores stock	575	567
Number of items deleted from stores stock	36	6
Items in stores stock at month end	42,548	43,109
Receiving Reports issued	3,764	2,960
Shipments on hand not checked	71	87
Material Exception Reports issued	136	164
Material Exception Reports cleared	133	158
Material Exception Reports open at month end	13	19
Certificates of Inspection issued	14	18
Certificates of Inspection cleared	12	48
Certificates of Inspection open at month end	44	14
Store Orders filled	14,688	17,246
Emergency Store Orders filled	1	2
Returnable Containers received	232	303
Returnable Containers shipped	323	245
Returnable Containers on hand at month end	4,370	4,428
Returnable Containers on hand over 6 months	1,300	1,330
Returnable Container Return Orders received	15	19
Returnable Container Return Orders closed	14	11
Returnable Container Return Orders on hand at month end	215	223
Shipping Orders received	114	19
Shipping Orders closed	67	84
Shipping Orders on hand at month end	53	60
Purchasing		
Requisitions received	2,358	2,415
Requisitions placed	2,495	2,466
Requisitions on hand at month end	614	563
HW Orders placed	1,417	1,358
CHEW Orders placed	125	161
MO Orders placed	75	54
OR Orders placed	1	2
Alterations issued	214	231
Requests to expedite received	253	211
Scrap Sales Completed	0	0
Value of scrap sold	0	0
Miscellaneous Clerical		
Office Machines repaired in shop	145	110
Office Machines service calls	174	168
Lines working as Class A Telephones	144	161
Lines working as Class C Telephones	231	244
Lines working as Class C Party Telephones	21	20
Total Official Telephones	418	425
Lines working as Class B 2 Single Telephones	73	76
Lines working as Class B 1 Single Telephones	167	168
Lines working as Class B Party Telephones	1,130	1,123
Total Residence Telephones	1,373	1,367
Vacant Lines	209	208

Miscellaneous Clerical (con't)	March	April
Items of First Class Mail received	21,119	20,801
Items of Parcel Post received	931	759
Items of Registered Mail received	124	74
Items of Insured Mail received	92	104
Items of Special Delivery Mail received	51	62
Amount of money used on postage meter machine	$ 13.21	$ 88.75
Stamps used	$597.00	$584.00
Multilith orders received	209	212
Multilith orders completed	2215	211
Balance of multilith orders on hand at month end	12	13
Mimeograph Orders received	1,565	1,345
Mimeograph Orders completed	1,565	1,345
Mimeograph Orders on hand at month end	0	0
Ditto Orders received	2,622	2,739
Ditto Orders closed	2,622	2,739
Ditto Orders on hand at month end	0	0
Accounting Department		
Number of employees on roll at month end	653	430*
Terminations and Transfers	17	221
New Hires	17	18
% of termination	2.65	.0590*
% of absenteeism	3.16	2.74
Major injuries	0	0
Minor injuries	13	7

* This does not include the 238 Assigned Clerical employees transferred to other Departments on 3/31/47.

PERSONNEL AND ORGANIZATION

M. J. Smith was transferred as of April 23, 1947 to Hospital Accounting from General Accounts Section.

SECTIONAL ACTIVITIES

Cost

A purchase order was placed with the International Business Machine Company for the rental of the necessary machines to install the punch card system for work order cost data and reports. Requisitions were also issued for the necessary cards, electroplates, card cabinets, ledger sheets and work sheets required to change over to the use of power equipment. The majority of the machines required will be transferred from the War Assets Administration in Pasco and should be ready for use by the middle of May.

Accounting Department

Cost (continued)

As a result of a study completed by the Cost Division during the month, an overhead rate of 35% was applied to all labor service rendered to a third party by Company personnel after April 17. This new rate supersedes the 15% overhead factor previously applied.

Field Clerical

Detailed instructions were received from the Atomic Energy Commission relative to the receipt and shipment of SF material. Final interpretation of the instructions have not been reached with local Government officials but preliminary discussions indicate that a considerable amount of additional clerical work will be required as a result of the changes in procedure recommended by the Atomic Energy Commission.

