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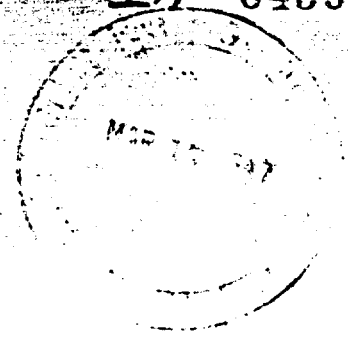

Copies: #1 - H. A. Winne - Schenectady
#2 - Zay Jeffries - Pittsfield
#3 - C. G. Suits - Schenectady
#4 - D. H. Lauder
#5 - A. B. Greninger
#6 - C. N. Gross
#7 - W. P. Overbeck
#8 - The Area Engineer
#9 - The Area Engineer
#10 - The Area Engineer
#11 - The Area Engineer
#12 - 700 Area File
#13 - 700 Area File

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This Document consists of 153 Pages [redacted]

March 14, 1947

HANFORD ENGINEER WORKS

MONTHLY REPORT

FEBRUARY 1947

DECLASSIFIED
WITH DELETIONS

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GENERAL SUMMARY

The excellent safety record of the 300 Area was terminated on February 28 by the reclassification of a sub-major injury to a major injury. This injury originally occurred on November 13, 1946 and was a fracture of the little finger of the left hand. The injury did not respond to medical treatment as originally indicated and now comes under the major injury classification.

Philip D. Reed, Chairman of the Board of the General Electric Company, and John Cowles, member of the Board of Directors, visited the Hanford Engineer Works on February 11.

A meeting was held with the General Electric Company consultants at Hanford Engineer Works on Tuesday and Wednesday, February 25 and 26. The following attended the meeting:

E. O. Lawrence, University of California (Berkeley)
G. T. Seaborg, University of California (Berkeley)
W. K. Lewis, Massachusetts Institute of Technology
H. Worthington, du Pont Company, Wilmington, Delaware
W. H. Zinn, Argonne National Laboratory

P. H. Morrison (Cornell University) and E. P. Wigner (Clinton Laboratories) were unable to attend. General Electric personnel who visited the plant for this meeting were H. A. Winne, C. G. Suits, K. H. Kingdon and H. Brooks from Schenectady, as well as W. H. Milton, Jr. and F. W. Warner, Jr. from Pittsfield. F. E. Seitz and J. M. Siegel from Clinton Laboratories were on the plant for special irradiation discussions, and attended that portion of the Consultants Meeting which was devoted to this subject. The problems now being encountered at Hanford Engineer Works were discussed in detail with this group and direct assistance was received in the nature of active suggestions as to procedures to be followed in investigating the problems. The visit was of great value to members of the Hanford Engineer Works technical staff.

The Area Engineer was furnished with copies of the known and anticipated projects for the Hanford Engineer Works for the next eighteen months. This project list, or budget, was submitted to secure approval on all projects that should be started within the next twelve months. Immediate action is required, especially on the housing request, if the program for the Hanford Engineer Works is to proceed. The action that will be taken on this list is unknown at this time.

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 92.2.

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

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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

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HW-75944-Del

FCPCE REPOPT
FEBRUARY 1947

	Non-Exempt		Exempt		Total	
	1-31-47	2-28-47	1-31-47	2-28-47	1-31-47	2-28-47
Management	-	-	7	7	7	7
Design & Construction	17	26	30	42	47	68
"P" Department	175	179	50	50	225	229
"S" Department	241	237	55	53	296	290
Technical	132	139	98	102	230	241
Power	356	354	79	79	435	433
Maintenance	527	534	94	96	621	630
Electrical	176	178	36	37	212	215
Instrument	107	108	38	38	145	146
Service	593	591	143	145	736	736
Transportation	566	575	60	61	626	636
Medical	279	280	110	113	389	393
Accounting	599	615	47	49	646	664
Total	3768	3816	847	872	4615	4688

PERSONNEL DISTRIBUTION - FEBRUARY 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	6	15	12	-	-	12	-	5	50
Operators	11	40	40	-	-	88	-	-	179
Total	17	55	52	-	-	100	-	5	229
S DEPARTMENT									
Supervisors	-	-	-	21	27	-	1	3	52
Operators	-	-	-	106	118	-	12	1	237
Engineer On Assignment	-	-	-	-	-	-	1	-	1
Total	-	-	-	127	145	-	14	4	290
TECHNICAL DEPARTMENT									
Supervisors	-	5	-	5	5	11	-	8	34
Chemists, Engineers & Physicists	2	19	11	43	36	87	-	9	207
Total	2	24	11	48	41	98	-	17	241
POWER DEPARTMENT									
Supervisors	7	25	22	6	9	-	2	8	79
Operators	36	97	95	24	32	8	-	34	326
Others	3	5	5	-	8	4	-	3	28
Total	46	127	122	30	49	12	2	45	433
MAINTENANCE DEPARTMENT									
Supervisors	1	2	7	4	12	4	9	26	65
Engineers	-	-	-	-	-	-	-	31	31
Mechanics	9	22	16	33	69	40	79	188	456
Others	1	1	-	12	16	8	8	32	78
Total	11	25	23	49	97	52	96	277	630

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	Total
ELECTRICAL DEPARTMENT									
Supervisors	1	2	3	2	2	1	11	8	30
Electricians	6	9	13	16	13	9	50	39	155
Others	1	1	2	1	3	1	13	8	29
Total	8	12	18	19	18	11	74	55	215
INSTRUMENT DEPARTMENT									
Supervisors	1	3	4	2	4	5	-	5	24
Engineers	-	-	-	-	-	9	-	5	14
Mechanics	4	14	13	15	15	8	-	3	72
Others	-	2	3	2	3	19	-	7	36
Total	5	19	20	19	22	41	-	20	146
SERVICE DEPARTMENT									
Supervisors	9	7	6	9	7	11	13	83	145
Patrolmen	23	53	53	88	75	28	8	55	383
Firemen	14	-	-	-	-	12	-	53	79
Laundry Operators	-	-	-	-	1	-	-	1	2
Inspectors	4	4	4	4	4	-	1	1	22
Janitors	2	4	4	6	10	8	3	35	72
Others	-	-	-	-	11	-	-	22	33
Total	52	68	67	107	108	59	25	250	736
TRANSPORTATION DEPARTMENT									
Supervisors	1	2	2	3	3	2	10	38	61
Drivers (Based on Areas Served)	10	24	26	31	31	18	31	42	213
Mechanics	1	1	1	1	2	-	9	63	78
Trainmen	-	5	4	4	4	-	-	2	19
Laborers	3	3	3	7	3	3	-	80	102
Others	5	9	10	15	12	5	12	95	163
Total	20	44	46	61	55	28	62	320	636

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	Total
MEDICAL DEPARTMENT									
Physicians	-	-	-	-	-	-	7	12	19
Dentists	-	-	-	-	-	-	-	8	8
Nurses	-	4	-	3	3	1	10	77	98
H. I. Specialists	-	8	12	30	49	51	10	11	171
Technicians	-	2	-	2	-	1	-	19	24
Others	-	-	-	-	-	-	-	73	73
Total	-	14	12	35	52	53	27	200	393
ACCOUNTING DEPARTMENT									
Supervisors	-	-	-	-	-	-	-	49	49
Clerks	1	2	4	3	4	5	-	121	140
Telephone & Teletype Operators	-	-	-	1	-	-	-	35	36
Others	1	4	4	6	12	20	-	392	439
Total	2	6	8	10	16	25	-	597	664
DESIGN & CONSTRUCTION									
Exempt Employees	-	-	-	-	-	-	-	42	42
Non-Exempt Employees	-	-	-	-	-	-	-	26	26
Total	-	-	-	-	-	-	-	68	68
MANAGEMENT	-	-	-	-	-	-	-	7	7
GRAND TOTALS	163	394	379	505	603	479	300	1865	4688

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ARRIVALS AND DEPARTURES OF EXEMPT PERSONNEL

ARRIVALS

Name	Department	Physical Arrival	Origin
Jack L. Boyd	Design & Const.	2-17-47	New
Frederick W. Daugherty	Design & Const.	2-10-47	New
Horace E. Getz, Jr.,	Design & Const.	2-3-47	New
Louis H. Hildebrandt	Design & Const.	2-12-47	New
Walter P. Ingalls	Design & Const.	2-24-47	New
Fulton C. McInerney	Design & Const.	2-19-47	Trf.Schenectady
Glenn Eldon Nedervold	Design & Const.	2-19-47	New
John T. Stranix	Design & Const.	2-19-47	New
Bruce E. Teeple	Design & Const.	2-24-47	New
William R. Thorson	Design & Const.	2-26-47	Trf. Schenectady
William B. Webster	Design & Const.	2-10-47	New
Claude E. Davis	Technical	2-3-47	New
Clark H. Ice	Technical	2-20-47	New
George Robbins Kiel	Technical	2-7-47	New
Earl F. Riggs	Technical	2-19-47	New
Marlin L. Cumming	Electrical	2-27-47	New
William C. Berlin, Jr.,	Medical	2-21-47	New
Mary B. Gavin	Medical	2-20-47	New
Geo. H. Whipple, Jr.,	Medical	2-28-47	New
Edmond F. Charette	Accounting	2-10-47	Trf.Schenectady
Eugene T. Sheehan	Accounting	2-10-47	On Pittsfield Roll

DEPARTURES

Name	Department	Date of Departure	Origin
W. J. Walsh	Technical	2-25-47	Vol-Quit
Oliver H. Lang Jr.,	Maintenance	2-14-47	Completion of Assignment

WHM

	WW	WX	WY	WZ
CA	1,693	107	41,516	2,816
CB	-	1	-	1,500
CC	-	108	-	4,316
CD	818	50	38,076	2,393
CE	12,067	47	708,938	2,696
CF	2,363	9	248,434	967
CG	-	-	36,454	145
CH	15,814	62	955,031	3,657
CI	19,984	78	711,623	2,702
CJ	-	6	-	196
CK	-	6	-	641
CL	-	7	-	580
CM	-	6	-	84
CN	-	1	-	76
CO	-	7	-	633
CP	-	10	-	190
CQ	-	4	-	79
CR	-	5	-	70
CS	-	8	-	-
CT	-	2	-	-
CU	-	4	-	-
CV	-	6	-	-
CW	-	4	-	-
NA	-	-	153,473	601.0
NB	9,120	35.5	255,586	1,001.0
NC	4,736	18.5	210,915	826.0
ND	13,856	54.0	619,974	2,428.0
NE	-	-	97,504	382.7
NF	9,248	36.1	192,157	753.7
NG	4,816	18.8	147,335	578.0
NH	14,004	54.9	436,996	1,714.4
NI	6,720	26.4	235,686	924.0
NJ	5,040	19.8	169,762	665.2
NK	-	-	-	-
NL	11,760	46.2	405,448	1,589.2
NM	-	-	-	385.6
NN	-	-	-	374.9
NO	-	24.3	-	284.2
NP	-	22.1	-	523.6
NQ	-	46.4	-	1,568.3

[redacted]

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	WP	WQ	WR	WS
NR	2,295	144	3,170	198
NS	552	34	426	26
NT	17,367(a)	68(a)	17,974	70
NU	10,299	40	4,906	19
NV	33,001	129	39,026	152
NW	-	-	-	-
NX	-	12	-	13
NY	-	35(b)	-	27(b)
NZ	-	27	-	27
GA	55,969	218	55,969	218
GB	63,557	248	63,429	247
GC	63,660	248	63,580	248
GD	183,186	714	182,978	713
GE	30,359	118.7	33,503	130.6
GF	-	21.2	-	20.9
GG	-	1,521.9	-	1,568.3

	WT	WU
GH	-	98,107
GI	6,227	182,019
GJ	5,250	148,703
GK	11,477	428,829
GL	-	78,073
GM	7,550	156,768
GN	3,981	122,086
GO	11,531	356,927

	WK	WL	WM	WN	WO
GP	5,311,000	3,971,000	-	9,282,000	328,848,000
GQ	5,046,000	3,108,000	-	8,154,000	306,634,000
GR	187,700	216,600	-	404,300	18,965,300
GS	4,076,000	4,569,000	-	8,645,000	296,405,000
GT	-	288,200	-	288,200	11,438,000
GU	4,076,000	4,280,800	-	8,356,800	284,967,000
GV	4,489,000	3,305,000	-	7,794,000	-
GW	-	-	-	460,000	-
GX	-	-	-	8,637,000	286,671,160

(a) Does not include 3801 unbonded pieces at 15 units.
(b) Three tons of this amount in bronze and Al-Si slag and process solution.

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P DEPARTMENT

FEBRUARY 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. There were no scrams. The B-Pile was maintained in standby condition with a water flow of 4000 g.p.m.

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

II. ORGANIZATION AND PERSONNEL

Four operators, two of whom were formerly employed in the 300 Area, were hired and assigned to the 300 Area.

III. AREA ACTIVITIES

PILE SUMMARY	PILE B	PILE D	PILE F
Time Operated	-	90.2	94.2
Operating Efficiency	-	89.0	93.7
*Power Level (MW)	-	250	200
*Inlet Water Temperature (°C)	5.8	4.7	4.6
*Outlet Water Temperature (Maximum °C, 10 tubes, .240 zone)	5.8	43.0	34.8
Number of Scrams	-	0	0
Number of purges	0	1	0
Helium consumption (cu. ft.)	14630	**76,718	39,585
Metal Discharged (tons)	0	***36.1	18.8
Inhours gained (this month)	0	0	2
*Inhours Poisoned	-	351	354
*Inhours in Rods	-	59	50

* Month end figures

** Includes purification losses for a car of gas unloaded this month.

*** This figure is 3.2 tons below the amount of metal scheduled to be discharged due to a very heavy work schedule at D Area on February 25. The remaining metal will be discharged March 9.

PILE BUILDING

Outage Breakdown

[redacted]

[redacted]

Date of Outage	Scheduled Outages Metal Discharges	Maintenance	Unscheduled	Length of Outage (Hours)
2-4-47	D			22.0
2-11-47	D			21.9
2-12-47	F			18.9
2-25-47	D			22.1
2-26-47	F			19.8

There were no scheduled maintenance outages and no unscheduled shutdowns.

Operating Experience

Details of irradiations of Special Requests processed during the month and the monthly foil exposure in the B Pile, which was made on February 12, may be found in the Technical Section of this report.

Functional tests of the High Tank check valves were completed satisfactorily at B-Pile on February 9, at D-Pile on February 11, and at F-Pile on February 12.

The increased loading of bismuth as part of an expanded program of irradiation of this material was completed on February 4 when 5 tubes at the D-Pile were charged with 50 slugs each. The D-Pile now contains 10 tubes with 50 slugs each and the F-Pile 12 tubes with 45 slugs each.

On February 7 the process water to the B Pile was raised to 9600 g.p.m. to facilitate the checking for possible difficulties of the B Area effluent lines to the Columbia River. This test, as well as the checking of the D Area effluent lines, was promoted because of the difficulties encountered in the F Area. The results of these surveys are reported by the Project Engineering group.

A number of tubes covered by Production Tests were discharged during February. From the D-Pile these were: 3 tubes of cast slugs, (Tests Nos. 105-45-P and 105-61-P); 2 tubes of special extruded metal, (Test No. 105-46-P). From the F-Pile there were: 1 tube of special extruded slugs, (Test No. 105-45-P); 1 tube of extruded "Super Ames" extra high quality slugs, (Test No. 105-46-P). Details are discussed in the Technical section of this report.

On February 11, in conformance with Production Test No. 105-85-P, Tubes Nos. 3469-D, 3478-D, and 3574-D were loaded with graphite samples of varying previous exposures. In the order named, the tubes were connected to a continuous supply of oxygen, helium, and carbon dioxide.

In accordance with Production Test No. 105-89-P, the following orifices at F-Pile were changed February 26 from the 0.140" size to the indicated larger sizes to determine if chattering of solid aluminum dummies occurs in faster water flow columns:

Operating Experience, Cont'd

0.140" to 0.175"	0.140" to 0.200"	0.140" to 0.240"
4453, 4489	4562, 4585	4669, 4678
4355, 4392	4561, 4586	4668, 4679
4457, 4490	4560, 4587	4667, 4680
3251, 3296	4665, 4666	4681, 4682

Mechanical Experience

The two pin holes previously reported in the central water tube of No. 9 Horizontal Rod at the B-Pile were repaired by welding. The rod tip plates are being reassembled, following which the rod will be returned to the pile.

Under Production Test No. 105-52-P, Tube No. 4385-B was removed from the B-Pile in January. An inspection of the gun barrels indicates that previously observed scratching of the tube probably occurs at the beginning of the tapered portion, about 3½" from the inner end of the front gun barrel. Honing equipment is being fabricated to correct this condition.

The repairs to the F Area effluent water lines in the Columbia River were completed February 25 and the U. S. Engineers' dredge, which was borrowed for this work, returned to its home location.

At the F-Pile, the Mason-Neilan valves at the No. 2 and 3 safety flood tanks were found to be leaking very slowly and were replaced. Both valve seats showed evidence of corrosion.

Manometer traverses and borescope surveys were made of 3 horizontal rod thimbles to obtain information on rod performance and thimble bowing. Results were as follows:

The No. 2 thimble at D-Pile was surveyed on February 4; the maximum upward bowing was 1.51" at a point 16' inside the pile. The rod is scratched along the top but functions satisfactorily.

The "B" Rod thimble at D-Pile was surveyed on February 25; the maximum upward bowing was 1.37" at a point 16' inside the pile. The rod has 2 abrasions about 12" long by ¼" wide on the top about 10' and 20' from the end of the rack section; the rod functions satisfactorily.

The No. 6 thimble at F-Pile was surveyed on February 12. The borescope would not go beyond a point 13.5' inside the pile; the manometer traverse indicated that there was a hump in the thimble or the graphite track at this point. The surveying equipment is being modified to allow an exact contour of this thimble to be obtained in March. The rod was reassembled and is available for normal use although it drags in operation when approximately 240" out.

[redacted]

Mechanical Experience, Cont'd

The No. 2 Rod, (discussed in last months report), and the No. 6 Rod at the F-Pile are available for normal operation but are valved off of the emergency shutdown circuit.

A mock-up for studying horizontal rod and thimble clearance has been completed in F-Area. Results obtained from a study of this device will be used in making repairs to the horizontal rods listed above.

Continued trouble was experienced with binding of vertical safety rods, caused principally by rod guide inclination. Those rods which have shown sub-standard performance are as follows:

D-Pile

No. 32 Rod is slightly bent and binds in the guide. The rod is tied out.

No. 27 Rod rubs the thimble on the front side about 10' down but operates freely.

No. 37 Rod binds; the guide itself may be slightly bowed. On February 25 the rod was lubricated with a light film of Texaco U.R.S.A. P-10 oil to facilitate operation. A partial test made on February 27 indicates that the rod still does not operate freely. This rod rubs the thimble about 16' down.

No. 36 Rod has stuck occasionally. It was oiled on February 25 and has tested satisfactorily since that time.

F-Pile

No. 36 Rod binds in the guide and is tied out. The rod was oiled on February 12 and a stainless steel bushing was installed in the bumper plate guide ring to reduce friction. The rod operated satisfactorily for about 2 weeks then started binding again. At the beginning of the February 26 outage all vertical rods, except No. 36, went into the pile satisfactorily under power; No. 35 Rod appeared to whip when in motion and it was oiled to give it a smoother motion.

Nos. 21, 27, 28, and 34 Rods occasionally have bound slightly when being lowered under power but operate freely under emergency shutdown conditions.

As a temporary measure, vertical rods which bind will be oiled to facilitate operation. Three "compensated" rod guides will be received in March and will be used as replacements in an effort to allow the rods to descend freely in a more nearly vertical direction.

Gas Processing Building

One car of gas was unloaded and purified at D Area during the period February 26 to 28.

Special Hazards

During a routine survey on February 5, high readings were obtained near the mix tank in the D-Pile Machinery room. The readings were caused by active air or gas which had traveled from the safety flood tank headers on top of the pile through an open valve in the drain line of the tank. The condition was corrected by installing a "U" water trap in the drain line. F Area does not have a similar condition due to different design.

Following the installation of 3 gas filled tubes at the D-Pile as discussed under Production Test No. 105-8-5P, surveys were made for radiation leaks. A front face beam of 16.5 mr/hour from gamma and 7.8 mrem/hour from neutrons was found. This was reduced by placing a shield over the front of the tubes.

The minor contamination which existed at the F Area Ash Pit has disappeared. No further work is planned on this problem.

300 AREA - METAL FABRICATION

Extrusion, Outgassing, and Machining

Extrusion, Machining, and Billet Yields were as follows:

	% Yield		
	January	February	To Date 1947
Extrusion	93.6	94.1	93.8
Machining	81.0	82.7	81.8
Billet	75.8	77.8	76.7

Extrusion operated two days during February. A high temperature grease, (400° C melting temperature), manufactured by the Union Oil Company was applied to the ball race in the rotary furnace prior to operation this month. This grease has demonstrated little advantage over the A-07 grease used previously since it is undergoing about the same degree of carbonization while the furnace is at operating temperature. Further checking of temperatures on the ball race during operation indicate temperatures of 476° C at the top of the race. The lubrication study is being continued.

439 uranium slugs processed from the July, August, and September TX billets and weighing 7.80 lbs. or less each were shipped to Mallinckrodt on February 6 to determine if the quality can be improved by reprocessing. In addition, 4337 lbs. of briquettes processed from metal turnings and representing samples from the F, UM, TX, and G type of billets were included in this shipment.

[redacted]

Extrusion, Outgassing, and Machining, cont'd

The processing of unbonded slugs was completed during the month.

Chip Recovery and Oxide Burning:

The Chip Recovery yield was as follows:

% Yield		
January	February	To Date 1947
91.8	92.3	91.9

Chip Recovery operated four days during February.

The Oxide burner was shut down February 14 after the burning of the backlog of oxides had been completed. A section of the exhaust duct was replaced and minor repairs were made on the hopper before placing the burner in service on February 25.

The material burned was as follows:

	Weight Out - Lbs.		
	January	February	To Date 1947
Extrusion Floor Sweepings (D-2)	996	7134	8130
Chip Recovery Floor Sweepings (D-2)	--	88	88
Chip Recovery Oxides (D-6)	276	877	1153
Extrusion Oxides & Skirts (D-6)	9943	2388	12331

Canning Operation:

Metal Slugs - Type canned and yields were as follows:

	% Canned			% Yield	
	February	To Date 1947		February	To Date 1947
New Machined - A's (Stripped Unbonded)	31.4	31.6		83.8	84.4
New Machined - MZ's	52.9	54.2		89.4	89.7
Recovered - Z's	10.4	8.7		82.7	87.0
Recovered - X's	5.3	5.5		92.6	94.1
	100.0	100.0	Ave.	87.1	88.1

A total of 218 bismuth slugs was canned. This completes the canning of the 1920 slugs received in November, except for three slugs that were broken during assembly. A total of 2340 bismuth slugs was received February 24 for canning. Sixty-seven of these slugs were broken when received.

Canning Operation, Cont'd

Four hundred sixty-six pieces of Special Request No. 15-11 (Lithium Fluoride), 3 pieces of Special Request No. 27 (Calcium Oxide), and 3 pieces of Special Request No. 31 (Boron) were canned in February. Four pieces of Special Request No. 15-11 failed to pass the bubble test prior to canning due to porous welds. These pieces have been returned to the vendor.

The thorium (Special Request No. 3-2) machined in January was found to be satisfactory for processing. The analysis reported from Chicago on the slug and rod end shipped to that location, indicated the white surface film present was thorium oxide and that the uranium content was 1 and 5 ppm. respectively. The remaining forty-one slugs were canned February 18.

Canning rejects, by cause, were:

	% of Total Canned (Regular)		
	January	February	To Date 1947
Non-Seating	2.4	2.0	2.2
Wrinkled Cans	2.2	1.8	2.1
Marred Surface	2.9	3.5	3.2
Al Si on Outside of Can	0.2	0.1	0.1
Air Pockets	0.2	0.1	0.1
Frost Test	0.8	1.1	0.9
Warp	1.1	2.4	1.7
Bad Welds	0.5	1.2	0.8
Miscellaneous	0.8	0.7	0.8
	11.1	12.9	11.9

The recovery of BFC_6 (Uranium Oxide) from bronze flux was temporarily discontinued February 24 when the supply of heating elements for the small recovery furnaces was exhausted. The elements in these furnaces normally are good for three to six months service. However, the life during recovery of BFC_6 is approximately two to three weeks. This apparently is due to the flux penetrating the crucible and steel liner and allowing the resultant gases to attack the elements, causing rapid corrosion. Replacements are expected to arrive the first week in March. A total of 6000 lbs. of BFC_6 and approximately 11,000 lbs. of bronze was recovered this month.

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Production Test No. 313-88-M was started February 6 to determine the relative quality of weld beads formed at various amperages and the effect of shoulder depth on bead characteristics. This test is still in progress.

The canning of the July, August, and September TX slugs was completed in February. Twelve slugs showing discoloration and mottled surfaces following pickling were canned and tested in the 305 test pile. The resultant d.i.h. value was -0.78. Further study will be made on these slugs.

Lots Nos. 14-42, and 43 of rolled slugs, processed from the rods received in December, were canned this month. Lot No. 40 is being held for Production Test No. 314-43-M.

Recovery Operation:

	% Recovered		Average Weight - Lbs.	
	February	To Date 1947	February	To Date 1947
Z Slugs	63.3	67.7	7.832	7.820
X Slugs	35.8	31.5	7.739	7.740
Rejects	0.9	0.8	--	--
	100.0	100.0		

Inspection and Testing:

Autoclave rejects were as follows:

	January	February	To Date 1947
New Machined - A's (Stripped Unbonded)	0.00/M	0.27/M	0.12/M
New Machined - MZ's	0.12	0.00	0.06
Recovered - Z's	0.00	0.00	0.00
Recovered - X's	0.00	0.00	0.00
	0.07/M	0.07/M	0.07/M

Inspection and Testing, Cont'd

One "A" autoclave failure occurred during February. The failure was caused by an impurity between the cap and slug which was probably some compound of uranium since it was found to be pyrophoric. The impurity apparently reacted to form a pimple on the can wall.

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

	% Useable (Regular)		
	January	February	To Date 1947
Aluminum Cans	76.3	76.2	76.3
Aluminum Caps	88.4	88.5	88.4
Steel Sleeves	68.9	66.9	67.6

Since February 18, 4845 aluminum cans have been received on a new order. A total of 1070 of these cans has been inspected with 81.5% found to be of a useable quality. A summary of the rejects and causes is being reported to the vendor.

Production Test No. 313-84-M to determine the feasibility of using the final etch (HNO_3) acid three weeks is now in its fourth and final three-weeks cycle. Results to date have been satisfactory.

300 Area - Test Pile

This unit was operated seven eight-hour days, making 95 regular tests on canned slugs.

The unit was operated February 3, 4, 5, 6, and 7, checking the control rod calibration at 0.10 inch intervals, beginning at 107 inches and extending through 114 inches on the rod. Study of this calibration indicates that the best reproducibility of results can be gained by positioning the control rod between 111 and 112 inches, compensating for change in position through the use of the shim rod. This calibration was adopted for use on February 14.

Eight tests were repeated on four days, February 19, 20, 21, and 27, on TX slugs under Production Test No. 314-42-M, Supplement A, to determine the reproducibility of test results using the new control rod calibration. The maximum difference in d.i.h. for any one stringer over the four-day period was 0.041. The average difference for each of the eight stringers over the same period was 0.023.

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S DEPARTMENT

FEBRUARY 1947

I. GENERAL

Thirty batches were started in the Canyon Buildings during the month and thirty-one were processed through the Concentration Buildings. Thirty-one charges were completed in the Isolation Building with an average purity of 98.6%. The lower than average number of runs processed can be attributed in part to difficulties encountered in B Plant in restoring the 10-4 metal waste transfer line to service. Since no metal was available which would have cooled the standard sixty days necessary before processing during the period B Plant operations were shut down, the overall effect upon production is expected to be negligible.

The material balances for T and B Plants averaged 98.6% and 100.7%, respectively, for a combined average of 99.6%. Average waste losses for both plants totalled 4.6%, a reduction of 0.4% as compared to January's performance and a reduction of 0.9% as compared to September, 1946 performance.

Canyon and Concentration Building Production Performance Data — (2/1/47 — 2/28/47, inclusive)

	B Plant	T Plant	Combined
Number of charges started	15	15	30
Number of charges completed	15	16	31
For completed charges:			
Percentage of starting product in waste			
This month	4.4	4.8(a)	4.6
Last month	5.0	5.0(b)	5.0
Cumulative to date	6.3	6.5(c)	6.3
Percentage of starting product recovered			
This month	96.3	93.8	95.0
Last month	97.8	95.9	97.1
Cumulative to date	95.8	94.8	95.4
Percentage of starting product accounted for			
This month	100.7	98.6	99.6
Last month	102.8	100.8	102.0
Cumulative to date	102.0	101.3	101.7
G Decontamination Factor (log.)			
This month	7.04	7.19	7.11
Last month	7.38	7.32	7.36
Cumulative to date	7.26	7.23	7.25

(a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.09%, (b) 0.06%, and (c) 0.22%.

Isolation Building Performance Data (2/1/47 – 2/28/47, inclusive)

	% of Incoming Product			
	Prepared for Shipment	Recycle	Losses	Material Balance
Average for this month	97.7	3.33	0.10	101.1
Average for last month	95.8	4.02	0.08	99.9
Average to date	96.8	3.9	0.14	100.8

II. ORGANIZATION AND PERSONNEL

The following supervisory organization changes became effective on February 1, 1947:

G. E. Halm, Senior Supervisor, was transferred to the Design and Construction Department.

E. W. Curren, Senior Supervisor, was transferred to the Development Group of the Technical Department.

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants

3–5R Dissolver Heel

As has been reported previously the apparent large heel and erratic operation of the 3–5R dissolver in B Plant presented the possibility of a defective dissolver column. In order to eliminate all other possibilities, however, before accepting this as the cause and taking remedial measures to replace the column, the two factors outlined in January's report were acted upon during February. The coating removal solution level was increased in Runs B–7–02–Dd 4, 5 and 6 to eliminate the possibility that some slugs were not being fully immersed in the caustic–nitrate mixture. Following the special coating removal treatment three normal dissolver cuts were made and then an extra fourth cut was taken to completely remove the dissolver heel. This was accomplished by adding 60% nitric acid in increments and digesting until the specific gravity indicated that the metal heel was exhausted. After emptying the dissolver the heel was replaced and normal dissolving was resumed. Operation of the dissolver appears to be quite normal. Continued close observation of this operation will be made during March.

