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OP-59 REVISED

HANFORD ENGINEER WORKS

RECEIVED JUL 13 1946 CLASSIFIED FILES SECTION

PROJECT 9536

Route List
1.
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File

Date July 10, 1946

Subject Monthly Report - June 1946

REPOSITORY PNL

COLLECTION Atmospheric Releases.

BOX No. N/A

FOLDER N/A

To R. M. Evans

From D. A. Miller

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July 10, 1946

This Document consists of 95 Pages No. 1 [redacted]

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HANFORD ENGINEER WORKS

MONTHLY REPORT

JUNE 1946

Classification Cancelled (Change to Declassified w/Deletions)

By Authority of CG-PR-2

VE Gray 11-13-90

By B. Clemings 12-10-90

L. Lewis 12-11-90

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HW- 7-43 & 3-D.

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GENERAL SUMMARY

On June 4 the Plant completed 143 days without a time losing injury and became eligible for the General Manager's Safety Award. A suitable prize is being presented to each employe. The month of June was successful from the standpoint of safety and as of month end 166 safe days had been accumulated.

The 100 D and 100 F Areas operated at power levels of 250 MW and 200 MW respectively. Scheduled shutdowns for routine maintenance and metal discharge were taken. Overall operating time efficiency was 84.5% and is low because the replacement of the No. 9 horizontal rod thimble at D required 86 hours.

Operating schedules in the Separations Plant were adjusted to process discharged metal from the 100 Areas. A 60 day "cooling" period was maintained. Fifty-seven charges were started through the Canyon Buildings and 64 were delivered from the Isolation Building. B plant was down for 6 days during the month due to a failure in a metal waste line which caused an appreciable cave-in adjacent to the Canyon Building. After testing the spare lines, operations were resumed and steps have been taken to correct the fault.

Representatives of the General Electric Company arrived on the project on June 17 to make preliminary arrangements for their acceptance of operating responsibility as the new contractor. The entire period was spent in interviewing personnel both individually and in groups. As of month end considerable progress had been made and indications are the transition will be made without any particular difficulty.

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STAFF

MANAGER	D. A. MILLER
ASSISTANT MANAGER	T. N. STAPLETON
PRODUCTION SUPERINTENDENT	M. H. SMITH
TECHNICAL SUPERINTENDENT	W. C. KAY
WORKS ENGINEER	ROSS HAHN
P DEPARTMENT SUPERINTENDENT	C. N. GROSS
S DEPARTMENT SUPERINTENDENT	F. B. VAUGHAN
POWER SUPERINTENDENT	F. M. ACKER
MAINTENANCE SUPERINTENDENT	A. J. SCHWERTFEGER
ELECTRICAL SUPERINTENDENT	H. A. CARLBERG
INSTRUMENT SUPERINTENDENT	W. P. OVERBECK
SERVICE SUPERINTENDENT	W. T. CLOUD
TRANSPORTATION SUPERINTENDENT	R. T. COCKE
MEDICAL SUPERINTENDENT	W. D. NORWOOD
CHIEF ACCOUNTANT	S. D. EWING

6/25/46

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FORCE REPORT

DEPARTMENT	NON-EXEMPT 5/25/46	NON-EXEMPT 6/25/46	EXEMPT 5/25/46	EXEMPT 6/25/46	TOTAL 5/25/46	TOTAL 6/25/46
Management	-	-	4	4	4	4
P	186	183	49	48	235	231
S	269	264	65	59	334	323
Technical	145	135	74	75	219	210
Power	380	376	90	90	470	466
Maintenance	421	417	87	84	508	501
Electrical	164	161	36	36	200	197
Instrument	111	104	28	27	139	131
Protection	372	372	69	72	441	444
Service	193	193	64	65	257	258
Transportation	514	501	61	60	575	561
Medical	266	260	101	100	367	360
Accounting	624	600	17	17	641	617
TOTAL	3645	3566	745	737	4390	4303

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PERSONNEL DISTRIBUTION

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	TOTALS
P DEPARTMENT									
Supervisors	6	13	13	-	-	12	-	4	48
Operators	12	35	40	-	-	96	-	-	183
Total	18	48	53	-	-	108	-	4	231
S DEPARTMENT									
Supervisors	-	-	-	22	27	-	-	3	52
Operators	-	-	-	108	144	-	12	-	264
Others	-	-	-	-	2	-	3	2	7
Total	-	-	-	130	173	-	15	5	323
TECHNICAL DEPARTMENT									
Supervisors	-	5	3	4	10	7	-	4	33
Chemists, Engineers & Physicists	3	9	3	10	22	25	-	8	80
Analytical Personnel	3	15	7	21	25	14	-	-	85
Others	1	-	-	4	5	2	-	-	12
Total	7	29	13	39	62	48	-	12	210
POWER DEPARTMENT									
Supervisors	14	26	24	6	9	-	3	8	90
Operators	36	103	102	23	36	10	-	36	346
Others	4	6	6	1	6	3	-	4	30
Total	54	135	132	30	51	13	3	48	466
MAINTENANCE DEPARTMENT									
Supervisors	2	6	16	8	13	4	-	19	68
Engineers	1	-	-	-	3	-	-	12	16
Mechanics	10	23	65	39	65	26	-	143	371
Others	1	1	1	5	7	1	-	30	46
Total	14	30	82	52	88	31	-	204	501

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	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	TOTALS
ELECTRICAL DEPARTMENT									
Supervisors	1	3	2	3	4	1	12	6	32
Electricians	3	16	13	16	13	7	52	26	146
Others	1	3	1	1	3	-	9	1	19
Total	5	22	16	20	20	8	73	33	197
INSTRUMENT DEPARTMENT									
Supervisors	1	3	4	3	3	4	-	4	22
Engineers	-	-	1	-	-	-	-	4	5
Mechanics	5	16	16	16	16	18	-	6	93
Others	-	1	1	-	-	4	-	5	11
Total	6	20	22	19	19	26	-	19	131
PROTECTION DEPARTMENT									
Supervisors	5	6	6	10	7	6	1	31	72
Patrolmen	21	50	49	82	71	24	8	59	364
Others	-	-	-	-	-	-	-	8	8
Total	26	56	55	92	78	30	9	98	444
SERVICE DEPARTMENT									
Supervisors	4	-	-	-	1	4	6	44	59
Firemen	13	-	-	-	-	10	-	47	70
Laundry Operators	-	-	-	-	1	-	-	1	2
Inspectors	5	4	4	4	4	-	2	1	24
Janitors	2	5	5	6	8	6	1	36	69
Others	-	-	-	-	10	1	5	18	34
Total	24	9	9	10	24	21	14	147	258
TRANSPORTATION DEPARTMENT									
Supervisors	1	2	2	-	3	1	8	43	60
Drivers (Based on Areas Served)	14	23	24	30	37	21	30	35	214
Mechanics	-	1	1	1	2	-	8	49	62
Trainmen	-	4	4	3	4	-	2	2	19
Laborers	-	3	4	2	4	3	-	32	48
Others	4	10	11	7	14	4	10	98	158
Total	19	43	46	43	64	29	58	259	561

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	100-E Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	TOTALS
MEDICAL DEPARTMENT									
Physicians	-	-	-	-	-	-	7	11	18
Dentists	-	-	-	-	-	-	-	7	7
Nurses		← 4 →		3	3	1	8	76	95
H.I. Specialists	1	9	8	27	38	26	27	7	143
Technicians	1	1	1	1	1	1	-	20	26
Others	-	-	-	-	-	-	-	71	71
Total	2	14	9	31	42	28	42	192	360
ACCOUNTING DEPARTMENT									
Supervisors	-	-	-	-	-	-	-	17	17
Clerks	1	9	11	7	17	11	-	258	314
Telephone & Teletype Operators	-	-	-	4	-	-	-	34	38
Others	1	2	-	3	4	10	-	228	248
Total	2	11	11	14	21	21	-	537	617
MANAGEMENT	-	-	-	-	-	-	-	4	4
GRAND TOTALS	177	417	448	480	642	363	214	1562	4303

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EXEMPT PERSONNEL ARRIVALS AND DEPARTURES - JUNE 1946

ARRIVALS

Name	Department	Physical Arrival	Origin
W. M. Harty	Technical	June 3	Trans.-Sabine River Works, Orange, Texas
H. V. Meigs	Protection	May 27	Re-instate
J. D. Mayfield	"	June 14	Re-instate - Military Service
N. L. Cross	"	" 17	Re-instate - Military Service
C. A. Caldwell	Service	June 7	Re-instate
W. C. Poe	"	" 14	Re-instate - Military Service
E. M. Broom, M.D.	Medical	May 31	New

DEPARTURES

Name	Department	Physical Departure	Reason
Ross Hare	Management	May 29	Trans.-Nichem., Wilmington
W. M. Sloan	P	June 24	Trans.-Ammonia, Charleston, W. Va
K. K. Strassel	S	June 3	Completion of Assignment
J. M. Frame	"	" 12	Trans.-Ammonia, Charleston, W. Va
J. P. Hood, III	"	" 13	Trans.-Ammonia, Wilmington
C. J. Poynter	"	" 21	Trans.-Pigments, Newport, Del.
W. R. Kanne	Technical	May 28	Completion of Assignment
H. P. Hanisch	"	" 29	Trans.-Fo & F., Philadelphia, Pa
W. O. Switzer	"	June 3	Trans.-Ammonia, Charleston, W. V
R. M. Coleman	"	" 13	Trans.-Rayon, Buffalo, N.Y.
G. E. Desetti	"	" 13	Trans.-Ammonia, Wilmington
J. A. Church	Power	" 12	Trans.-Rayon, Old Hickory, Tenn.
W. A. Rupea	Maintenance	" 3	Completion of Assignment
E. O. Dean	"	" 11	Trans.-Engineering, Wilmington
J. Q. du Pont	Instrument	" 13	Trans.-Engineering, Wilmington
G. H. Lovell	Service	" 14	Resignation
L. P. Massek	"	" 18	Resignation
W. A. Wright	"	" 21	Resignation
D. E. Lane	Transportation	" 3	Completion of Assignment
T.E. McGauvran, M.D.	Medical	" 3	Completion of Assignment
N. L. Ridge, D.D.S.	"	" 17	Resignation