General Accounting

Accounting Routines

Classification and Definition of all General Ledger Accounts was prepared in April. Revisions were also made in the accounts and their functions to agree, insofar as possible, with Company accounting practices.

Billings to U. S. Government

A total of 169 pre-audit vouchers were prepared during the month for audit by the Government. There were 140 vouchers returned for reimbursement. The amount of unaudited vouchers in the Government's hands valued at $1,470,747.70 is above normal. Payrolls covering last two weeks in April, in the amount of $445,160.50, have not been audited and this is the largest open item.

A comparison of outstanding 1035 Pre-Audit Vouchers and 1034 Public Vouchers outstanding as of the end of March and April is as follows:

	March 31, 1947	April 30, 1947
1035 Pre-Audit Vouchers Issued but not Audited	$ 579,317.98 (66)	$ 1,470,747.70 (84
1034 Public Vouchers Issued but not reimbursed by Government	400,675.30 (35)	673,578.80 (42
Total	$ 979,993.28	$2,144,326.50

Du Pont Activities

There are still five employees spending most of their time on du Pont "clean-up" work. We expect within the next two weeks to be able to assign at least one and possibly two of these employees to other duties.

Accounts Payable Vouchers are still prepared for du Pont but actual checks are issued by du Pont from Wilmington.

General Accounting (continued)

Property

A total of 7,969 metal tags have been applied to Class B Property since March 17, 1947, 845 of which were applied during the last week of April. Agreement was reached with the Government to the effect that the nomenclature appearing on the Accountable Record list previously submitted to them will be considered the "Standard Nomenclature" for all future items added to the record.

Miscellaneous Clerical

Office Letter No. 14, containing instructions to be followed in the event of a contemplated nation-wide telephone strike, was issued on April 2. The strike went into effect on April 7 and was not settled at month end. Partial relief was obtained from the restrictions placed on long distance service by resuming the use of the Seattle leased lines on April 17.

General service was discontinued on Hanford Trunk Line No. 2 on April 1 in order to use it as a medium for handling emergency calls to the Fire and First Aid Stations in Hanford.

The 3000 Area PBX board, formerly used by the Military Police Detachment headquartered there, was discontinued during the month. Calls to the Fire Station at the 3000 Area barracks are now routed through the Richland Exchange.

Training classes for telephone operators continued during the month and phraseology was stressed by giving written tests to all operators in the Exchange.

Preliminary work was started on a new telephone directory which is scheduled to be issued in June.

Arrangements were completed with the Housing Office to list authorized part-time business agencies in the classified section of the directory provided the agency pays the telephone rental rate established for business firms.

Payroll Divisions

During the month of April two claims were paid by the Metropolitan Life Insurance Company under the Group Life Insurance Plan. One settlement was in the amount of $4,000.00 and the second settlement, in the amount of $8,700.00, was on an installment basis at the request of the beneficiary. This installment settlement will involve a total payment of $11,072.00 over a period of fifteen years. A total of three claims have been paid since the insurance plan was inaugurated at Hanford Engineer Works on September 1, 1946.

[redacted]

Accounting Department

Payroll Divisions (continued)

Salary Record Card was designed and is now being completed for all monthly paid employees. This salary record card, which contains information from employees' personnel records most frequently used, will be of considerable assistance in connection with special reports and listings frequently required by the Government and by the Company for monthly paid employees. This record will also contain certain personnel information to be taken from du Pont records which is not already contained in our personnel folders.

Social Security reports for the first quarter of 1947 were prepared and the reports were reconciled with payroll deductions and control records.