Twenty Gallon Skimming in Section 13

During February a study was commenced in B Plant to determine whether decontamination in the Canyon Buildings could be improved by skimming to a larger (20 gallon) heel in the Section 13 centrifuge without increasing the first cycle by product cake solution waste losses. The first series of ten runs processed showed a marked improvement in decontamination efficiency with no apparent increase in waste loss. The

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second series of ten runs concluded in February employed a modified cake washing procedure in addition to the 20 gallon skimming. The results indicated a 0.3% decrease in product losses and a further improvement in decontamination. Since some difficulty was experienced with the thermal overload of the centrifuge kicking out during the addition of the extra 250 lb. bowl spray wash a third series of runs was started at month-end in which this additional spray wash was eliminated. It is hoped that the improvements noted in series two will be retained and the overload difficulty avoided. All changes made during this study were within the established limits of the operating and technical standards.

Extraction Effluent Waste Losses

Although no significant progress was made in T Plant during February relative to reducing the Section 8 extraction effluent waste losses several studies of the various factors influencing these losses were started. The most promising of these was concerned with the possibility that the increased loss is incurred during the skimming operation and is therefore a physical loss and one that will be responsive to mechanical correction. Further work will be necessary during March, however, before this can be definitely established.

Production Test No. 224-T-10

The third and fourth phases of Production Test 224-T-10 "Recirculation of Metathesis Wash Waste" were successfully completed in T Plant Concentration Building during February. As reported last month, the third phase involved the necessary volume reduction and return of all the metathesis wash waste solution (F-9WS) to the precipitation tank as dilution water for the succeeding run. The fourth phase was similar in every respect but in addition included the return of the skimmed portion of the metathesis centrifugation waste from the preceding run. The savings realized in both phases were essentially the same, 0.4%, reflecting the elimination of the entire F-9WS waste. Before the balance of the Test is completed involving a fifth series of ten runs to demonstrate the reproducibility of the data and a check of the Isolation Building neutsches for the possible presence of lanthanum fluoride, B Plant will adopt the procedure outlined under the third phase in order to realize the additional savings demonstrated during the Test.

Recycle Handling

The processing of Isolation Building process recycle solution was extended to the B Plant Concentration Building during February. In order to determine the possible effects of recycle addition upon process waste losses in Cells D, E and F both Plants adopted the practice of accumulating and then processing this material in consecutive runs to permit a greater degree of comparison being made between runs containing recycle and those without it.

Cell A and D Cake Washing Modification

In an effort to effect a more complete by-product cake wash in Cells A and D of the Concentration Buildings with the hope of achieving a resultant

lowering of the by-product cake losses, the cake washing procedures for these two cells were revised. An approximate saving of 0.1% was realized in D Cell with indications that a saving of .04% may result in A Cell. The changes made were within the established limits of the operating and technical standards.

Isolation Building

Nitric Adjustment in Oxalate Kill

Commencing in February in the Isolation Building the weight of 50% KOH added to the oxalate kill prior to the addition of oxalic acid was reduced to permit closer adherence to the desired normality of 0.5N in HNO_3. Preliminary results based on thirty runs indicate that the process waste loss discarded to the ground was reduced to approximately .02%, as compared to the .03% loss discarded prior to this change.

Production Test 231-7

Production Test 231-7 "Pre-reduction Conditions" was started in the Isolation Building with Runs T-7-01-F14 and B-7-01-D18. This study involving the step-wise increase in the $(NH_4)_2SO_3$ concentration in the pre-reduction stage is being made to determine if the quantity of the product recycled can be reduced by insuring that the product is kept in the reduced valence state during the first cycle precipitation. Sufficient data had not been accumulated at month-end to permit an evaluation.

Waste Disposal

T and B Plants

Metal Waste Transfer Lines

As noted in previous reports the 10-1 metal waste transfer line which had displayed indications of partial restriction was back-flushed and returned to service in January for a further service test. During the first half of February this test was completed; the indications being that the line, although serviceable, was still partially restricted. On the basis of this test the decision was made to return to the use of the 10-4 metal waste transfer line, holding the 10-1 line for emergency spare service only. The necessary jumper changes to effect the return to service of the 10-4 line were made without incident in the 221-B Canyon Building; however, the required jumper assembly installation in the 154-B diversion box leaked and when the leak did not respond to reimpacting of the connectors it was necessary to fabricate and install a new jumper assembly in an effort to eliminate it. This move was successful and the plant returned to normal operation on February 24.

Although it was necessary to suspend operation while these repairs were made the available supply of metal cooled for the requisite 60 days was such that no overall loss in production resulted. The 10-1 metal waste

transfer line will be hydrostatically tested as a final check of its serviceability as an emergency spare metal waste transfer line. It will not be returned to service unless difficulties with the presently used 10-4 transfer line make such a move essential.

Section 15 Waste Jumpers

The necessary jumpers for by-passing the 15-6 and 15-7 tanks in Section 15 of T and B Canyon Buildings were installed during February. These jumpers will eliminate the necessity for making extra jettings of process waste solutions and thereby effect a two to three percent reduction in the volume of these unneutralized wastes with a substantial saving in waste storage capacity.

Cribbing of Second Cycle Wastes

Excavation for an underground crib system and tile field adjacent to the 241 T Waste Storage Tank Farm in T Plant for the proposed handling of second cycle waste supernatants was started in February. Present plans are to install only the cribs, tile field and associated underground lines at this time. Lines will not be connected with the cascade series tanks in 241 T Tank Farm and the projected condenser will not be installed on X-112-T tank until the feasibility of cribbing second cycle wastes has been completely evaluated.

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, was approximately 22% completed by the end of February. Excavation for the waste storage tanks was started by the Morrison Knudsen Company on February 17 and was proceeding on a two shift basis by month-end.

Waste Status

The status of the Waste Storage Areas on February 28 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	69.5	0	0	0	82)	
x104,5,6	Metal	—	—	34.6	0	—	—	176	269)	657
x201,2,3,4	Metal	0	0	0	0	28	28	37	37)	
x107,8,9	1st Cycle	100	100	0	0	0	0	338	338)	
x110,1,2	1st Cycle	—	—	90.6	26.8	—	—	32	248)	956
x104,5,6	1st Cycle	—	100	—	—	—	0	—	—)	
x104,5,6	2nd Cycle	38.0	—	—	—	282	—	—	—)	
x110,1,2	2nd Cycle	100	100	—	—	0	0	—	—)	497
x105,6	2nd Cycle	—	29.0	—	—	—	215	—	—)	

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MECHANICAL PERFORMANCE

T and B Plants

291 T and B Stack Drain Incidents

The repairs outlined in January's report relative to the stack drain leakage in the vicinity of the 291 T and B fume exhaust stacks were initiated during February and are expected to be completed in March.

Crane Bearing Replacements

There were two bearing failures on the 30 ton cranes in the North Area during the month. Failure of the outside bearing in the drive pinion of the 212N Building crane was discovered during an inspection of this crane. Failure of the inner bearing on the second reduction gear of the 212P Building crane occurred during operation. Both are roller bearings and in both cases the failure appeared to be due to slippage of the inner race because of excessive pin wear. A brass collar was incorporated in the replacement installations to minimize this condition and the cranes were placed back in service.

Damaged Crane Cable and Drum

The condition of the 212 R Building 30 ton North Area crane with respect to the damaged cable and worn drum was covered in January's report. The temporary measures adopted during February to permit operation of the crane were entirely satisfactory. The necessary machining apparatus to regroove the drum was fabricated during the month and it is expected that this job will be completed early in March.

Special Hazards

T and B Plants

154B Diversion Box

As a result of difficulties experienced in making the necessary 154B Diversion Box jumper changes to place the 10-4 metal waste transfer line back in service in B Plant, the Project Engineering was requested to inaugurate a study to develop methods and equipment better suited to handle such work in the future.

METEOROLOGICAL SECTION

A total of eighty-five forecasts were issued to the T and B Plants and forty-two forecasts were furnished other departments.

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

Maximum average hourly wind velocity at 200'	59 mph on 2/2/47
Minimum average hourly wind velocity at 200'	0 mph
Maximum average hourly wind velocity at 50'	48 mph on 2/2/47

Minimum average hourly wind velocity at 50'	0 mph
Prevailing wind direction	NW
Prevailing wind quadrent	NW
Maximum air temperature (4 feet)	68° F on 2/23/47
Minimum air temperature (4 feet)	11° F on 2/2/47
Number of days precipitation and/or fog occurred	8
Number of days precipitation occurred	4
Number of days snow occurred	0
Number of days fog occurred	4
Greatest duration of precipitation	12.7 hrs. on 2/15/47

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TECHNICAL DEPARTMENT

FEBRUARY 1947

GENERAL

The first meeting with the Nucleonics Project consultants at Hanford was held on February 25. The following consultants were present:

E. O. Lawrence, University of California (Berkeley)
G. T. Seaborg, University of California (Berkeley)
W. K. Lewis, Massachusetts Institute of Technology
H. Worthington, du Pont Co., Wilmington, Delaware
W. H. Zinn, Argonne National Laboratory.

P. H. Morrison (Cornell University) and E. P. Wigner (Clinton Laboratories) were unable to attend. General Electric personnel who visited the plant for this meeting were H. A. Winne, C. G. Suits, K. H. Kingdon and H. Brooks from Schenectady, we well as W. H. Milton, Jr., and F. W. Warner, Jr. from Pittsfield. F. E. Seitz and J. M. Siegel from Clinton Laboratories were on the plant for special irradiation discussions, and attended that portion of the Consultants Meeting which was devoted to this subject.

Business trips of Technical personnel during February may be summarized as follows:

R. H. Beaton and H. H. Hubble spent the period Feb. 1 - 15 visiting Chicago (Argonne National Laboratory), St. Louis (Mallinckrodt Chemical Works), and Oak Ridge (Clinton Laboratories and Carbide and Carbon) to inspect and discuss the solvent extraction activities which are underway at these locations. O. H. Greager was with these men at Chicago and St. Louis, and H. E. Hanthorn accompanied the group during its Chicago visit.

C. W. J. Wende visited the Research Laboratory at Schenectady during the period February 4- 10.

R. Ward spent February 5 - 11 at Los Alamos in a preliminary survey of plutonium metallurgy. On February 20 and 21 he attended a metallurgical meeting at the Massachusetts Institute of Technology, where he presented papers on the subjects of irradiation effects on graphite and uranium.

R. E. Curtis made several personnel recruitment trips with H. E. Callahan of Service Department, during the period February 8 - 21. Schools visited were as follows: University of Southern California, California Institute of Technology, Stanford University, University of California (Berkeley), Washington State College, and the University of Idaho.

On February 11, C. P. Cabell gave a talk on atomic energy utilization to an A.I.E.E. meeting in Portland, Ore., at which the Edison Centennial was celebrated.

E. A. Smith and T. S. Jones left on February 21 for the Mallinckrodt Chemical Works at St. Louis, Mo., where they are inspecting and discussing uranium casting operations.

P. F. Gast left for Princeton University on February 28, where he is to consult with J. A. Wheeler on pile physics problems, and will later visit the Schenectady Nucleonics group.

ORGANIZATION AND PERSONNEL

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

	Jan. 31	Feb. 28
Laboratories	170	178
100-300 Technical	29	29
200 Technical	10	9
Chemical Development	14	18
Statistics	4	4
Administration	3	3
Total	230	241

The net gain of 8 in the Laboratories Division resulted from 12 additions and 3 terminations, with one transfer to Chemical Development. This latter Division added also one new chemical engineer and two operators (from S Department). 200 Technical lost one engineer by termination.

100 AREAS

Physics

General

A study of data which indicate that the overall power coefficient of the piles is a function of the power level and xenon concentration has indicated that the effects can be explained in part by assuming that the xenon cross-section varies with neutron energy; however, a number of unexplained discrepancies remain. The study has produced improved methods for predicting critical rod positions after shutdowns.

A revised calculation has led to a figure of 0.93 grams of product formed per megawatt day at a concentration of 200 grams per standard ton. This figure is in agreement with 200 Area operating experience.

Difficulties in the operation of the No. 2 horizontal rod of the D Pile have led to adoption of the rod withdrawal order used at F Pile; namely, 2, 8, 5, 4, 6, 7, B, 9, and A.

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

	D Pile	F Pile
In rods	59 ih	50 ih
In Special Requests:		
within poison pattern	172	134
outside poison pattern	5	30
In Plant Assistance irradiations	15	0
In Lead-Cadmium Columns	113	124
In Bismuth Columns	44	61
In Dummy Columns	2	5
In Xenon	492	427
In Overall Coefficient	-95	-78
Total cold, clean reactivity	807 ih	753 ih

The D Pile lost two inhours during February; the F Pile gained three.

Graphite Monitoring - Production Test 105-1-P

To provide graphite samples for x-ray diffraction analysis of structure and orientation, twenty-nine sets of samples, with three samples per set, were prepared from graphite which had received a wide range of exposures in the pile.

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

To determine whether the expansion of graphite under process conditions can be inhibited or reversed by changing the composition of the gaseous atmosphere in the pile, samples of expanded graphite, with appropriate controls, were loaded into three dry process tubes of the D Pile on February 11. Atmospheres of helium, carbon dioxide, and oxygen, respectively, are being maintained in these tubes. It is planned to remove these samples for measurement after two months' exposure, and then to reinsert them for further exposure.

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

A foil irradiation in the B Pile on February 12 gave nv = 106.5 neutrons/cm^2 sec. at a gas purity of 99.2%. This value is higher than the one reported last month, but is in good agreement with earlier values.

Special Irradiations

The present status of the special irradiations program is summarized below. Those items which were active during February are marked with an asterisk. Items which were completed last month receive no mention. The numbers in parentheses under "Status" indicate the numbers of the Production Tests covering the irradiations.

Req.No.	Material	Quantity	Exposure	Status on Feb. 28,1947	Inhours Absorbed
3-2*	Thorium	41 slugs	2 months	In 3179-D (49C)	28
5	Np^{237}	200	Area Item		
6	U^{233}	1 slug	1 year	In 3282-F (57)	5
10-B	Gd. Oxide	1 slug	--	Postponed	
11*	Radium	1 gram	120 days	Shipped (77)	
12-A	U^{235}	--	--	Postponed	
12-B	Pu^{239}	1 slug (540 mg)	14 mos.	In 3378-F (59)	3
13-1*	Be_3N_2	34 slugs	60 days or longer	(Discharged - awaiting shipment (70)	
13-2*	Be_3N_2	60 slugs	60 days or longer	30 pieces shipped 30 slugs discharged and awaiting shipment	
13-3*	Be_3N_2	250 slugs	60 days or longer	Slugs Tube Charged	
				40 1474-D 2/4/47	18
				40 2066-D 2/4/47	18
				40 2082-D 2/4/47	18
				40 3169-D 2/4/47	18
				45 3274-F 2/12/47	17
				45 2666-F 2/12/47	17

Req.No.	Material	Quantity	Exposure	Status on Feb. 28,1947	Inhours Absorbed
13-4*	Be_3N_2	35 slugs	60 days or longer	In 1474-F (70C)	16
14	Al-U Alloys	3 slugs	3, 6, 12 months	Slugs Tube Charged 1 2970-F 1/22/47 1 2074-F 1/22/47 1 2977-F 1/22/47 (Prod. Test 105-84-P)	5 5 5
15-7*	LiF	100 slugs	40-60 days	Shipped (55-F)	
15-8*	LiF	99 slugs	40-50 days	Shipped (55-F)	
15-9*	LiF	198 slugs	40-50 days	(100 slugs shipped, 99 slugs discharged awaiting shipment (55-F))	
15-10*	LiF	400 slugs	40-50 days	199 shipped, 44 discharged, awaiting shipment Slugs Tube Charged 36 2374-D 1/14/47 42 2666-D 1/14/47 25 3169-F 1/15/47 30 2374-F 1/15/47 (Prod. Test 105-55-F)	 36 39 28 31
15-11*	LiF	466 slugs	40-50 days	23 slugs in 2066-F, remainder ready to be charged (55-F)	26
16-2	95^{241}	1 slug (2 mg.)	14 months	In 3378-F (59)	2
21,22,23	Unallocated				
26*	Antimony	1 pc. (50 mg.)	60 days	Discharged, awaiting shipment (83)	
27*	Calcium Oxide	3 slugs	150-300 days	Slugs canned - ready for charging.	
28*	Iron	2 slugs	4 wks., 150 days	Tube 3266-D (87) Tube 1772-F	1 0
29*	P_2O_5	2 slugs	4 weeks	In 3266-D (86)	4
30*	Beryllium	1 slug	3-4 wks.	In 1775-F (88)	5
31*	Boron	3 slugs	2 mcs.	Canned, ready to load.	

Engineering

Corrosion and Blistering

Visual inspection for blistering of irradiated uranium slugs included the following material:

Type of Slug	No. of Tubes
Extruded, regular discharge	2
Extruded, selected high density	3
Cast CA	4
Cast CN	2
Cast CZ	3
Cast CB and CE	1
Cast CA and CN	1
Total	16

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These examinations showed no unusual cases of blistering. The data show that cast slugs are at least as susceptible to blistering as are extruded slugs. Type CA cast slugs seem to be the most susceptible to blistering of the various types of cast metal. Selected high density slugs which were perfect with respect to all 300 Area inspection tests showed normal amounts of blistering.

Corrosion data were obtained from the slugs discharged from two of the above tubes. Average corrosion rates were 0.02 and 0.03 mils/mo. Maximum corrosion rates were 0.03 and 0.04 mils/mo.

Inspection of a Van Stone flange in the 0.240 inch orifice zone at the F Pile showed no sign of active pitting or other corrosion.

Operating Slug Temperatures - Production Test 105-80-P

There has been no significant change in the reading of the thermocouple in Tube 1367-F during February. Excessive gas leaks occasioned a change from helium to nitrogen for providing gas pressure around the thermocouple leads, thus reducing the frequency with which gas cylinders were changed. Subsequent improvements have reduced the gas leakage to about 100 lbs. per week.

A duplicate assembly is being fabricated for insertion into the pile with the objective of demonstrating the reproducibility of the present measuring technique. An investigation of possible differences in thermal conductivity in uranium rod normal to and parallel to the direction of extrusion has been started.

The thermocouple slug assembly mock-up in the 100-F Flow Laboratory has shown no signs of water leakage into the thermocouple tube.

Probe Tests on Top Central Tubes - Production Test 105-81-P

A total of 55 tubes in the D Pile and 29 tubes in the F Pile have been probed for freedom of discharge. All tubes pass a 1.480-inch x 8.7-inch probe, and no progressive bending with continued exposure has been detected.

Graphite Expansion

Borescopic examination of the No. 27 and 37 vertical rod thimbles at the D Pile showed that no significant damage has been done to the thimbles by the rods. There were signs of light rubbing down the sides of the thimbles but no galling was seen. These thimbles were measured with a new alignment gage but there was no significant indication of shearing of the thimbles by movement of the graphite with respect to the top shield.

No. 6 horizontal rod at F Pile has been found to bind slightly during normal operation. A borescopic examination of the thimble showed little signs of wear on the kick-plate. However, it was impossible to insert the 1.44 inch diameter borescope beyond the fifteen foot mark. A traverse with mercury filled equipment showed normal configuration of the track for the first 13 feet. Then there was an abrupt rise in the next six inches which was as far in as the 1-5/8 inch thick head could pass. This constriction in the thimble has been tentatively attributed to buckled track blocks similar to the condition previously found in No. 9 thimble at D Pile.

No. 2 horizontal rod at D Pile binds during normal operation. The top of the rod has become badly scratched, apparently from rubbing on the kick-plate. A borescopic examination showed considerable wear on this plate. Mercury traverses were made of this thimble at D Pile, and also of B thimble at D Pile which had shown almost complete absence of wear and binding. The maximum elevation of the track was 1.52 inches at No. 2 and 1.37 inches at B. The first four feet of track through the shield was level in both thimbles, followed by a fairly uniform slope for the next 9 or 10 feet. This slope was about 0.15 inch per foot in No. 2 thimble, and 0.12 inch per foot in B thimble. These differences in configuration of the rod tracks do not appear sufficient to explain the severe rubbing of No. 2 rod, and the absence of rubbing of B rod.

A gauge has been made-up to determine the vertical clearance in the horizontal thimbles so that further information would be available on possible causes of rubbing and binding of the rods. When used with the B thimble of the D Pile, it indicated a clearance of 1.85 inches under the kick-plate and 1.91 to 1.96 inches between the track and aluminum thimble. The rod is 1-3/4 inches high and the nominal clearance is 1-7/8 inches under the kick-plate and 2 inches between track and thimble.

200 AREAS

Canyon Buildings

Dissolver Efficiency

In the 3-5-R Dissolver at B Plant, a large volume decoating was made to strip cans from any slugs piled above the normal solution level. Since this step did not affect dissolver efficiency, it was concluded that all slugs were decoated in the normal operation. After complete dissolution and recharging of the metal heel, subsequent dissolving times appeared normal, but additional runs must be observed before this is ensured.

First Cycle By-Product Cake Washing

The more thorough 13-2 cake washing procedure which started with Run B-7-01-D-17 has resulted in a product saving of 0.33% per run (average of 13 runs, on 8-1-MR basis) without an apparent decrease in decontamination attributable to the wash. T Plant started to use the improved washing procedure on Run T-7-02-F-4 with the exception that one bowl slurry wash was used rather than two as in B Plant. This has resulted in a product saving of 0.2% per run (average of 10 runs, 8-1-MR basis) with no loss in decontamination.

Extraction Waste Loss

The extraction losses at T Plant have continued to be erratic and higher than at B Plant. An examination of B and T Plant differences indicated that sampling equipment and technique, time lapse in 8-1-MR metal solution processing, and iron concentration in the metal solution were not factors influencing the present waste losses. The process point at which the samples are taken, centrifuge skimming, and cake washing and removal procedures are currently being investigated.

Second Cycle Waste Storage

A sample from second cycle waste storage tank X-110 at B Plant was found to contain 160 product alpha c/m/ml, 3600 beta c/m/ml, and no gammas at a pH of 7.2. Except for the higher beta count, these values were comparable to those on the corresponding sample recently taken at T Plant; the alpha count indicated that about 98% of the product sent into this tank had settled out in the sludge.

Second Cycle By-Product Cake Washing

A procedure similar to that for more thorough washing of first cycle by-product cake has been in effect for the last 13 runs processed in Section 16 at T Plant, with an average 16-4-BP waste loss (8-1-MR basis) of 0.30% per run as compared with 0.38% per run for the 32 runs prior to the test.

Concentration Buildings

Production Test 224-T-10 - Recycling of Metathesis Wash Waste

The third item of Production Test 224-T-10, in which all of the metathesis wash waste solution (F-9-WS) was returned to succeeding runs, was completed at T Plant with a saving of 0.4% per run (average of 10 runs, 8-1-MR basis). Eight runs of the fourth item of this test (methathesis waste skimmings recycled with the metathesis wash) have not shown a decrease in the amount of product in the metathesis waste (F-7-WS). The N-1 nutsche in cell four of the Isolation Building will be leached at the completion of the fourth item to determine if metathesis has been complete during the test.

Section F Centrifuge Cake Removal

Approximately 4 to 10% of a run (8-1-MR basis) has been held up in the F-2 centrifuge of the T Plant on several recent runs. A visual examination of the centrifuge revealed that the cake was not being removed from the upper baffle by the plow and nitric acid. A decrease in the centrifugation rate from 25 lbs./minute to 12 lbs./minute resulted in a changed distribution of the cake, with less held in the upper position of the bowl, and in subsequent successful removal of the cake on the last four runs processed.

Isolation Building Recycle to B Plant

Handling of material recycled from the Isolation Building was started at B Plant with run B-7-01-D-10. Since the new procedure involves alternately filling the E-4 Tanks in the B and T Concentration Buildings, processing runs without recycle has started at T Plant, the first such run being T-7-01-F-9.

Washing of By-Product Cake

Extra washing of the bismuth phosphate by-product cake (A-2) at both B and T Plants has shown a slight improvement in the by-product cake losses. The extra washing of the lanthanum fluoride by-product cake (D-2) has reduced the by-product cake losses at B Plant from 0.60% (average of 10 runs prior to the test, on 8-1-MR basis) to 0.40% (average of 13 test runs), while the T Plant losses have been reduced from 0.55% (average of 10 runs prior to the test, 8-1-MR basis) to 0.44% (average of 12 test runs).

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Technical Department

Isolation Building

Oxalate Method of Handling Recycled Material

A slight modification of the oxalate method of handling recycles, i.e., the use of less initial KOH in order to keep the acidity near 0.5N when starting lanthanum oxalate precipitation, has resulted in an average of 0.055 grams sent to waste per run for 36 runs as compared with 0.091 grams per run for the preceding 63 runs.

Production Test 231-7 - Pre-Reduction Conditions

The first phase of Production Test 231-7, which covers the use of 0.1M instead of 0.05M ammonium sulfite as the pre-reduction chemical concentration, has not reduced the weight of product recycled for the twenty runs processed. This phase of the test will be continued until sufficient quantities of sulfite become available to allow completion of subsequent phases of the test (use of 0.15 and 0.20M ammonium sulfite) and continuance of normal operations after its completion.

300 AREA

Metal Quality Studies

Evaluation of Impurities in TX Metal - Production Test 314-42-M

Chemical analyses of specially extruded TX rods have so far indicated that nitrogen concentration is generally greater near the ends of the rods than in the middle, and appears to vary inversely with density. Certain of these rods which were extruded with the billet reversed produced a 4.3% improvement in yield of slugs weighing over 7.77 pounds.

Miscellaneous

To determine the effect of improved remelting procedures on metal quality, 3378 pounds of low-weight TX slugs of MZ diameter plus 4337 pounds of briquetted turnings were shipped to Mallinckrodt at St. Louis for remelting during the week of February 24. E. A. Smith and T. S. Jones of 300 Technical witnessed these operations.

Metallographic studies of samples from one speckled TX slug indicated an extremely high carbide content (about 2400 ppm carbon, on analysis). This slug was similar in appearance to low density TX slugs (18.55 g/cm^3), to the canned TX MZ's which gave -0.78 dih in the Test Pile, and to TX slugs that lost 0.010 inches diameter during a standard process pickle. Exploratory analyses indicate that the iron, nitrogen, hydrogen, and silicon concentration in some of these slugs is higher than that generally encountered; however, to date no specific reason for the appearance of speckled slugs after pickle has been found.

Canning Studies

Special Requests

During February, 41 Request 3-2 slugs (myrnalloy), 466 Request 15-11 slugs

[redacted]

(lithium fluoride), three Request 27 (calcium oxide) and two Request 31 (boron) slugs were canned.

Miscellaneous

The discovery that the last shipment of barium chloride for use in bronze flux was the dihydrate led to a corrective revision of the flux formula which considerably improved its effectiveness.

Final etch solution has now been used successfully for a second three-week period, under Production Test 313-84-M.

Metallurgical Studies

The thermal cycling of 46 TX slugs and 49 F slugs was found to have produced warping which made it necessary to straighten one-third of the pieces before machining. The stresses introduced in this manner were relieved during canning, with the result that 20 non-seats appeared among the cycled pieces as compared to only one non-seat reject among a control group of non-cycled pieces.

Microhardness tests on thermally cycled material indicate that the base metal is considerably softened by the heat treatment, most of the softening occurring in the first cycle. The effect of the heat treatment on grain size is in doubt since no special effect has been observed in this connection. Further study is being made of the recyrstallization characteristics of uranium.

Test Pile Performance

Significant improvements in Test Pile performance were obtained as a result of (a) a precise measurement of the "ripple" in the control rod calibration curve, (b) application of a correction factor of 1.06 to the inhour readings taken

from the aneroid barometer, and (c) establishment of a drift factor of 0.0037 ih/mm for a three-minute drift. The "ripple" has a period of about 2.1 inches, which corresponds reasonably well with the location of cracks between neighboring graphite blocks; however, the effect has not as yet been satisfactorily explained, and experiments are planned to determine the cause.

LABORATORIES

Work Volume Statistics

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

	January		February	
	Samples	Determinations	Samples	Determinations
Routine Control, 200 Areas	1341	2365	1244	2026
Routine Control, 300 Area	1176	5220	1185	5571
Water Control, 100, 700 Areas	10182	18158	9243	17088
Process Reagents, 200 Areas	551	1029	507	799
Essential Materials	193	1050	212	1236
Special Samples	736	1437	702	1681
Total	14179	29259	13093	28401

200 Area Process Control

The average of one hundred and four routine measurements of the geometry of the ASP type counting instruments in the B Plant laboratory and the Isolation Building was 50.58% (standard value 50.50%). New standard geometry discs have been prepared for the B Plant and are in use for geometry determinations.

The standard 8-1-MR sample (starting solution for the Canyon Buildings), was analyzed in quadruplicate by eight analysts during the month. The overall average was 1.982×10^6 c/m/m., or an average recovery of 97.3%. The results varied between 1.903×10^6 c/m/ml and 2.032×10^6 c/m/ml. The value assigned to the standard solution by previous evaluation was 2.077×10^6 c/m/ml.

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

	January 1947		February 1947	
Sample	Precision (±%)	No. Out of Control	Precision (±%)	No. Out of Control
8-1-MR	1.30	7	1.41	6
P-1	1.21	0	1.23	3
AT	1.03	3	1.04	4

There were thirty-six duplicate, routine sample AT titrations during the month showing an average range of 0.72%.

[redacted]

BATE NUMBER

1200646

NOT USED

Technical Department

300 Area Process and Essential Material Control

Billet Analysis Program

Wet chemical analyses for iron, silicon, nitrogen and mercury have been completed on the uranium metal samples submitted for the study of the segregation of impurities present in the rods after billet extrusion. Boron and manganese will be determined by spectrochemical means rather than by wet chemical methods. A wet chemical method for boron has been developed, but although the results are consistent and accurate, the method is lengthy.

Samples of uranium from rolled rods have been received for impurity segregation studies. The results of these determinations will be compared with those obtained from extruded rods.

Essential Materials

Since some difficulty has been encountered in the past in obtaining bronze blends from the distributor which are acceptable, a system has been established whereby samples of each melt are submitted prior to shipment. In this manner rejection of material can be made before shipment, thus reducing cost and delay.

Spectrochemical Analyses

The backlog of billet samples has been reduced to a satisfactory working level, and it will now be possible to do some necessary development work and standard plate preparation.

Redox Analytical Development

Methods have been developed for required analyses in the first phase of the Redox development work (demonstration apparatus). Precision and accuracy determinations are being made on all methods. All methods developed to date are on a macro scale, and it will be necessary to do considerably more work to devise the semi-micro or micro methods which will be required for analyses of solutions containing radioactive materials. Tentative methods are now available for the following determinations:

(1) High and low concentrations of UNH in both aqueous and solvent phases.
(2) High and low concentrations of ammonium nitrate.
(3) The chromate ion in high or low concentrations.
(4) Nitric acid
(5) Total chromium (some work must be done to improve the precision to meet the requirements of the Chemical Development Division.