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HIJ

	HI	HJ	HK	HL
JC	1,738	119	32,209	2,221
JD	-	-	77,857	1,485
JE	1,738	119	110,066	3,706
JF	1,075	69	29,943	1,895
JG	33,065	81	589,824	2,276
JH	1,821	7	235,454	917
JI	-	-	16,514	66
JJ	17,544	68	783,439	3,074
JK	7,462	29	542,603	2,129
JL	-	11	-	572
JM	-	16	-	523
JN	-	-	-	58
JO	-	2	-	53
JP	-	15	-	570
JQ	-	10	-	499
JR	-	2	-	57
JS	-	3	-	44
JT	-	2	-	-
JU	-	22	-	-
JV	-	2	-	-
JW	-	9	-	-
JX	-	-	153,468	601.7
JY	9,088	35.7	187,618	736.4
JZ	5,632	22.1	156,557	613.8
KA	15,552	61.1	498,475	1,955.2
KB	32	.1	97,467	382.6
KC	9,256	36.3	123,394	485.1
KD	5,860	23.0	92,067	361.0
KE	16,004	62.8	313,784	1,232.1
KF	13,230	51.9	148,309	582.1
KG	7,617	29.9	136,117	534.3
KH	-	-	-	-
KI	20,847	81.8	284,426	1,116.4
KJ	11,444	44.9	143,968(a)	565.1(b)
KK	-	-	95,816	376.1
KL	7,370	28.9	36,938	144.9
KM	18,814	73.8	276,722	1,086.1

	HM	HN	HO	HP
KN	1,336	91	1,998	137
KO	1,102	70	558	36
KP	28,923	103	46,093	122
KQ	7,388	29	15,214	60
KR	32,664	128	26,589	104
KS	19,993	79	19,993	79
KT	-	2	-	3
KU	-	27	-	27
KV	56,033	220	56,033	220
KW	64,392	253	64,224	252
KX	64,718	254	64,490	253
KY	185,143	727	184,747	725
KZ	36,072	141.6	30,373	119.2
LA	-	22.3	-	30.2
LB	-	1,012.3	-	1,086.1

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	HQ	HR
LC	-	98,107
LD	5,994	127,412
LE	5,606	104,281
LF	11,600	329,800
LG	23	78,027
LH	7,462	101,533
LI	4,714	77,448
LJ	12,199	257,008

	HS	HT	HU	HV	HW
LK	10,681,000	8,339,000	-	19,020,000	232,377,000
LL	9,901,000	7,995,000	-	17,896,000	215,838,000
LM	582,000	423,000	-	1,005,000	13,873,000
LN	8,729,000	8,155,000	-	16,884,000	204,621,000
LO	-	753,000	-	753,000	8,244,000
LP	8,729,000	7,402,000	-	16,131,000	196,377,000
LQ	4,581,000	3,775,000	-	8,356,000	-
LR	-	-	-	1,811,000	-
LS	-	-	-	17,174,000	196,975,160

(a) Includes 45,466 units at C
(b) Includes 178.5 units at C

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P DEPARTMENT

JUNE 1946

PILE SUMMARY

	Pile B	Pile D	Pile F
Time Operated (%)	—	78.1	90.8
*Power Level (MW)	—	250	200
*Inlet Water Temperature (°C)	15.5	11.9	12.1
*Outlet Water Temperature (°C) (Maximum °C, 10 tubes, 0.240 zone)	15.5	49.0	41.4
Number of Scrams	—	0	0
Number of Purges	—	2	1
Helium Consumption (cu. ft.)	34,402	112,476**	46,120
Metal Discharged (tons)	.125	36.3	23.1
Inhours Gained (this month)	—	-3	-8
*Inhours Poisoned	—	314	327
*Inhours in Rods	—	47	57

*Month-end figures
**Excessive loss due to replacement of No. 9 horizontal thimble and neoprene seal strip on far side of unit.

PILE BUILDINGS

General

The D and F Piles were operated at a nominal power level of 250 MW and 200 MW respectively throughout the month except for scheduled outages to discharge metal and the replacement of the No. 9 horizontal rod thimble at D. There were no "scrams" of any unit this month. The B Pile was maintained in a stand-by condition with 4,000 gpm water flow through the unit. The water to the D and F Piles was continued to be cooled by the four refrigeration units started in each area in May.

The table below shows the outages of the D and F Piles:

Date of Outage	Outages: Scheduled, Metal Discharge	Outages: Scheduled, Other Causes	Outages: Unscheduled	Length of Outage (hours)
5-28-46	D			19.7
5-29-46	F			21.5
6-4-46	D			19.3
6-5-46	F			20.0
6-11-46	D			15.3
6-12-46	F			12.1
6-17-46 to 6-20-46	D	D*		86.2
6-20-46	F			14.2
6-21-46		D**		2.46
6-25-46	D			18.7

*Extended shutdown to replace No. 9 horizontal thimble.
**Shutdown to discharge six (6) temporary poison columns established for the extended shutdown.

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P Department

Operating Experience

In conjunction with the graphite expansion program numerous instruments have been designed and installed on all three piles to measure pile movement. The installation of these instruments has been completed and base readings were obtained during the first week of June. Also, as part of this program, tubes Nos. 2451 and 2496 of the D Pile and tubes Nos. 0174, 2451 and 2496 of the F Pile were discharged of regular metal and loaded with lead dummies on May 28 and 29 respectively. These are to be used for tube bowing measurements as caused by graphite expansion and are in addition to the tubes previously reported being used for this purpose. All readings on pile movement will be compiled by the "P" Department and turned over to the Technical Department for study and reporting.

Special Request samples No. 9-1 and No. 13 were discharged from tube No. 3574 of the D Pile on May 28. The tube was reloaded with lead dummies and then recharged with Special Request Nos. 9-2 and 25-2 on June 4. On June 11, Special Request No. 3 was discharged from tube No. 1474 of the D Pile. On June 25, Special Request No. 15-1 was charged into tube No. 1579 and Request No. 25-3 into tube No. 2669 of the D Pile.

On June 17 six temporary poison columns were added to the D Pile in preparation for the extended shutdown necessary for the replacement of the No. 9 horizontal rod thimble. Upon completion of the maintenance work on June 20, the Pile was re-started and operated for approximately 16 hours. On June 21, the unit was shut-down for the discharge of the temporary poison columns and re-started without difficulty.

The papoose and corrosion tube No. 2874 of the D Pile was discharged and reloaded with similar material on June 25.

Tubes Nos. 1178 and 1762 of the D Pile and tubes Nos. 1379, 1564 and 1583 at F were charged with cast material on May 28 and 29, respectively. These slugs will be examined when discharged for corrosion and blistering tendencies.

In addition to the regular metal discharged from the D and F Piles, tube No. 2539 of the B Pile was discharged on June 21 in order that observations could be made of corrosion on slugs that had been in a standby unit for three months. There was no evidence of corrosion or film formation.

As reported last month, one of the slugs discharged on May 7, from tube No. 2692 of the D Pile was swollen and scratched, indicating that the tube was probably damaged. As a precautionary measure this tube was discharged on May 28, and filled with lead dummies. The tube was boroscoped on June 4, and replaced during the extended shutdown of June 17-20, as the examination revealed severe abrasion inside the tube and on the ribs.

On June 20, the graphite stringer in the D Hole of the F Pile was removed to obtain a section of the most active portion as a sample of graphite to be sent off the Project. Actually two sections were replaced with new graphite as one section was found to have a steel plug in the graphite and was judged to be too radio-active to be rehandled.

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P Department

On June 10, the power level of the D Pile was reduced 25 MW for four hours for the purpose of measuring the power coefficients and the graphite relaxation period.

No difficulty was experienced in purging the D Pile on May 28 and June 19, and the F Pile on June 20, with the usual 100 ppm of "Super-Cel".

The south high tank was functionally tested in the D Area on June 4, while the north tank was tested on June 11. Both high tanks were tested in the F Area on June 12. No difficulty was experienced in these functional tests.

Mechanical Performance

As previously reported, distortion of the No. 9 horizontal rod thimble in the D Pile had made it necessary to remove the rod from service. The work of replacing the thimble was started on June 17 and was completed on June 20. In accomplishing the replacement, the rod was moved out of the building and stored on the outside rod platform. The shield plug of the unit was then removed from the biological shield and placed in a temporary shield. The thimble was then drawn into a light gauge metal container, and the thimble and container together, were removed from the building by long cables and placed in a lead shield built on the ground for temporary storage. After the thimble was removed, the graphite in the thimble hole was borescoped, but no conditions were found which would explain the distortion of the thimble. Replacement of the shield plug, thimble, and rod were accomplished without difficulty and the rod has performed in a normal manner since the thimble was replaced.

During the replacement of the No. 9 thimble in the D Pile, four badly damaged mattress plate extensions were replaced, repairs to the neoprene lining in the Discharge Area were made, tube No. 2692 was replaced, and the neoprene seal strip on the top far side was replaced. This same portion of the seal also was replaced on the B Pile during the month. The new seal is about five (5) inches wider than the old seal opposite the central part of the Pile and is joined to the old seal just in front of the concrete wall which encloses the Discharge Area.

The air-actuated diaphragm valves on the Third Safety were tested and found satisfactory at the B Pile. Consequently, advantage was taken of the extended shutdown in the D Area to install the new valves on the D Pile.

During the month, transit measurements of horizontal bowing were made on tubes Nos. 2451 and 2496 in both D and F Piles, and, in addition, tubes Nos. 0174 and 4674 in the F Pile were measured for vertical bowing. In the B Pile, No. 27 vertical thimble hole was measured for bowing and the thimble then was replaced.

Tube No. 3671 in the B Pile was jacked in and out as prescribed in Production Test 105-52P, in order to measure clearance between the graphite and the end of the gun barrels. The front gun barrel became jammed during the testing, and ten other tubes were treated similarly in an effort to determine the cause of the binding as well as measure the clearance between the graphite and the gun barrels. The results of these tests are reported in the Technical Department section of this report.

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P Department

The two small cracks in the B Pile Downcomer, which were reported previously, were repaired by stress relieving and seam welding.

Nos. 21, 27 and 34 vertical rods in the D Pile stuck in their guides as they were being lowered in a routine test on May 28. After buffing, the rods operated normally. As a preventative maintenance measure, No. 33 vertical rod winch was replaced.

The downstream Van Stone flanges of tubes Nos. 2474 and 2451 and the upstream flanges of tubes Nos. 4674 and 0174 were examined at the F Pile on May 29. The results of these inspections are reported in the Technical Department section of this report.