Arrangements were made with the Government Audit Section as to reimbursement of Additional and Free Group Life Insurance premiums. In the case of Additional Group Life Insurance premiums, these represent amounts deducted from employees' salaried and the Government has indicated that they will accept our billing without detailed listings by employees of amounts deducted. In the case of Free Group Life Insurance premiums, they have also indicated that no detailed listings are required in view of the small premium rate per employee and that any audit would cost far in excess of any possible savings. We have requested General Office, however, to furnish certification as to pertinent points of the insurance policy which have been requested by the Government Audit Section. In the case of Group Disability Insurance, we have furnished the Government with detailed list of all employees insured and the premium for each employee and the total cost as segregated between employee and Company portion.

Disability Payroll still being prepared for du Pont by the Weekly Payroll Division now involves only one du Pont employee.

Absentee report prepared by Weekly Payroll Division for all non-exempt employees shows that absenteeism during first four months of 1947 was 2.1% as compared with 2.7% for comparable period in 1946.

Purchasing

The telephone strike impaired the efficiency of the Purchasing Division in that ordering and expediting of urgently needed materials had to be accomplished by telegraph and air mail instead of by telephone as is the normal practice.

As mentioned in previous reports, the loss of a priority rating has increased procurement problems. For example, one of the principal suppliers of paint advised that shipments of paint would be discontinued unless a priority rating which would enable the supplier to obtain raw materials was extended.

Final approval from the Law Division in Pittsfield has obtained on scrap sales contract forms and steps were immediately taken to dispose of scrap material which has been accumulating for some time.

Accounting Department

Purchasing (continued)

The Government organization has, in a number of instances, delayed the return of Record of Purchases for General Electric Company manufactured products beyond the ten day period specified in the prime contract. Attempts to correct this condition have been made by informal contact with the Chief Project Auditor's Office rather than by placing the order at the expiration of the ten day period as provided by a strict interpretation of the prime contract.

The Pennsylvania Salt Manufacturing Company withdrew an offer to supply one carload of caustic soda for April and advised that they would be unable to supply any more caustic soda until a new plant was completed at Portland, Oregon.

The current consumption of caustic soda is nine carloads per month. The maximum amount that could be procured in April was eight carloads. There were approximately twelve carloads in storage at month end which means that the limited reserve will be depleted in twelve months under present conditions unless additional sources of supply can be developed.

A strike at J. T. Baker Chemical Company was settled during the month and schedule shipments of bismuth subnitrate and sodium bismuthate resumed.

Stores

C. J. Sheeran made trips to Stockton, California and Seattle, Washington during the month to investigate the possibility of obtaining critical building materials from Government stocks. This trip revealed that unless a priority can be obtained through Atomic Energy Commission Officials in Washington, the quantity of building material available through this source will be limited as 90% of the present supply goes to the National Housing Authority.

A special inventory was made of all tires in stock and in the Salvage Yard in order to establish proper accountability records for tires in accordance with proposal received from the Government Property Section.

Arrangements were completed to convert the theater, locomotive repair shop and three large hutments in the Hanford Area to warehouses for storage of material which will be stock piled as a result of the dismantling program which was started at the Hanford Camp Site on April 1.

PROJECT AND RELATED PERSONNEL

GOVERNMENT EMPLOYEES	3-31-47	4-30-47	
Civilian Personnel - Atomic Energy Commission	295	293	
Civilian Personnel - G. A. O.	4	4	
Commissioned Officers (Exc. of MP's and MI)	7	10	
MP Company (Including C. O.)	238	45	
MI Detachment (Including C. O.)	17	18	
Military Personnel (Other than above)	0	0	
Total		561	370
PRISON INDUSTRIES		217	217
RICHLAND VILLAGE PERSONNEL			
Facilities and Organizations	650	663	
Schools and Churches	207	208	
Total		857	871
MORRISON-KNUDSEN PERSONNEL (Benton City)		90	88
MORRISON-KNUDSEN PERSONNEL (Sub-Contractor)		125	151
X-RAY PRODUCTS CORP. (Sub-Contractor)		0	8
GENERAL ELECTRIC PERSONNEL		4,821	4,964
GRAND TOTAL		6,671	6,669