REDOX PROCESS DEVELOPMENT

Semi-Works Design

Redox Specifications Letter No. 9 (Doc. 3-5268) was issued on February 5. This letter outlined safety and fire prevention principles to be observed in the treatment of Redox process design and the handling of the process chemicals. Pertinent physical and chemical data for all hazardous chemicals were listed. The use of inert gas blankets, flame checks, explosion-proof electrical services,

air dilution, solvent isolation, etc., were specified in detail for the Semi-Works equipment design.

Continued conferences between this Division and the Design and Construction Department have resulted in final approval of approximately twenty additional working drawings for issuance to the field. These drawings have mainly been detail prints for fabrication of equipment parts for the demonstration apparatus. To date, about 75 construction drawings have been issued. Except for certain field piping diagrams and column assembly details, the list of construction drawings for the demonstration apparatus and auxiliary service equipment is very nearly completed.

A rought draft of a preliminary design proposed for the "hot" reproducibility apparatus has been completed. Isometric and plan view drawings of the tentative equipment layout have been prepared. Debate on the rough design and layout is to be initiated early in March. Extensive shielding calculations for the specific radiation levels to be encountered in the proposed geometries of the installation are being completed.

Materials and Equipment Procurement

Receipt of materials and equipment for construction of the demonstration apparatus has been decreasing as the procurement nears completion. Although the relative weights of the many separate orders differ widely enough to make percentage quotations ambiguous, the approximate status of procurement at the end of February is as follows:

	Class A (Critical)	Class B (Non-Critical)	Electrical
% Ordered	100	100	100
% Received	90	75	85

Set-backs in the shipping dates for pump shaft bearings and bellows, extending to the middle of March, have been requested by the respective manufacturers. Items now overdue beyond promised shipping dates and under investigation for expediting include small size stainless steel fittings, (crosses, tees, and certain valves), gauge glass fittings, the balance of the rotameter order, air-driven agitators, and flame checks.

Major heavy equipment pieces received during the month were a large shipment of explosion-proof electric motors, ranging in size from one-half to fifteen horsepower, and a steam turbo-exhauster.

Semi-Works Dismantling and Decontamination

[redacted]

agitator assemblies were removed to the same location. All disconnected process vessels were sealed off with masking tape and blind flanges, and then relocated under the sampling balcony. Extensive contamination surveys were carried out throughout the entire canyon, and all contamination located was removed by acid and water scrub-downs.

All of the above work was carried out under Special Work Permit restrictions, including the use of assault masks. At present, entry to only Cells A and B and the excess equipment area is subject to restriction. Entry to and work in all other parts of the canyon is in the "Free Access" category.

Construction Scheduling and Progress

New construction within the canyon of the Semi-Works was suspended during most of the month to permit concentration on the task of flushing out, dismantling, and relocating the original process equipment.

A work schedule was obtained from the Maintenance Department during the early part of February, to indicate manpower requirements for the break-down of shop fabrication and Semi-Works construction presented earlier by this Division. Approximately 1000 man-days were estimated, exclusive of electrical work. Since this breakdown is too detailed to be presented in brief outline, it is merely reported at this time that fabrication and construction is very close to schedule.

The major fabrication jobs scheduled for completion at this time, such as structural steel shapes, ventilation ductwork, bellows pump parts, process tanks and vessels, and panel boards, have been essentially completed. Assembly and installation of all of the above is to be started early in March. As many as 35 Maintenance Department personnel have been engaged in Redox equipment fabrication or construction at various times during the month. Installation of explosion-proof electrical service lines has been in progress for the past two weeks and will continue all through the month of March.

Equipment Development and Testing

An equipment development group is being activated within the Division. This group, working in co-operation with the Instrument and the Design and Construction Departments, will procure, or have constructed, and test models and prototypes of various types of pumps, packless valves, control devices, metering instruments, etc.

An experimental model of a pneumatic flow controller for automatic regulation of constant-flow discharge of aqueous column effluents has been designed, constructed, and revised extensively during a series of performance tests. The final design has performed satisfactorily over a ten-fold flow range with a 1% accuracy of control. Inclusion in the demonstration apparatus design is being specified.

Preliminary tests initiated with a Zenith gear pump and dummy IAF solution were discontinued, upon the failure of a metal shaft seal. A new sealing arrangement is being designed to permit continuation of the tests.

Gasketing tests are in progress with "Teflon" and "Polythene" in glass pipe connections, subjected to a head of acidified hexone. A model of an instrument to meter rates of liquid flow remotely is being constructed for early testing.

Technical Department

Meeting Activities

During the period Feb. 1 to 15, representatives of this Division visited Chicago, St. Louis, and Oak Ridge for conferences on solvent extraction process design and operating technology. The information accumulated on these visits was reviewed in a series of meetings in the 300 Area on February 24.

Special consultations on the Redox development program at Hanford were held with some of the visiting Nucleonics Project Consultants on February 27.

Several meetings were held during the latter part of the month with supervision of the Instrument Department, at which times the major instrument development problems were outlined and reviewed.

STATISTICAL STUDIES

Test Pile Precision

Using the new rod calibration chart for the Test Pile, special tests run on February 19, 20, 21, and 27 indicate that some day-to-day differences still exist. Evaluation of performance improvement was complicated by the fact that the new calibration applies to a different portion of the rod from that used formerly.

The results of the first day of the test revealed significant differences within days and between readings, when the triplicate readings were arranged in order of rod setting. This was brought to the attention of the Physics Group, and the drift factor was revised upward. When this was done, the reading differences and within day differences for the first day became non-significant. The new factor also improved the precision of duplicate readings.

Upon combining the results of all four days, using the new drift factor and arranging the triplicate readings in order of rod setting, the difference between readings remained non-significant, indicating that the new drift factor was an improvement. Upon arranging the triplicate readings in order of magnitude of the net aneroid correction, the difference between readings became highly significant, indicating the aneroid correction to be a source of systematic error.

At the present time the Physics Group is applying the new drift factor to the calibration chart. When this is completed, the analysis of variance will be rerun to retest day-to-day differences. In the meantime, further study of the effect of the aneroid correction will be made. As the first step in this direction, multiple and partial correlations have been run between dih, rod setting, drift, and aneroid. As suspected from the analysis of variance, the aneroid correction was the only one of these variables to correlate with dih, confirming the earlier finding that the aneroid correction is in error.

The immediate problem consists of determining whether the error in aneroid correction is due to the aneroid calibration, or to a differential in the fluctuations in pressure inside the Test Pile as compared to the control room where the aneroid readings are taken.

Technical Department

Analytical Precision

From data submitted by the Laboratories Division, the precision of analyses of the following 200 Area plant solutions was determined:

Solution	Precision (±% of reported value)
14-3-W	17.92
F-7-WS	6.60
A-4-BP	7.62
8-3-W	26.01
D-4-BP	8.05
13-4-BP	7.31

To test whether these analytical precisions are adequate for the purposes at hand, the decrease in operating limits that would occur if there were no analytical error was computed. The results were as follows:

Solution	Operating Limits Including Analytical Errors	Operating Limits Excluding Analytical Errors
14-3-W	± 0.44	± 0.4377
F-7-WS	± 0.26	± 0.2580
A-4-BP	± 0.0656	± 0.0636
8-3-W	± 0.49	± 0.4291
D-4-BP	± 0.21	± 0.2059
13-4-BP	± 1.32	± 1.31

With the possible exception of the 8-3-W analyses, the effect of the random analytical errors on the operating limits of the solutions listed above is small. This criterion of the adequacy of measurement precisions, coupled with control charts applied to the range of duplicate analyses, insures that observed variations in the process are real rather than analytical.

Redox Equations

An equation was fitted to Redox process pumping data submitted by the Chemical Development Division to obtain the relationship between slippage, r.p.m., and pressure head. A multiple correlation coefficient of 0.9880 was obtained between the equation and the data.

Considerable time was spent in an effort to find the best type of equation for the effect of ammonium nitrate and nitric acid on the distribution of uranium between the hexone and aqueous phases. This work is still in progress.

River Water Sampling

In the statistical study of chemical analysis of river water samples from the Columbia and Yakima, it was previously found that the number of sampling stations could be reduced without loss of information. Further work has revealed strong correlations of analytical results with months of the year. Such properties as alkalinity, chlorine, hardness, total solids, turbidity, and dissolved oxygen are seasonal. A series of t tests failed to reveal any significant differences in composition up and down either river.

Blood Count Studies

Further data were submitted by the Medical Department for a study of precision of blood counting. By chi square techniques it was found that in all cases the precision was within the limits of the Poisson distribution, which means that it is not feasible to obtain better than the present precision for the number of cells counted.

Village Heating Problem

Variations in power demand that could be expected from heating conventional types of Village houses electrically have been computed for the Electrical Department from mathematical laws of probability. Fluctuations in demand for groups of 10, 30, 300, and 2500 were calculated for outside temperatures from 5° to 75°F. Graphs are now being prepared. Work is about to begin on a second proposed method of electric heating and will include the same housing groups and temperature range as the first plan.

Miscellaneous

Calculation has been commenced on a table of 5% and 1% probability limits for partial correlation coefficients. A new type of Poisson limit chart has been constructed and photostated for those interested in copies.

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3/5/47

POWER DEPARTMENT
FEBRUARY 1947

GENERAL

First attention continues to be focused on the consumption of water chemicals at the filtration plants and the efficient burning of coal in the boiler plants. As a result, water chemical rates of feed were lower this month than for any other month experiencing similar river water conditions. Boiler room performance has approached design standards in the various plants.

ORGANIZATION AND PERSONNEL

There were no significant changes during the current month.

100 AREAS

The coagulant feed in D Area continues at the low rate of 15 ppm as established in the previous month with high water quality continuing at all times. At month's end the coagulant feed in the F Area was being slowly reduced to conform with the D Area program. Reductions in lime consumption have been made in all areas, consistant with lower coagulant rates.

The East filter plant clearwell in F Area was taken out of service on February 12 and 26 in order to stop water leakage at the floor slab. Temporary repairs have been effected until such time as an extended outage of the clearwell for permanent repairs can be arranged.

The deaerating heater in F Area boiler plant was taken out of service from February 12 to 14 in order to replace the vent condenser tubes. Similar repairs had been made at the B and D Areas in previous months.

On February 25 water intake screens were installed at the filter plant supply pump flume in the D Area, similar to the installation made at F Area at an earlier date. Experience with tumbleweeds entering these pumps on infrequent occasions has prompted the installation of such screens as a preventative measure. It was not considered necessary to make a similar installation at B Area because of the low water flows experienced there.

The Wallace and Tiernan chlorination system was extended to the Fire and Sanitary system in the F Area in place of the Emerson chlorinator originally installed for the Fire and Sanitary system. A similar arrangement had previously been made in D Area, and in each Area has eliminated the use of one chlorinator.

A 400 gpm pump has been installed at the river pump house in F Area in order to supply water to the Fish Hatchery. A cross connection to the main pumping system has also been made for auxiliary purposes.

200 AREAS

Several leaking after-heater coils were replaced on the Carrier air conditioning units at the Canyon Building.

300 AREA

Permanent connections to the sanitary water system and the sewage systems were made during the month for the recently constructed hutments in that area.

700 AREA

On February 25 a frequency indicator was installed on the emergency generator in order that normal frequency could be maintained on the electrical system in the event of interruption to the normal power supply.

1100 AREA

On February 5 an Elliott twin strainer was installed on the supernatant recirculation system at the sewage plant. All operations at the sewage plant continued on a normal basis.

POWER DEPARTMENT STATISTICS

From: February 1, 1947
Thru: February 28, 1947

			AREAS		
			100-B	100-D	100-F
River Pump House (Building 181)					
River stage	Feet above sea level	(max.)	388.0	380.0	366.4
		(min.)	385.9	378.5	364.8
		(avg.)	386.9	379.2	365.5
River temperature	avg. ° F		37.9	38.1	37.8
Water pumped to Reservoir	gpm avg. rate		9963	40811	37878
Water pumped to Refg. Condensers	gpm avg. rate			0	0
Reservoir (Building 182)					
Water pumped to Filter Plant	gpm avg. rate		7793	35067	34513
Water pumped to Condenser System	gpm avg. rate		598	3934	3350
Water pumped to Export System	gpm avg. rate		1572	1810	15
	gpm normal rate		3397	3397	3397
Chlorine added at No. 1 inlet	pounds		0	4000	900
Filter Plant (Building 183)					
Filtered water to Power House	gpm avg. rate		96	325	289
Filtered water to Process	gpm avg. rate		4385	30096	30978
Filtered water to Fire & Sanitary	gpm avg. rate		77	124	153
Chlorine used in Water Treatment	pounds		2469	2000	7690
	ppm avg.		.94	.46	.66
Lime used in Water Treatment	pounds		4894	40750	72000
	ppm avg.		1.9	3.5	6.2
Coagulant used in Water Treatment	pounds		29204	198780	248000
	ppm avg.		11.1	16.8	21.4
Raw water pH	pH avg.		8.0	7.98	8.0
Finished water pH	pH avg.		No Anal.	7.42	7.35
Alkalinity, M. O. - Raw	ppm avg.		60	59	60
Finished	ppm avg.		53	51	54
Residual Chlorine - Settled	ppm avg.		.37	.15	.21
Finished	ppm avg.		.17	.12	.10
Iron - Raw	ppm avg.		.32	.47	.47
North Clearwell	ppm avg.		No Anal.	.02	.013
South Clearwell	ppm avg.		No Anal.	.02	.019
Hardness - Finished	ppm avg.		63	69	70
Turbidity - Raw	ppm avg.		17.9	17.0	24.0
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

Power House (Building 184)

		100-B	100-D	100-F
Steam generated - Total	M pounds	29731	104508	95316
Avg. rate	lbs./hr.	44243	155518	141880
225 psi steam to plant (est.)	M pounds	26013	90791	83904
15 psi steam to plant (est.)	M pounds	150	1176	765
Coal consumed	tons	2124	7997	7220
Coal in storage (est.)	tons	10864	40831	34625

Deaerator Plant (Building 185)

Water flow	gpm avg. rate	4135	29846	30728
Chemicals consumed				
Dichromate	pounds	2400	19700	22100
Sodium Silicate	pounds	38420	201392	263150
Chemical Analysis:				
pH	pH avg.	7.63	7.62	7.65
Dichromate	ppm avg.	No Anal.	1.9	2.0
Silica	ppm avg.	No Anal.	6.3	6.8
Dissolved Iron	ppm avg.	.03	.01	.017
Free Chlorine	ppm avg.	.14	.14	.14

Process Pump Room (Building 190)

Total water pumped	gpm avg. rate	4100	29671	30553
	gpm normal rate	4100	31348	31037
Water temperature	avg. ° F	41.2	40.8	40.3

Valve Pit (Building 105)

Chemicals consumed:				
Solids	pounds	0	2250	0
Chemical analysis:				
A, B, D, & D Headers				
Standard limits				
pH 7.5 - 7.8	pH (max.)	7.70	7.70	7.70
	(min.)	7.55	7.60	7.60
	(avg.)	7.62	7.64	7.65
SiO_2	ppm (max.)	11.0	7.5	8.5
	(min.)	5.5	5.0	6.0
	(avg.)	7.8	6.4	7.0
$Na_2Cr_2O_7$ 1.8 - 2.2	ppm (max.)	2.1	2.0	2.1
	(min.)	1.8	1.8	1.9
	(avg.)	2.0	1.9	2.0
Iron	ppm (max.)	.05	.02	.02
	(min.)	.02	.005	.01
	(avg.)	.03	.01	.014
Chlorides	ppm avg.	1.3	1.3	1.0

Power Department

		200 Areas	
		200-E	200-W
Reservoir (Building 282)			
Raw water pumped	gpm avg. rate	1582	1815
Filter Plant (Building 283)			
Filtered water pumped	gpm avg. rate	395	383
Chlorine consumed	lbs.	222	204
Alum consumed	lbs.	1426	2400
Chlorine residual - Sanitary water	ppm	.60	.66
Power House (Building 284)			
Steam generated - total	M lbs.	17263	25782
Steam generated - avg. rate	lbs./hr.	25689	38366
Coal consumed (est.)	tons	1332	2031
Coal in storage (est.)	tons	10817	10137

		300, 700, 1100 Areas		
		300	700	1100
Power House (Buildings 384 and 784)				
Steam generated - total	M lbs.	11084	18099	
Steam generated - avg. rate	lbs./hr.	16494	26933	
Coal consumed - total (est.)	tons	871	1458	
Coal in Storage (est.)	tons	7995	6213	
Sanitary and Fire System (1100)				
Well water pumped - total	gal.			53423000
Well water per day	gal./day			1908000
Well water	gpm avg. rate			1325
Chlorine residual	ppm			0.2
Sewage Treatment Plant (1100)				
Total sewage treated	gal.			45100000
Sewage treated per day	gal./day			1611000
Sewage flow	gpm avg. rate			1119

MAINTENANCE DEPARTMENT

FEBRUARY, 1947

GENERAL:

There were two sub-major injuries in the Maintenance Department during February. One occurred on February 12th in the 300 Area when a machinist started up a lathe with the chuck wrench still in working position One finger was caught between the wrench and the bed of the lathe The other injury occurred to a mechanic in the 300 Area who was setting an expansion bolt in the concrete ceiling of the 321 Building In driving the anchor his heavy hammer slipped and crushed his finger against the concrete ceiling One sub-major injury which occurred during November has recently been declared a major injury due to permanent partial disability. The man's little finger was crushed under a roller and fractured, making a sub-major injury Now that the finger has permanently stiffened it has been declared a major This makes a total of two major injuries in the Maintenance Department since September 1st.

The third quarter of the four month safety contest which is concerned with safety meetings, was completed during February Considerable emphasis was placed on the importance of conducting worthwhile safety meetings in order to continually stimulate the men to follow safer working habits

Replacement of the 42" diameter process water effluent lines in 100-F Area was completed during February The bucket dredge from the U.S. Engineers arrived at "F" Area on February 1st and left on February 19th. During that time an excavation was made in the river bottom and the pipes laid in it Precast concrete blocks were placed on top of them and also concrete was poured around them in place. During this repair work process water was diverted down the concrete spillway and on February 25th it was routed back through the pipes marking essential completion of this job. It is believed that no further trouble will be experienced from this source. The effluent lines at "B" and "D" Areas were thoroughly inspected and found to be in good condition so that no repair work is in prospect on them in the near future

The Maintenance Department has been asked to take over dismantling of temporary construction facilities in the Hanford and White Bluffs Areas Although the official responsibility for these areas is not accepted by General Electric until April 1st, the Maintenance Department expects to begin dismantling by March 15th A high spot analysis of this job indicates that about sixty-five men will be hired in order to complete the work by April 1 1948 Hiring has started with a smaller group, however since it is believed possible to extend the job over a two year period It is believed that considerable critical material will be made available for minor construction and other plant projects from this source.

The conversion of women's dormitory, W-10 into an educational center was completed during February

ORGANIZATION AND PERSONNEL:

The total personnel of the Maintenance Department increased from 621 to 630 during the month Eighteen men were added to the roll, as follows:

2 Assignment Engineers (Village Engineer)	10 Helpers
1 Estimator	3 Pipefitters
1 Welder	1 Carpenter

Two of the above employees were transferred from other departments Seven men were terminated and two men were transferred to other departments during the month.

WORK ORDER SUMMARY

FIELD FORCES

	Work on Hand Feb 1		Work Completed in Feb		Work on Hand Feb 28	
Area	No of Orders	Estimated Man Days	No of Orders	Estimated Man Days	No of Orders	Estimated Man Days
100-B	82	183	171	211	76	156
100-D	39	167	264	423	40	169
100-F	59	182	203	320	52	246
Overhaul	198	1592	220	883	209	1957
200-E	243	712	409	985	230	690
200-W	497	1520	547	1375	567	1845
300	178	1248	214	805	200	1463
700-1100	1215	4307	1256	3690	1387	4570
Minor Const.	11	1144	9	680	24	878
Total	2522	11056	3293	9372	2785	11977

ENGINEERING SECTION

	Work on Hand Feb 1 Est. Man Days	Work Completed in Feb Est Man Days	Work on Hand Feb 28 Est Man Days
Studies	283	170	296
Projects	2249	601	2250
Total	2532	771	2546

The above work order summary indicates that the backlog of the Maintenance Field Forces increased only slightly during February About 10% more work was received than was completed Amount of work on hand at the present time repre sents slightly more than one months work with the exception of the Hanford demolition work which is not included in the above figures There does not appear to be any great need for increasing the personnel of the department field

forces. The greatest increases in backlog during the month was experienced by the 100-F Area and the 200-West Area organizations

The backlog of the Engineering Section did not increase to any extent during the month, however the current backlog represents approximately three months work according to present estimates Several additional engineers and draftsmen are being employeed in an effort to place this work on a more current basis

100 AREAS:

Process tube #4385 in the 105-B unit was removed to permit Technical to make special studies of the dry hole A canvas skirt on the downcomer had decayed with age and was replaced with 1/8 inch Neoprene rubber seal

#1 and #2 stokers on #1 boiler in Building184 B were overhauled A broken distributor shaft on #1 stoker was replaced A bent distributor shaft was replaced on #2 stoker New shaft bearings were used throughout The 16 inch valve on the line between 184 and 183 Buildings was removed for repair A spool piece was inserted in the line to provide steam service to the buildings This valve had never operated satisfactorily because it could not be closed tightly

The painting program has been carried on in the 100-B Area with the bulk of the work being done in Building 190 The painting of the four water storage tanks has been completed

Vertical safety rods #27 37 32 and 34 in the 105-D unit have been giving trouble during the past several months because the rods will not travel downward without binding These rods were removed from the unit and the rod guides checked with new rod tips sections The new rod tip could be moved vertically without any binding action in rod guides #27 and #34 In rod guides #32 and #37 the new tip would go in under itsown weight for approximately 36 inches or about one-half through the rod guide proper This indicates that rod guides and rod guide plugs #32 and #37 have been distorted A further investigation will be made to determine the amount and direction of the distortion; also, the reason for it

The catwalks and platforms around the valves in the top of the unit on the front face extend out so that there is only a few inches of clearance between the inside edge of the "C" elevator and the outside edge of these platforms. It could be easy for a man to be standing in such a position that he could be trapped between the elevator rails and the platforms. Lengths of chain were hung from the edge of these platforms so that they will strike anyone directly beneath them while the elevator is moving upward. This will serve as a warning for individuals to move away from the danger zone.

Horizontal safety rods A & B and #2 were removed from the unit to permit Technical Department to check the thimbles for bowing. #2 thimble was reported to have a vertical misalignment of 1.6 inches. A and B thimbles were not in misalignment.

In Building 182-D two trash screens made from angle iron and expanded metal were installed in the sluice gates that open from the south reservoir to the south suction flume. These trash screens will prohibit foreign material such as tumbleweeds from entering the suction flume and then going into the pumps.

In the 105-F unit a stainless steel guide ring was installed in the bumper plate of #36 V.S.R.. The rod was well oiled with a light oil that is used in the 115 Building gas sealed tanks. This did not remedy the binding experianced on this rod but the same lubricant did help out on rod #35.

The Mason Neilan valve on #3 - 3X tank on 105-F unit developed a leak and was removed and replaced with a new valve. The bronze seat and plug showed the effects of chemical action from the solution in the tanks. The same valve on #2 - 3X tank also developed a leak and was removed and replaced with the repaired valve from #3-3X tank. It showed evidence of the same trouble as on #3.

#6 H.S.R. in 105-F unit was removed from the thimble to permit Technical to run a traverse test. An obstruction was encountered approximately 15 ft. in from the near side of the unit and the traverse mechanism could not go any further.

The Neoprene seal on the far side was tested after the pressure in the unit had been raised to approximately 6 inches of water. No leaks were found.

The east clearwell of Building 183-F has been leaking large quantities of water during December and January when the water temperatures were at their lowest and the floor had contracted the maximum amount. The clearwell was drained of water and an inspection revealed that the expansion joint along the pump suction flume wall was not water tight. The cold joint between the Gunnite slope and the concrete floor was leaking in the southwest corner of the clearwell The original caulking compounds were removed from the expansion joint and new asphltic plastic roofing was placed on the copper joint to a depth of 3/4 inch. A one-inch thick dry wooden strip was cut to fit the size of the joint and was forced into place. Approximately 45 feet of the expansion joint was repaired in this manner. The water causes this wooden strip to swell up and at the present time no indication of water leaking from the clearwell can be found in the sewer line that runs parellel with this building. The leak in the floor along the Gunnite slope was dhipped out to a depth of one-inch and caulked with lead wool.

In Building 184-F the #4 boiler was overhauled. Six bearing hangers were repaired in the rear section of #3 grates. The first row of grates were shortens about 1/8 inch in #5 section. Six inches were cut off the baffles in the fire box above the doors. The brick work was patched above the doors on the inside of the boiler. The stokers were dismantled for inspection.

The deaerating feedwater heater in Building 184-F was opened for inspection and it was found that a large number of vent condenser tubes were corroded through. Replacement of 218 tubes was made and the heater placed back in service.

In Building 190-F the discharge lines from process pumps #10 11 and 12 were braced to stop excessive vibration and swinging. Braces were installed in Vee-type hangers and were anchored to the anchor rails imbedded in the concrete wall

The 100-F shop fabricated three "B" test hole thimbles that will be stored

in 100-B Spare Parts Warehouse.

The horizontal rod "Mock Up" has been installed on the balcony in 185-F Building. Technical will experiment with this horizontal rod tip to determine the type of construction to give maximum flexibility in these rods.

200 AREAS:

In the B Canyon Building the coils were replaced in carrier units on the operating floor in sections I and II. Copper coils were available for this. A jet testing station was installed in section II to permit the testing of jet assemblies. At the junction of the operating gallery and the office building at the 3rd floor level, sufficient movement had taken place between the two to permit water to run down to the 2nd floor. To prevent this the joint was caulked with asbestos wicking and sealed with plastic cement. At the section 13-4 sample box it was necessary to remove contaminated concerte at the cover curb. The concrete was replaced and a curb angle was installed for cover bearing. The acid sewer was replaced in the electrical gallary sections II and III. Knight ware was used in making the replacement.

To correct a possible source of rumble in the 75 ton crane hoist gear box the 4" tubular motor drive shaft was replaced with a like shaft from the crane which was originally purchased for use in the "C" Canyon. An attempt had been made in December to straighten the original shaft but the desired results could not be obtained with available shop equipment. The "C" shaft corrected the condition. A new shaft will be purchased to be installed in the "C" crane.

Because of a leak in the H.E. unloading line it was necessary to fabricate and install temporary piping to permit pumping from car spot to storage tank through the vent or equalizing line.

The Chapman 1 1/2" valves in the H.F. system, have been replaced with Edwards valves in an attempt to find a more durable valve for this service.

The P.S.Q. (caustic) pump was rehoused so the drive motor was not enclosed in the heated area, thus providing better operating conditions for the motor.

On scale tanks 9-1A, 4-7B, and 4-8B the inlet nozzle was increased from 2" to 3" and the inlet line reduced from 2" to 1", thus preventing acid from escaping around the joint gasket.

The safety shower near the H.F. transfer pump in the tank farm was moved to a location near the north wall of the Canyon Building. Thus placing it at a safe distance from the H.F. system for emergency use.

In an attempt to eliminate the source of vibration in the present B-2 centrifuge in the Concentration Building the driving buttons and rubbers were placed in the fork and brake drum. This machine formerly was in the E-2 position. The distributer dip tube in tank D-1 was replaced after failing in service from corrosion. Replacement was fabricated in the East maintenance shop.

The P.R.V. station in the East Area Power House supplying steam to the change house was eliminated by connecting directly to the new #15 steam loop.

Two spray painting assemblies for Canyon Building tanks 18-1 and 19-1 were fabricated, heat treated and pickled in the area maintenance shop.

At present there is some basis for the belief that the 10-1 to 154-B diversion box waste line is either constricted or broken. At a later date a test will be made on this line to determine its true status.

The 154-B diversion box connector used for the 10-4 line developed a leak, perhaps due to binding from handling. It was necessary to fabricate and install a new connector. The design of the new connector was changed to correct the possibility of misalignment from handling.

In making the regular monthly inspection of the Whiting cranes in the North Area it is required to test the mechanical load brake by lifting a 25% load and releasing the solenoid brake by hand. The mechanical load brake should then support the load alone. The only load available for testing the brake actually approaches the capacity of the crane and therefore exceeds this 25% requirement. Steps are being taken to provide a 25% load to be used for this testing. In an attempt to improve the performance of these load brakes on the N & P area cranes one new friction plate was installed. However the mechanical load brake would not support the load without assistance from the solenoid brake even after this improvement. After discussion the above problem with Mr. Rice of the Whiting Corporation he suggested we try a lighter weight oil in the gear case. Therefore the oil in the P crane has been changed from A-6 to A-18. If no improvement is noticeable, new friction plates will be installed in this crane and with the lighter A-18 oil it will be operated on a test basis. At a later date if no means can be worked out to improve the performance of this brake a Whiting service man will be requested to study this problem.

The regular inspection of the N crane disclosed the necessity of replacing the bearings on the 1st reduction shaft of the load hoist. The factory-installed steel thrust plates on these bearings were replaced with brass thrust plates. This should minimize the wear on the roller cages which is the cause of the failures.

On the "P" Building Whiting crane the bearings on the 2nd reduction shaft failed due to excessive wear on the roller cages. The steel thrust plates have been replaced with brass thrust plates for the reason given above

The tank farm at the "U" Area was reactivated to the extent necessary to store liquid caustic solution.

In the "U" plant laboratory building a series of 4 hoods with exhaust duct and fans was installed in Room #6 for the H.I. Department.

Metal frame gates were installed at the entrance to the "U" Area and at the bus entrance to 200 West Area.

300 AREA:

The process improvement program in Building 313 has continued with the moving of a lathe, a laboratory bench, a welder, and one can stripper.

A new flue was installed on the oxide-burning furnace in Building 314. This included the installation of a jacket around the flue to carry out excess heat and retard the burning out of the flue.

A new lubricant (Union Oil Company's Unoba) proved incapable of withstanding the conditions in the ball-race of the rotary hearth furnace. It is recommended that silicone grease be procured for this service;or that flake graphite be used as a lubricant; or that existing leaks be repaired and a sufficient depth of oil be maintained in the furnace to lubricate the ball bearings.

The Airtemp unit in Building 3706 was re-assembled and given a trial run, after which it was put in a stand-by condition awaiting warmer weather.

Ten additional employees were sent to the 321 job during the month. This job is progressing satisfactorily and the completion date should be met.

The sewer line from the 3706 Building addition has been laid and tested. Water drainage lines have been installed to the seven office hutments which were recently erected in the area.

700 AREA:

Wire window guards were installed on the lower windows on the east side of the 703 Building.

The interior painting in the 703 Building is progressing with one group of 15 men being used most of the time on this job.

Preparations have been completed for repairs and painting of the Power House stack and the job will be done during the next spell of good weather.