To provide a release for possible pressure build-up on the F Pile Downcomer, the dome was replaced with one constructed of canvas on June 12.

Gas Purification

Due to exposure of the unit to air during replacement of the neoprene seal strips, gas purity in both B and D Piles fell below operating requirements. Before start-up the D Pile gas purity was built up from 70% to 95% by purging the system with 55,000 cubic feet of pure helium gas. Since B Pile is not operating, no purge was made but the purity allowed to build up through normal additions. It increased from 25% to 60% during the week following the closure of the pile.

The amount of oil in the seal tanks on the B Pile low pressure circulating system was lowered to 6" and 16" of water pressure on vacuum and pressure seals respectively. This change will be made on the D and F Piles as soon as convenient and is in line with the Design Division's recommendations.

Retention Basin

Additional repair work has reduced leakage in the B Pile retention basin to 60 GPM from the south section of the basin and 150 GPM from the north section. No further work is anticipated but periodic leakage tests will be made.

Special Hazards

The neoprene seal strip removed from the D Pile was contaminated and frequent glove changes were required for men working on its removal. After the old seal strip was removed, the rest of the operation was attended with little hazard.

Contamination of mattress plates at D Pile necessitated remote handling while the repair job was made to keep the exposure to radiation at a low level.

No. 9 horizontal rod thimble was extremely active when removed for replacement. Special shielding and remote handling were used to keep the radiation exposure at a low level.

Upon removal of the graphite stringer from the D test hole at F Pile on June 20, unexpectedly high radiation levels were encountered due to the presence of a steel plug in the graphite.

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P Department

Fish Laboratory

Relatively heavy mortalities have continued among the chinook salmon held in undiluted area effluent water and in dilutions up to one part effluent to ten parts of river water. Only a very few fish now remain alive in troughs Nos. 1, 2, 3, and 4. The supersaturation of gases in the river water has caused "gas bubble" disease which has resulted in the loss of some of the fish in troughs Nos. 7 through 20. The fish being held in dilutions of one part effluent to fifty parts river water and in weaker dilutions appear to be much like the fish being held in straight river water. On the other hand, those in concentrations of one part effluent to ten parts river water and greater are distinctly inferior. The following table shows the cumulative mortality and size of the fish since February 29, 1946:

Trough No.	Water Condition	% Mortality since 2-29-46	Ave. Wt. in Grams.
1 & 2	Straight Effluent	98	1.4
3 & 4	Refrigerated Effluent	97	1.2
5 & 6	1 Effluent to 3 River	75	1.9
7 & 8	1 Effluent to 10 River	59	3.7
9 & 10	1 Effluent to 50 River	10	3.8
11 & 12	1 Effluent to 250 River	6	3.7
13 & 14	1 Effluent to 500 River	5	3.6
15 & 16	1 Effluent to 1,000 River	5	3.8
17,18,19 & 20	Straight River Water	9	3.6

Another set of chinook salmon was exposed to undiluted effluent water for periods ranging from one to twenty-one days. The accumulated activity in these fish is being studied by the H.I. Section. Studies on the activity of fish in the Columbia and Yakima Rivers are also continuing. During the month fish were captured near the 300 Area and about five miles above Riverland in the Columbia River and at Twin Bridges in the Yakima River.

The Fish Laboratory and the fish screens in the 181 Building of the 100-F Area were inspected by the following representatives of the U.S. Fish and Wildlife Service or the State of Oregon Fish Commission: H. Holmes, S Bair, F. Foster, F. Fish, A. Kemmerich, C. Burner, A. Suomela, M. Hoy, and H. Thayer of the U.S. Engineers, Seattle District.

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P Department

300 AREA — METAL FABRICATION

Extrusion, Outgassing, Machining, and Chip Recovery

Extrusion, Machining, and Combined Yield were as follows:

	% Yield (Regular)			% Yield (SX Material)		
	May	June	To Date 1946	May	June	To Date 1946
Extrusion	92.7	93.8	92.3	93.5	93.4	93.4
Machining	80.5	81.0	78.8	67.3	71.5	70.7
Combined	74.6	76.0	72.7	62.9	66.8	66.0

Extrusion ran three shifts this period.

To date 930 rods have been extruded with a nominal diameter of 1.200". These rods are being machined into slugs in accordance with Special Request No. 24. The yield of finished slugs from billets is approximately 65.9%. At the present time three lathes are set up for turning the SX slugs to diameter and two other lathes are equipped to face the ends and turn the radius on one end of the slugs.

On June 4, 1946, a batch type furnace was put into service to burn all uranium metal dust and sweepings to the oxide form. To date 7,000 pounds of D-6 has been burned.

The Chip Recovery Yield was as follows:

% Yield		
May	June	To Date 1946
90.1	95.9	92.5

The Chip Recovery process operated four days this period. On June 5, 1946, the hydraulic press was turned over to the Maintenance Department for a complete overhaul.

Canning Operation

Metal Slug — Type canned and yields obtained were as follows:

	% Canned		% Yield	
	June	To Date 1946	June	To Date 1946
New Machined — A's	0	11.1	0	78.7
New Machined — A's (Cast)	0	.9	0	78.3
New Machined — MZ's	82.4	69.0	91.2	84.5
Recovered — Z's	5.0	10.6	94.2	86.0
Recovered — X's	12.6	8.4	93.0	90.0
Total	100.0	100.0	91.6	84.4

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P Department

Two pieces of Special Request 9-2, seventeen pieces of Special Request 15-1, one piece of Request 19, and three pieces of Request 25 were canned during the month.

Canning rejects, by cause, were:

	% of Total Canned		
	May	June	To Date 1946
Non-seating	1.7	1.2	2.4
Wrinkled Cans	1.4	2.3	2.1
Marred Surface	2.0	2.0	3.9
Al Si on Outside of Can	.3	.2	.3
Air Pockets	.1	.1	.1
Frost Test Rejects	1.4	1.6	1.4
Warp	.2	.3	.2
Bad Welds	.2	.3	.5
Miscellaneous Causes	5.9	.4	4.7
	13.2	8.4	15.6

Recovery Operation

	% Recovered		Average Weight-Lb.	
	June	To Date 1946	June	To Date 1946
Z Slugs	33.3	53.0	7.782	7.806
X Slugs	57.9	41.5	7.732	7.725
Rejects	8.8	5.5	—	—
Total	100.0	100.0		

Inspection and Testing

Autoclave rejects were as follows:

	May	June	To Date 1946
New Machined — A's	0.00/M	0.00/M	0.00/M
New Machined — A's (Cast)	0.00	0.00	0.00
New Machined — MZ's	0.15	0.18	0.08
Recovered — Z's	0.00	0.00	0.00
Recovered — X's	0.00	0.00	0.00
	0.12/M	0.14/M	0.05/M

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P Department

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

	% Useable		
	May	June	To Date 1946
Aluminum Cans	83.7	84.1	79.7
Aluminum Caps	86.7	95.7	95.6
Steel Sleeves	79.8	56.1	71.9

The quality of Boss type caps being inspected currently is good, with approximately 98% of those being inspected meeting specification.

Test Pile

The unit was operated five eight-hour days, making 92 routine tests on uranium slugs.

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S DEPARTMENT

JUNE 1946

PRODUCTION SUMMARY

Fifty-seven batches were started in the Canyon Buildings during the month and sixty-four were processed through the Concentration Buildings. Sixty-four batches were delivered by the Isolation Building. The average purity was 98.7%.

The lower number of batches that were processed through B Plant this month was due to the following:

1. Scheduled electrical outages — 4 hours
2. Installation of a new centrifuge in section 13 of the Canyon and other scheduled shut-down maintenance 31 hours
3. Hydrostatic testing of underground waste lines and making necessary piping changes to place spare metal waste facilities in operation 143 hours

Reduction in the B Plant percentage of product going to waste represents the savings realized on eleven batches in which the section 13 centrifuge was skimmed to 10 gallons instead of the former standard of 30 gallons, and on nineteen batches in which the metathesis was carried out with 70% of the former quantity of potassium hydroxide.

An extraction of I^{131} from a small portion of the B Plant Stack gases was made on 6-9-46. The I^{131} concentration averaged 2.1 mc/liter for a total of 2.9 liters. One liter of this material, packed for shipping, was delivered to the Area Engineer.

Production Performance Data (5/26/46 — 6/25/46, Inclusive)

	B Plant	T Plant	Combined
Number of charges started	31	26	57
Number of charges completed	34	30	64
For completed charges:			
Percentage of starting product in waste:			
This month	6.2	5.1 (a)	5.6
Last month	6.8	5.4 (b)	6.3
Cumulative to date	6.6	6.7 (c)	6.7
Percentage of starting product recovered:			
This month	92.1	88.0	90.2
Last month	92.1	92.3	92.2
Cumulative to date	94.6	94.7	94.7

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S Department

Production Performance Data, Cont'd.

	B Plant	T Plant	Combined
Percentage of starting product accounted for:			
This month	98.3	93.1	95.8
Last month	98.9	97.8	98.4
Cumulative to date	101.3	101.4	101.3
G Decontamination Factor (Log)			
This month	7.30	7.29	7.29
Last month	7.48	7.45	7.47
Cumulative to date	7.31	7.24	7.28

(a), (b), (c): Includes waste from processing recycle. The recycle wastes are estimated as: (a) 0.19%, (b) 0.23%, and (c) 0.22%.

Isolation Building Performance Data (5/26/46 – 6/25/46, Inclusive)

	% of Incoming Product			
	Prepared for Shipment	Recycle	Losses	Material Balance
Average for this month	97.2	4.5	0.12	101.8
Average for last month	97.0	4.2	0.11	101.3
Average to date	97.1	4.0	0.15	101.3

PRODUCTION PERFORMANCE

T and B Plants

T Plant started the processing of current stocks of metal of high enrichment with Batch T-6-06-B-13. Extraction waste losses increased to approximately 2.5% as anticipated from a review of results obtained in the previous processing of material of higher enrichment.

The production test for reduction of potassium hydroxide consumption and yield improvement was extended to both plants. Fifteen batches were processed in T Plant with 60% of the former quantity of potassium hydroxide with resultant waste losses averaging 0.39%. Since the losses were the same as those encountered with a 30% reduction T Plant returned to this volume. B Plant has processed nineteen batches with 70% of the former volume with an average waste loss of 0.40% which closely approximates the performance experienced in T Plant. Whereas, T Plant has had no difficulty with cake removal from the Cell B Centrifuge B Plant has had minor difficulty on several batches since the reduction was made. The reason for this difference is being investigated.

A new centrifuge with skimmer stops set to permit skimming to a 10 gallon instead of the former 30 gallon residual volume was installed in B Plant to permit the product saving that had been demonstrated in T Plant. Eleven batches have been processed in B Plant since this change was made with the yield saving averaging 0.37%. This is slightly less than the average yield saving of 0.55% which has been obtained in T Plant.

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S Department

Speed measurements taken as part of the investigation to determine the reason for Cell E waste losses averaging 0.5% higher in B Plant than in T Plant revealed that the Cell E Centrifuge in B Plant with normal jetting rate at full speed was approximately 40 R.P.M. slower than the Cell B Centrifuge and the Cell E Centrifuge in T Plant. Advantage was taken of the scheduled shut-down for the replacement of the Section 13 Centrifuge to exchange the centrifuge motors in Cells B and E. Whereas this exchange increased the speed of the Cell E Centrifuge in B Plant to approximately the same as that in T Plant, waste losses were unaffected.

Acid washes of the process vessels in both T and B Plants have been started. While results are not complete product equivalent to approximately 65% of a normal batch was picked up by the acid wash in the T Canyon with the bulk of the material coming from the precipitator tank in Section 17. Inspection of the circulating spray assembly in this tank revealed that the suction pipe had broken off at a weld just below the jet inlet, hence the spray washing of the walls of this tank with nitric acid following each batch was not being done. Following the installation of a new jet assembly a second acid wash of this section was started to determine whether additional product is present. The product recovered in these washes will account for a large part of the low material balance in T Plant.

To make certain that a process leak was not contributing to the low material balances in T Plant all Canyon cell floors were flushed with water; analysis of the flushes when collected in 5-7 tank in the sewer cell showed no evidence of process leaks. An inspection of the Concentration Building for the same purpose revealed no leaks.

The first cycle by-product waste from Batch T-6-06-B 20 contained 105% of the product and the product effluent contained only 2.6%. The apparent cause was failure of the oxidation step in Section 12. Laboratory analysis of all reagents used revealed nothing out of line and reaction conditions as shown by instrument charts and procedure book entries appeared normal in all respects. Investigation of the cause of this difficulty is being continued but to date the reason remains obscure. The waste was successfully reworked in Section 13 with 97% of the product recovered.

Isolation Building

Operations in the Isolation Building were generally satisfactory during the month.

The N-2 filter in Cell 4 was leached during the month. Recovered product was recycled to the T Concentration Building.

Mechanical Performance

During the scheduled shut-down of the B Canyon for installation of a new centrifuge in Section 13 piping was installed to give an alternate means of transferring metal waste from the catch tank in Section 7 to the neutralization tank in Section 9 since a small leak had been observed in a pipe trench section of the original line.

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S Department

On June 17 an extremely high radiation level was observed at a small ground cave-in at the rear of the B Canyon opposite Section 3. Further surveys by the H.I. Group revealed the radiation intensity to be in excess of 4000 r/hr. The location of the cave-in was directly above the underground waste lines from the Canyon to the Waste Storage Area. Building operations were halted and a program of hydrostatically testing each underground line was started. The leak was found to be in the metal waste line from 9-1 tank to the Waste Area. All other lines showed no leaks under a pressure test of 125 lbs/sq. in. To use the spare metal waste line from the Canyon to the Waste Area it was necessary to place Sections 8 and 10 in service in place of Sections 7 and 9. The testing program and making piping changes necessary for the utilization of the spare facilities required the B Plant to be down for six days. Normal operations were resumed on June 23.

The old six liter capacity still receiver tanks in all four cells of the Isolation Building were replaced with new tanks which have a capacity of fifteen liters. As the volume of solution that is charged to the stills is nine liters the new tanks will hold the entire still contents in the event that the still outlet valve is opened inadvertently prior to the end of the distillation.

Waste Disposal

The tie lines that take metal waste from T to U and B to C Waste Storage Areas were given a precautionary flush with 10,000 lbs. of 10% sodium bicarbonate solution during the month.

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

Bldg. 241 Tanks	Type Waste	% Full				Reserve Capacity in Batches to Process				
		B	T	C	U	B	T	C	U	Total
x101,2,3	Metal	100	100	45.6	37.1	—	—	146	169)	
x104,5,6	Metal	—	—	0	0	—	—	269	269)	1001
x201,2,3,4	Metal	0	0	0	0	37	37	37	37)	
x107,8,9	1st Cycle	100	100	0	0	0	0	338	338)	
x110,1,2	1st Cycle	—	—	21.3	—	—	—	266	—)	1181
x104,5,6	1st Cycle	—	29.2	—	—	—	239	—	—)	
x104,5,6	2nd Cycle	0	—	—	—	454	—	—	—)	
x110,1,2	2nd Cycle	88.2	97.5	—	0	53	16	—	454)	972

Special Hazards

The radiation level of 4000 r/hr. which was found at the ground area above the leaking metal waste line in B Plant has been temporarily reduced to approximately 100 mrep/hr. by covering the ground area with gravel to a height of several feet. Permanent steps to be taken are under investigation at present and recommendations will be made at an early date.

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S Department

A program of meetings to discuss Special Hazards topics was inaugurated during the month. The meetings are scheduled to be held once per month for each shift or group in the S Department. The H.I. Group is assisting S Department Supervision in preparing the topics and conducting the meetings. It is expected that this medium will assist in disseminating and clarifying information pertaining to the Special Hazards.

Meteorological Section

Ninety-two pre-dissolving forecasts were furnished to the T and B Plants, and fifteen high wind or thunderstorm warnings were issued to the Electrical Department.

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

Maximum average hourly wind velocity at 200'	43 mph
Minimum average hourly wind velocity at 200'	1 mph
Maximum average hourly wind velocity at 50'	34 mph
Minimum average hourly wind velocity at 50'	1 mph
Prevailing wind direction	WNW
Prevailing wind quadrant	W
Maximum soil temperature	139
Minimum soil temperature	50
Maximum air temperature (4 feet)	96
Minimum air temperature (4 feet)	45
Number of days with precipitation and/or fog occurred	7
Number of days precipitation occurred	7
Number of days fog occurred	0
Greatest duration of precipitation	5.0 hours

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TECHNICAL DEPARTMENT

June, 1946

100 AREAS

Physics

Determination of Transient Poisoning Constants - Production Test 105-54-P

Continued analysis of the xenon transients which were followed at 150 MW and at 0.5 MW prior to the shutdown of the B Pile has provided an alternative solution to the one described in last month's report. Both solutions lead to higher values of the xenon coefficients than had previously been assigned, and consequently to higher values of equilibrium xenon poison than those given by the currently accepted xenon equations. The present data were obtained under conditions such that the neutron distribution was distorted by the control rods, and it is now evident that a satisfactory analysis will be obtainable only by way of an additional test in which this perturbing effect is eliminated.

Determination of Reactivity Coefficients - Production Test 105-50-P

During a test of the power coefficients of the F Pile on May 27, it was found that the reactivity peak was sharper and occurred sooner after the rise to normal power than had been predicted by the currently accepted xenon equations. The time at which the peak occurred could be calculated by using the larger xenon coefficients mentioned in the preceding section, but the magnitude of the calculated peak failed to agree with that observed. Further analysis of these effects is in progress. The coefficients obtained from the drop in power were in line with previous trends.

A power coefficient test on the D Pile on June 10 produced unexpectedly low values of the coefficients. A repetition of this test is planned as soon as feasible.

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

Calculations based on observations of additional indium foil irradiations in an empty tube of the shut-down B Pile have indicated an equilibrium nv of 106.8 neutrons/cm^2 sec. This corresponds to a subcritical condition of 1.5% k with all rods out.

The effect on pile reactivity of various trends in the quality of metal has been analyzed. Continued production of MZ and X slugs of current average quality is expected to result in a net gain of about 20 ih during the next 80,000 megawatt days of operation. This figure takes into account both metal quality and gains independent of the metal.

Special Irradiations

Those parts of the Special Irradiations Program which were active during the month may be summarized as follows:

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Request No. 3 (thorium) was discharged from the D Pile on June 11 and is awaiting shipment.

Request No. 9-1 (beryllium oxide and mixed beryllium-uranium oxides) and Request 13 (beryllium nitride) were discharged from the D Pile on May 28 and shipped on June 12.

Request No. 9-2 (beryllium oxide and mixed beryllium-uranium oxides) and Request 25-2 (beryllium nitride) were charged into the D Pile on June 4 for a 60-day exposure.

Request 15-1 (lithium fluoride) and 25-3 (beryllium nitride) were charged into the D Pile on June 25 for exposures of 50 and 90 days respectively.

Request 17: A second 16-lb. section of graphite was shipped on June 12. A similar section of graphite was removed from the F Pile on June 20.

Graphite Monitoring - Production Test 105-1-P

New data on highly exposed graphite have indicated that the thermal conductivity ratio, K_o/K, may be represented as a function of exposure, E Mw-days/central ton, by a sum of linear and exponential terms, namely:

$$K_o/K = 13.7 + 0.0217\ E - 12.7\ \exp(-0.0118\ E).$$

This relationship, which is valid up to exposures of 1007 Mw-days/central ton, suggests that the thermal conductivity effect has effectively two components, one of which has already saturated and another which is still increasing linearly. In contrast, the electrical resistivity effect is represented by the equation:

$$R/R_o = 1 + 3.7\ (1-\exp(-0.06\ E)).$$

The continuing linear increase in the thermal conductivity ratio now appears to be fairly definitely demonstrated.

A diminished response to annealing treatments has been observed in the thermal conductivity and electrical resistivity ratios of highly exposed graphite. For example, annealing at 200°C produced a recovery of 25.7% in the K_o/K effect and of 9.6% in the R/R_o effect of 836 Mw-days/central ton graphite. For graphite of 210 Mw-days/central ton exposure, the corresponding recoveries were 52.5% and 19.0% respectively.

Sources for Calibration of Health Instruments - Production Test 105-63-P

A set of special materials was loaded into the B Test Hole of the F Pile during the shutdown of June 12 for activation as sources for the calibration of health instruments. The special casing is scheduled for removal on June 26.