1100 AREA:

The repairing of fire damage at 1446 Thayer is complete.

The renovation of Tract House at 507 Barth is complete.

Reconditioning of Tract Houses L-899 and L-906 on Van Giesen Street is 90% complete. The remaining work will be completed by March 14th.

The carpenter work has been completed on the wind-damaged prefab at 325 Roberts. The roof will be built up according to the original specifications and then painted with Firemaster. There is some interior painting remaining to be done on this job which should be finished by March 7th.

The carpenter work on the fire-damaged prefab at 915 Snow will be completed by March 7th. Painting will be started this week and should be finished by March 14th.

The repairs to the fire-damaged Tract House L-895 have been completed.

The recent wind storm caused damage to approximately 100 Village roofs, which required the replacement of 30 squares of shingles. Damage was also done

to the roofs on the Hospital and some of the Women's and Men's dormitories.

Seventy-six house unit interiors have been painted during the month. The amount of carpenter work required in the houses prior to painting has made it necessary to add one more carpenter to the painting group.

PROJECT ENGINEERING:

Projects, Suspense Codes Authorized and Under Construction

100 AREAS

Proj. No.	Title	% Phys. Complete	Date 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	68	1/9/47	11,775
C-124	"B" Test Hole Facility	0	1/30/47	7,900
C-128	"B" Cask Design & Fabrication	100	1/14/47	4,875
	Total Estimated Cost 100 Area Projects			$ 29,250

200 AREAS

C-100	Portable Fan Shielding and Replacement Equipment 291 T-U-B	35	10/22/46	$ 9,600
C-103	Remodel 2713-W into Transportation Garage	88	9/20/46	4,400
C-106	Intermediate Waste By-Pass Jumpers Sec. 15, 221 T & B	100	9/26/46	4,400
C-112	Add'l. Underground Waste Tank Facilities	22	11/25/46	104,500
C-120	Divert Second Cycle Waste from X-110	12	1/15/47	134,200
C-126	Install Central Lint Cathher for 2723-W Laundry	5	1/9/47	2,525
C-133	Special Test Wells 200-E & W	0	1/30/47	135,000
	Total Estimated Cost 200 Area Projects			$ 392,625

300 AREA

C-131	Additional to 3706 Building	25	2/18/47	$ 79,500
C-122	Additional H.I. Instruments	3	1/15/47	105,200
S.C.10152	Metal Casting Facilities	0	2/26/47(verb.)	100,000
C-132	Seven Hutments for Temporary Office Space	85	2/13/47	19,900
	Total Estimated Cost 300 Area Projects			$ 304,600

Project Group - Area Reports

100 AREAS

Study on the Replacement of Sperry Exactor System was received during the month.

Design jobs worked on during the month, but not completed, include:
Studies and designs on vertical and horizontal rods.
Design of Process Car Stop - 105 Building
Revised buffing machine design for vertical rods.
Designs for special tension machine and special compression machine.

200 AREAS

Design and Study jobs added, but not completed during the month, include:

Prepare project for Gasket Changing Facilities 221 T - B.
Prepare project to move caustic tanks from 100-D & 273-B to 211 T-B
Locate leaks in spray pans of air conditioning units.
211-224-T-L HF pumping and piping studies.
Convert Buffalo Units 222-T-B to wet and dry air conditioning.
Study 231 ventilating system.
Design unloading cages for Recycle.
Move HF scale tank from 272-B to 211-B
Build and Install two conductivity meters in 5-7 tank 221-T
Regasketing Trench and All Connectors 221-T-B.
Locate Non-standard underground Roadway crossings over and under outside lines, 200-E-W.
Study brake shaft failure 221-B 75-ton crane
Design steel handling crane-272-T-B
Design and estimate railroad car bumper - 200-N
Study and redesign "B" jet assembly in two parts.
Study Hot water supply for 2723 - W laundry.
Study and design central saw-dust collector for 272-E-W carpenter shops.
Design ventilating hood alteration and installation 222-U
Stack alignment survey-291-T-B
Design safety catch for Bayonette Handle
Check alignment of 284-E-W stacks and report
Make coal pile volume determination - 200-E-W
Design Air intake and filter for heat.
Design HF valve, incorporating suggestion of O.B. Palmer.

300 AREA

An experimental model is being fabricated for the stump shear study.

No further work has been done on alarm systems for the sprinkler systems in 3706 or 3717 Buildings.

Work is still being done on the aluminium dummy machining cost study and on the Rotary Hearth Furnace lubrication study.

700-1100 AREAS

Proj. No.	Title	% Phys, Complete	Date Auth.	Estimated Cost
C-97	Street paving - Village	50	8/16/46	$ 10,450
C-101	Bus Heaters & Defrosters	100	8/30/46	12,150
C-102	Schools - Install Sixteen Hutments	97	8/30/46	24,960
C-105	Build 20 Zeuto Instruments	85	9/11/46	1,900
C-112	Sewage Lift Station - Revise Pumps	0	11/4/46	2,200
C-108	Village Walk-in Refrigerators-Thermometers	0	11/5/46	4,350
C-113	Relocate Disconnect Switch-Substation 251	0	11/21/46	3,275
C-115	Dorms-Install Fire Alarms	0	12/19/46	4,100
C-119	Dorm W-13 - Conversion to Apartments	40	12/30/46	15,200
C-123	Tract House K-777 - Reconditioning	98	12/24/46	2,450
C-125	700 Administration Area Ground Improvements	0	2/12/47	4,975
C-121				
S.C.10117	Dorm W-1C - Educational Building	100	12/16/46	4,700
S.C.10118	Richland Airport-Runway Extensions	100	12/9/46	$ 9,325
S.C.10124	(134-C) Richland Village Dust Control and Landscaping Program 1947 to June, 1948	1	12/19/46	250,000
	Total Estimated Cost 700-1100 Areas Projects			$ 350,035

MULTIPLE AND MISCELLANEOUS AREAS

C-110	3000 Area Barracks - Construct Coal Bunker	65	11/13/46	$ 4,700
	Total Estimated Cost Multiple and Misc. Areas			$ 4,700
	Total Estimated Cost for Active Approved Projects-All Areas			$ 1,081,210

Projects Being Routed for Authorization:

E.R. No.	Title	Estimated Cost
A-3011	Addition to 3717 Building	$ 90,000
780	Irrigation Completion - Div. I and II of Richland Village	247,000
854	300 Area - Increased Capacity at Telephone Exchange	30,000
766	Village '"Shot and Cover" Paving	22,700
828	Building 702 - Automatic Dial Exchange	470,500
	Total	$ 860,200

700-1100 AREAS

Status of various authorized projects will be found briefly presented in the tabulated section of this report. Proposed projects in the design state are as follows:

E.R. No.	Title	% Engr'g Complete
812	Irrigation Extensions - Village	22
822	Pop-up Sprinler System- Village Public Grounds	35
834	Building 720 - Alterations	80
839	Header Pipe-Village Walls to Reservoir	90
842	Replace Switchgear - 351 substation	60
844	Addition to Equipment Room - Commercial Laundry	0
849	Consolidation of Transportation Dept.-Richland	10
850	Alterations to Municipal Building	90
861	Erect Hanger Adjacent to Building 734	30
872	Repair and Improvement of Administration Buildings All Areas	0
879	Overhead Doors - 1131 Garage	0
891	Additional Building - Commercial Garage	0

Study Group

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Completed During the Month

E.R. No.	Title
4276	Chlorination of Irrigation Canal
4279	*Improved Food Handling Facilities - Schools
4281	Tract House Reconditioning Survey
4283	Additional Air Conditioning - Nurses' Station - Hospital
4285	700 Area Central Shop
4286	Improved High School Cinder Track

*Indicates Report Awaiting Approvals

Studies Added This Month

E.R. No.	Title
4292	Record Duplicating Facilities
4294	Prefab Roof Repairs
4295	Pressure Relief Valve Standardization
4296	Oil Reclamation Survey
4297	Tract House Survey - Part II

Active Studies

4233	Spare Parts Studies
4264	Air Conditioning Survey - 703 Building

[redacted]

MAINTENANCE DEPARTMENT

4274	Estimated Equipment Needs - Transportation Department
4277	Use of Wall Tile in Village Bathrooms
4278	700-1100 Area Air ConditioningSurvey
4284	Steam Line Support Replacement
4289	J.E. Sheet Lead Salvage
4288	GX Gasket Survey
4290	Project and Study Summaries
4291	Village Heating Survey
4297	Tract House Survey - Part I

Drafting and Print Control Summary	This Month	Last Month
Drawings and Sketches Completed	126	216
B & W and Blueprints Produced	4,987	4,023
Photostats Produced	34,050	17,036
Portagrpahs	1,407	551
Other Prints Handled	7,285	2,111

ELECTRICAL DEPARTMENT

FEBRUARY, 1947

GENERAL

Work Order Summary:

Area	Work on Hand Jan. 31		Work Completed in Feb.		Work on Hand Feb. 28	
	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
100-B	46	114	47	135	48	80.4
100-D	42	123	72	177	26	156.6
100-F	56	196	78	290	65	212.1
200-E	114	225	134	318.5	119	421.9
200-W	93	200	76	278.4	110	174.7
300	70	112	99	148.3	36	198.6
700-1100	164	407	140	388.2	120	355.2
Distribution	155	953	142	855.5	165	1287.1
Minor Const.	5	110	3	71.0	21	367.7
Telephone		143.8	2	178.8	17	263.0
Totals	745	2583.8	793	2840.7	727	3517.3

ORGANIZATION AND PERSONNEL

There was no net change in personnel during the month since three men (one Helper and two Electricians) were added to the payroll and three men (one Helper and two Electricians) were dropped from the payroll by reason of retirement, death, and resignation.

One additional Engineer was added during the month for assignment as required, now assigned to the Distribution Section.

AREA ACTIVITIES

1. 100 Areas

   A. General

   A very complete and careful inspection of transfer area cranes in the 105 (Pile) Buildings was made during the month since some trouble had been experienced in the 200 Areas with cranes of same manufacture and similar construction.

   Upon inspection, friction burns were found on the pinion and bull gear on the hoisting drum of the 30-ton Whiting transfer area crane in the 105-B (Pile) Building, evidently caused by misalignment. The Maintenance Department is correcting this condition. Examination of the mechanical load brake and roller bearings showed them to be in good condition except for approximately .025" dish in the friction discs. This was not considered serious.

Inspection of the 30-ton transfer area crane in the 105-D (Pile) Building on February 20 indicated considerable wear in the hoist cable drum grooves. This wear is caused by the position of the cable guide pulleys which force the cable to leave the drum at a rather sharp angle. Thus, the cable has a grinding action on the groove edge, causing it to become sharp and chip off. This condition exists to a greater or lesser extent on all the similar cranes in the plant. It is thought that lowering the guide pulleys might relieve this situation, but it may be necessary to remove them entirely and design a guide to be mounted on the lift hook sheave.

Investigation and studies of this subject continue.

B. 100-B Area

The speedometers on the diesel electric locomotives were inspected and three tachometers were found to have broken shafts. The design was modified to allow the use of larger shafts and the speedometers were returned to service. Tachometers have been ordered for installation on the two new locomotives.

C. 100-D Area

On February 13, at 10:22 AM, No. 11 process water pump in the 190 Process Water Building was accidentally tripped off by an Electrician. The Electrician was checking relays on the pump next to it and pulled the test plug on No. 11 in error. There was a small drop in water pressure for a couple of minutes, but process was not interrupted.

On February 18, at 9:05 PM, incoming line breaker E4X49 in the 182 Reservoir Building was accidentally tripped off by a Power Department employee while he was sweeping the floor in front of the switchboard. The breaker was reclosed and power restored.

During the preventive maintenance inspection of the air conditioning equipment in the 189 Refrigeration Building, it was found that eight of the bronze water pump seals were frozen to the shafts of the water pumps. Correction was made.

D. 100-F Area

Continuing the January report, ammeter readings were taken on all vertical safety rods in the 105 (Pile) Building in an effort to determine rod drag. Readings were taken with rods going up and down and then on the motor only with clutch de-energized. Results indicated that several rods were dragging due to mechanical bind. The No. 36 rod is out of service because of mechanical bind. During the rod test made by the "P" Department on the last "down day" this rod did not move and the cable got tangled up on the winch drum. The end of the cable was damaged, making it necessary to shorten the winch cable a foot.

Trouble developed in the limit switches on the gate motors at 107 Retention Basin due to corrosion from moisture. Two switches had to be replaced. This trouble has been encountered before and efforts have been made to make them moisture-proof. Investigation of this problem continues.

The No. 3 filter pump motor and No. 4 condenser pump motor in the 182 Reservoir Building had their bearings replaced on the yearly overhaul. This building is subject to considerable dust and sand entering through its ventilating system.

When the emergency generator in the 184 Power House was tested, two process water pump motors in the 183 Filter Plant Building dropped off the line. The test was repeated twice more to determine the reason for this action if possible. The pumps tripped off on one test and stayed on the next. The only explanation that could be found was that the relays were sluggish and did not return to the full open position after operating about half way on motor starting current. The relays were removed and given a careful clean-up.

E. Status of Major Work Orders

Project	Location	Item	Comments
C-116 E	100 Areas	Lightning protection, signal and instrument circuits	Held for material
C-96	Riverland	Electric heat	Complete
Design Ch. 48	105-B	Crane limit switches	Complete
Design Ch. 52	105-D	Disconnects ahead of 30 A, 440 V receptacles	Complete
C-118 E		Electrical work on Fish Hatchery	15% complete
C-135 E		Electrical work on effluent water pipe to river	85% complete

2. 200 Areas

A. General

Work is progressing on the correction of electrical prints for the 200 Areas to bring them up to date on design changes made in the past. Our present system of numbering and writing up all design changes will enable us to keep our prints up to date in the future.

Further studies were made of Whiting cranes with reports as follows:

1. In the 200 E Area, new friction plates were installed by the Maintenance Department on the 30-ton crane mechanical brake in the 212-P Metal Storage Building on February 12, 1947. The old plates were scored and dished slightly. It has been found that with new friction plates, these mechanical load brakes operate according to Whiting Corporation specifications for about thirty days, after which they will slip when tested in

accordance with Whiting Corporation recommended testing procedure. However, the crane continues to operate satisfactorily so far as lifting and lowering a load is concerned.

2. Also on the same crane, the pinion bearing (7L-Hyatt W-214) on the mechanical brake screw pinion shaft failed at approximately 1:55 PM on February 26.

The foregoing items will be the subject of further study during the coming month.

B. 200-E Area

The yearly overhaul of the 75-ton and 10-ton Whiting cranes in the 221-B Canyon Building was started. On the recommendation of Mr. Rice of the Whiting Corporation, we are trying a lower viscosity oil (SAE 30 instead of SAE 40) in the mechanical break gear case. Mr. Rice thinks this may improve the operation of the mechanical brakes.

Thirty poles were hauled, and transformer substation was constructed for electric service to contractor at new tank farm.

C. 200-W Area

A rotor shaft on a carrier unit fan motor in the 221-T Canyon Building was found to be badly scored. The shaft was metalized and refinished and a new bearing was installed. Nothing was found in the oil or bearing housing which might have caused the trouble.

The "Agastat" time delay relay on the automatic emergency generator in the 284 Power House was replaced with a new unit, due to the erratic operation of the old relay. This relay is set to close the generator Oil Circuit Breaker in about fourteen seconds after the under-voltage relay operates.

D. Status of Major Work Orders

Project	Location	Item	Comments
Design Ch. G1	221 (Canyon)	Adding three 440 V Air Circuit Breakers	Awaiting material - expected April 1
Design Ch. G2	224 (Concentration)	Emergency lighting service	Ordering material
Design Ch. G3	271 (Canyon)	60 HP Air Comp. control	Recently received
C-103	2713-W	Conversion to garage	95% complete
C-126	200-W	Laundry filters	Awaiting material
C-113	A-8	Installation of by-pass switch	To start at once

3. 300 Area

A. A general preliminary overhaul of used equipment, design of heating coils and tank entry bushings, and general layout of electrical equipment preliminary to ordering of necessary materials is about 50% complete for new induction melting furnace project.

B. The No. 1 arc welder in Building 313 (Material Preparation) failed due to insulation breakdown of the transformer primary coil. A spare welder was installed with no loss of production. Corrosive nature of the air in this building is thought to contribute largely to this failure. The damaged unit is being rewound.

C. The DE and DD recovery furnaces heating elements in Building 313 (Material Preparation) failed and replacements are expected about March 14. These are used for the salvage of bronze flux and failure does not cause loss of production as this work can be postponed for a time.

D. During the month, various investigations were made in an effort to clear up radio interference in the broadcast band. One source was located in the 6.9 KV lines to the Airport runway and was cleared up. Improvement in reception was noted at once, but further interference has developed and is again being investigated.

E. Status of Major Work Orders

W.O. No.	Item	% Completed	Remarks
46579	Wiring of huts for additional office space	70%	Heaters are being installed and these huts can be occupied very shortly. Actual completion of the work order will be delayed until twistlock plugs and receptacles are received.
10120-E-3	Wiring for light and power in 3706 (Lab.) Bldg. addition	0%	Electrical work has not been started on this order as construction of the addition has not progressed to that point.
P-3060-A	Changes in lighting wiring in 321 (Semi-Works) Bldg.	30%	
3059-A	Changes in power wiring and installation of electrical equip. in 321 (Semi-Works) Bldg.	10%	This work is not progressing very rapidly due to the slow delivery of materials. These are explosion proof fittings, etc. for which we have no substitutes available on hand Shipment of some materials is promised in May which will make impossible the completion of this work in the early part of April.

Electrical Department

4. 700-1100 Areas

A. Seven poles were set in line D1-L7 on Thayer Drive to reduce length of spans which are overloaded during high winds.

B. As a result of load checks taken in the Village, the following transformers were replaced with larger sizes in order to relieve overloaded conditions.

Location	Transformer Removed	Replaced With
1400 Blk. on Goethals	37.5 KVA	50 KVA
1500 Blk. on Goethals	25 "	37.5 KVA
1500 Blk. on Goethals	37.5 "	50 KVA
1500 Blk. on Jadwin	25 "	37.5 KVA
Tract House 901	7.5 "	15 KVA

C. Status of Major Work Orders

W.O. No.	Item	% Completed	Remarks
02977	First floor lighting Dorm W-4	95%	
70476	Second floor lighting Dorm W-4	75%	
46516 A	Additional lighting Drafting Room, W-4	0%	Completion depends on delivery of fluorescent fixtures which are on order.
02972	Alterations to Bldg. 705	100%	
C 10123-E-3	Conversion of Dorm W-13 to apartments	60%	
C 10103-E-3 C 102 10126-E-3	Wiring of 12 school huts Wiring of 4 school huts Wiring of 1 school hut	90%) 90%) 95%)	These orders will be completed on delivery of two exhaust fans and the necessary heater cord, twistlock receptacles and plugs.
C 115	Additions to fire alarm system in all dormitories	5%	All wiring has been done in Dorm W-9. Auxiliary alarm boxes, etc. are not yet delivered for this order. Work for W-4 Dorm has been deleted from this project as the Design Division is figuring on a different system.
14635	Installation of experimental electrical heating, including transformer changes.	75%	Equipment is ready for installation at 1325 Kimball. Installation is completed at 505 Barth.

Electrical Department

W.O. No.	Item	% Completed	Remarks
20926	Repair fire damage to Tract House L 895	100%	
21035	Repair wind damage to house at 325 Roberts	100%	
20261	Renovate wiring and install electric heat at 507 Barth, Tract House	90%	
20263	Renovate wiring and install electric heat at Tract House L 899	90%	
20262	Renovate wiring and install electric heat at Tract House L 906	90%	
18858	Renovate wiring and install electric heat at 915 Snow St. (Prefab)	90%	Last four orders to be completed when necessary receptacles and plugs are received.
02980	Change of motors and starters in Sewage Lift Pump House	0%	Shipment of equipment for this order has been promised for 3-22-47

D. Experimental electric heating installation at 505 Barth has been completed and is being studied in operation for later report.

5. Telephone Group

A. Work is progressing on the 200 line increase in the Richland exchange. Completion of this increase in telephone facilities is dependent on delivery of switchboard cable and the procurement of relays which are on order. The cable is now in transit.

B. A report was completed on present operating and maintenance costs per station of the Richland exchange. Also, a similar report was prepared showing these estimated costs for a 3000 line (4700 station) automatic dial exchange, and for a 3000 line (4700 station) "All Feature" exchange.

C. An estimate was prepared on the cost of extending cable facilities which would be required to provide individual line service to 5% of the Richland residences with two party service to be available to all other residences.

D. During the month, 150 telephone instruments were installed and 125 were removed in the 700-3100 Areas. In the process areas, 27 units were installed and 23 were removed.

Electrical Department

6. Power Supply Interruptions

Date	Area	Circuit Affected	Duration	Remarks
Feb. 16	Hanford	OCB 174	1 hr. & 22 min.	Walla Walla 115 KV line relayed on ground
Feb. 26	213	Line E8-L41	2 hrs. & 24 min.	Primary down

POWER STATISTICS - ELECTRICAL DEPARTMENT

FOR MONTH ENDING FEBRUARY 28, 1947

ITEM	ENERGY - MWHRS. Jan.	ENERGY - MWHRS. Feb.	MAX. DEMAND - KW Jan.	MAX. DEMAND - KW Feb.	LOAD FACTOR - % Jan.	LOAD FACTOR - % Feb.
230 KV SYSTEM						
151 B Out	1,730	1,660	3,500	3,600	66.4	68.6
151 D Out	7,460	6,940	12,000	11,800	83.6	87.5
151 F Out	7,060	6,460	11,000	10,900	86.3	88.2
251 Out	2,310	1,970	3,800	3,800	81.7	77.1
TOTAL OUT	18,560	17,030	30,300**	30,100** ✓	-	-
MIDWAY IN	19,016	17,243	30,000*	28,000*	85.2	91.6
Transm. Loss	456	213	-	-	-	-
Per Cent Loss	2.4	1.2	-	-	-	-
66 KV SYSTEM						
1151 A Out	3,768	2,783	7,000	6,200	72.4	66.8
1151 B Out	3,070	2,366	6,300	5,600	65.5	62.9
751 A Out	2,582	2,217	5,491	5,086	63.2	64.9
351 A Out	266	246	540	558	66.2	65.6
351 B Out	216	206	1,160	940	25.0	32.6
Hanford Out	196	174	500	400	52.7	64.7
TOTAL OUT	10,098	7,992	20,991**	18,784** ✓	-	-
Hanford In	701	485	500*	400*	-	-
Pasco In	9,518	7,585	19,200*	17,200*	66.6	65.6
TOTAL IN	10,219	8,070	19,700**	17,600**	69.7	68.2
Transm. Loss	121	78	-	-	-	-
Per Cent Loss	1.2	.9	-	-	-	-
PROJECT TOTAL						
230 KV (Item 5)	18,560	17,030	30,300**	30,100**	-	-
66 KV (Item 15)	10,098	7,992	20,991**	18,784**	-	-
TOTAL OUT	28,658	25,022	51,291**	48,884**	-	-
230 KV (Item 6)	19,016	17,243	30,000*	28,000*	85.2	91.6
66 KV (Item 18)	10,219	8,070	19,700**	17,600**	69.7	68.2
TOTAL IN	29,235	25,313	46,800*	44,000*	84.0	85.6
Transm. Loss	577	291	-	-	-	-
Per Cent Loss	2.0	1.1	-	-	-	-

* Coincidental Demand
** Non-Coincidental Demand

Average Power Factor - 230 KV System——99.8
Average Power Factor - 66 KV System——98.0

69

[redacted]

1200677

[redacted]

INSTRUMENT DEPARTMENT

FEBRUARY 1947

GENERAL

The Instrument Department is making a study of job classifications used by the Department and submitting a recommendation, including new job write ups, titles, and rates for all weekly personnel.

Information is being secured on the requirements for the organization of a local chapter of the Instrument Society of America for H.E.W. There has been considerable interest, both nationwide and local, in the activities of this Society. Anticipating approval by Management and no difficulty with Security, the chapter could be organized in the fall of 1947.

Work Order Summary:

	Work on Hand Feb. 1		Work Completed in Feb.		Work on Hand Feb. 28	
Area	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
100-B	52	43	60	78.5	53	48.4
100-D	54	154	100	289.6	75	131.4
100-F	60	196	98	294.0	54	206.2
200-E	47	105	205	255.4	50	92.0
200-W	50	76	229	265.1	58	117.3
300	70	338	105	548.5	87	3475.8
700	118	132	172	210.0	58	124.5
Totals	451	1044	969	1941.1	435	4195.6

The majority of the large increase in "Work on Hand" is due to project C-122 which will extend through the rest of the year.

100 AREAS

Trip setting indicators were installed on the indicating meters on the control desk which are driven by the Beckman Safety Meters. This was done so that operators would at all times be fully aware of trip settings and will request instrument range changes when readings approach the trip point while changing power level.

Electric Pump No. 11 was accidentally tripped on February 13, 1947. Pressure dropped to 338 p.s.i. and recovered to normal 375 p.s.i. in 50 seconds. The pile was not shut down due to the pressure drop as Safety pressure switches are set for 300 p.s.i.

A proposed change in method of operation of refrigeration units will require a more satisfactory indication of flow through each of the evaporators. At present three units are operated in series, and the total flow is recorded on Ring Balance meter in supply line. Moore Products flow indicators, operated by the differential across the evaporators have been provided and calibration is checked against recorder. Revised operation would partially open by-pass valves around

each evaporator and increase total flow. A study is being made to determine if presently installed equipment can be made satisfactory to indicate flow through each unit.

A number of pressure monitor gages in the .140" orifice zone were operating very near the trip point in spite of the recent purge of unit to reduce this back pressure. Twenty-four of these gages were changed from 45-95 p.s.i. range to gages with a 100 p.s.i. spread to conform with changes made in orifices by the "P" Department. This condition will continue to occur until the solid dummy slugs in the tubes are replaced with perforated ones.

Arrangements have been made to begin tests of No. 4 boiler in the 100 Areas to establish proper fuel-air ratios at all loads and to reset the air flow mechanism of the Bailey Boiler Meter to maintain these conditions.

Seven sampling connections were installed in the breeching to obtain flue gas for analysis. A tentative procedure for the tests and recalibration has been drawn up, and the preliminary work required to get started has been completed.

At the request of the Power Department, an order has been placed with Leeds and Northrup for 1 CO_2 analyzing cell which will be used with a converted Micromax strip chart recorder to continuously record CO_2 of flue gas from 1 boiler. Based upon the outcome of the above tests and recalibration, recommendations will be submitted with respect to future CO_2 or O_2 recorders.

200 AREAS

The two Waste Sump Manometers at 231-W Isolations Building have been connected to the dip-leg lines of the new cribs. There is a stoppage in one of the North crib lines that has not been corrected to date. The other manometer has never shown an indication of solution depth even though waste solution is being jetted into this crib. Preliminary tests on the crib showed the ground to have an exceptionally high rate of absorption.

Two Ring Balance dip-leg stoppages occurred during the month on 9-1 tank in the 221-T Separations Building. Tank 15-9 dip-leg was plugged once during the period. Air blowing would not clear the lines so the stoppages were removed by dissolving with nitric acid.

2006 19

The Chicago type Portable Poppies, originally assigned in the East Area, were replaced with the new H.E.W. type units. The Chicago Poppies will be assigned to area survey service when a sufficient supply of probes is available. Poppy probe check stations are located in the Instrument Shops of 271-T and 222-B to facilitate the maintenance of this equipment.

Poppy survey work at the 2723 Laundry is again being inconvenienced by the effect of static charges on the garments. The humidity of the atmosphere is dropping which apparently accounts for this aggravation. This may be cured by X-radiation of clothes or steam injection.

[redacted]

Instrument Department

Two conductivity cells, incorporating improvements of the experimental model, were completed by the Area Maintenance Shop. These cells will be installed in the near future to aid in the detection of process leaks in the 221-T Separations Building. Guide bars have been added to facilitate remote mounting with the operations crane, the sampling spout was made adaptable for either right or left hand installation, a flexible sampling assembly with suitable stops aids in assuring proper sample collection for the cell, the handling loop was modified to give better balance, and other minor changes were added to prolong satisfactory operating service. Trial installations, conducted in the 221-U Canyon, indicate these units to be adaptable to the remote handling requirements of the operating area.

The new Instrument Shop being created in the change house will furnish an accessible location from which to maintain the 2723 Laundry counting equipment. A work table, a shelf, and a small cabinet have been obtained for use in the shop. Test equipment and supplies will be moved in as soon as the Electrical Department completes the installation of A. C. outlets.

300 AREA

The work load for the Machine Shop continues to increase, but the output of the shop is severely hampered by insufficient working space and machine tools. More man power should be made available, but the space limitations make this addition impractical for one shift operation; therefore, a second shift is being considered in 3717 Shops. It is anticipated that this second shift personnel will be used days in the expanded shop facilities as outlined in Project C-141.

Projects

C-122

Work on this Project is progressing very slowly. Materials have been ordered and some pilot models are being built. Completion date for this project, based on estimated delivery dates of materials and present man power and facilities, will be January 1, 1948.

C-105

Field tests indicated that a redesigned case would be necessary for satisfactory operation of the modified Zeuto instruments. The case flexed when handled causing circuit fluctuations and false instrument indications. A fabricated aluminum case was made which has proven satisfactory in field tests. Accordingly, Part II of this project is being prepared to provide for the aluminum case on all 20 instruments involved, and to incorporate minor circuit changes requested by H. I.

C-141

Project Proposal was submitted for approval on March 3, 1947. This project details the planned expansion in the 3717 Instrument Shop for a total expenditure of approximately $90,000. It is anticipated that this project will greatly aid the Development and Research work at H.E.W., and provide adequate facilities of a character consistent with their requirements.

Instrument Department

Continued trouble is being experienced with "Poppy" probes, emphasizing the need for better design and a more thorough inspection of work before it leaves the shop. These needs are especially important for reducing the amount of maintenance required in the field and extending the useful life of an instrument. Considerable effort is being extended to improve both design and quality of the products coming from our shops.

The Neutron survey meter using the modified Zeuto circuit was delivered to Health Instrument this month.

A pilot model of a foot checker has been completed.

Construction of a pilot model four-fold Alpha hand counter is about 50% complete. Plug-in scaling units and amplifiers are being incorporated in this design. Results to date indicate good performance and ease of construction.

A special Alpha hand probe was completed for the Health Instrument group to be used for experimental work on a combined Alpha and Beta hand counter.

Six low background Alpha circuits were delivered to H. I. this month.

Ten Sigmion instruments were received from Argonne National Laboratories. These units are being inspected and calibrated before going to the field.

Experimentation has shown that the first four stages of a Higinbotham scaler can be operated as a scale of ten. Conversion of a scale of 64 to a scale of 100 will be made soon.