Water, Corrosion and Engineering

Process Water Control and Pressure Drop Studies

The iron content in the process water was lower than last month at all areas. This was due partially to a recession in raw water turbidity and river level. During the latter part of the month, it was possible to reduce the coagulant feed from 35 to 25 ppm.

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An inspection of slugs discharged from B on June 21 indicated that film formation has been negligible in this pile since its shutdown in the middle of March.

Spectrochemical analysis of a sample of film taken from D on May 21 indicated that principal constituents were Fe, Al, Cr, Si, Zn and Ca. Microchemical analysis for Fe, Al and Zn indicated 35.8%, 21.9% and 1.5%, respectively. These were the first film analyses which have indicated appreciable amounts of Zn.

Purging Studies

The F and D Piles were purged with Super Cel during the month. To determine the effect of high velocity purging on film removal in the 0.140 inch orifice zone, the orifices for two of the tubes were increased to 0.240 inches for the test. The larger orifices doubled the effectiveness of the purge.

Corrosion

Examination of slugs from two average pressure drop tubes and two average corrosion tubes from D on May 21 showed no evidence of blistering and a maximum corrosion of 0.00006 inches penetration per month. No evidence of unusual corrosion was noted for slugs discharged from B on June 21.

Inspection of the Van Stone flanges of Tubes 2474, 2451, 4674 and 0174 at F on May 29 showed areas of localized etch and broad shallow pits on the downstream flanges. The largest was approximately 1/8 x 1/4 inch in area and about 0.01 inch deep. One upstream flange showed slight pitting. It appears that the corrosion of the downstream Van Stone flanges is becoming progressively worse; these flanges are the portion of the tubes which show the most corrosion.

Borescope examination of Tube 2692 at D indicated that the ribs and tube had been damaged badly by a bowed slug during the May 7 discharge. This tube was replaced on June 19.

Graphite Expansion

Vertical rod No. 27 opening at B was traversed with the plumb bob on May 27 after the thimble had been removed. Although the operation of the plumb bob equipment was unsatisfactory, the results obtained were in fair qualitative agreement with the results obtained on horizontal outward bowing of three process tubes near the far side of the pile. No further work with the plumb bob is contemplated.

Information regarding sidewise expansion of the graphite in the D and F piles was obtained on May 28 and 29, respectively. Tube 4674 at F was traversed for vertical bowing on May 29. At each area the overall sidewise bowing is almost equal to the total vertical bowing, which in turn is essentially proportional to the accumulated operating time. The sidewise bowing is distributed more uniformly about the midplane at D and F than it is at B, but in all cases the far tube (2496) is bowed more than the near tube (2451).

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Technical Department

Opening No. 9 at D was borescoped on June 18 after the horizontal thimble had been removed. The longitudinal cracks which were observed in most of the graphite blocks which are located in the central portion of the pile and which carry process tubes are attributed to a more rapid rate of expansion of the graphite adjacent to the process tubes in consequence of the higher flux of fast neutrons in this region. No condition was observed in the hole to indicate the cause of distortion of the thimble.

During replacement of the neoprene seal at the top of the far side of the D Pile, it was observed that at most the outward motion of the far side shield was 3/4 inch. Inspection of the seal at the top of the near side at D indicated that the top of the near side shield had moved outward about 1/2 inch since the last inspection four months previous and that most of the slack in the near seal had been taken up during this time interval.

Tests with the 1500 lb. pneumatic jack have been completed on 11 tubes at B which were selected so as to give indications of conditions throughout the pile. Special accessories for the jack were used to measure movement of gun barrels and aluminum tube independently in order to determine whether the aluminum tube or gun barrels were binding. The front gun barrel of Tube 3671 was found to bind as it was moved in and out independently of the aluminum tube so that at the end of the test no movement could be obtained by a force of 1500 lbs. There was a slight binding action with Tube 4574 but it could be overcome by an increase in force of less than 200 lbs. The other 9 tubes tested did not bind when moved in and out. The aluminum tubes in the bottom of the unit could be moved freely with a force of about 5 lbs. while both gun barrels were held in the "in" position; the force required was found to increase to about 300 lbs. at higher levels in the pile.

The total clearance between the inner ends of the gun barrels and the packing was found to vary from one inch for two tubes near the bottom of the unit to 11/16 inch for several tubes in the upper half of the pile.

Further tests of binding of tubes and gun barrels are planned with a 5000 lb. capacity pneumatic jack.

200 AREAS

General

Material Balance

The overall material balance for June at T Plant was 95.3% and at B Plant was 99.4%; the overall 200 Area material balance was 97.5%. A further breakdown of these values shows the principal disappearance of product to be from the T Concentration Building. The balance across B Canyon is 98.6%; T Canyon - 98.5%; B Concentration Building - 99.7%; T Concentration Building - 94.3% and Isolation Building - 101.8%. Inclusion of material picked up in the T Canyon acid wash (now in progress) increases the material balance across T Canyon to 100.6%. A study of all aspects of the T Plant material balance is under way in an effort to determine and correct the low balance.

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Technical Department

Recovery of I^{131}

The stack gas monitoring equipment (292 Building) at B Plant has been taken over by the S Department for the purpose of recovering millicurie quantities of 8 day I^{131}. Several runs have been made in which the gas sample was scrubbed with 3% sodium carbonate solution, obtaining 6-8 millicuries of iodine per dissolving at a concentration of approximately 2.5 mc/liter of carbonate solution. A study of the equipment and arrangement is being made with the objective of increased quantity and concentration of the recovered iodine.

Recovery of Np^{237}

The extraction wastes from Run T-6-06-B-19 (Class C Metal) was processed as Run T-6-06-IP-1 for the recovery of Np^{237}. The procedure used was the same as that employed on T-6-03-IP-1. No difficulty was encountered with the neutralized decontamination wastes as these were heated to 60° before jetting to the 241-T Waste Area.

Canyon Buildings

Basis Assay (B)

Return to the use of Section 8 instead of Section 7 for the extraction step at B Canyon, made necessary by the failure of the underground waste line 9-1 to 241 has made possible the use of the 6-1-MR sample for the basis assay. Agreement between this value and that calculated from the 6-1-MR assay has been excellent, within 1%.

Class C Metal (T)

Class C Metal of approximately 500 grams/metric ton was made available for processing in T Plant beginning with Run T-6-06-B-13. As has been observed on previous processing of C metal, the extraction waste loss increased significantly from an average of approximately 0.75% to 2.5%. No satisfactory explanation of this phenomenon has yet been established.

Reduction in Skimming Heel (B and T)

A yield savings of approximately 0.6% has been demonstrated at T Canyon to result from skimming 13-2 to a 10-gallon instead of a 30-gallon heel, with no loss in the overall plant decontamination factor. With this background, the 13-2 centrifuge in B Canyon was replaced by one which could be skimmed to a 10-gallon heel. However, on the basis of the eleven runs made employing 10-gallon skimming, the reduction in waste loss has been only 0.2-0.4%, with very slight decrease in the Canyon decontamination factor. This indicates greater compacting of the precipitate in the B Canyon centrifuge and less transfer of "fuzz" to the oxidized product effluent. Investigation of the cause of this difference is underway.

Curtailed Use of Air Sparging (B and T)

Sparging of process solutions with air increases the amount of product and by-product activities discharged into the cell atmosphere. Because of the potential danger of canyon contamination resulting from removal of cell covers, as well as adding to the contamination on the ventilating fans,

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it has become desirable to curtail as much as possible the amount of air sparging employed throughout the process. Preliminary to a possible general reduction in the amount of sparging performed, a series of runs has been made in each plant comparing the effect of long sparging (present practice) and shortened sparging (approximately 20-30 min.) upon the uniformity of waste analyses. No significant differences in the waste values was observed and the short sparging period has been put into practice on one vessel in both Canyons. A program of systematic reduction of air sparging in other process vessels is in progress.

Underground Waste Lines (B)

The waste lines from Section 15, 10, 9 and 5 leave the B Canyon through the rear wall and then run parallel to the canyon, past the head end of the building, to the respective diversion boxes. Early in the month, a slight depression was observed in the grade behind the canyon, opposite Section 3. Approximately two weeks later, this depression changed to a cave-in, approximately 18 inches square and extending several feet into the ground. Radiation intensity over the hole was in excess of 4000 r/hr., with an intensity at the roof of the canyon of 500 mr/hr. Such intensity of gamma radiation suggested a leak in either the metal waste or first cycle waste line. Operations in the canyon were halted and a procedure of hydrostatically testing each line past the point of cave-in was undertaken. All lines were tested and found to be tight with the exception of the one from Tank 9-1 to 241 (metal waste line). Piping changes were made which permit the use of the spare Section 10 in place of Section 9. This change also necessitated a change in the extraction section from Section 7 to Section 8.

Concentration Buildings

F-10 Solution Precipitates and Reworking (B and T)

The F-10 solution (final product) from Run B-6-05-F-30 in B Plant contained solid material which was identified as being largely $LaPO_4$ and $BiPO_4$, caused by the presence of phosphoric acid in the nitric acid used for cake solution. This difficulty was identical with that experienced at T Plant the preceding month. A laboratory pilot run of the dissolving technique previously used at T Plant was carried out with a sample of the PR-container slurry and showed that solution was complete with less than 0.2% product on the trace of undissolved precipitate remaining. The F-10 slurry was returned to T Plant where it was re-worked satisfactorily by the procedure employed on the earlier T Plant Runs.

Master Recycle Runs (T)

Two master recycle runs were processed through the T Concentration Building; the first containing 56 lbs. of La and 160 g. of product; the second containing 51 lbs. of La and 136 g. of product. The LaF_3 by-product slurry was centrifuged in two portions, with a cake removal between centrifugings. Product losses and yields were normal on both runs.

Reduced KOH Metathesis Volume (B and T)

After determining the cause of the precipitate in the F-10 (final product) solution at T Plant to be due to the presence of phosphoric acid in the

[redacted]

nitric acid used for dissolving the metathesis cake and in no way associated with the reduction in the KOH metathesis volume, a return to the 30% volume reduction procedure was made. The performance duplicated that made previously under the same conditions. The 30% volume reduction process was therefore adopted at B Plant. There, however, difficulty has been encountered (15% of the runs) on removing completely the cake from E-2 Centrifuge. On these runs, up to the full volume of KOH and water were required to reduce the activity reading on the E-2 Beckman meter to the empty bowl background level. A new spray is being fabricated for installation in the E-2 bowl at B Plant on the assumption that the present spray is partially plugged. No difficulty has been experienced in removing the cake from the E-2 bowl at T Plant even with a 40% reduction in metathesis volume. A further reduction in metathesis volume from 70% to 60% at T Plant failed to result in any reduction in the F-7 waste losses and a return to the 70% volume process was therefore made. A reduction of approximately 0.2% in the F-7 waste loss has resulted from the reduction in metathesis volume.

Isolation Building

Weight of Product Recycled

The greater amount of product recycled from T Plant runs as compared to B Plant runs has continued and sufficient data have now been obtained from T Plant runs to which no recycle was added in the Concentration Building to rule out the possibility of the added recycle being the cause of this increase. This difference in weight of product recycled is still unexplained.

Oxalate Method of Handling Recycles

The desirability of eliminating the addition of potassium permanganate to the lanthanum oxalate-nitric acid mixture has been pointed out previously. In order to be able to do this, however, it is necessary to be able to obtain a representative sample of the recycle material by some other means. Increasing the weight of 60% nitric acid used for dissolving the lanthanum oxalate cake held promise, but failed to result in complete solution, with a resultant low and erratic estimation of the amount of product in the recycle. For satisfactory sampling and analysis of the recycle, it is probably necessary to destroy the greater portion of the oxalate with permanganate. It might be sufficient to add solid $KMnO_4$ equivalent to 80 or 90% of the oxalate and eliminate the final titration to an end-point with dilute permanganate solution. This should necessitate very little change in the recycle oxidation procedure at the Concentration Building and eliminate most of the MnO_2 "crud" from the recycled solution.

Insoluble Material in Shipping Cans

All shipping cans returned from the customer are rinsed with 6% nitric acid and the rinse assayed for product. Recently, the question was raised concerning the possibility of discarding acid insoluble product carrying material in these rinses. To check this, the weights of 20 cans were obtained before cleaning, the cans inspected visually and the rinse assayed. The returned cans averaged about 0.1 grams heavier than before shipment and contained a slight amount of liquid. No indication of appreciable crud or product has been found. Composited rinsing from about 125 returned cans contained about 1 gram of product.

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300 AREA

Extrusion

Billet groupings were prepared for the June billet shipment. As reported in MSA analyses, all billets were acceptable. A statistically significant difference was noted again between the billet densities of the type E and type F material, E ave. = 18.979 gm/cc versus F ave. = 18.952 gm/cc, and based on previous experience it is to be expected that this difference in density will be reflected in a lower slug weight and lower 305 test pile reactivity for the type F material.

305 Test Pile

On June 14, 305 tests of 34 stringers of type F material representing approximately 4000 canned slugs were low, the average dih being -0.47 whereas the lower control limit is -0.29. Moreover, a statistical comparison of test data accumulated since January 1, on types E and F material, indicated that there was a statistically significant difference between type E, dih ave. = -0.1283, and type F material, dih ave. = -0.2546, in 305 tests. A production test has been prepared to determine the cause or causes for the difference in 305 test results between types E and F material. Thus far, it has not been possible to prove statistically that weight difference is the major cause for the difference in 305 test results.

UM Material - Mercury Impurity (P.T. 314-38-M)

Some 69 slugs obtained from 5 UM billets containing a reported 50-100 ppm of mercury have been processed in 300 area operations. The 305 test pile yielded an average dih = -0.46 whereas the control limit is dih = -0.29, and a high pickle reject figure, 14.5%, was observed. This material has been rejected for use in the piles and will be returned for chemical recovery.

Canning

Bronze Flux Recovery

A molten flux concentration process was run for a period of two weeks to determine the effectiveness of this method of concentrating uranium in a flux layer. The flux residue from the bronze pots was remelted, allowed to settle in the molten state, and the layers that stratified were extracted.

The top layer of flux comprising 32% of the charge was found to be essentially pure flux with a melting point differing from that of virgin flux by 34°F. Uranium concentration in this layer was 0.3%. The intermediate layer, comprising 24% of the charge, contained 7-10% uranium. The bottom layer, comprising 44% of the charge, was bronze with a uranium content of 0.3%.

Special Requests

During the past month the following Special Request pieces were canned, bubble tested, and delivered to the 100 Areas; two pieces of Request 9-2 (added to the 6 already canned), 17 pieces of Request 15-1 (reduced in diameter from 1.370 inches to 1.362 inches to fit in standard "B" cans, but two more of these R-15-1 samples developed leaks in the weld as a result of this reduction in diameter and were returned to the sender), Request 25-2, and 25-3. In addition, Request 25-1 and Request 19 were canned but have not yet been delivered to the 100 Areas. Request 20 was found, upon bubble testing, to have a leak in the closure and was returned to the sender. [redacted]

Production Test 313-78-M (Evaluation of Slug Dimensions)

This production test has been completed and a final report is being prepared.

Production Test 313-77-M (Preparation of Borderline Acceptable Material for Evaluation in Piles)

Approximately 120 pieces of MZ material weighing less than 7.80 lbs. were satisfactorily canned on June 24, and 120 pieces of borderline acceptable material after pickle were canned on June 25. All the material expected to be used in the pursuit of this test has not been collected except the group of 120 pieces weighing 7.88 lbs. or greater. There seems to be little hope that this quota may be collected before the remaining parts of the test have been completed, due to downward trend in density of raw material.

Production Test 313-79-M (Factors in Canning Materials Relating to Reactivity)

This production test is currently in progress. The effect of the following ions as impurities in the flux have been tested on a laboratory scale: SO_4^{--}, SO_3^{--}, PO_4^{---}, CO_3^{--}, and NO_3^{-}. It has been found that all these ions except PO_4^{---} and NO_3^{-} produce an increased loss of uranium when the latter is dipped into flux containing the ion in question in comparatively low concentrations (up to 0.1% as the sodium salt). PO_4^{---} and NO_3^{-}, however, appear to have an inhibiting action on the weight loss. The effect on wettability of the slug in the presence of these ions has not been investigated.

Test to Establish Standards for Solidity in SX Materials (Request 24)

During the course of preparation of material for SX slugs (Request 24), it was observed that large pipes and pits were present in some of the slugs as turned. It was further observed that following pickling, some of the pickle and rinse liquids were entrapped in these pits and during the course of drying appeared as weeping at the site of the defect. The question arose as to what detrimental effects might be expected from canning slugs containing such defects. Accordingly, the following test was outlined and put into effect:

1) On May 24, a number of MZ pieces showing evidence of pipes and pits following pickle were dried on the rack in the normal manner, following which they were canned in standard "B" cans in the "B" press and were welded using the standard "B" procedure. Fourteen pieces were all that could be satisfactorily welded out of 57 such pieces canned. Ten of these fourteen were placed in a muffle furnace at 300°C to be left there until all was in readiness to proceed with Request 24 and the remaining four were held out at room temperature. At the end of the fourteenth day, it was observed that the cap was displaced on one of the ten pieces in the furnace, and on the sixteenth day, two pieces were found to be completely ruptured, and the base metal badly disintegrated. Examination of the remaining pieces in this group showed that three more were badly bulged, though there was no sign of rupture of the outer can wall. These three pieces were mechanically stripped, and the component parts examined. Two were found to be bulged because of presence of gas on the inside, while the other apparently had had sufficient gas pressure to break the weld bead permitting entrance of air, and oxidation and swelling had begun at one point on the end of the slug. The remaining five pieces were returned to the furnace at 300°C and were thereafter examined daily for evidence of further changes in dimensions. On the twenty-third day following the initial loading of these pieces in the furnace, one more of the remaining five pieces was found to be appreciably bulged. This piece is being held for further investigation.

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2) On June 12, some additional test pieces were prepared, as follows:

a) Six pieces, visually sound after pickle, to be dried in the normal manner on the drying rack, canned, welded, bubble tested, and four of them to be placed in the muffle furnace at 300°C; two to be set aside at room temperature.

b) Six borderline acceptable pieces to be treated in a manner exactly similar to those of item (a).

c) Six visually sound pieces to be degreased only, and without pickling, to be canned, welded, bubble tested, and four of them placed in the furnace at 300°C, two to be placed at room temperature.

d) Six pieces showing borderline acceptable defects prior to pickle to be treated in a manner exactly similar to those described in item (c).

e) Six visually sound pieces to be pickled in a normal manner, dried thoroughly on the drying rack, and placed overnight in a vacuum desiccator following which they are to be removed, canned, welded, and bubble tested, four of them to be placed in a muffle furnace at 300°C, two at room temperature.

f) Six borderline acceptable pieces, after pickle, to be treated in a manner exactly similar to those described in item (e).

Forty hours after these new test pieces had been loaded in the furnace, one piece of item (b) (borderline acceptable, pickled, dried on rack only) was found to have developed a bulge. Subsequent bubble testing showed no leak in the jacket. The piece was returned to the furnace at 300°C. One piece of item (d) (borderline acceptable, degreased only, not pickled) developed a bulge five days after placing it in the furnace at 300°C.

In an attempt to determine the type of gas that is being generated within the jackets of these canned pieces, an apparatus is being designed to collect and make a spectrum analysis of the gas.

Solution Rate of Al in Al-Si vs. Si Percent and Temperature

Results of this study indicate that all Al-Si baths from about 10% to 12% Si are equivalent in all respects at a given temperature above the liquidus temperature corresponding to the composition. Hence, the use of high Si melt to balance dragout and preferential Si loss during operation is quite unnecessary. Exactly equivalent results would be obtained by raising the bath temperature in appropriate increments throughout the day. A trial on a production line is in progress. Only standardized Al-Si is being added to the canning pot, and the temperature is being increased slightly (total 2°C) at intervals.

Canning results during one week of operation as outlined were substantially normal. Temperature adjustment was simpler than the former composition adjustment, and it appears to offer less possibility of trouble. The trial is being continued.

In addition to the above, sudden dilution of Al-Si by solution of can wall in the can (hence simultaneous if not immediate wetting of most of the interior can surface) was shown to be important in avoiding penetration.

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Thermal Analysis of Bronze

Several cooling curves have been drawn from data obtained from bronzes of carefully determined composition. From these, the indicated liquidus-solidus spread (above 47% Cu) vs. composition is such that adequate accuracy can be expected. A working method should be ready within one month.