The use of "Hermaflex" seals which permit the rotation of a switch in a vacuum without shaft seals will allow the maintenance of a good vacuum in the pre-amplifier unit. This should eliminate the principal difficulty in keeping "Cutie Pies" in service.

700 AREA

A Work Order is being submitted which is planned to cover material and labor for improved vacuum systems for the 700 Area Instrument Tube Shops. This expanded facility is expected to improve the quality of the tubes now manufactured, as well as to provide facilities for developmental work in the vacuum field as requested from time to time by H. I., Technical, and others.

A second and third series of plateau checks were made on the 10 Victoreen Mica Window Tubes. Results indicate that 6 of the 10 tubes had statistically flat plateaus and were acceptable by H.E.W. standards. The best 3 of these tubes have been sent to the 200 Areas for further testing. The tests run by the Technical group show that these tubes have a uniform counting rate. Tubes have been ordered from other vendors to determine their characteristics and compare their performance with our tubes.

A G.E. Leak Detector of the mass spectrometer type has been transferred from 100-B to the 717-A Building. This unit is being serviced and will be put into operation shortly. This instrument is a prerequisite for good vacuum technique,

and it is felt that it will contribute to improved tube manufacture in the future. Additional Leak Detectors are being transferred from Oak Ridge to this Project.

DEVELOPMENT DIVISION

Space in the basement of Building No. 321 to be used by the Instrument Department in conjunction with Redox development program is selected and a Work Order for necessary electric power, lights, and partitions will be issued shortly.

The Development Division is currently engaged on the following assignments:

1. Canned Slug Fault Detector
2. Improved Beckman Controller
3. Explosion Proof Instrument Case
4. Design of new equipment for measuring Tube Bowing in the Pile.
5. Xenon Computer Design
6. Technical Manual Preparation
7. Improved Periscope Viewer
8. Pile Thimble Gage
9. Borescope Panoramic Viewer
10. Automatic Sample Changer
11. Slug Blister Gage
12. Improved Bailey Power Indicator
13. Hot Laboratory
14. Redox Process Interface Liquid Level Indicator
15. Improved Counting Rate Meter

Canned Slug Fault Detector

The electrical part of this device is complete. A D. C. Amplifier was designed and constructed to operate directly from the output of the R.F.. (150 K.C.) amplifier. Tests will be made on 400 slugs which had been sampled in production and rejected. A few slugs will be cut open, sectioned and photographed.

Test samples of aluminum of different thicknesses have been prepared to use in standardizing the unit and to facilitate test correlation as a check on the stability of the equipment.

Improved Beckman Controller

The new unit, using two 2050 thyratrons and two relays in parallel, is stable. The thyratron tubes are accessible from the front of the panel for easy replacement.

If a Scram signal occurs both relays operate and the Pile shuts down. However, if either unit alone fails due to tube or relay failure, the annunciator in the control room drops, but as the Pile does not shut down the operator knows there is a failure in the Controller Unit. One of two small pilot lamps on the front

of the panel lights up indicating to the operator which tube has failed. Immediately, tube replacement may be made from the front of the unit. Tube or relay failure should not cause a Scram.

Xenon Computer Design

The design of the Xenon Computer is now well advanced. W. Preisz, Designer, has preliminary drawings prepared with gear trains recalculated to operate correctly with the four inch Ford Integrators received from the Bremerton Navy Yard.

Improved Periscope Viewer

Most of the machine shop work on the first Improved Viewer is complete, and it is estimated that it will be ready for installation in the next two or three weeks. Optical parts for six complete viewers have been ordered.

John Holeman is now on a business trip East for the Project and will visit Ryerson Laboratories, the U. S. Bureau of Standards, and General Electric Company, Schenectady.

Redox Process Instrumentation

Progress to date:

1. Specifications written and all instruments ordered for Hexone pre-treatment room. All instrument connection details to tanks in pre-treatment room have been completed. Panel board steel and panel board layout is started.

2. Specifications written and all instrumentation ordered or available for metal preparation, except concentrator specific gravity indicator. Design alterations completed.

3. Specifications written and standard instruments ordered for column instrumentation. Special equipment is being designed and fabricated.

4. Present vendor promises indicate complete instrument delivery by April 1st to April 7th on equipment necessary for operation.

The problems of the moment are:

1. Metering Pumps.
2. Interface liquid level indicators for the columns.
3. "Flooding" detector for the columns.
4. Product analysis at various points.

Metering pumps for very small flows may be secured through the work done at Schenectady on jet engine fuel pumps. This will be investigated. These same type pumps may be suitable as tank pumps instead of the displacement pumping now contemplated.

[redacted]

Instrument Department

In the final stage of the Redox process, product could be analyzed continuously by means of a slightly modified General Electric X-Ray Photometer. Product in our present Bismuth Phosphate process at the isolation end could be analyzed in a matter of seconds with the G.E. X-Ray Photometer without any modifications.

SERVICE DEPARTMENT

FEBRUARY 1947

PERSONNEL

GENERAL

The painting project was completed on Building 705 during the month of February. It was also necessary to complete a few minor repairs.

ORGANIZATION AND PERSONNEL

Employment and Investigations

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

Industrial Relations

Effective February 1 a new Industrial Relations counselor reported to this division and was assigned to the 200 Areas, replacing the counselor formerly assigned to those areas who is now assigned to the 300-700-1100 Areas.

Effective February 1 an Industrial Relations counselor was promoted to Section Supervisor of Training.

Effective February 1 the Section Supervisor of Women's Activities reports directly to the Chief Supervisor of Personnel.

Public Relations

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

Education

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

Compensation and Insurance

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

ACTIVITIES

Employment and Investigation

During the month of February the remaining number of project employees who had not executed their patent agreements were contacted and the project is now complete.

[redacted]

Service Department

The program for reproducing investigation and personnel files is making steady progress and approximately 4475 such reproductions are yet to be made.

Initial personnel engaged by Morrison-Knudsen Co., Inc., (a subcontractor) is being processed by this division to the extent of (a) fingerprinting, (b) photographing, (c) routing to the Medical Department, (d) preparation of Personnel Security Questionnaires, and (e) conducting a limited personal history investigation.

As of February 17, in compliance with the Atomic Energy Commission's request, a revised system of employees' security clearance was established. Under the revised system no company personnel may be employed without first obtaining approval from the Atomic Energy Commission. A minimum of 28 days is required, after receipt of the necessary forms, for the P, S, Instrument, Design and Construction, Technical and Accounting Departments (except stenographers, typists and office helpers), and a minimum of 10 days, after receipt of the necessary forms, is required to obtain approval to employ individuals for any of the remaining departments.

To meet the demands of the departments who are in need of stenographers and typists it has been necessary to recruit this personnel from Spokane. An acute shortage of this type of personnel still exists, and arrangements have been made to recruit stenographers and typists in Seattle during the second week of March.

Employee interviewing continued to be heavy during the month; however, establishment of the revised clearance procedure caused some delay in getting new cases to the Investigation Group.

At the beginning of the month there were 172 open requisitions for weekly salary personnel of which 103 were covered by interim commitments.

Industrial Relations

During the month of February a total of 1387 contacts were made by the counselors in the field. These contacts are summarized as follows:

Policy	115
Military Service	11
Group Life Insurance	99
Group Disability Insurance	135
G.I. Bill of Rights	4
Social Security	27
Recreation	16
Richland Housing	32
Other Housing	5
Municipal (Facilities)	50
Municipal (Social)	11
Municipal (Personal)	27
Grievance	2
Personal	32
Miscellaneous	11
Income Tax	810
Total	1387

Service Department

From February 10 through 21, the Chief Deputy of the Pasco office of the Department of Internal Revenue was in Richland in the Personnel Building assisting H.E.W. employees in the filing of their income tax.

During the month assistance was given to two families of deceased employees in helping them with the preparation of their insurance claims and the collection of any monies due the deceased employees.

All employees who will attain retirement age during 1947 have been personally contacted and Social Security claim inquiries have been forwarded to the Social Security Administration in Baltimore, Maryland.

Fifty-three exit interviews were held during the month of February.

Selective Service has been comparatively inactive this month.

A total of 122 new employees, 35 of whom were women, were orientated during the month of February. A large percentage of those orientated signed-up to participate in both the Group Disability and the Group Life Insurance Plans.

During the month of February plans have been nearly completed for the purpose of holding Supervisory Training Conferences. It is anticipated that these conferences will be started during the month of March.

Women's Activities

The training program for women started on February 10. One hundred seventy female employees are enrolled. Two groups meet daily at 8:15 A.M. and 10:30 A.M. Sessions are held in the conference room in the 705 Building (conference style). The female employees included in this training course are those who hold job classifications of secretary, stenographer, or typist.

Fifty female employees were counseled during the month of February.

During the month all arrangements were completed with the printer who is to print the Hanford Engineer Works Employees' Handbook.

Several types of recreational programs have been unofficially sponsored by this section among the dormitory groups. Types of activities promoted are: special meetings, skiing, and get-acquainted dances. Progress has been made in the organization of a Toastmistress Club.

Public Relations

Discussions were held with various commercial printers in the surrounding areas and a printer has been tentatively selected as the one who will print the employee newspaper.

A print of the G-E safety film, "Voice of Safety", has been shown to the H.E.W. Safety Division and was found to be quite suitable for use here. Necessary steps are being taken to purchase this film for the Safety and Fire Protection Division.

A talk was prepared by this division and used by the Plant Manager for a safety award presentation in the 200-W Area.

News items have been prepared and released to various Northwest newspapers and have been known to appear in the Seattle Post-Intelligencer, Spokesman-Review, Walla Walla Union Bulletin, and the Villager.

Public speaking by plant personnel offered an opportunity for good public relations in three instances during the past month. The speakers were furnished for the Thomas A. Edison Centennial Meeting of the A.I.E.E. in Portland, Oregon, on February 11; for the A.I.E.E. in Seattle, Washington, on February 17, and the Hood River County Farm Bureau, Hood River, Oregon, on February 17. News releases were made of these talks to the local newspaper together with pictures of the speakers.

Education

The principal item to report for February is the fact that following committee conferences and negotiations with propsective instructors, a conclusion was reached by management as to the courses to be offered for the spring term of 1947. Public announcements of these courses have been made, also, the conditions of registration. Seven courses will be offered in science and engineering, five in mathematics, and two in business.

Compensation and Insurance

Position Schedule Bond No. 2282474 (Deputy Sheriff Bond) has been submitted to the bonding company from whom an "Acceptance of Notice" has been received.

Home Insurance Company Policy No. TR 32398 (Transportation) was found to be in error and correction was immediately made.

Letters have been written to all department heads with a list of employees in their departments who are required to be bonded by the Primary Commercial Blanket Bond No. PB 13583. Most of the questionnaires distributed have been returned and forwarded to the bonding company.

A conference was held February 13 attended by L. F. Huck, H. E. Scott, and B. K. Phillips for the purpose of discussing insurance coverage for Hanford Engineer Works. It was concluded that the policies presently in effect adequately cover our needs. A conference was also held with Mr. Huck and B. K. Phillips for the purpose of discussing insurance relative to subcontractors.

It was found that [redacted] was being paid compensation insurance for lost time and also on full salary by General Electric. A correction of this condition has been made.

A check was received [redacted] for overpayment of compensation insurance.

[redacted]

Service Department

Face sheets and index cards have been prepared by the division for use on all workmen's compensation cases. The use of this face sheet enables this office to determine at a glance all information referable to active claims.

A trip was made to Olympia on February 24, and several claims involving project employees were handled.

Compensation and Insurance statistics for the month are as follows:

1. Claims

	Reported This Month	Last Month	Total Since Sept. 1, 1946
Workmen's Compensation	8	4	26
Liability	2	4	12
Not Reported	3	3	15
Handled for du Pont	1	4	

2. Compensation Payments Approved - Department of Labor and Industries

	Number of Claims - Amount		
	This Month	Last Month	Total Since Sept. 1, 1946
Medical Aid	8 - $ 350.41	8 - $ 365.86	$ 3,056.44
Accident Fund	12 - 4,620.15	10 - 3,104.18	26,494.71
Pension Fund	23 - 1,139.57	23 - 1,139.57	6,597.85

3. Liability Payments Approved - Travelers - None

STATISTICS

Employment and Investigation

Number of Employees on Rolls	1-31-47	2-28-47
Exempt	847	865
Non-exempt	3768	3823
Total	4615	4688

Additions to the Rolls

	Exempt	Non-exempt	Total
New Hires	17	99	116
Reemploys	-	-	-
Reinstates	-	1	1
Transfers from other Plants	3	1	4
Net Additions	20	101	121
Payroll Exchanges*	7	-	7
Gross Additions	27	101	128

*Transferred from Weekly Salary Roll

Terminations from the Rolls

	Exempt	Non-exempt	Total
Actual Terminations	2	46	48
Payroll Exchanges**	0	7	7
Gross Terminations	2	53	55

** Transferred to Monthly Salary Roll

Approximately 70% of all terminations were on a voluntary basis, and most of those were for the following reasons: (a) Personal, (b) Other Employment, and (c) Pregnancy or failure to return after pregnancy leave.

General

	1-47	2-47
Applicants Interviewed	1,479	1,179
Absenteeism Statistics (Weekly Salary Roll)		
Male	1.85%	1.71%
Female	2.81%	2.62%
Total Plant Average	2.06%	1.90%

Investigation Statistics

	Jan.	Feb.
Cases pending at beginning of month	461	550
Cases received during the month	281	184
Cases closed	192	133
Cases pending at end of month	550	601
Number of employees approved for clearance	144	177
Number found satisfactory for employment	226	146
Number found unsatisfactory for employment	17	10
Number of Personnel Security Questionnaires concerning Concessionaire employees processed and forwarded to M. I. Office without investigation	20	14

[redacted]

Service Department

Distribution of Personnel

Exempt Personnel

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

Non-exempt Personnel

Investigators	3
Interviewers	2
Fingerprinter	1
Photographer	1
Total	7
GRAND TOTAL	24

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

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

PROTECTION

SAFETY & FIRE PROTECTION

Safety

Plant Safety Record - 29 days

Injury Statistics

	January	February	Year to Date
*Major Injuries	1	0	1
Non-Tab. Major Injuries	0	0	0
Sub-Major Injuries	0	2	2
Minor Injuries	297	287	584

*Injury to [redacted] November 13, 1946, reclassified as a major injury on February 28, 1947, retroactive to date of injury.

Major Injury No. 31½

*November 13, 1946 [redacted] (an employee of the Maintenance Department in 300 Area) sustained an over-riding fracture of the proximal phalanx of the left little finger when it was caught between an 866-pound tank and a 3-inch roller on which the tank had been moved. The tank slipped off the pinch bar and caught the injured's finger when he attempted to remove the roller. This case was first classified as a sub-major injury, and later developments caused it to be reclassified as a major injury.

Sub-Major Injury No. 77

February 12, 1947 [redacted] (a mechanic in the Maintenance Department in 300 Area) sustained lacerations, abrasions and a chip fracture of distal phalanx right little finger. The injured was working at a lathe and in one of the operations he adjusted the chuck with the chuck wrench and then started the lathe before he had completely removed the wrench from the chuck. The revolving wrench in the chuck caught the injured's finger between it and the lathe bed, causing the fracture.

Sub-Major Injury No. 78

February 19, 1947 [redacted] (a mechanic in the 300 Area Maintenance Department) sustained contusions, lacerations and a chip fracture of distal phalanx of left index finger. The injury occurred while the employee was attempting to set a "cinch anchor" in the concrete ceiling by using a piece of 1" pipe, 4-3/8" long, held between the fingers and striking it with a two-pound ball pein hammer. The hammer, being swung in an upward stroke, missed the pipe and struck the injured's finger on the end and against the ceiling, resulting in the injury.

Service Department

During the month, 423 Safety Meetings were held, with a total attendance of 6,736.

Orders were placed for 21 pairs of prescription safety spectacles; 33 pairs were received, checked and fitted; and 98 adjustments and repairs were made to all types of safety spectacles.

There were 722,528 exposure hours from January 31, 1947, to and including February 28, 1947.

Experiences

300 Area

Minor Injuries	48	
Sub-Major Injuries	2	
*Major Injuries	1	(reclassified)
Days since last tabulatable major injury	107	
Days since last Sub-Major Injury	9	
Days without a minor injury	11	
Safety Meetings conducted	68	
Number in attendance	878	
Safety suggestions received	34	
Safety spectacles delivered	7	
Safety Spectacles serviced	32	

*Sub-major Injury reclassified as a Major Injury 2/28/47, retroactive to date of injury (11/13/46).

Activities

An additional fire plug was recommended in the 300 Area in order to increase the protection for the T.C. Building being used as a warehouse.

The high pressure gas lines in the 300 Area are being redesigned.

Two area safety bulletins were issued in 300 Area - one on an eye protection program developed by Mr. Gilbert of the Pullman Company, and one entitled "I Saw Them Die", taken from the publication "Public Safety".

All new men assigned to the 300 Area during the month were interviewed except those on minor construction.

A new compound to prevent fogging has been submitted to the P Department for testing. They report that it is satisfactory and some improvement over the liquid type previously used.

A new type of eye protection equipment was procured for trial by laboratory of the 300 Area Technical Department. No report on this trial yet received.

A drive for stressing the importance of reporting all injuries in all departments of the 300 Area has been started.

The "P" Department of the 300 Area has set up a daily safety check list to be used by supervision of their department in an effort to maintain a control of the safe practices and conditions within their various departments.

100-B Area

Minor Injuries	3
Sub-Major Injuries	0
Major Injuries	0
Days since last tabulatable major injury	875
Days since last Sub-Major Injury	412
Days without a minor injury	25
Safety Meetings conducted	19
Number in attendance	172
Safety suggestions received	2
Safety spectacles delivered	0
Safety spectacles serviced	2

100-D Area

Minor Injuries	17
Sub-Major Injuries	0
Major Injuries	0
Days since last tabulatable major injury	199
Days since last sub-major injury	29
Days without a minor injury	16
Safety Meetings conducted	40
Number in attendance	422
Safety suggestions received	32
Safety spectacles delivered	4
Safety spectacles serviced	4

100-F Area

Minor Injuries	28
Sub-Major Injuries	0
Major Injuries	0
Days since last tabulatable major injury	674
Days since last sub-major injury	98
Days without a minor injury	9
Safety Meetings conducted	68
Number in attendance	1167
Safety suggestions received	32
Safety spectacles delivered	3
Safety spectacles serviced	5

Service Department

Activities

The Employees Safety Inspection program was conducted this month in the 100-F Area. Satisfactory results were submitted from this first activity.

A study is being made of the cut off road around 100-F Area. It is recommended that it be put in good repair or closed off entirely.

200-E Area

Minor Injuries	59
Sub-Major Injuries	0
Major Injuries	0
Days since last tabulatable major injury	136
Days since last sub-major injury	64
Days without a minor injury	4
Safety Meetings conducted	49
Number in attendance	716
Safety suggestions received	22
Safety spectacles delivered	2
Safety spectacles serviced	20

200-W Area

Minor Injuries	44
Sub-Major Injuries	0
Major Injuries	0
Days since last tabulatable major injury	413
Days since last sub-major injury	79
Days without a minor injury	5
Safety Meetings conducted	64
Number in attendance	729
Safety suggestions received	28
Safety spectacles delivered	3
Safety spectacles serviced	30

Activities

The 200-W Area was awarded a safety plaque and star for the flag on 2/27/47 with an appropriate ceremony for having completed a year without a lost time injury.

700 & 1100 Areas

Minor Injuries	88
Sub-Major Injuries	0
Major Injuries	0
Days since last tabulatable major injury	210
Days since last sub-major injury	81
Days without a minor injury	5
Safety Meetings conducted	183
Number in attendance	3,530

Service Department

Safety suggestions received	3
Safety spectacles delivered	14
Safety spectacles serviced	5

Design & Construction Area 241-BX

Minor Injuries	0
Sub-Major Injuries	0
Major Injuries	0
Days without a minor injury	28

General Activities

The Training Program of the Safety Department was submitted to Management, and their approval has been received for it as written.

An additional Safety Engineer has been named to advise and consult with the new construction groups that are working under sub-contracting companies at this Plant.

Three near serious incidents were investigated this month and recommendations given to prevent their recurrence.

An exhaust fan has been placed in the paint room at the Columbia High School to carry off highly flammable fumes from spray guns being used.

The National Safety Council gives recognition to member schools exerting exceptional effort in the field of safety education by listing them on the Honor Roll. The National Safety Council awards a plaque to each school listed on the Honor Roll for three consecutive years. For each additional year the school meets the Honor Roll requirements, a dated bar to be attached to the plaque is provided. The Richland Schools have been asked to apply for membership with the National Safety Council so that Honor Roll listing may be obtained.

The monthly inspection form used for grading the Richland Schools has been changed to include the necessary monthly items to gain for them listing on the National Safety Council Honor Roll for schools with these requirements.

The number of safety lesson leaflets obtainable through the National Safety Council has been increased to include one for each pupil enrolled with the schools.

A safety unit for the General Electric study program for office employees is being written. The method of presentation will be in accordance with the time allotted to this unit.

One of the Safety Bulletin Boards near the 700 Area Badge House is being taken over by the Safety Department to show safety bulletins of a special nature.

Safety Meeting topics discussed in February:

1. Supplied Air Respirators, Type C
2. Fire Aid Fire Appliances (conference type meeting)
3. Methods of Attaining Corrective Measures in Industrial Safety
4. Fire Alarm Systems

Fire Protection

Fires

	Number of Fires		Estimated Damage	
	January	February	January	February
Village	12	10	$80.00	$20.00
Plant Area	4	1	-	-
Miscellaneous	1	5	-	-
Total	17	16	$80.00	$20.00

Village

occupant of 604 Wright Avenue, dropped a burning cigarette in rocker chair when he got up from chair to go into another room. When he returned from other room, the chair was burning. Damage was confined to chair. Estimated damage - $20.00

All other alarms in the village were of a minor nature and resulted in no damage.

Plant

All alarms in the Plant Areas were of a minor nature and no damage was experienced.

Activities

The total loss from fires during 1947 is $100.00. The loss during the same period in 1946 was $5826.50.

During the month, 215 homes were inspected by the Fire Inspector.

Arrangements were completed to furnish fire protection to Construction and Design Department on the new work started in the Area north of the 200-E Area.

Routine inspection was conducted of all buildings in the Plant Areas and Richland.

A false evacuation alarm occurred in the Administration Building on Friday, February 21. This alarm was caused by a Maintenance employee draining the sprinkler system (for repairs) in No. 3 Wing before the Fire Department had blocked out the relay switches.

Service Department

Recommendations were submitted to Construction and Design Department for adequate fire protection in proposed new work in 300 Area and additional fire hydrants in 3000 Area and adequate fire protection water supply for proposed new location of Transportation Department.

In the Village, 75 fire hydrants were flushed and tested. All fire hydrants and hose boxes in Plant Areas were flushed and inspected.

Fire Extinguishers

Inspected	2,714
Installed and relocated	19
Refilled	162
Repaired	78

Gas Masks

Serviced and Inspected	72

Fire Drills and Lectures

Outside	106
House Drills	152
Auxiliary Brigade	24
Safety Meetings	46

All fire alarm boxes in Village and Plant Areas were tested.

An inspection was conducted of all buildings in each Plant Area.

GENERAL DIVISION

Laundering volumes were as follows:

Plant Laundry (Bldg. 2723)	January	February
Coveralls - Pieces	15,626	13,807
Towels - Pieces	4,275	3,928
Miscellaneous "	25,508	23,633
Total Pieces	45,409	41,368
Total Dry Weight - Lbs.	68,173	61,206

Work has started on the Project to install a central lint catcher. A Work Order is also underway to install a 1000 gallon hot water heater.

700 Laundry (Bldg. 723)	January	February
Flatwork - Pieces	35,878	32,742
Rough Dry- Pieces	20,282	17,020
Finished - Pieces	2,648	2,492
Total Pieces	58,808	52,254
Total Dry Weight - Lbs.	33,521	29,786

CLASSIFIED FILE

Assignment of decimal classification numbers and preparation of the revised subject category list has been completed. Subject cards are now being prepared to cover each subject in the card file system and the actual subject classification of classified material on to cards will begin during the next week.

A revised list of books, periodicals and pamphlets available on the plant, either through the library or in the various offices which submitted lists, is at present being edited and will be issued in the near future. This list will indicate all reference material available with the exception of information contained in the Kadlec Hospital Library.

Requisitions were issued by the Library for the purchase of the following number of individual items during February, in accordance with the newly established procurement procedure.

Periodicals (renewals and new subscriptions)	41
Pamphlets (Government Printing Office & Others)	88
Books (Technical and Scientific)	111

Some of the books ordered are to be used in connection with the Educational Program. A new charge code for Library procurement and expense has been established; all such costs are now being charged to the series, 350.

Files of two persons were checked prior to their termination.

Following is a breakdown of the volume of work handled during February as compared with January:

	January	February
Classified Documents Received (In Mail)	443	524
Unclassified Documents Received (Total)	3,337	3,425
Classified Documents Issued	4,122	2,784
Inter-Area Transfer (Classified)	3,406	4,732
Documents Routed (Classified)	5,120	4,974
Requests - File Documents (Classified)	2,699	2,706
Requests - Technical Library	435	435
Documents sent to Area Engineer on special requests from offsite	644	24
TOTAL	20,206	19,604

Organization and Personnel

One employee from the 700 Area staff was transferred to another branch of the Accounting Department during the month. One new employee was added as a replacement.

[redacted]

PATROL AND SECURITY

General

On February 13, 1947, the segregated construction area in the 200 East Area, referred to as the "241 - BX Tank Farm", was opened for the construction subcontractor. The area was enclosed within an inner fence, with a badge house located at the northwest corner. The regular area badge was utilized, primarily for the personnel meter factor. The area is working two shifts, from six in the morning until twelve midnight, at the present time.

All posts in the 241 - BX Area are manned on the second and third shifts; the period midnight to five A.M. being the only time this area is not manned.

Employment and visitor control procedures were revised on February 17, 1947, to conform to the requirements set forth in the Atomic Energy Commission directive, dated February 14, 1947.

Included in the revised procedures was the establishment of Security Areas, as noted in Memorandum Number AR-1, 200.2, Lt. Colonel Frederick J. Clarke, to Mr. D. H. Lauder, dated January 24, 1947.

A bulletin covering these revisions, entitled "Security Clearance for Project Employees, Consultants and Visitors", including specific instructions as operation was distributed throughout the Works on February 24, 1947.

Organization

Effective February 1, 1947, one Lieutenant was promoted to the rank of Captain, two Sergeants promoted to Lieutenants and two Patrolmen promoted to Sergeants.

PATROL

Ten special duty escorts were handled.

The 200-East and 200-West Areas handled 297 special escorts within the 200 Areas.

Requests handled totalled 899, mainly consisting of opening doors and gates for employees of other departments.

A total of 226 unusual incident reports was received, which consisted mainly of unlocked and open doors, windows and files, and traffic violations.

Four employees were given emergency first aid treatment in area by patrol supervision during periods when doctors or nurses were not in the area.

Practice evacuations were held in the 100-B Area on February 19, 100-D Area on February 28, and in the 100-F Area on February 19.

Service Department

Training

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

	January		February	
	No.	Percent	No.	Percent
Unqualified	35	10	45	11
Marksman	93	25	121	29
Sharpshooter	79	22	95	23
Expert	158	43	153	37
Totals	365	100	414	100

Upon completion of area competition for this period, awards were presented as follows:

High Team Average	277-3/5	100-F
High Area Average	249-19/28	Richland
High Individual Score	295	200 East

Qualifications on the Sub-Machine Gun Course firing were as follows:

	January		February	
	No.	Percent	No.	Percent
Unqualified	47	13	39	9
Marksman	28	8	45	11
Sharpshooter	91	26	103	25
Expert	187	53	220	55
Totals	353	100	407	100

The F.B.I. Course was not fired during the month of February.

Health talks were given on "Are You A Pill Taker?".

Richland Area

	January	February
Check on absentees	7	1
*Persons assisted	256	249
Doors and windows found open in commercial facilities	28	36
Lost children found	9	15
Ambulance runs	27	21
Lost dogs reported	15	2
Dog and cat complaints	39	32
Persons injured by dogs	8	16
Totals	389	372

*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.

Traffic and Offense Statistics

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

SECURITY

Security Education

Security Bulletin No. 6, entitled "Contractor's Responsibility Under the Atomic Energy Act" was issued under the date of February 14, 1947.

A new security poster, referring to the continuation of the slogan "Silence Means Security", was posted throughout the plant, administration and village areas and installed in village and plant busses on February 17, 1947.

A total of 262 Security Meetings was held and attended by 4,149 employees throughout the entire plant and administration areas.

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

	January	February
Employees	144	175
Visitors	0	2
Authorization cards issued	23	22

Protection of Plant Facilities

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

January				
Area	A	B	C	Total
100-B	365	757	413	1535
100-D	644	667	429	1740
100-F	578	617	422	1617
200-E	764	768	367	1899*
200-W	798	846	388	2032
200-N	70	571	126	767
300	740	645	224	1609
241-BX	4	7	-	11

*Includes 22 "A" badges at Riverland Yards

February				
Area	A	B	C	Total
100-B	364	774	416	1554
100-D	645	680	439	1764
100-F	585	625	426	1636
200-E	769	786	381	1936*
200-W	816	857	399	2072
200-N	68	573	128	769
300	757	676	255	1688
241-BX	115	135	-	250

*Includes 26 "A" badges at Riverland Yards

Service Department

Temporary Badges

Area	Temporary Access Jan.	Feb.
100-B	33	18
100-D	28	22
100-F	32	21
200-E	42	25
200-W	30	26
200-N	31	15
300	47	34
241-BX	-	50
Total	243	211

Plant Visitors

Name - Organization	Purpose of Visit	Access to Areas Classified	Unclassific
Schenectady Office Personnel			
H. Brooks General Electric Company Schenectady, New York	Inspection and Consultation	X	
J. Cowles General Electric Company Schenectady, New York	Consultation	X	
K. H. Kingdon General Electric Company Schenectady, New York	Inspection and Consultation	X	
P. D. Reed General Electric Company Schenectady, New York	Consultation	X	
A. E. Stevenson General Electric Company Schenectady New York	Consultation	X	
C. G. Suits General Electric Company Schenectady, New York	Inspection and Consultation	X	
Other General Electric Personnel			
G. K. Clifton General Electric Company Seattle, Washington	Consultation		X
F. W. Warner, Jr. Pittsfield, Massachusetts	Consultation	X	

Service Department

Name - Organization	Purpose of Visit	Access to Areas: Classified	Access to Areas: Unclassified
Allied Project Personnel			
J. G. Beckerley Madison Square Area Manhattan Project Atomic Energy Commission New York City, New York	Consultation	X	
E. O. Lawrence University of California Berkeley, California	Inspection and Consultation	X	
W. K. Lewis Massachusetts Institute of Tech. Cambridge, Massachusetts	Inspection and Consultation	X	
G. Seaborg University of California Berkeley, California	Inspection and Consultation	X	
F. E. Seitz Clinton Engineer Works Oak Ridge, Tennessee	Inspection and Consultation	X	
J. M. Siegel Clinton Engineer Works Oak Ridge, Tennessee	Inspection and Consultation	X	
H. Worthington E. I. du Pont de Nemours & Co. Wilmington, Delaware	Inspection and Consultation	X	
W. H. Zinn Argonne National Laboratory Chicago, Illinois	Inspection and Consultation	X	
Outside Service Personnel			
L. B. Borst Associated Universities Corp. New York City, New York	Consultation	X	
M. Ferlich Peat, Marwick, Mitchell & Co. Seattle, Washington	Inspection		X
H. A. Hickey National Research Corporation Boston, Massachusetts	Consultation	X	

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Service Department

Name - Organization	Purpose of Visit	Access to Areas Classified	Access to Areas Unclassified
Outside Service Personnel - Cont'd			
H. L. Leventon Morrison - Knudsen Co. Boise, Idaho	Inspection of 200-E Area	X	
W. H. Rucker U. S. Engineers Portland District Portland, Oregon	Consultation		X
General Service Personnel			
D. P. Barnes Westinghouse Corporation Portland, Oregon	Consultation		X
R. L. Johnson Johnson's Studio Richland, Washington	Photography	X	
L. E. Organ Rosol Manufacturing Company Seattle, Washington	Consultation		X
T. B. Patterson Western Gas & Power Company Pasco, Washington	Deliver propane gas to 300 Area		X
A. M. Piper U. S. District Geologist Portland, Oregon	Consultation		X
B. Saad Shoe Salon Spokane, Washington	Company Business		X
C. Spain, Jr. Westinghouse Corporation Portland, Oregon	Consultation		X

PATROL DIVISION - TRAFFIC CONTROL STATISTICS

Motor Vehicle Accidents

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Plant	4	3	0	0	2	0	1	2
Richland	10	13	0	0	0	0	4	5
Totals	14	16	0	0	2	0	5	7

Accident Causes

	Negligent Driving		Failure to Yield Right-of-Way		Reckless & Drunken Driving		Miscellaneous Causes	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Plant	4	1	0	0	0	0	2	2
Richland	8	9	3	3	0	1	2	1
Totals	12	10	3	3	0	1	4	3

Plant Warning Traffic Tickets Issued

	Speeding		"Stop" Sign		Parking		Improper License		Defective Equip.		Totals	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Plant	5	3	0	0	0	0	0	0	2	4	7	7
Richland	11	20	19	5	187	115	5	8	34	52	256	200
Totals	16	23	19	5	187	115	5	8	36	56	263	207

Court Citation Traffic Tickets Issued

	Speeding		"Stop" Sign		Drunken Driving		Reckless Driving		Negligent Dr.		Other Violations		Totals	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Plant	2	2	0	0	0	0	0	0	1	0	1	0	4	2
Richland	6	8	3	7	1	1	1	2	5	6	5	0	20	24
Totals	8	10	3	7	1	1	1	2	6	6	6	0	24	26

Traffic Volume

	January	February
Richland - Downtown Street (average car count - 24 hour period).	10,783	10,967

PATROL DIVISION - RICHLAND OFFENSES

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Offenses Jan.	Actual Offenses Feb.	Offenses Cleared By Arrest	Offenses Cleared By Other Action	Perpetrators Involved
Arson	1	1	0	0	0	0	0
Assault	1	0	1	1	1	0	1
Attempted Suicide	0	0	0	0	0	0	0
Burglary-Breaking and/or Entering	0	0	1	0	2 (a)	0	2
Larceny-Theft (except auto & bike):							
(a) - $50.00 and over value	3	2	4	1	0	0	(u)
(b) - Under $50.00 value	11	1	8	10 (b)	0	2	2
Auto Theft	1	1	0	0	0	0	0
Bicycle Theft	6	0	9	6 (c)	0	1	1
Destruction of Government Property	1	0	3	1	0	0	(u)
Destruction of Personal Property	2	2	3	0	0	0	0
Disorderly Conduct	2	0	3	2	0	1	1
Drunkenness	5	0	4	5	5	0	5
Forgery and Counterfeiting	0	0	1	0	0	0	0
Embezzelment and Fraud	1	0	0	1	0	0	(u)
Missing Persons	0	0	0	0	0	0	0
Offense against family & children	0	0	1	0	0	0	0
Prowlers	3	0	2	3	0	0	(u)
Rape	0	0	0	0	0	0	0
Sex Offenses	2	0	1	2	0	1	1
Vagrancy	0	0	0	0	0	0	0
Violation State Game Laws	0	0	0	0	0	0	0
Miscellaneous	2	0	0	2	0	0	(u)
Juveniles (other than reported above)							
Disorderly Conduct	1	0	0	1 (d)	0	1	1
	42	7	41	35	8	6	14

(a) - The two offenses cleared by arrest were perpetrated by two juveniles, of ages 16 and 19 years.
(b) - One of the offenses was perpetrated by one juvenile, of age 15 years.
(c) - One of the offenses was perpetrated by one juvenile, age 12 years.
(d) - The one offense was perpetrated by one juvenile, age 10 years.
(u) - Represents "unknown".
Value of property recovered during the month of February was $908.00 (includes office equipment $736 & 4 bicycles).

[redacted]

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 Jan.	Richland Feb.
Murder	.198	.033	0	0	0
Robbery	3.87	.645	0	0	0
Aggravated Assault	1.85	.308	0.66	0.66	0.66
Burglary	31.14	5.19	2.65	0.66	0
Larceny	131.31	21.89	40.98	14.00	14.66
Auto Theft	27.75	4.63	7.99	0	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 Jan.	Richland Feb.
Murder	.225	.038	0	0	0
Robbery	6.15	1.03	0	0	0
Aggravated Assault	1.41	.234	0.66	0.66	0.66
Burglary	35.59	5.93	2.65	0.66	0
Larceny	92.01	15.34	40.98	14.00	14.66
Auto Theft	34.89	5.82	7.99	0	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 Jan.	Richland Feb.
Robbery	55.6%	0	0	0
Burglary	62.2	25%	0	100%
Larceny	47.0	25%	5%	12%
Auto Theft	76.8	40%	0	0

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

In Richland every delinquent juvenile is entered in the records.

VILLAGE

GENERAL

Housing Crisis

The housing situation continued to be in a critical status throughout the month and by the end of the month, all village dwellings wereeither occupied or assigned for occupancy and 143 applications were waiting to be filled.

Future Housing

The conversion of Dormitory W-13 to housekeeping apartments is now scheduled to be completed on April 15. The study on the renovation and moving certain outlying tract houses into the village was completed and submitted to management in Recommendation Report No. 86. The previous plans involving the movement of 26 hutments from the Pasco Naval Air Base to Richland were cancelled.

Village Memoranda and Regulations

Three Village Memoranda were issued during February. Number 62 pointed out that the cost of repairing damages to occupied dwellingsduring freezeups will be charged to the tenant if the damage is due to his negligence. Number 63 informed residents that they would be able to procure top soil at a nominal cost through the Village Office. Number 64 called attention to the health hazard involved in dumping trash and garbage outside the village limits and reminded residents of the current procedure for the removal of excessive accumulations by project forces.

Dust Control and Landscaping

It was announced in the issue of "The Richland Villager" dated February 26, that grass seed would be distributed at no cost to residents. The same article pointed out that grass seed would be issued and that assistance in soil preparation would be granted by the project to tenants within a block who desired to plant and maintain the inner area of their block. The policy of furnishing lawn mowers within neighborhoods will be continued through this growing season. Three hundred and fifty additional mowers have been requisitioned to replace worn out machines and provide additional units in order to assist residents in the general program of village landscaping improvement.

Surveys and Recommendations

The following recommendations were madeduring the month:

1. On rental rates, reflecting the improvements made in the reconditioning of the three tract houses within the village limits, (N-1135,

L-899, and L-906). Work on these houses has been substantially completed.

2. On the general policy concerning the housing of community organizations.

3. On possible revised procedure with respect to the sale of fruit and other agricultural products in the village, involving the establishment of one location in the village for the sale of such products in order to eliminate all house to house solicitation.

The results of a previous study to determine the condition of chimney flues and smoke pipes indicates that chimneys are in good condition and do not need cleaning. The study did recommend, however, that the smoke pipes leading from furnace to chimney be cleaned or replaced prior to October, 1947. This will be done on a work order to be issued during the summer season.

Village Population

The total population as of February 28,1947, was 14,105, an increase of 105 over the population as of January 31, 1947. Population groups are as follows:

Females over 18	4,501
Males over 18	4,320
Total	8,821
Children under 18	5,284
TOTAL POPULATION	14,105

Village Improvements

The Design and Construction Department has been requested to study and redesign the Style Center for future occupancy by two stores. This study was initiated after the operator of the Style Center had indicated that his operations could be conducted satisfactorily in a smaller amount of space.

The Design and Construction Department is in process of preparing plans for the conversion of the present Red Cross Building (92-X) to accommodate three commercial facilities.

Plans and estimates are being prepared to establish a new lighted and fenced softball field located immediately east of the commercial bus depot. This will replace the present field situated east of George Washington Way and north of Van Giesen Street.

A design study has been requested for the purpose of establishing more adequate facilities for the preparation and sale of baked goods and the serving of banquets at the Cafeteria.

A project has been requested for the construction of additional facilities for body work, paint work, storage, and sale of new cars at the present commercial garage.

A project has been requested covering the revision and extension of parking facilities in the village.

The Works Engineer has issued instructions that all wooden structures to be placed in the ground shall be treated to withstand ground humidity. This will apply for such items as street signs, traffic signs, backstops, etc.

ORGANIZATION AND PERSONNEL

There were no organizational changes during the month.

DIVISIONAL ACTIVITIES

Following is a report of the housing utilization as of February 28, 1947

Houses Occupied by Family Groups	Conventional	Prefab	Tract	Total
Operations	2183	1097	27	3307
Facilities	117	97	4	218
Government	162	123	27	312
Total Occupied Houses	2462	1317	58*	3837
Houses utilized for special purposes	3	-	1	4
Houses assigned - (leases written)	3	-	-	3
Houses assigned-awaiting tenants' move	32	13	-	45
Government houses - unassigned	-	-	49**	49
Government houses - unassigned (vacant)	-	-	-	-
Operations houses to be released by moves	-	-	-	-
TOTAL HOUSES	2500	1330	108	3938

* Occupancy figure includes 4 houses occupied by Bonneville Power in Priest Rapids and White Bluffs. The unoccupied figure includes some houses which are untenable.

** Government Porperty offering 14 Tract Houses for sale as salvage.

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2465	21	24	2462	Minus 3
Prefabricated	1289	43	15	1317	Plus 28
Tract	57	1	-	58	Plus 1
TOTALS	3811	65	39	3837	Plus 26

Service Department

Dormitory Experience

Following is the Dormitory Statistics report for the month of February, 1947:

Dormitories		Occupants	Vacancies	Total Beds
Men - Occupied	5	167	28	195
Men - Unoccupied	3	0	117	117
Women - Occupied	5	181	9	190
Women - Unoccupied	5	0	214	214
Women's Dormitories Occupied by:				
Community Organizations	3			
Medical Department	1			
Government Offices	1			
G. E. Offices	1			
Education	1			
TOTAL DORMITORIES	25*			

* Possible occupancy 18 dormitories: 8 men's; 10 women's.

To assist Morrison-Knudsen Company, Inc., Dormitory M-8 has been set aside to provide office space. Monthly rental per room is set at $17.50 which will cover utilities but will not include janitor, maid service, nor the furnishing of offices. As of February 26, four rooms had been rented to this company.

A new procedure has been established with respect to individuals who desire exclusive occupancy of a room when no single rooms are available. Under the new procedure, he may occupy a double room by paying the full double room rate. Under the previous procedure, that individual was required to pay only one-half of the rent of the double room but another occupant could be placed in the room at any time.

Tenant Service and Village Maintenance

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

	Incomplete February 1	Issued During February	Incomplete March 1
Patrol Orders			
Maintenance & Electric	1533	3555	1810
Transportation Patrol Orders		131	38
Work Orders	983	759	1323

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

Tract	A	B	D	E	F	G	H	L	Prefab	Total
0	8	4	0	3	4	0	3	2	27	51

Service Department

During the month, project forces painted the interiors of 56 conventional type dwellings and 10 prefabricated houses. Interest in painting interiors of tenants' dwellings remains high, 932 gallons of Kemtone having been issued to tenants during the month.

Requests for enamel are being held in Warehouse file until the laboratory releases the paint for distribution.

Requests for top soil deliveries amounted to approximately 150 for the month.

On February 1, a violent wind storm removed the roof of a three-bedroom prefab located at 325 Robert Avenue. As a result of a study of the general roof construction of all prefabricated houses, measures are in process to prevent similar occurrences in the future by the installation of exterior anchor iron braces to securely anchor roofs.

COMMERCIAL FACILITIES

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

	January	February
Cafeteria Meal Customers	39,773	37,960
Percent of room-day occupancy Transient Quarters	86.32%	92.25%
Gallons of ice cream sold	5,446	5,468
Gallons of milk and cream sold	52,263	47,353
Theater Customer Count	44,959	41,215
Cases of soft drinks sold	5,533	4,970
Gallons of Gasoline sold	99,173	95,946

A work order was issued to install a new well at the Riverside Stables.

A new projection screen was installed in the Richland Theater to replace the original screen which was damaged in the course of installation.

The bakery section of the Cafeteria kitchen was revised to permit more working space and increased production of pastries.

The Richland Thrifty Drug was granted permission to install an ice cream machine and a popcorn machine, the expense to be borne by the operator.

A conference was held February 14 with representatives from Midstate Amusement Company, including Mr. Gregory, president. At this meeting, the future booking program was presented indicating a substantial improvement in arrangement and selection of subject matter.

[redacted]

Service Department

CONTRACTS AND NEGOTIATIONS

No contracts were renegotiated during the month.

Inventory and Property

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

Richland Motor Company
Railway Express Agency

All facilities and organizations have executed 1946 property inventories except School District No. 400 and the U. S. Engineer Employees' Club.

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:

Food Market
Roller Skating Rink
Gift Shop
Tavern
Liquor Store
Garage
Service Station
Restaurant
Confectionery
Women's Apparel Shop
Delicatessen
Florist Shop
Commercial Warehouse
Firestone Store
Department Store
Book Store
Barber Shop
Automobile Agency
Funeral Home

Written permission was granted to 19 village tenants to conduct the following part-time businesses in their homes:

Sale of Avon Products (5)
Sale of Insurance (3)
Sewing and Alterations (3)
Sale of "Correct Grip Guides" (1)
Care of children (1)
Mending of hose (1)
General Gun Repair (1)
Sale of hosiery (1)
Making and Selling of What-Not Shelves (1)
Management of Sale of Avon Products (1)
Making and Selling of Novelties (1)

Written permission was granted 9 individuals, living outside of Richland to contact village tenants on the following business matters:

Sale of awnings (1)
Sale of insurance (8)

COMMUNITY FACILITIES

General

On February 13, 1947, the Richland Villager, published by Villagers, Inc., announced that effective March 14, 1947, the newspaper will no longer be distributed free to Richland residents. Subscriptions to the paper, including cost of membership in Villagers, Inc., is $3.25 per year.

On February 6, 1947, the Area Engineer approved the relocation of the Benton County Chapter of the American Red Cross from Building 92-X (George Washington Way and Lee Boulevard) to Building 126-X (513 Barth Avenue). Work orders have been issued to perform the necessary renovations to the new building.

Churches

From January 29 to February 12, 1947, the United Protestant Church conducted a Visitation-Preaching Evangelistic Program. Dr. James Millar was guest minister for these services.

Schools

The enrollment for School District No. 400 on February 28, 1947, was as follows:

Sacajawea Grade School	929	
Lewis & Clark Grade School	762	
Marcus Whitman Grade School	661	
Jefferson Grade School	325	
Total, all Grade Schools		2,677
Columbia High School		667
Nursery School		83
TOTAL - ALL SCHOOLS		3,427

On February 28, 1947, there were 69 children enrolled in the Richland Nursery School with an average attendance of 50. This is a decrease of 1 child 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 of 1 child since the last month's report.

The Marcus Whitman Grade School class room hutment was completed and turned over to the School District on February 28, 1947. This makes a total of 17 hutments which have been erected for class room purposes, including 5 at Columbia High School; 7 at Sacajawea; 3 at Lewis & Clark; 1 at Jefferson; and 1 at Marchus Whitman Grade Schools.

Authority has been received to proceed with the preparation of plans and specifications for the Junior High School.

Arrangements were made for the school board elections scheduled for March 1, 1947, to be held in the Lewis & Clark and Sacajawea Grade Schools. Polling places will be open from 1:00 to 8:00 p.m. Three members are to be elected for the Board of School District No. 400, for a term of three years each.

Service Department

Other Community Activities

All community facilities buildings were inspected during the month and recommendations were submitted to the authorized representatives.

A study was made of the existing condition of the recreation facilities.

Facilities Personnel

The number of full time paid personnel employed by village commercial and community facilities and organizations as of February 28, 1947, is listed as follows:

Commercial facilities	607
Churches	15
Schools	197
Community Organizations	23
Total	842

Major Activities during the month included:

February 7	Richland Women's Club Valentine Party	Jefferson School
February 7	Richland-Pasco Basketball Game	Columbia High Sch.
February 7-8	Village Players "Kind Lady"	Columbia High Sch.
February 8	Kiwanis-Jaycee Donkey Basketball	Columbia High Sch.
February 10	Hain Concert (Community Concert Series)	Columbia High Sch.
February 13	Morley & Gearhart Concert (Community Concert Series)	Columbia High Sch.
February 13	Boy Scout Court of Honor	Columbia High Sch.
February 21	Beta Sigma Phi Dance	Recreation Hall
February 21 & 22	Meistersingers Concert	Columbia High Sch.

MONTHLY INJURY ANALYSIS

Period - February 1 through February 28, 1947

Major Injury*

*Sub-Major Injury reclassified as a major injury on 2/28/47 retroactive to date of injury.

*Major Injury #31½

11/13/46 — An employe of the Maintenance Department in the 300 Area sustained an over-riding fracture of the proximal phalanx of the left little finger when it was caught between a 866# tank and a 3" roller on which the tank had been moved. The tank slipped off the pinch bar and caught the injured's finger when he attempted to remove the roller.

Sub-Major Injuries

Sub-Major Injury #77

2/12/47 — A mechanic in the Maintenance Department in the 300 Area sustained lacerations, abrasions, and a chip fracture of distal phalanx right little finger. The injured was working at a lathe and in one of the operations he adjusted the chuck with the chuck wrench and then started the lathe before he had completely removed the wrench from the chuck. The revolving wrench in the chuck caught the injured's finger between it and the lathe bed, causing the fracture.

Sub-Major Injury #78

2/19/47 — A mechanic in the Maintenance Department in the 300 Area sustained contusions, lacerations, and a chip fracture of distal phalanx of left index finger. The injury occurred while the employe was attempting to set a "cinch anchor" in the concrete ceiling by using a piece of 1" pipe, 4 3/8" long, held between the fingers and striking it with a two pound ball pein hammer. The hammer being swung in an upward stroke missed the pipe and struck the injured's finger on the end and against the ceiling, resulting in the injury.

MONTHLY INJURY ANALYSIS

Period - February 1 through February 28, 1947

Minor Injuries

	Misc. Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Unclassified	TOTAL FEBRUARY	TOTAL LAST MONTH
Production P	6	2	2	4	2	3	1	1	0	21	15
Production S	3	7	1	3	2	0	0	0	0	16	13
Technical	5	5	0	7	2	0	0	0	0	19	27
Power	0	2	2	2	1	0	0	2	0	9	17
Maintenance	14	25	5	24	4	8	3	2	5	90	95
(a) Minor Const.	0	6	2	1	2	3	0	1	0	15	10
Electrical	3	3	1	8	4	0	2	2	1	24	17
Instrument	0	2	0	3	1	1	0	2	1	10	13
Service	2	2	3	6	0	2	1	0	2	18	22
Transportation	2	7	5	4	1	1	1	0	4	25	29
Medical	3	5	1	6	2	4	0	1	1	23	24
Accounting	0	6	2	5	1	0	0	1	1	16	15
Design & Construction	0	0	1	0	0	0	0	0	0	1	0
TOTAL	38	72	25	73	22	22	8	12	15	287	297

VILLAGE ENGINEERING

FEBRUARY 1947

GENERAL

The normal duties of inspection, consultation, scheduling and review of work were carried on. Procedures were drawn up and tentatively approved for the operation of the Village Engineering Office. These procedures included work orders, handling of work done by tenants, back charges, estimating and scheduling.

ORGANIZATION AND PERSONNEL

An Engineer (Engineer-Assignment) was added to the organization, making a total of two men of this classification now assigned to the Village Engineering Office.

Due to the illness of one of the above men, an Engineer was obtained from the Design and Construction Department on a temporary basis.

ACTIVITIES

On February 2, 1947, considerable damage was done to a three bedroom prefab as a result of the wind storm of that date. Temporary emergency work was performed on the structure and subsequently a study was made by this office and a recommendation made for the repair of same. This work is virtually complete. A recommendation has been forwarded and approved for preventive maintenance work necessary to anchor down all other prefab roofs. Plans have been prepared and materials are on order to proceed with this work.

A meeting was held on February 3, 1947, in the office of the Purchasing Division to discuss the problem of procurement of building materials and replacement parts. The results of this meeting were passed on to supervision and a subsequent meeting was held February 26, 1947, at which time up-to-date records of shortages were reviewed and a further recommendation as to a solution of the problem was passed on to supervision.

A meeting held in the Engineering Section on February 10, 1947, on the subject of prefab roof covering was attended by two members of this office. A subsequent meeting on the same subject was attended on February 28, 1947. A decision on the method of application for the recovering of prefab roofs is expected to be reached by March 17, 1947.

The third meeting of the Dust & Pollen Control Committee was held February 11, 1947, with all members present. There were three persons attending, in addition to the members, representing the Engineering Section - W. R. Jones, Public Health Section - L. G. Koch, and Village Organization - E. S. Baker. A report of this meeting was made and forwarded to the Village Council.

[redacted]

Village Engineering

The problem of replacement of wooden posts for traffic and informational signs, and for other uses such as street markers, supports for tennis courts, power lines, etc., was reviewed and a memo issued which has since received approval by all concerned. Work orders will be issued for the necessary replacement and the work will be done according to the standards set by the Works Engineer on February 20, 1947.

A meeting was held on February 24, 1947, with the landscape architect and Assistant Superintendent - Village to determine the method of distributing grass seed to the tenants and the proper way of informing the tenants as to the plan.

It was determined, on inspection, that certain portions of W-17 Dormitory (Hi Spot) were sub-standard from the stand point of structural support. A detailed sketch was requested and the necessary work orders were issued to reinforce the floor in question. Subsequently, in a periodic inspection of the work, it was discovered that some of the work was being done not in accordance with the plans. This item was brought to the attention of the Area Maintenance Engineer and immediate correction was made. The job is now complete except for what decoration is necessary.

The method of rebuilding the high school tennis courts was determined and the necessary work order issued to accomplish the work. This damage resulted from the high wind of February 2, 1947, and as a result, inspections of all tennis courts in the Village have been made. Work orders will follow for all those tennis courts that are in a weakened condition. Steel pipe is being used to replace wooden posts in the ground.

Inspection was made to determine the practicability of installing Bendix washers in prefab houses. The necessary details were worked out and it was recommended by this office that approval be given for such installations.

It was agreed jointly by the Maintenance Department, Electrical Department and this office that tie-ins of air conditioning systems in commercial facility buildings be done only with Project labor. This recommendation was passed on to the Village Organization.

A meeting was held with Village Organization, Village Engineering, Engineering Section representatives and the manager of the commercial garage relative to the proposed plans for expansion of this facility. An agreement was reached as to the improvements to be included in the sketch now being prepared by the Engineering Section. A discussion on this matter was held with Design and Construction supervision to make sure that any interference with their plans might be avoided.

The result of a request made by this office to the Fire Protection Division relative to possible hazards existing in accumulation of soot in Village chimney flues was received with the advice that no hazard exists and that the chimney flues are in good condition.

Village Engineering

A request was received from the Village Organization to make recommendations as to replacement of window hardware for schools and Municipal Building. The handles of these windows are so designed and installed that a constant wind tends to open them and to make possible entry to the building and possible damage from the weather. It was found that in addition to the buildings mentioned, the Bank, Bus Depot and Hospital are equipped with the same hardware. A simple method of bending the handles was worked out by this office, the recommendation made and work orders issued to accomplish the desired result. A good saving was made as a result of this decision since approximately one thousand units are involved and the method originally anticipated would cost $2.00 per unit to replace, whereas the method used bears a cost of less than .10¢ per unit.

A review was made with all interested parties of the cancellation of orders necessary because of the decision not to bring the hutments in from the Pasco Air Base. Some orders have been cancelled and others covering materials currently needed have been re-coded to Stores captions.

A request was received to inspect a bridge over the irrigation canal northwest of town to determine whether or not it should be repaired or removed. After clearing with the Fire and Safety Division, Area Engineer's Office and the Village Organization it was agreed that this bridge should be removed. A work order will follow to accomplish this removal.

A memo was written and forwarded to the Design and Construction Department recommending that study be given to the establishment of a Village-wide storm sewer system in order to adequately care for surface drainage and to elminate costly road maintenance which is a part of surface drainage.

After inspection of the water softener connection at the Barber and Beauty Shop, with a representative of Fire and Safety and a member of the Public Health Section, a work order has been issued to install a broken connection so as to eliminate the possibility of bacteria polution from the sewer system to the source of water supply.

A request was received by Village Engineering to make a recommendation as to the feasibility of permitting tenants to install rear doors in three bedroom prefabs. Upon inspection the recommendation was made that this work be allowed with the provision that the work be done according to a standard plan supplied by the Project and that it be done with qualified labor. The Village Organization has since cleared this point with Management and a plan is now being drawn preparatory to initiating the procedure.

A field trip was made on February 28, 1947, with members of Design and Construction and management to review the plans formulated by Design and Construction for a recreational system and to deal more directly with the immediate work necessary for the installation of a lighted ball field.

[redacted]

TRANSPORTATION DEPARTMENT

FEBRUARY 1947

GENERAL

The departmental absentee percentage for the month of February was 1.77%. This was an increase of 0.35% over the month of January.

The work order procedure as outlined in H.E.W. Instructions Letter No. 30 was established on February 1, 1947. Work on hand as of February 28, 1947, amounted to 792 work orders, estimated at 7540.2 man days.

ORGANIZATION AND PERSONNEL

1. Mechanical and Labor Division - C. E. Lange, Maintenance Foreman, was transferred to another department. A. P. Mitchell, Shift Supervisor*, was transferred from the Automotive Section to replace C. E. Lange. P. S. Isakson, Mechanic, was upgraded to Shift Foreman and assigned as a Relief Foreman in the Repairs Section. Additional work and expansion of the Labor Section required two additional Labor Foremen. L. Stanfield was transferred to this section from the Power Department. L. E. Blaney was transferred to this section from the Service Department.

2. Railway and Automotive Division - J. E. English and B. A. DeGood, Acting Shift Supervisors*, were upgraded to Shift Supervisors. D. A. Redman, Shift Foreman directing the split shift crew, was made Acting Shift Supervisor; J. J. Shine, Shift Foreman, replaced D. A. Redman; I. L. Gier, Bus Driver, was upgraded to Shift Foreman, replacing J. J. Shine.

Because of increase in work volume other than routine, Employment Requisitions were issued during the month to increase the force by 20 in total number of employees; new hires were 20 Laborers. Total actual force as of February 28, 1947, was 636. Not included in this total are Clerical personnel assigned from the Accounting Department; employees in this category as of February 28, 1947, numbered 27.

Forces of Morrison-Knudsen, sub-contractor, are being increased from the winter minimum to full strength necessary to carry on the spring and summer program. This has resulted in an increase of 11 in total number of employees. Total actual force as of February 28, 1947, was 84.

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.

* Change of title in process of approval.

a. Arrangements have been completed for moving Station "Helen" from present location to the junction of the Low Line (Serving the 100 Areas) and Butte Line (Serving the 200-N Area). This will permit the use of Dispatcher's telephone on either line, thus expediting the movement of trains and improving the safety factor.

b. Yard limits at stations and other strategic points have been established and defined, and new yard limits boards have been erected at all locations, thus eliminating the necessity for trains to obtain clearance authority for frequently required short moves.

c. Some improvement has been noted in the arrival of the Milwaukee Train at the Riverland Yard at the regularly scheduled arrival time - 7:45 a.m. - although some late arrivals occurred during the month.

d. There were 2,267 cars handled during the month.

2. Repairs - Repairs to railway equipment were of a routine nature during the month. The Project "Riverland Railroad Shop Electric Heat" was completed on February 10, 1947, and the steam boiler shut down.

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

a. Area forces constructed within the 200 East Area 210 feet of material track for the sub-contractor's use on Contract 241-BX Tank Farm.

b. The sub-contractor (railroad maintenance sub-contractor) constructed 1,500 feet of material track to be used on Contract 241-BX Tank Farm. The trackage used on this project was salvaged from an unused spur at White Bluffs.

c. Requisitions have been placed for 50,000 treated cross ties for the 1947 replacement program.

Automotive Operations, Repairs and Scheduling

1. Automotive Operations:

a. This department received 134,045 gallons of gasoline, 3,253 gallons of Diesel fuel and 1,712 gallons of kerosene during February for Project use.

b. The extent of automotive equipment usage for the period is indicated by the total monthly mileage of 889,473 miles for all types of equipment.

c. The Area bus system and the Village Local bus system operated during the month as scheduled.

d. The extent of Area bus traffic is indicated by the total monthly passenger count of 73,831 passengers. The extent of Village Local traffic is indicated by the total monthly passenger count of 64,048.

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, with the exception that an additional sedan was added to the 9:30 a.m. Inter-Area Shuttle to accomodate Accounting personnel from the Areas who are attending a ten-week training program.

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

g. During the month the Automotive Section completed special assignment of moving 2,672 wooden storage boxes 15" x 10" x 12" from the Umatilla Ordnance Depot, Umatilla, Oregon, to the 700 Area storage warehouse. This work was performed by bus drivers when not on regular assignment.

2. Repairs - Automotive maintenance and repairs functioned routinely. The following items are of interest:

a. Better utilization of personnel was effected by having the Automotive Section assume complete responsibility for servicing Administration Motor Pool units, and four oilers were thus relieved to work on routine assignments.

b. Project No. 101 - "Install Bus Heaters and Defrosters" - was completed February 28, 1947.