Fate of Sn-U Compounds in Al-Si

Addition of pulverized compound to Al-Si baths caused excessive loss of compound by oxidation; addition of massive compound meant use of material without precise knowledge of composition, and very low reaction rates at normal bath temperatures. Both modes of addition gave negative results insofar as release of free tin by Si replacement is concerned. Some replacement apparently occurs at higher temperatures (850°C), but the same reaction may not occur at all at operating temperatures, even under the ideal conditions in which uranium compounds are added to the Al-Si bath in operation. More effective means of making quantitative additions of compound to Al-Si baths are being sought.

Blistered Slugs

Construction of a laboratory rolling mill was completed and several specimens prepared for the planned program of this study. A number of uranium specimens with varying thermal histories are to be reduced varying amounts. From these, samples will be cut with and across working direction and "bi-metal" assemblies made by mechanical bonding (riveting). It is planned to expose these in special capsule slugs and their behavior will be noted. Consistency of concavity, if any warp be produced, on sides with the same orientation will strongly indicate a relationship between non-random lattice orientation in slugs and slug blistering or warping in the piles.

LABORATORIES

Geometry Measurement

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

	May		June	
Laboratory	Geometry	No. of Tests	Geometry	No. of Tests
222-B	50.52	125	50.53	82
222-T	50.48	145	50.46	81
231	50.47	60	50.51	21

Chemical Assay Procedure

The accuracy of the chemical titration method used in the evaluation of plutonium in final product solutions from the Isolation Process (samples P-1 and AT) has been routinely checked by the analysts in the control laboratory using a standard Fe solution. Ninety-nine determinations were made during the month and the average result of 10.03 grams Fe per liter compared favorably with the true value of the solution - 10.04 g Fe/l. The precision of these determinations was not as good as expected since only 83% of the values agreed within ± 2% of the true value of 10.04 g Fe/l. Special attention has been given those analysts who obtained out-of-standard results and the further instruction is reflected

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by an increase in overall precision. This is noted below in a tabulation of the precision values obtained during the last four week period.

Period	No. of Analyses	Precision of Duplicate Measurements
1st week	29	± 4.4%
2nd week	20	± 1.7%
3rd week	17	± 1.7%
last week	28	± 1.9%

An additional check was made of the accuracy of the chemical titration method by comparing results obtained from the assay of a pure (non-isotopic) plutonium nitrate solution which was simultaneously assayed by alpha particle counting techniques. Four determinations were made by two chemists with the following results:

Counting	73.40 g. Pu/liter
Titration	73.85 g. Pu/liter
Difference	0.6%

The difference between the two values is within the range of the methods.

Routine duplicate determinations by the chemical titration procedure at each AT sample by the analysts in the Control Laboratory were continued during the month. Thirteen analysts made fifty-eight duplicate analyses giving an average range of all values of 0.6%. This compares to a value of 1.8% obtained under similar conditions in May, 1946. During the two months period (May-June) an average range of 0.9% was obtained from 123 duplicate determinations. The range is calculated as the average of the percent difference between any two determinations made in duplicate. For the 13 analysts involved the lowest range was 0.3% and the highest 2.1%.

Routine assay of final plutonium solutions from the Isolation Process has been made as follows: two samples are received from the Plant and each is individually analyzed by one chemist using one titration assembly, the analyses being made simultaneously. Checking limits for the two analyses are ± 1.5%. This procedure does not allow the best use of facilities since two chemists and two titration assemblies are tied up when analyzing only one sample. Too, the conditions of this procedure are rather stringent in expecting two chemists, using independent samples and apparatus, to agree within close limits. Normal procedure would allow one chemist to make duplicate determinations on one sample using the same titration assembly. Duplicate results obtained in this manner (as shown under item 3 above) show good agreement and precision.

To make certain that each shift had a chemist whose technique was thoroughly reliable, four chemists were given a refresher training course in the titration procedure. Each man made a thorough review of the steps in the procedure and the use of the apparatus. The training was in charge of a chemist not connected with routine control and who is a specialist in the chemical titration technique as applied to plutonium assay. Each chemist made a series of analyses on both P-1 and A^T samples, the results of which are as follows: (values are in grams Pu per liter).

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Technical Department

Chemist	A		B		C		D*	
Test	P-1	AT	P-1	AT	P-1	AT	P-1	AT
1	12.02	260.12	12.05	264.02	10.58	267.30		262.14
2	12.05	260.14	12.09	262.50	10.48	262.30		261.95
3	11.83	260.76	11.98	262.09		267.16		
4		261.16	12.20	263.02		267.04		
5		261.33		262.07		265.66		
6		260.64		263.66				
Ave.	11.97	260.78	12.08	262.90	10.53	265.99		262.05
Range	1.7%	0.7%	1.8%	0.7%	0.9%	1.7%		0.1%

(*) Data incomplete at this time.

The results of these data indicate that by following carefully the standard procedure, the duplicate results of one chemist are adequate.

Standard 8-1-MR Sample

The starting solution (sample 8-1-MR) for the Separations Process is routinely analyzed by the respective Control Laboratory serving the two plant areas - B and T. This solution is routinely sampled in duplicate, the Laboratory preparing a dilution from each sample and each dilution analyzed in duplicate by two analysts. This solution is evaluated for plutonium content by the standard LaF_3 precipitation and alpha particle counting techniques. In order to check the accuracy of this assay, a standard sample, simulating this process solution, was prepared and tested by the two control laboratories.

The plutonium solution used in preparing this standard was carefully analyzed by acceptable counting techniques and was evaluated at 2.066×10^6 counts per minute per milliliter. The precision of this value was found to be $\pm$ 0.18%. To this solution was added the proper amounts of uranium, nitric acid and sulfuric acid to make it equivalent to the concentrations in the plant starting solution.

Fifteen analysts (8 in the B-Plant Laboratory and 7 in the T-Plant) analyzed this standard solution, each analyst making four determinations. The following tabulation indicates the results obtained:

Laboratory	No. Tests	Average c/m/ml.	Range c/m/ml.
222-B	32	2.03×10^6	2.01 to 2.05×10^6
222-T	28	2.03×10^6	2.00 to 2.06×10^6

The value of 2.03×10^6 c/m/ml. indicates a 98.3% recovery based on the standard value of 2.066 c/m/ml.

Revised Chemical Assay Procedure

As previously planned, changes in the procedure and the apparatus effecting the chemical titration assay of plutonium nitrate solutions have been completed and tested. The test data indicate an improvement in the precision of the measurement. The basic changes involved (1) an increase in sample size from 0.01 ml. to 0.025 ml. and (2) a decrease in the strength (normality) of the standard

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ceric sulfate solution from 0.2N to 0.05N. The former made necessary an increase in the size of the displacement stirring device in the reaction vessel to insure adequate stirring. The latter required a micro burette and dispensing mechanism which would deliver about 1.0 ml. of reagent.

Using the revised procedure and apparatus (0.025 ml. sample (AT), 0.05N ceric sulfate and 1.0 ml. micro burette) four test runs were made in duplicate with the following results: (values in grams Pu/liter).

Test	1	2	Range
1	266.94	267.24	0.1%
2	267.55	267.74	0.1%
3	269.34	269.91	0.2%
4	268.72	267.81	0.3%

Effective June 25, 1946, the revised procedure and apparatus were placed in routine use in the Isolation Process Control Laboratory (231) for assay of both P-1 and AT samples. Routine samples are being analyzed by one chemist in duplicate using one titration apparatus.

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POWER DEPARTMENT

JUNE 1946

GENERAL

The Power Department force was reduced approximately 1% due to transfers and terminations.

100 AREAS

A review of the inspection and maintenance schedules covering the power equipment in all 100 Areas, based on the experience gained during the past two years, has resulted in a revision of the schedules that should materially reduce maintenance costs.

On June 6, an electrical power interruption of two minutes duration occurred which affected the B Area. Water to the pile was not interrupted since steam-driven pumps only are in use on process water service in this area.

It was necessary to repair cracked water separation baffles in the No. 1 condensers of the refrigeration units in both D and F Areas. All other condensers will be inspected to ascertain if similar cracks are existent.

On June 13, a fan blade in the roof ventilating unit over the pump room in the Filter Plant in D Area failed. A large portion of the fan blade dropped to the floor below. No injury occurred due to the failure, but because of the apparent hazard of the equipment, a program of inspection and proper safeguarding has been set up.

200 AREAS

On May 30, during a scheduled shutdown of the 225 lb. main steam line in East Area, repairs were made to a leak in the 4" steam supply to the Reservoir Pump House. Steam was off the line from 6:30 a.m. to 3:45 p.m.

On May 28, from 8:32 a.m. to 9:55 a.m., a scheduled electrical shutdown required curtailment of Power Department equipment; limiting service to the steam-driven pumps in both areas and emergency generators in the West Area. On June 6, between 8:23 a.m. and 10:49 a.m., a similar condition existed except that it was necessary to operate the emergency generators in both areas.

300 AREA

Operations were normal.

700-1100 AREAS

On June 12, a leak developed in a tube of the No. 2 boiler of the Heating Plant due to the effect of impingement of the steam from the soot blower. A replacement of the tube was made and the soot blower are adjusted.

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Approximately two hundred feet of new 10" standard pipe was installed north of Stores Building in 700 Area. This replaces defective spiral welded pipe.

A wire fence was erected around the base of the No. 1 Village high storage tank as a safety precaution against injury to local children who previously were observed climbing on the tank supports and ladder.

During the period of high Columbia and Yakima River stages, a protective dyke was built to safeguard the lower levels of the Sewage Disposal Plant from flooding. Although the dyke was built as an emergency measure it will be retained as a future protection.

The consumers' water well fields were flooded and drained on three occasions during the month as a means of permitting treatment of the field by the mosquito control group. No adverse replenishment effect was observed because of this interruption to the underground reservoir supply.

84,500 gallons of digested sludge was removed from the Sewage Disposal Plant
2 by the outside contractor.