3. Scheduling - Work in this section continued on a routine basis for the month.

Labor Activities

1. General - The cleaning and repairing of the Richland Irrigation Canal system continued throughout the month and is approximately 80% complete.

A two-yard drag line with operator was loaned to the Government work forces for their use in uncovering and salvaging 15,000 lineal feet of water pipe.

The sub-contractor employed to crush 3,000 cubic yards of gravel for road and street maintenance completed the work on February 5, 1947.

There were 748 cars of coal and 27 cars of other materials unloaded by the Labor Division during the month.

2. Areas

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

Road maintenance crews hauled all sand and gravel necessary for cushioning and concrete pours on the Project, delivering 780 cubic yards of concrete aggregate.

Two hundred and eighty four cubic yards of concrete were poured throughou the Project on miscellaneous work.

Directional signs were installed at four strategic points directing sub-contractor's employees to the 241-BX Tank Farm construction area.

b. 100-B - One hundred and sixteen lineal feet of waste line for cesspool to fire station were installed.

Work was started on removal of the filter bed contents at the 100-B Filter Plant.

c. 100-D - Work was completed on the elevating and widening of the coal ramp.

d. 100-F - Three hundred and twenty five cubic yards of concrete were poured to anchor effluent lines.

Excavation of approximately 1800 lineal feet of trench for two inch water line to Fish Hatchery was completed. The water line passed under two railroad tracks, requiring hand excavation.

e. 200 West - The test wells located in this Area were barricaded, which required the setting of 72 posts.

In connection with the exhaust stacks at the process buildings, a 40' x 25' x 4' earth ramp was constructed, requiring approximately 500 cubic yards of earth fill, and eight 6' x 30" x 8' concrete shields were poured.

A 175 foot trench was excavated at the burial ground, requiring removal of approximately 700 cubic yards of earth.

Seventy five cubic yards of gravel were hauled to 200 East for shading at diversion boxes.

For use in the Area, 10,000 pounds stainless steel pipe were transported from Richland.

Excavation was started on February 10, 1947, on the Second Cycle project at the 241-T Tank Farm. This month, 7,000 cubic yards of earth were removed. It is estimated that there is a total of from 47,000 to 50,000 cubic yards for the Project.

f. 200 East - Work continued on the project for additional underground waste tank facilities in the process area, and 10,000 cubic yards of earth were excavated during the month. The project is now 70% complete.

Construction of Tank No. 302 and Diversion Box No. 153 was completed. Back-fill is in progress and is approximately 50% complete.

[redacted]

g. 300 Area - A 150 foot trench was excavated at the burial ground, requiring removal of approximately 1,000 cubic yards of earth.

The outer area parking lot to the north was expanded to coincide with the present parking lot to the south for private car parking.

3. Village Services - Work Orders for the 1947 Mosquito Control Program have been received covering area preparation in and around Richland as recommended by the Control Committee.

Dead shrubbery around Village facilities has been replaced during the month. The tree planting program on George Washington Way has been started.

Coal deliveries to Village residences returned to regular schedule during the month.

One hundred cubic yards of clay were hauled from Gable Mountain and stockpiled in Richland for maintenance of playgrounds.

The play areas at Marcus Whitman, Jefferson and Sacajawea Schools were watered, rolled and covered with fine gravel.

Equipment Control

The Equipment Control Section Continued on a routine basis. Six armored cars, available from the Area Engineer, were requisitioned. A Power driven burner was ordered for weed control. Twenty-two units were excessed which have been replaced with reconditioned units.

A total of eleven units were requisitioned, and on February 28, 1947, there were one hundred and four units on order. Eleven units were received on orders placed before February 1, 1947, and three units were received on orders placed during the month.

Nine units were permanently assigned to departments from the Reserve Pool and thirteen units were received into the pool. All units loaned to the Corps of Engineers for construction of the Richland Airport have been returned.

Traffic Division

Traffic Division activities and operating procedures continued during the period on a routine basis. The following items are of interest:

1. Several changes have been made in rail passenger service affecting this Project.

a. Effective February 15, 1947, the Union Pacific "City of Portland" Streamliner started daily service east and west-bound between Portland and Chicago with little change in schedules.

b. Effective February 23, 1947, the new Great Northern Streamliner "Empire Builder" began daily service between Chicago, Seattle and

Portland on a 45 hour schedule and now leaves Pasco at 7:55 p.m. and arrives in Chicago at 2:00 p.m. second day east-bound; leaves Chicago 1:00 p.m. and arrives Pasco 3:00 a.m. second morning west-bound.

2. In line with increase in freight rates granted the railroads by the Interstate Commerce Commission effective January 1, 1947, the Washington Department of Transportation granted the same increase on Washington intra-state traffic, effective January 27, 1947.

3. The North Coast - California Lines advised on January 24, 1947, that our request for reparation on three carloads of Caustic Soda which moved from Pittsburg, California to Hanford between October 1 and November 17, 1946, had been declined. We have requested that this matter again be placed on the docket for consideration at the March meeting.

4. Trans-Continental Freight Bureau's Standing Rate Committee has declined our request for reparation on eleven carloads of Ferric Sulphate which moved from Lockland, Ohio to Hanford from October 1 to October 14, 1946. We have again requested that this matter be placed on the docket for further consideration.

5. As a result of rate reductions secured from the carriers, there was a total saving in freight charges for the month of February amounting to $44,285.71. This makes a total saving to date of $125,551.14.

MEDICAL DEPARTMENT

FEBRUARY, 1947

GENERAL

No fundamental organization changes were made. There was no significant exposure of any employee to radiation during the month. There has been no evidence of sickness due to radiation exposure.

Absenteeism due to sickness remains low.

The hospital census for February showed a decrease, while the outpatient work increased.

HEALTH INSTRUMENT SECTION

Organization

One senior member was added to the small Development force. Otherwise, the recruitment efforts again fell short of requirements. The composition and distribution at the end of the period was:

H. I. SECTION FORCE REPORT
AS OF 2/28/47

	100-B	100-D	100-F	200-E	200-W	300	700	PG	Total
Supervisors	0	1	3	5	5	11	4	0	29
Engineers	0	3	4	7	7	5	0	9*	35
Others	0	4	5	18	37	35	7	0	106
Total	0	8	12	30	49	51	11	9	170

* Engineers in Training.

The saturation level in the Laundry Monitoring program and in the Calibration Building has been reached, and it will probably be necessary to resort to two-shift operation in both cases as soon as additional supervision can be provided. The H.I. Control Laboratory,now in the 222-U Building, is also overloaded, and has begun temporary shift work. In this case, however, it will be economical to acquire additional equipment and revert to the more efficient single-shift operation.

General

Mr. A.M.Piper of the U.S.Geological Office,Portland, Oregon, visited the site for discussion on the underground disposal of active wastes from the Separations Plant. The proposals developed in this meeting should materially increase the gains in information to be made by the digging of about 30 test holes in the Area.

The evening training courses organized by the H.I.Section reached the penultimate week. Of those who started the second term, approximately 80% have survived to this stage. Some additional gratuitous meetings are to be given in those classes which have not quite finished the intended syllabus, but the project will be concluded in time to offer no interference with the general educational program which is currently being organized.

A 22,000-word article on "Health-Physics,Instrumentation and Radiation Protection" has been prepared for publication in a book edited by Drs. J.H.Lawrence and J.G.Hamilton, at the University of California at Berkeley,California. Although not confined to the interests of this Project, it has been found that the compilation will have some value in the introduction of new members of the staff to the general background of Health Instrument programs.

MEDICAL DEPARTMENT

OPERATIONAL DIVISION

100 Areas

Work Permit Summary

	January	February	1947 to Date
100-B	149	171	320
100-D	580	464	1044
100-F	566	422	988
Total	1295	1057	2352

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)	0.5	0.5
Average gamma dosage-rate (mr/hr)	1.2	1.4
Average total dosage-rate (mrep/hr)	1.7	1.9
Average integrated dose in 24 hours (mrep)	41	46
Maximum integrated dose in 24 hours (mrep)	50	53
Maximum integrated dose in 24 hours (mrep) 1947	53	55

The Maintenance Department completed the installation of new export lines for the effluent water at the F-Area. Water flow through the new lines started on 2/26/47.

Pile Buildings

During regular discharge operations on 2/25/47 in the D-Area, a tube was partially discharged with a push rod while monitoring on the rear face in order to determine if it had been charged. One lead and 3 perforated aluminum dummy slugs were discharged, whereupon an uncorrected Beckman reading of greater than 2 roentgens per hour was obtained in front of the open tube. Dosage-rate at the side of the tube was about 150 mr/hr, and all personnel left the discharge area.

During discharge operations on the same shift, entrance was made into the discharge area while activated uranium was exposed in the end of one tube. The condition was discovered in the inner labyrinth before any one had entered the catwalk. The portable Beckman showed a reading above 20 mr/hr, but exact readings were not determined. No overexposure occurred.

Readings of 24 mr/hr were obtained at a height of 7 feet in the Operations office when the "A" regulating rod was pulled out of the Pile into the sandwich wall between the inner and outer

rod rooms. Above tolerance conditions in this office are exceptional. In this position, a dosage-rate greater than 2 roentgens per hour was obtained in the outer rod room at the doorway to the inner rod room. With the lead shield plug in place in the inner rod room, over the end of the rod tip, a dosage-rate above 2 roentgens per hour was again obtained. The rod was immediately returned to the Pile, and no maintenance attempted.

Typical survey readings when a vertical rod was removed from the Pile were:

Open thimble	2.5 rep per hour
Rod tip at 10 feet	150 mr/hr
Cleaning cloths	1.7 rep per hour

Several regular process tubes were emptied for special tests by the Technical Department. The maximum reading in any beam from the open tubes was 230 mrep/hr. Swabs used to clean the tubes showed contamination up to 10 rep per hour. The water flow to three of these tubes was cut off and after start-up, fast neutron beams approximating the shape of the annuli were found to be coming out of the charge side of these tubes, and were estimated at 240 mrem/hr. The slow neutron component was about 50 mrem/hr, and the gamma about 16 mr/hr.

Active gas was dispersed throughout the D-Area Machinery room when the valve from the third safety device mixing tank to header system was left open. A general background of 300 to 500 mrep/hr was observed throughout the room, with a maximum of 2.6 rep per hour over the tank. The condition was discovered during a routine survey of the building.

Fourteen casks were prepared for off-plant shipment. One returned cask showed alpha contamination to about 2,000 d/m over 50 square inches. The maximum dosage-rate on any loaded cask was 30 mr/hr, and on any crate 6 mr/hr at 3 inches. During the loading of one special request sample, it was noticed that the piece had ruptured on one end. A water sample taken from the inside of the cask showed no alpha contamination, but did show 6.3×10^{-2} μc/liter beta activity.

The #6 Horizontal Rod was removed from the F-Area Pile to allow borescoping and bowing measurements of the thimble. With the rod tip in the sandwich wall, a maximum dosage-rate of 7.6 rep per hour was obtained. A dosage-rate of 2.8 roentgens per hour was found in the beam from the open thimble. This beam was shielded to 80 mr/hr by closing the rod gate. Incidental maintenance work on the old #2 rod stored on the roof of the miscellaneous storage room was done in a maximum exposure-rate of 400 mr/hr. The maximum dosage-rate of 3 roentgens per hour was observed at the rod tip.

MEDICAL DEPARTMENT

A gram of radiu, which had been in the F-Pile since October, was removed and subsequently shipped off the plant. When loaded into the special cask, a beam from the end of the cask showed 40 roentgens per hour. The dosage-rate on the side of the cask through the 5 -inch lead shield was 52 mr/hr. After crating, the maximum reading was 12.5 mr/hr.

The following average beta contamination was observed in F-Area water samples:

Retention basin effluent	0.15 µc/liter
Fish Laboratory, trough #2	0.15 "
River, 30 feet below spillway	0.02 "
Stagnant Pond	0.0002 "

The activity in the stagnant pond has practically disappeared.

200 Areas - T and B Plants

General Statistics

	January			February			1947 to Date
	T	B	Total	T	B	Total	
Special Work Permits	381	531	912	231	539	770	1682
Other routine & special surveys	360	464	824	385	353	738	1562
Smear samples for alpha counts	552	770	1322	357	260	617	1939
Smear samples for beta counts	490	769	1259	357	260	617	1876
Air monitoring samples	431	310	741	368	293	661	1402
Thyroid checks	210	197	407	248	184	432	839

Canyon Building

A contact dosage-rate of 14 rep per hour was recorded on liquid from a dip tube in the T-Plant Cell 7-R during connector re-gasketing. Time limits during this work have varied from 8 hours to 1-1/2 minutes.

The T Plant 8-1 sample port was found to be highly contaminated, and immediately reported by the sampling crew. A subsequent survey with a Zeus showed dosage-rates of 15 rep per hour at the surface, and 250 mr/hr at two inches on the paper around the port. Finger ring results for all the samplers revealed no overexposure had resulted.

During sampling at the 13-4 port in the B-Plant, gross contamination of protective clothing as well as lesser contamination of personal clothing occurred. It was apparently due to glove contamination (900 mrep/hr at 4 inches) and subsequent spread. Hands showed about 200 registers in the four-fold hand counter, and about 1 mrep/hr was obtained on the forehead; all of which was removed by washing.

It is of interest to note that of the 40, Class 1, Special Hazards Incidents, reported in 1946, 18 were connected with some type of process sampling. This and the frequent occurrence

of minor but potentially dangerous sampling incidents indicates the desirability of reconsideration of some phases of process sampling.

An air sample taken in the bottom of Cell 1-R during repair work on the 17-2 centrifuge showed 10^{-6} µc f.p./liter, and 2×10^{-10} µg Pu/cc. An air sample result of 4.5×10^{-6} µc f.p./liter was obtained at the Canyon deck when the blocks were removed from Cell 10-L. A resample taken two hours later still showed 1.1×10^{-6} µc/liter. Air samples have been taken simultaneously in the B-Plant Canyon and tunnel. Sufficient correlation exists to warrant wearing assault masks in portions of the tunnel whenever they are required in the Canyon. "S" Department has inaugurated this protection.

Control Laboratory

About 2 µg Pu was found on supposedly clean equipment in room 7. Contact dosage-rates up to 80 mrep/hr were reported on cleaned sampling equipment in room 1. Waste cartons showed contact rates to 175 mrep/hr. A pair of sampler's gloves read 100 and 110 mrep/hr.

Concentration Buildings

Approximately 25 µg Pu was reported on the air line of the T-Plant F-10 to E-4 jet where leakage occurred at an elbow. A flange on the E-4 to D-1 line was broken for inspection purposes, whereupon about 100 mg Pu ran out onto the D-1 tank and cell floor. Cell surveys revealed about 2.3 µg Pu in "C" cell, about 27 µg in "D" cell, and about 6 µg in "F" cell. F-10 room contamination was reported as about 14 µg in the enclosure, and 1 µg outside of F-10 but within the chained area.

Approximately 15,000 d/m was found on a T-Plant operator's shoe. The shoe had not been surveyed for nearly a month, during which time it had been worn home daily. Smears taken in the employee's home did not reveal contamination. This incident suggested that a periodic collection and analyses of vacuum cleaner dust from Village homes would be a useful check on contamination spread.

Fan House

Dosage-rates up to 700 mrep/hr were encountered during removal of contaminated dirt from around the base of the B-Plant stack, where stack condensate had leaked. Barrels of this dirt loaded on the truck for disposal at the burial grounds caused a dosage-rate of 5 mr/hr in the truck cab, and 150 mr/hr at the tailgate.

Waste Disposal Area

Considerable time was spent in connection with jumper changes in the 154-B diversion box. The dosage-rate over the open box was as high as 12 roentgens per hour. The Danger Zone had to be

enlarged when readings at the rope, 30 feet from the box, increased from less than 1 to 20 mr/hr, due to sky-shine. Ground contamination resulted from movement of connectors, impact wrench and crane hook. Contamination was loosened by the vibration when a connector was moved from the diversion box to the burial ground, resulting in numerous spots of road and roadside contamination. The maximum roadside reading was 300 mr/hr on a Beckman. The road was barricaded during clean-up operations. Tires on all cars which had entered the area were checked, but no contamination was found.

200 Area Isolation Building

Air Monitoring

The maximum concentration found in a spot air sample was 4×10^{-11} µg Pu/cc in Cell 3. Two-hundred fifty nine spot samples were taken, and 250 were less than 10^{-11} µg Pu/cc. Thirty eight Little Sucker air samples run continuously by shifts had as the high result 6×10^{-12} µg Pu/cc obtained in room 34. Thirteen Big Sucker samples of the 903 exhaust system were taken, and the high result was 7×10^{-12} µg Pu/cc.

Surface Contamination

A total of 300 non-regulated items was found contaminated in surveys made by Technical Department, "S" Department, and H.I. personnel. Thirteen items were above 20,000 d/m, and five were above 80,000 d/m. Two-hundred and ten were in the laboratories, and 64 were in the process areas. Four floor spots were found; 3 in room 32 involving about 1.8 µg Pu, and one in room 34 of about 0.1 µg Pu.

Two cases of hand contamination involving about 1 µg Pu each, and one case of about 0.5 µg Pu occurred. All were successfully decontaminated in the building. Future summary reports of hand contamination will be misleading in comparison with past results. Many technicians now check the hands frequently with Poppy. Although this may improve protection, one primary objective, it leads to reported data that includes too few high counts and shows a fictitious picture of the status of hand contamination.

A filter box in the hood air exhaust system was removed from the AT section of the Cell 3 Process Hood and taken to the burial grounds. Sandy readings of from 70 to 80,000 d/m were found on the inside of the duct-work leading to the box. Readings of 30,000 to 50,000 d/m were obtained over the surface of the media when the box was opened for inspection at the burial grounds.

Gamma Radiation

	mr/hr
P.R. container (maximum)	58
Process Hood "	13.5
S.C. "	5

[redacted]

MEDICAL DEPARTMENT

THE 300 AREA

General	January	February	1947 To Date
Special Work Permits	93	115	208
Routine & special surveys	101	73	174
Smear samples for alpha counts	268	152	420
Smear samples for beta counts	268	152	420
Air monitoring samples	93	145	238

Metal Fabrication Plant

Fifty eight of the 82 air samples taken in the Extruder Building showed more than 1.5×10^{-4} µg U/cc, and 17 above 1.5×10^{-3} µg U/cc. Tabulation is as follows:

Location	No. Taken	µg U/cc >1.5×10^{-4}	µg U/cc Maximum
Straightener	13	11	2.8×10^{-3}
Rotary furnace	13	9	9.6×10^{-4}
Autoclave	13	4	1.5×10^{-3}
West end	14	13	9×10^{-3}
Outgas panel	13	10	1.9×10^{-3}
Oxide burner operator's position	15	10	3.3×10^{-3}
Office	1	1	2.1×10^{-4}

Test Pile Building

Surveys during special test runs revealed dosage-rates as high as 2.5 rep per hour contact, 500 mr/hr at 2 inches, and about 100 mr/hr at the operator's position, from slugs being run in and out of the Pile. Part of the manipulative work involved close approach to the slugs, and the method was changed to include remote handling and a time limit. All but routine work will be done under Special Work Permit procedures in the future.

Retention Pond

The maximum radiation measurements as reported on samples

taken by Site Survey were as follows:

Location	alpha	beta
Water, inlet	440 ± 16 d/m/liter	6×10^{-3} µc/liter
Water, N.W.Corner	20 ± 4 d/m/liter	1.1×10^{-4} µc per liter
Mud, inlet	215 ± 15 d/m/g	2.2 µc/kg
Mud, N.W.corner	40 ± 4 d/m/g	0.3 µc/kg

Technical Building

Five of 33 air samples taken in the building showed greater than 10^{-11} µg Pu/cc, with the high result of 7.3×10^{-11} µg Pu/cc obtained in room 64.

Two of 62 pairs of shoes checked showed alpha activity of from 500 to 1000 d/m.

Product contamination was reported in rooms 55,57, 59, 62, 64 and 66. Previously mentioned floor contamination in room 62 was not cleaned, and that in rooms 64 and 66 is still covered with paper.

Cold Semi-Works Building

Twenty-six air samples were taken, and all were below 2×10^{-11} µg Pu/cc.

The amount of product flushed from tanks and process lines to the Retention Basin was estimated as 234 µg for January, and 458 µg for February.

Laundry, Decontamination and Hand Counting

There were 47,316 items monitored in the Plant Laundry, of which 37,440 were checked for alpha radiation. Included were 10,650 coveralls, 15,960 gloves, and 12,793 overshoes.

Thirty-nine spot and 17 Big Sucker air samples were taken, The maximum spot sample result of 2×10^{-10} µg Pu/cc occurred in the area where clothes are placed after sorting and checking; however, no clothes were in this area at this time. The maximum Big Sucker result of 4×10^{-10} µg Pu/cc was obtained during the drying of clothes from the East Area and the Isolation Building.

The totals of alpha and beta hand counts were, respectively, 23,605 and 29,544. About 0.3% of the alpha counts, and 0.5% of the beta counts were above the warning limit. There was no recorded attempt to reduce 5 of the high alpha and eight of the high beta scores. Where decontamination was attempted, it was successful in all cases.

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MEDICAL DEPARTMENT

Pencils *	100-B 100-D	100-F	E&N 200	200-W	300	Total
Total Pencils read:	9,371	11,471	26,126	26,314	15,424	88,706
No. of single readings: (100 to 200 mr)	36	34	71	113	82	336
No. of paired readings: (100 to 200 mr)	2	0	3	3	0	8
No. of single readings: (over 200 mr)	53	48	172	145	66	484
NO. of paired readings: (over 200 mr)	1	2	3	5	3	14
Paired readings lost:	0	1	0	1	0	2

Pencils *	1947 to Date
Total pencils read:	183,316
No. of single readings: (100 to 200 mr)	737
No. of paired readings: (100 to 200 mr)	19
No. of single readings: (over 200 mr)	1112
No. of paired readings: (over 200 mr)	23
Paired readings lost:	4

Badges	100-B	100-D	100-F	200-E	200-N	200-W	300	Total	1947 To Date
Badges Processed:	1,763	2,965	3,283	4,132	622	3,796	3,459	20,020	41903
No.of readings: (100-500 mrep)	0	0	1	29	0	1	22	53	187
No. of readings: (over 500 mrep)	0	0	0	0	0	0	0	0	2
Lost Readings:	1	2	1	1	1	1	0	7	12

There was no high pencil reading confirmed by a badge reading, and there was no high badge reading. All lost readings were ascribable to lost, damaged, or mishandled meters.

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* ERRATA: January Monthly Report, Dec. #7-5760 dated 2/5/47, Corrected values read as follows:

Pencils	100-B 100-D	100-F	E&N 200	200-W	300	Total
No. of paired readings: (100 to 200 mr)	1	2	3	3	2	11
No. of paired readings: (over 200 mr)	3	0	2	3	1	9

The only confirmed exposure (badge reading about 90 mr) was received by an H.I. inspector engaged in routine radium calibrations. The circumstances were suitably investigated and reported. (Special Hazards Incident Investigation, Class 1, #45).

MEDICAL DEPARTMENT

CONTROL AND DEVELOPMENT DIVISION

Water Monitoring

Eighty-six samples of drinking water were obtained during the month. Five of these samples, all collected on the same day, had positive results for alpha contamination. These positive results may have been caused by transfer of alpha-emitting material from the new laboratory which is known to be slightly contaminated. The positive results were:

	dis/min/liter
300 Area Sanitary water	16 ± [4]
300 Area #1 well	4 ± [2]
Columbia Camp	6 ± [3]
Pasco	16 ± [4]
Headgate	6 ± [1]

Recheck samples taken later gave negative results.

Two samples obtained from Pasco and White Bluffs had beta activities of 6×10^{-5} μc/liter and 9×10^{-5} μc/liter, respectively. Sixteen test well samples were taken, and positive values of about 9×10^{-5} μc/liter were obtained for the B-y well, and Ranch #13 samples. Rechecks taken later gave negative results.

Eighty-one samples were taken from the Columbia River, and none had a positive alpha count. The maximum beta activity was 5.3×10^{-3} μc/liter in a Hanford sample. Columbia River samples (1 liter) at Vantage and Gifford, Washington, the Dalles, Oregon, and Yakima River samples from the Horn and across the mouth were all negative.

Shoreline spring samples taken near the 100-F Area burning ground had up to 1.3×10^{-2} μc/liter; these values are much higher than those obtained previously.

Atmospheric Monitoring

The integrons and C Chambers indicated average dosage-rates

MEDICAL DEPARTMENT

as follows:

Location	Integrons (mrep/24 hr) January	Integrons (mrep/24 hr) February	C.Chambers (mrep/24 hr) January	C.Chambers (mrep/24 hr) February
100-B	0.6	0.2	0.5	0.4
100-D	0.9	0.2	0.6	0.5
100-F	1.0	0.4	0.5	0.4
200-W	1.3	0.3	0.5	0.4
200-E	2.3	1.8	0.7	0.7
Riverland	1.3	0.7	--	--
Hanford	0.6	1.7	--	--
300 Area	0.8	0.8	0.5	0.4
700 Area	1.3	2.1	--	--
Kennewick	0.7	1.2	--	--
Pasco	0.2	0.3	--	--
Benton City	2.3	0.9	--	--

Film packets from the above locations gave no positive readings.

There are now 10 chamber stations around the 200-E Construction Area, and these gave average readings of 0.07 mrep/hr.

Constant iodine monitors were in operation at the S.E. corner of the 200-E Area, Tower #11 in the 200-E Area, Gable Mountain and Benton City. Maximum concentrations were 4.4×10^{-7} µc per liter, 2.4×10^{-7} µc/liter, 3.4×10^{-7} µc/liter, and 2.8×10^{-7} µc/liter, respectively. One hand pump air sample taken near the 200-E Area Gatehouse had 1.7×10^{-6} µc/liter. This condition lasted for a period of about 5 minutes as determined by visual observation. Forty-nine rain samples were obtained, and the maximum results were 7.2×10^{-2} µc/liter inside the 200-West Area, 3.5×10^{-3} µc/liter near the 100 Areas, 1.5×10^{-3} µc/liter at Hanford, and 3.9×10^{-2} µc/liter in Richland.

Land and Vegetation Contamination

Vegetation contamination has decreased at all locations except Hanford where the results increased slightly. Special surveys were made on the Wahluke Slope which indicate that the contamination there is about the same as that reported for Pasco and Kennewick. The results were:

Location	µc I^{131} per kg. January Average	February Maximum	February Average
North of the 200 Areas	0.53	1.17	0.23
Hanford	0.35 *	1.21	0.48
Near the 200 Areas	1.22	5.53	1.02
South of 200 Areas	0.46	3.28	0.40
Richland	0.43	0.36	0.19
Pasco	0.22	0.31	0.11
Kennewick	0.18	0.37	0.12
Benton City	0.46	0.31	0.14
Richland "Y"	0.26	0.12	0.09
Wahluke Slope		0.04	0.12

*Incorrectly reported in January as 0.54.

MEDICAL DEPARTMENT

Bio-Assay Laboratory

A total of 371 urine samples was collected, and 310 samples were run for plutonium alpha activity. No result over 0.6 dis/min was obtained. Results for beta analyses are still giving positive results. The source of this activity is not yet known, but there are now some indications that it might be due to the natural radioactivity in potassium. Apparent low counts in recent arrivals to Richland may not be statistically significant, or there may be a real change in diet here. The present analysis is an off-shoot from the plutonium analysis and recovery of potassium could be influenced by acidity. Completely separate beta analyses will have to be made.

Miscellaneous

Two white-fish from the Yakima River were checked, and one was found to have a slight beta activity indicating about 2×10^{-3} μc/kg. The other fish had no measurable activities. Some crayfish, minnows and a sucker were obtained from the Columbia River between 100-D and 100-F, and these had activities ranging from 4×10^{-3} to 9×10^{-3} μc/kg.

Two field mice and three jack rabbits from the 200 Areas, one coyote from near 100-F, and one dog and two cats from Richland were checked for alpha and beta activity. All animals except the dog had measurable thyroid activities; the maximum being 125 μc/kg in a rabbit thyroid. Other tissues had detectable amounts of activity on the order of 5×10^{-3} μc/kg or lower. Alpha activities up to 3400 dis/min/kg were found in one rabbit, and up to 1900 dis/min/kg in the coyote. These high values were both obtained in bone tissue; other positive values were obtained in the kidneys. The other animals had no appreciable alpha activity.

In conjunction with the proposed well program, work is being done to find a fast accurate analysis for plutonium in soil samples. The method which seems most practical is an ether extraction process which gives good yields in a relatively short time.

A tool checker which uses the contaminated tool as a collecting electrode in an ionization chamber was completed and was installed in the 200-E Area for field testing. The instrument will detect a surface dosage-rate of 12.5 mrep/hr coming from an area of 2 square inches. Tests are being run by exposing sheets of photographic film in contact with contaminated tools to determine the average area of contamination on a tool so that appropriate limits may be set on the scale reading of the instrument. The first results indicate that normal contamination covers an area of from 4 to 10 square inches. The same instrument will detect a total of 600 dis/min of alpha activity on the outside of a tool. A similar instrument designed to measure the contamination on the outside of product sample cans is satisfactory in laboratory tests and will

be tried in the field. This system must balance out the gamma component due to the product inside the container. This whole field of integrated contamination meter is projected to reduce materially the time now spent by many departments on the detailed checking for contamination on small objects.

Fish Laboratory

Monitoring of the area effluent water with silver salmon eggs and fry has continued on schedule. The results to date are similar to, but less severe than, those obtained with Chinook salmon last year. Practically all the fish in the undiluted effluent troughs have died. Mortality among the fry in the 1 to 5 dilution is increasing, and other lots appear to be normal thus far. Five non-feeding silver salmon were checked for radioactivity, and were found to have up to 1.1 μc/kg. Concentration factors ranged from 3 to 6.

Calibrations

The routine calibrations were:

RADIUM CALIBRATIONS:	Number of Calibrations		
	January	February	1947 to Date
Fixed Instruments			
Gamma	666	607	1273
Portable Instruments			
Alpha	59	63	122
Beta	37	45	82
Gamma	391	370	761
X-ray	3	2	5
Neutron	3	3	6
Total	493	483	976
Personnel Meters			
Beta	623	392	1015
Gamma	8438	7410	15848
X-ray	8607	7781	16388
Total	17,668	15,583	33,251
GRAND TOTAL	18,827	16,673	35,500

MEDICAL DEPARTMENT MONTHLY REPORT FEBRUARY, 1947

PLANT MEDICAL DIVISION

Physical Examinations	January	February	Year to date
Pre-employment (G.E.)	230	201	431
Annual	329	424	753
Sub-contractor (food handlers, etc.)	15	175	190
Rechecks	97	163	260
Interval Rechecks (Area)	1010	1041	2051
Terminations & Transfers	38	51	89
Army & Government	33	44	77
Assist to Clinic, Insurance, etc	6	1	7
Total	1758	2100	3858

Laboratory Examinations

Clinical Laboratory

Pre-employment, terminations, transfers	1694	2534	4228
Annual	2508	3083	5591
Rechecks (Area)	4961	5282	10243
First Aid	23	12	35
Plant Visitors	212	145	357
Clinic	2741	2142	4883
Hospital	2057	1540	3597
Public Health (Including food handlers)	177	163	340
Military	53	6	59
Total	14426	14907	29333

X-Ray

Pre-employment, terminations, transfers	313	452	765
Annual	341	449	790
First Aid	37	34	71
Clinic	276	223	499
Hospital	159	92	251
Public Health (Including food handlers)	16	9	25
Military	27	11	38
Total	1169	1270	2439

Electrocardiographs

Industrial	55	52	107
Clinic	11	4	15
Hospital	14	8	22
Military	1	1	2
Total	81	65	146

Allergy

Skin Tests	50	41	91

[redacted]

MEDICAL DEPARTMENT

First Aid Treatments	January	February	Year to date
Occupational Treatments	351	337	688
Occupational Retreatments	987	817	1804
Non-occupational (Welfare) Treatments	3349	2655	6004
Total	4687	3809	8496

Absenteeism Investigation Report

Total number calls requested	55	26	81
Total number calls made	55	26	81
Number absent due to illness in family	4	1	5
Number not at home when call was made	5	1	6

General

The health topic for the month was on "Nutrition". Material for discussion on this subject was distributed throughout the plant.

A health educator was obtained during the month by the Public Health Section. She has been made available to employee groups for health meeting discussions and will add materially to the value of the preventive medical program. The overall absenteeism has remained low during the winter months. The average for weekly employees during the month was just under 2%.

There has been no evidence of occupational disease.

VILLAGE MEDICAL DIVISION

Clinic Section	Men	Women	Children	January	February	Year to date
First Visits	188	196	122	685	506	1191
Retreatments	961	1706	761	3591	3428	7019
Total				4276	3934	8210

Clinic Visits

Medical	703	564	1267
Pediatrics	567	401	968
Surgical	650	631	1281
Gynecological	326	326	652
Obstetric (New)	64	54	118
Obstetric (Recheck)	448	428	876
Venereal Disease	71	51	122
Ear, Nose & Throat	303	286	589
Eye	265	224	489
Visits handled by nurses (hypo.,dressings)	428	594	1022
Night Clinic Visits	451	375	826
Total	4276	3934	8210
Total clinic visits per day	137	140	
Seen in Well-baby Clinic	295	253	548

Home Visits	January	February	Year to date
Doctors	207	117	324
Nurses	141	112	253
Total	348	229	577

Kadlec Hospital Section

Census

Admissions	366	297	663
Discharges:			
Surgical	74	66	140
Medical	43	39	82
Obstetric & Gynecologic	64	59	123
Eye, Ear, Nose & Throat	72	73	145
Pediatrics:			
Children	74	31	105
Newborn	37	36	73
Total Discharges	364	304	668
Patient Days	2246	1776	4022
Average Stay	6.1	5.8	5.95
Average Daily Census	72.4	63.4	67.9
Discharged against advice	1	0	1
One-day Cases	60	55	115

Operations

Transfusions	22	9	31
Eye, Ear, Nose & Throat	52	55	107
Dental	0	0	0
Casts	9	5	14
Minors	49	43	92
Majors	43	36	79
Deaths	2	2	4
Deliveries	37	32	69
Stillborn	0	0	0

Physiotherapy Treatments

Clinic	116	101	217
Hospital	58	28	86
Army	0	5	5
Industrial:			
Plant	132	84	216
Personal	47	37	84
Total	353	255	608

Pharmacy

Number of Prescriptions filled	1955	1441	3396

MEDICAL DEPARTMENT

Patient Meals	January	February	Year to date
Regulars	2971	2353	5324
Lights	278	57	335
Softs	934	916	1850
Surgical Liquids	87	29	116
Tonsils & Adenoids	234	226	460
Specials	537	445	982
Liquids	325	261	586
Total	5366	4287	9653

Cafeteria Meals			
Noon	1408	1234	2642
Night	161	122	283
Total	1569	1356	2925

Nursing Personnel		
First Aid Nurses	23	24
Clinic Nurses	12	12
Public Health Nurses	5	6
Hospital General Nurses	54	56
Aides & Orderlies	38	40
Total	132	138

General

The average daily hospital census was 63.4, while it was 72.4 for January, and 74.2 for February, 1946.

The daily average number of patients seen in clinic increased slightly over last month, and there was a 14% increase over the figure for February, 1946.

PUBLIC HEALTH SECTION

Communicable Diseases Reported	January	February	Year to date
Amoebic Dysentery	0	0	0
Chickenpox	154	80	234
Diphtheria	0	0	0
German Measles	6	15	21
Gonorrhea	0	1	1
Impetigo	1	0	1
Influenza	0	0	0
Measles	1	0	1
Meningococcic Meningitis	0	0	0
Mumps	1	1	2
Pediculosis	0	1	1
Pinkeye	0	1	1
Poliomyelitis	0	0	0
Rheumatic Fever	0	0	0
Ringworm	1	1	2
Scabies	10	5	15
Scarlet Fever	13	6	19

Communicable Diseases Reported (cont'd)	January	February	Year to date
Syphilis	3	1	4
Tuberculosis	0	0	0
Vincent's Infection	0	0	0
Whooping Cough	22	45	67
Total	212	157	369
Immunizations			
Smallpox	9	7	16
Diphtheria	30	33	63
Whooping Cough	49	65	114
Schick Test	7	4	11
Tetanus	22	9	31
Typhoid	0	0	0
Total	117	118	235
Administration			
Newspaper Articles	7	13	20
Committee Meetings	1	4	5
Attendance	66	39	105
Staff Meetings	3	3	6
Lectures & Talks	3	5	8
Attendance	100	306	406
Conferences	0	15	15
Attendance	0	45	45
Sanitation Inspections	194	132	326
Bacteriological Laboratory			
G. C. Smear	30	17	47
G. C. Culture	20	15	35
Fungus Culture	25	20	45
Vincent's Examinations	4	0	4
Trichomonas' Examinations	24	18	42
Sputum for T. B. Organisms	15	3	18
Bacterial Cultures	72	109	181
Examinations for Parasites	26	31	57
Throat Smear & Cultures	20	18	38
Blood Cultures	4	2	6
Stool Cultures	24	17	41
Eye Smears	2	3	5
Examinations for spermatozoa	0	1	1
Quantitative determination of blood alcohol	1	2	3
Type for pneumococcus	1	0	1
Treated water samples	76	77	153
Untreated (raw water) samples	0	0	0
Milk samples(includes milk,cream,ice cream)	91	98	189
Sewage samples	9	8	17
Examinations for eosinophiles	5	3	8
Dark field examinations	0	0	0
Virulence Tests	4	4	8
Total	453	446	899

[redacted]

MEDICAL DEPARTMENT

General

The number of chickenpox cases subsided; however, there was an increase in whooping cough cases. This necessitated strong action being taken and concerted effort made to immunize susceptible children, particularly infants who have not received such procedure to date. There have been no deaths or serious complications.

One public health nurse and a health educator have been added to our staff. The number of field nursing visits shows an increase due to this addition to our staff.

In cooperation with the Department of Agriculture, Food & Drug Division, 76 cases of adulterated hominy were condemned and destroyed at the garbage disposal grounds. The condemned hominy was being offered for sale by three of the village grocery stores. Also 20 eight-ounce boxes of rye wafers were condemned and destroyed at one of the grocery stores. Samples of this product have been given to the Department of Agriculture for legal action. Two other food commodities have been referred to the Department of Agriculture for investigation and possible condemnation action.

There has been a serious increase in the number of dog bites the past month in that 13 dog bites have been reported. A meeting, attended by Medical Department and Village organization representatives, was held in which the entire dog procedure and problems were discussed. This department is mainly concerned with the possibility of rabies and, with this thought in mind, submitted recommendations for the revision of the present dog control procedure in order that this hazard may be abated.

As evidenced by numerous isolated piles of trash and other refuse in the area west of the village, many of the villagers are disposing of excess garbage and trash in a manner that is undesirable. To rectify this condition, the village office has issued a memorandum to the various departments, and an article was published in the village paper warning villagers that such practices were prohibited. Also "No Dumping" signs will be placed at strategic points at the periphery of the village limits.

A representative of Design and Construction together with representatives of Medical Department discussed the importance of public health planning in connection with the proposed expansion program at Richland. In this connection, a letter from the Medical Department has been directed to plant management urging that any expansion program or alterations which would in any way effect public health should have the approval of Medical Department before final plans have been accepted.

A study is being made of the lighting in the schools, in respect to both quantity and quality. While the survey is not yet complete, several inadequacies have been noted. A report with findings and recommendations will be submitted in the near future. The sanitary condition of the grade schools is gradually improving; however, conditions at the high school remain constant in that little improvement has been made.

General (cont'd)

Laboratory examinations of the milk supply have indicated it to be of satisfactory quality. Individual milk producers supplying the pasteurization plant have continued to provide a safe product and are complying with the regulations of this department. Six new producers were approved as meeting sanitary requirements and were allowed to supply their product to the processing plant.

The ice cream mix supplied to one of the local facility operators for the retailing of packaged ice cream was condemned as unfit due to bacterial contamination. As a result, another out-of-town supplier is supplying ice cream mix which was found satisfactory following analysis by the public health laboratory.

Cooperating departments have been actively engaged in mosquito abatement work; namely, cleaning of ditches, burning marsh areas, and repairing irrigation lines. The crew assigned specifically to this department will commence supplementary work on March 3, 1947. Airplane spraying equipment will be available on April 1st. The ground equipment is in readiness at this time. The necessary materials, including sufficient DDT for the entire season, are in stock as are other preparations which are to be used during the actual mosquito breeding season.

DENTAL DIVISION	January	February	Year to date
Patients treated.....	1728	1427	3155

[redacted]

MEDICAL DEPARTMENT PERSONNEL SUMMARY

February 28, 1947

AREAS	Physicians	Dentists	Nurses	Aides & Orderlies	H. I, Specialists	Technicians	Others
100-B							
100-D			4		8	2	
100-F					12		
200-E			3		30		
200-W			3		49	2	
200-N							
300			1		52	1	
Plant General	7		10		9		
700-1100	12	8	77	40	11	19	33
Total	19	8	98	40	171	24	33

Grand Total - 393

Note: This report includes persons on leave of absence.

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DESIGN AND CONSTRUCTION DEPARTMENT

MONTHLY REPORT - FEBRUARY 1947

During the month of February, three Senior Engineers and nine Junior Engineers were added to the staff of the Design Section. No additions were made to the Construction Section roll. The total number of employees in the department is now 68, with nine additional employees on assignment from other departments.

PROJECTS

241 TANK FARM

Construction Section

On February 3 a subcontract was awarded to the Morrison-Knudsen Company of Boise, Idaho, for construction of tank farm 241-BX in the 200 East Area. Award was made on a lump sum basis without escalator provisions. Organization of the work followed immediately, O'Dean Anderson assuming administrative control as Project Manager for Morrison-Knudsen on February 10. Excavation started on February 17 and was very active at the close of the month.

REDOX

Design Section

Design of facilities for the 1/150 scale Redox plant is continuing. The design of this project is approximately 60% complete. Two members of the Design Section made a trip to St. Louis and Oak Ridge for the purpose of observing processes pertinent to the demonstration and 1/10 scale plants from the design and instrumentation standpoint.

HOUSING

Design Section

The housing project was prepared and submitted to the Area Engineer on February 6. The request was for 500 additional houses plus facilities at a total cost of $6,500,000.

HOUSE HEATING

Design Section

Further study has been given to the feasibility of the use of electric or oil heat in the new housing and the possible conversion of existing coal-burning furnaces to oil burning in existing houses. Study regarding conversion of units is being carried out with a view to decreasing operations and maintenance costs as well as improving living conditions of the existing homes.

[redacted]

DESIGN AND CONSTRUCTION DEPARTMENT

VILLAGE PLANNING STUDY

Design Section

The study of commercial and recreational facilities improvements required for the expansion of the Village was continued. Special emphasis was given to the provision of proper shade, play and recreational areas. An attempt was made to bring all family recreational activities into the most suitable place in order to provide a widely varied program within a comparatively small area.

An over-all city planning study is under way in order to arrive at a thorough understanding of the problems involved in providing the proper relationship between housing, commercial and recreational facilities. In this respect several plans have been prepared considering the different possible areas and locations of merchandising and trade sections of the business district.

The U. S. Engineering Department has been contacted regarding possible locations of levees which will be required in connection with the construction of the Umatilla Dam. The consequent back-water pool resulting from this dam may have a drastic effect upon our planning.

In connection with the over-all planning it has become apparent that the various activities of the Transportation Department should be combined into a common area. As a result, a survey is being made with the idea of moving the bus terminal, certain stores functions and transportation facilities further north than presently located, and combining with them a railway terminal with storage space for rail deliveries.

D&C BLDG.

Design Section

Preparation of the project for the D&C Building Addition to house the Design and Construction Department was completed and submitted to the Area Engineer early this month.

300 AREA OFFICE BUILDING

Design Section

Further study is being given to the office and laboratory building for the 300 Area. These studies are being done in collaboration with groups who are expected to require space for laboratory or other technical work. Sketches have been made and are being studied for the most effective grouping of functions.

DESIGN AND CONSTRUCTION DEPARTMENT

FILTER PLANT

Design Section

A preliminary study has been made as to the need for additional water supply which will become necessary with increased population and increased park planting and gardening. Three possibilities have been considered:

1) Bringing water from the 100 Area. The cost of a pipe line to the Village is so great that this plan has been considered economically impractical.

2) Use of the Yakima River as a source of supply. This was also found to be inexpedient due to the high bacterial content and extreme turbidity at certain times of the year.

3) The Columbia River. This seems to be the most logical source of supply.

Construction of a filter plant was studied and an attempt made to determine capacity necessary. The use of a double water system for domestic and irrigation purposes was compared with a single system using treated water for all purposes. From a health standpoint the latter plan seems most desirable. It is contemplated that the maximum amount of water required for a town of 25,000 population will be considered as the ultimate development. Plans will be studied for the construction of a plant of sufficient size to meet the requirements of the immediate future with the provision for the addition of required capacity as the need arises.

ACCOUNTING DEPARTMENT

FEBRUARY 1947

GENERAL

Activities of the Accounting Department during the month included discussions with Government representatives relative to reimbursement, particularly such items as reimbursement for traveling and moving expenses for new employees.

The Work Order Cost Control system, effective as of February 1, 1947, required considerable additional work as a result of the new system, including preparatory work and additional work which is always necessary when establishing a new system.

Statistics

General	February	Total To Date
E.E.W. Instructions Letters issued	2	33
Office Letters issued	0	12
Organization Announcements issued	0	30

Employees and Payrolls	Total	Monthly Payroll	Weekly Payroll
Employees on payroll at beginning of month	4606	838	3768
Additions and transfers in	125	24	101
Removals and transfers out	(81)	(2)	(79)
Transfers from Weekly to Monthly Payroll	-	7	(7)
Employees on payroll at month end	4650	867	3783
Gross amount of payroll	$ 1,325,941	$ 348,723	$ 977,218
Average salary rate per hour	$ 1.757	$ 2.320	$ 1.626
Average salary rate previous month	1.759	2.311	1.631

Employee Plans	January	February
U. S. Savings Bonds	-	
Number participating at beginning of month	1956	1984
New authorizations and transfers in	76	43
Voluntary cancellations	(38)	(40)
Removals and transfers out	(10)	(13)
Number participating at month end	1984	1974
% participating	43.0%	42.5%
Bonds issued - maturity value	$ 133,300	$ 114,850
- number	3697	3062
Refunds issued	62	42
Revisions in authorizations	65	26

Accounting Department

	January	February
Group Life Insurance		
Number participating at beginning of month	2954	3250
New participants and transfers in	318	126
Cancellations	(3)	(23)
Removals and transfers out	(14)	(8)
Number participating at month end	3250	3345
% of eligible employees' participation	78.0%	78.7%
Group Disability Insurance - Personal		
Number participating at beginning of month	3639	3981
New participants and transfers in	362	124
Cancellations	(6)	(9)
Removals and transfers out	(14)	(42)
Number participating at month end	3981	4054
% of eligible employees' participation	95.0%	95.4%
Group Disability Insurance - Dependents		
Number participants at beginning of month	2516	2716
Additions and transfers in	213	87
Cancellations	(9)	(4)
Removals and transfers out	(4)	(19)
Number participating at month end	2716	2780
Group Disability Insurance - Claims		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	74	62
Daily Hospital Expense Benefits	54	69
Special Hospital Services	44	63
Surgical Operations Benefits	31	49
Dependent Benefits Paid		
Daily Hospital Expense Benefits	122	113
Special Hospital Services	117	109
Amount of claims paid by insurance company:		
Employee Benefits	$ 6,859.76	$ 7,407.31
Dependent Benefits	4,157.34	3,698.20
Total	$11,017.10	$11,105.51
General Accounting		
Number of Accounts Payable Vouchers Entered		
G. E.	2046	2429
Du Pont	205	115
Total	2251	2544
Amount of Cash Disbursements (Accounts Payable)		
G. E.	$1,231,631.69	$ 986,241.70
Du Pont	562,334.32	44,152.92
Total	$1,793,966.01	$1,030,394.62
Number of Checks Issued		
G. E.	1570	1583
Du Pont	129	80
Total	1699	1663

[redacted]

Accounting Department

	January	February
General Accounting (continued)		
Public Vouchers submitted to Area Engineer-G.E.		
Amount of 1034 Public Vouchers not reimbursed at beginning of month	$ 486,142.81	$ 401,517.59
Amount of 1034 Public Vouchers submitted during month	1,343,127.91	3,715,041.80
Total	$1,829,270.72	$4,116,559.39
Amount of 1034 Public Vouchers reimbursed during month	1,427,753.13	3,087,723.29
Amount of 1034 Public Vouchers not reimbursed at month end	$ 401,517.59	$1,028,836.10
Number not reimbursed at beginning of month	38	54
Number submitted during month	142	141
Total	180	195
Number reimbursed during month	126	146
Number not reimbursed at month end	54	49
Amounts for which 1034 Public Vouchers have not been submitted to Area Engineer - G.E.		
1035 Pre-Audit Vouchers Issued and Outstanding	$2,104,987.26	$ 717,357.07
1035 Pre-Audit Vouchers not issued	1,818,323.40	1,441,016.67
Total (unbilled items)	$3,923,310.66	$2,158,373.74
Number of Pre-Audit Vouchers Issued and Outstanding	68	60
Public Vouchers submitted to Area Engineer-duPont		
Amount of 1034 Public Vouchers not reimbursed at beginning of month	$ 40,535.59	$ 72,519.37
Amount of 1034 Public Vouchers submitted during month	100,611.38	44,268.22
Total	$ 141,146.97	$ 116,787.59
Amount of 1034 Public Vouchers reimbursed during month	68,627.60	59,958.93
Amount of 1034 Public Vouchers not reimbursed at month end	$ 72,519.37	$ 56,828.66
Number not reimbursed at beginning of month	31	31
Number submitted during month	56	25
Total	87	56
Number reimbursed during month	56	22
Number not reimbursed at month end	31	34

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Accounting Department

	January	February	
General Accounting (continued)			
Amounts for which 1034 Public Vouchers have not been submitted to Area Engineer-duPont			
1035 Pre-Audit Vouchers Issued and Outstanding	$ 23,571.56	$ 62,770.02	
1035 Pre-Audit Vouchers Not Issued	45,895.08	16,682.80	CR
Total (unbilled items)	$ 69,466.64	$ 46,087.22	
Number of Pre-Audit Vouchers Issued and Outstanding	8	4	
Cash Receipts - General Electric			
Accounts Receivable			
U. S. Government	$1,427,753.13	$3,087,723.29	
Rent	51,370.24	46,743.28	
Hospital	34,912.91	32,674.18	
Telephone	3,271.92	2,975.38	
Miscellaneous	1,172.14	1,208.78	
Advance of U. S. Government Funds	-	500,000.00	
Employee Sales	1,953.22	1,464.53	
Bus Fares	7,825.30	6,832.80	
All Others	3,212.74	3,591.50	
Total	$1,531,471.60	$3,683,213.74	
Cash Receipts - du Pont			
Accounts Receivable			
U. S. Government	$ 68,627.60	$ 59,958.93	
Hospital	1,530.38	746.80	
Rent	37.50	-	
Telephone	27.87	3.82	
Miscellaneous	596.21	2,575.95	
All Other	7,975.19	2,483.95	
Total	$ 78,794.66	$ 65,769.45	
Property Inventory Transfers			
Number received	447	327	
Number of items affected	2394	972	
Inventories			
Essential Materials	$1,592,622.97	$1,760,107.59	
Excess Materials	777,155.92	575,873.47	
Memo Employee Sales	6,179.76	5,972.11	
Precious Metals	40,602.97	40,602.97	
Returnable Containers	13,723.57	13,011.77	
Spare Parts	1,441,826.15	1,426,097.05	
Special Process Material	510,392.48	482,735.99	
Stores for Cash Sales to Employees	23,208.15	27,883.58	
Stores - General	1,051,601.65	1,101,667.43	
Stores - Material Held for Future Use	4,629.67	69,107.67	

[redacted]

Accounting Department

	January	February
Inventory Disbursements		
Essential Materials	$ 364,666.02	$ 329,675.23
Excess Materials	30,554.00	202,096.95
Memo Employee Sales	770.20	957.55
Precious Metals	-0-	-0-
Returnable Containers	452.00	1,339.80
Spare Parts	9,931.03	8,380.47
Special Process Materials	-0-	-0-*
Stores for Cash Sales to Employees	2,620.66	3,433.21
Stores - General	110,424.58	107,496.24
Stores - Material Held for Future Use	459.53	978.53

*$27,935.98 transferred to salvage yard during the month

Stores		
Number of items added to stores stock	254	537
Number of items deleted from stores stock	766	0
Items in stores stock at month end	41,472	42,009
Receiving Reports issued	3,310	3,153
Shipments on hand not checked	39	37
Material Exception Reports issued	96	109
Material Exception Reports cleared	109	107
Material Exception Reports open at month end	8	10
Certificates of Inspection issued	12	20
Certificates of Inspection cleared	3	15
Certificates of Inspection open at month end	37	42
Store Orders filled	7,543	9,962
Emergency Store Orders filled	0	0
Returnable Containers received	576	379
Returnable Containers shipped	340	249
Returnable Containers on hand at month end	4,331	4,461
Returnable Containers on hand over six months	1,041	1,051
Returnable Container Return Orders received	22	3
Returnable Container Return Orders closed	25	1
Returnable Container Return Orders on hand at month end	212	214
Shipping Orders received	58	46
Shipping Orders closed	72	49
Shipping Orders on hand at month end	9	6

Purchasing		
Requisitions received	2,551	2,238
Requisitions placed	2,411	2,319
Requisitions on hand at month end	832	751
HW Orders placed	1,365	1,398
OHEW Orders placed	158	111
MO Orders placed	91	72
OGT Orders placed	6	2
Alterations issued	198	223
Requests to expedite received	201	217
Scrap Sales Completed	0	0
Value of scrap sold	0	0

Accounting Department

	January	February
Miscellaneous Clerical		
Office Machines repaired in shop	141	112
Office Machines service calls	187	168
Lines working as Class A Telephones	158	156
Lines working as Class C Telephones	233	237
Lines working as Class C Party Telephones	19	20
Total Official Telephones	410	413
Lines working as Class B 2 Single Telephones	74	78
Lines working as Class B 1 Single Telephones	165	168
Lines working as Class B Party Telephones	1,133	1,131
Total Residence Telephones	1,372	1,377
Vacant Lines	18	10
Items of First Class Mail received	26,463	15,781
Items of Parcel Post received	760	696
Items of Registered Mail received	77	63
Items of Insured Mail received	55	82
Items of Special Delivery Mail received	36	48
Amount of money used on postage meter machine	0	$ 13.32
Stamps used	$628.20	$508.32
Multilith orders received	195	78
Multilith Orders completed	183	97
Balance of multilith orders on hand at month end	37	18
Mimeograph orders received	1410	1398
Mimeograph orders completed	1410	1398
Mimeograph orders on hand at month end	0	0
Ditto orders received	3034	2812
Ditto orders closed	3034	2812
Ditto orders on hand at month end	0	0
Accounting Department		
Number of employees on roll at month end	642	653
Terminations	23	21
New hires	34	32
% of termination	3.65	3.12
% of absenteeism	3.17	2.76
Major injuries	0	0
Minor injuries	15	16

SECTIONAL ACTIVITIES

Assigned, Field and Miscellaneous Clerical

The study completed by the Printing Unit to determine additional equipment and shop facilities required to do all printing locally, except precarboned forms, was turned over to the Maintenance Department for processing as a project.

Telephone shift schedules were revised during the month to coincide with peak load shifts as indicated by traffic peg counts completed during the month. Completion of installation of 200 additional lines to the switchboard was delayed pending receipt of a shipment of cable and relays from Ogden, Utah. It is expected that these lines will be available for service sometime in March.

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Accounting Department

Mail service was extended during the month to include Morrison-Knudsen offices located in the Recreation Hall. A special delivery service to the Design and Construction Division and Employment Division on teletypes and telegrams was started during the month to supplement the regular mail service and to insure prompt delivery of all messages received.

Preliminary steps were taken with the Production Department to combine all reports relative to Metal Accountability into one report.

Cost

A special report detailing the charges accumulated against Work Order No. 12101 covering the installation of track to the Tank Farm was completed in order to establish the total amount to be billed to Morrison-Knudsen against their subcontract in connection with the construction to the 200 Area Tank Farm.

Considerable backlog of posting work in connection with posting charges to the Work Order Control was on hand at the end of the month. It is expected that this backlog will be liquidated during March as an additional posting operator was transferred from the General Accounting Section during the last week of the month.

Stores

On February 10th a bulletin covering new price schedule on safety shoes, shower sandals, and hard hats was distributed to the field. The price on mens' 6" oxfords increased from $4.79 on January 9 to $4.96 on February 10.

The use of a precarboned, one item store ticket form was started during the month. This form superseded a multiple item form, and the use of the new form is expected to facilitate the flow of paper work through the Stores Section.

Arrangements were completed with the Technical and Maintenance Departments to have paint sampled and analyzed in order to make certain that the paint meets Federal specifications when the purchase order so specifies.

In the past it has been the practice to issue a requisition to procure stock replacement for each item when the quantity on hand reached a predetermined minimum standard. In order to reduce the total number of requisitions sent to Purchasing, this procedure has been altered and like materials are ordered one each week on the same requisition.

On February 23 Sunday Stores service was discontinued and the hours of coverage on other days changed from 7:00 a.m. to 7:45 p.m. to 7:00 a.m. to 6:00 p.m., except Saturday, which remained 8:00 a.m. to 4:45 p.m. Emergency service will be available to provide coverage in the event it is necessary during the time when a Stores attendant is not on duty.

Accounting Department

Purchasing

Moving the Cost Department to another location in the 703 Building provided additional office space that was badly needed in the Purchasing Section.

It was decided during the month to include Ammonium Silicofluoride among the process materials that are covered by a requirements contract.

Progress was made during the month toward completing the necessary requirements contracts on process materials.

ORGANIZATION AND PERSONNEL

Edmond F. Charette was transferred from the Schenectady Works as of February 10, 1947 and was assigned supervisory duties in connection with payroll policies and procedures with the title of General Assistant - Accounting.

The Accounts Receivable and General Accounting Sections were combined into one unit which is now called the General Accounts Section with K. G. Grimm as Supervisor and M. J. Smith, Assistant Supervisor. As a result of this change, one less supervisor is required, and G. A. Gilson, who was formerly supervisor of the Accounts Receivable Section, was transferred to the Office Methods Group.

BILLINGS TO U. S. GOVERNMENT

As a result of discussions held with the Government Audit Section, additional Government employees have been assigned to audit vouchers, and the status as of February 28 shows some improvement over the previous month.

Following is a comparison of outstanding General Electric 1035 Pre-Audit Vouchers and 1034 Public Vouchers outstanding as of the end of January and February:

	January 31	February 28
1035 Pre-Audit Vouchers issued but not audited	$2,104,987.26 (68)	$ 717,357.07(6C
1034 Public Vouchers issued but not reimbursed by Government	401,517.59 (54)	1,028,836.10(49
Total	$2,506,504.85	$1,746,193.17

PROPERTY

Because of the inability of vendors to meet the promised delivery dates of material needed in the permanent tagging program, the program did not get under way on February 15, 1947 as expected. It is now expected to begin on March 17, 1947. The work of setting up the Accountable Records is nearing completion and by March 15 the records should all be in order.

DU PONT ACTIVITIES

Five employees of the General Accounting Section are still assigned to work on du Pont "clean-up" activities. Two are preparing records for shipment and three are acting in the capacity of a final audit group. This is in addition to work performed by the Section in handling payments for du Pont accounts and related accounting work.

PAYROLL DIVISIONS

During the month 1064 Patent Agreements were forwarded to the Patent Department at General Office. These represented approximately 98% of the Patent Agreements to be executed. Employees are now being contacted by the Personnel Division in those cases where patent agreements have not been signed by the employees.

Group Disability Insurance policies and Group Life Insurance policies have now been received and distributed to all weekly paid employees who were participants as of December 31, 1946.

Quarterly salary report as of February 1, 1947 was prepared for the Atomic Energy Commission which reported for each job classification the number of employees in each classification, the number at each rate within the range or at the job rate, and the weighted average for that classification. Classifications were grouped by payroll category; i.e. weekly paid non-exempt employees and monthly paid exempt employees.

Calculations and schedules were prepared showing du Pont annuities which vested in 1946 and those which will vest in 1947, for those employees who reach their 15th anniversary of du Pont continuous service date by December 31, 1947 and these schedules were forwarded to General Office in order that the annuity policies might be issued by the insurance company.

PROJECT AND RELATED PERSONNEL

GOVERNMENT EMPLOYEES	1-31-47		2-28-47	
Civilian Personnel - Atomic Energy Commission	332		329	
Civilian Personnel - G. A. O.	4		4	
Commissioned Officers (Exc. of MP's and MI)	12		12	
MP Company (Including C.O.)	221		216	
MI Detachment (Including C.O.)	23		23	
Military Personnel (Other than above)	0		0	
Total		592		584
PRISON INDUSTRIES		240		247
RICHLAND VILLAGE PERSONNEL				
Facilities & Organizations	612		630	
Schools and Churches	247		212	
Total		859		842
MORRISON-KNUDSEN PERSONNEL (Benton City)	73		84	
MORRISON-KNUDSEN PERSONNEL (Sub-contractor)	-		107	
GENERAL ELECTRIC PERSONNEL	4,615		4,688	
GRAND TOTAL	6,379		6,552	