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POWER DEPARTMENT STATISTICS

(May 26 through June 25, Inclusive)

	Unit		100 Areas		
			100-B	100-D	100-F
River Pump House (Building 181)					
River Stage	Ft. above sea level	(max.	407.3	395.8	382.8
		(min.	404.6	393.4	380.3
		(ave.	406.0	394.6	381.6
River Temperature	Ave. ° F		56.9	55.6	54.7
Water Pumped to Reservoir	gpm ave. rate		13884	38905	38455
Water Pumped to Refrigeration Plant (condenser water)	gpm ave. rate		--	10898	16093
Reservoir Building (182)					
Water Pumped to Filter Plant	gpm ave. rate		10871	32887	33929
Water Pumped to Export System	gpm ave. rate		2348	2308	562
Water Pumped to Condenser System	gpm ave. rate		665	3710	3964
Chlorine Added at No. 1 Inlet	lb.		--	5009	2910
Water Pumped to Export System	gpm normal flow		5218	5213	5218
Filter Plant (Building 183)					
Filtered Water to Power House	gpm ave. rate		58	281	236
Filtered Water to Process	gpm ave. rate		4389	29195	30581
Filtered Water to Fire & Sanitary	gpm ave. rate		93	155	189
Chlorine Used in Water Treatment	lb.		3421	8491	11360
	ppm ave.		.84	.69	.90
Lime Used in Water Treatment	lb.		41045	121000	88100
	ppm ave.		10.1	9.9	7.0
Ferrifloc Used in Water Treatment	lb.		108978	405000	316670
	ppm ave.		26.9	33.0	25.7
Carbon Used in Water Treatment	lb.		--	--	--
	ppm ave.		--	--	--
Raw Water Analysis	pH ave.		8.21	8.00	8.[illegible]
Finished Water Analysis	pH ave.		no analysis	7.27	7.[illegible]
Alkalinity - M. O. Raw	ppm ave.		55	54	52
Alkalinity - M. O. Finished	ppm ave.		49	45	50
Residual Chlorine - Settled	ppm ave.		.78	.31	.57
Residual Chlorine - Finished	ppm ave.		.07	.17	.07
Iron - Raw	ppm ave.		.22	.31	.28
Iron - N. Clearwell	ppm ave.		.005	.01	.01
Iron - S. Clearwell	ppm ave.		.01	.01	.01
Chlorides - Filtered Water	ppm ave.		1.35	1.29	1.10
Hardness - Finished Water	ppm ave.		70	69	66
Turbidity - Raw Water	ppm ave.		12.4	10.3	13.0.
Turbidity of Filtered Water	ppm ave.		00.0	00.0	00.0
Refrigeration (Building 189)					
Refrigeration Produced	tons/day		--	5822	6131
Temperature Process Water In	ave. ° F		--	57.2	57.7
Temperature Process Water Out	ave. ° F		--	47.48	45.5

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Power Department Statistics (Continued)

	Unit		100 Areas		
			100-B	100-D	100-F
Power House (Building 184)					
Steam Generated - Total	M lb.		19291	93063	88274
Steam Generated - Ave. Rate	lb./hr.		25929	125085	118648
225# Steam to Plant (est.)	M lb.		16397	78982	75003
15# Steam to Plant (est.)	M lb.		—	122	110
Coal Consumed (est.)	Tons		1556	7380	6690
Coal in Storage (est.)	Tons		16867	18129	13947
Deaerator Plant (Building 185)					
Water Flow (ave.)	gpm		4139	28945	30331
Chemicals Consumed:					
Dichromate	lb.		6100	23800	23800
Sodium Silicate	lb.		44030	304760	336080
Chemical Analysis:					
pH	pH		7.84	7.66	7.6
Dichromate	ppm		no analysis	2.0	2.0
Silica	ppm		" "	8.8	7.9
Dissolved Iron	ppm		.024	.013	.0
Process Pump Room (Building 190)					
Total Water Pumped	gpm ave.		4089	28695	30184
Water Temperature	ave. °F		59.7	54.7	52.3
Total Water Pumped	gpm normal flow		4089	32179	31344
Valve Pit (Building 105)					
Chemicals Consumed:					
Lime	lb.		none	none	none
Hydrogen Peroxide	lb.		none	none	none
Oxalic Acid	lb.		none	none	none
Solids	lb.		none	4500	1800
Chemical Analysis:					
A, B, C & D Headers Standard Limits					
pH 7.5-7.8		(max.	7.75	7.70	7.7
		(min.	7.55	7.60	7.6
		(ave.	7.64	7.64	7.6
SiO_2	ppm	(max.	9.3	11.0	9.5
		(min.	5.0	7.0	5.5
		(ave.	7.4	8.8	8.0
$Na_2Cr_2O_7 \cdot 2H_2O$ 1.8-2.2	ppm	(max.	2.4	2.2	2.2
		(min.	1.9	1.9	1.9
		(ave.	2.1	2.0	2.0
Iron	ppm	(max.	.05	.02	.0
		(min.	.005	.005	.0
		(ave.	.03	.008	.0
Free Chlorine as Cl_2	ppm ave.		.06	.13	.1

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Power Department Statistics (Continued)

	Unit	200 Areas	
		200-E	200-W
Reservoir (Building 282)			
Raw Water Pumped	gpm. ave. rate	2630	2566
Filter Plant (Building 2 83)			
Filtered Water Pumped	gpm. ave. rate	389	391
Chlorine Consumed	lb.	420	272
Alum Consumed	lb.	3800	3500
Chlorine Residual-Sanitary Water	ppm.	.49	.55
Power House (Building 284)			
Steam Generated - Total	M lb.	17574	21103
Steam Generated - Ave. Rate	lb./hr.	23621	28364
Coal Consumed (est.)	tons	1177	1539
Coal in Storage (est.)	tons	4349	4069

		300, 700, 1100 Areas		
		300	700	1100
Power House (Buildings 384 and 784)				
Steam Generated - Total	M lb.	4768000	8949000	
Steam Generated - Ave. Rate	lb./hr.	6409	12028	
Coal Consumed (est.)	tons	367.5	699	
Coal in Storage (est.)	tons	389.5	2017.5	
Sanitary and Fire System (1100)				
Well Water Pumped - Total	gal.			141753000
Well Water Per Day	gal.			4573000
Well Water	gpm. ave. rate			3176
Chlorine Residual	ppm			0.2
Sewage Treatment Plant (1100 Area)				
Total Treated	gal.			50100000
Treated Per Day	gal.			1616000
Ave. Rate	gal.			1122

Note: Only water and steam flows metered are (1) Water to Filter Plants, (2) Water to Piles, and (3) steam from Boilers. Other figures are best estimates.

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MAINTENANCE DEPARTMENT

JUNE 1946

GENERAL

The backlog of Maintenance work has increased approximately 12% during the month, while the total force has been reduced approximately 1%.

Work Order Summary:

Area	Work on Hand May 25		Work Completed in June		Work on Hand June 25	
	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
100-B	98	202	165	271	64	135
100-D	55	232	238	558	65	172
100-F	91	201	153	293	86	244
100 Shops	67	454	220	893	67	911
200-E	151	447	432	865	151	464
200-W	275	909	499	1342	292	985
300	159	515	213	551	174	484
700-1100	640	2325	972	3216	687	2544
Totals	1536	5285	2892	7989	1586	5939

100 AREAS

The No. 27 vertical thimble in the B Pile Unit was replaced following completion of packing studies conducted by the Technical Department.

Two cracks were repaired by welding on the elbow of the stainless steel downcomer on B Pile Unit. The cracks were located on the east and west sides of the elbow where there is a baffle welded to the inside wall of the downcomer pipe.

The exposed portion of the Neoprene seal on the top of the B Pile Unit on the far side was replaced with a wider strip of Neoprene. The ends were cemented to the remaining old seal to retain continuous seal. This same repair was made on D Pile Unit.

The D elevator in the D Pile Building was found to be .8" low on the south side and was raised accordingly. This may account for the excessive wear on the south guide rail.

The No. 2 horizontal rod on the D Pile Unit showed evidence of binding when actuated by hand. An inspection revealed no apparent mechanical defects. The thimble will be borescoped.

Extensive repairs were made to the rubber lining in the discharge chute of D Pile Unit. The rubber was refastened to the concrete by cinch anchors. Four new mattress plate extensions were installed.

DECLASSIFIED
1224335

Water tube No. 2692 was removed from D Pile Unit and replaced with a new tube. The old tube was removed by pushing it from the front of the unit and cutting off 2' lengths with a flame cutter mounted on the nozzle of the rear face, allowing the cut off lengths to fall into the storage basin.

The No. 9 horizontal thimble was removed from the D Pile Unit and a new one installed. It was necessary to remove the plug and to install a spare. After replacement, the control rod functioned satisfactorily.

The No. 8 electrically-driven exhaust fan in the F Pile Building developed excessive vibration. A new inboard bearing and new drive belts corrected this condition.

The hot well sewer under the pump room floor in the F Process Pump House was inspected for leaks. The floor slab has settled about 2". Leaks were discovered and repairs made in the concrete junction boxes under the No. 9 and No. 11 hot wells. A grout is to be pumped under the floor.

The cooler blower and turbine in the D Gas Purification Building were inspected and cleaned. The rotating parts showed very little wear. A scheduled overhaul was completed on the steam-driven air compressor in this building. Necessary repairs were made to the piston rod, rings, valves and seals.

The joints of the vertical flume walls in the B Retention Basin were caulked with lead wool and sealed with cement. Checks will be continued to determine the amount of leakage.

An inspection of the refrigeration unit condensers in D Refrigeration Plant revealed clogging of water tubes. The baffle on the water inlet and outlet end of No. 1 condenser was cracked. Repairs included a stiffening leg installed in each condenser to add to the support of the center span of the baffle. The clogging of tubes was due to debris from the river which is at flood stage. The No. 1 refrigeration unit condenser in the F Refrigeration Plant failed in the same manner as the one in D. Similar repairs were made.

As a result of a hot bearing on No. 2 refrigeration unit gear increaser in the F Refrigeration Plant, all bearings, gears, etc. were inspected and oil lines cleaned. A hard residue resembling paint scale was removed from the oil system. Bearing temperatures are again normal.

In D Area Filter Plant pump room, blades from a vertical ceiling ventilating fan fell to the floor due to failure of rivets fastening the blades to the hub. No injury resulted, however more frequent inspection will be made in the future and wire mesh screens will be installed below the fan to prevent a similar recurrence.

200 AREAS

A shop fabricated air filter was installed on each of the 75-ton cranes in T and B Canyon Buildings to further clean the air supply to the cabs.

Discs on gang valves in the T Canyon Building have been completely replaced
2 with fibre discs supplied by Crane and Jenkins Companies.

[redacted]

1224336

Repairs to sewer lines in the B and T Canyon Buildings continues by installing Knight Ware tile.

Gang valve assemblies in B Canyon Building have all been inspected and new discs and springs installed where required.

A leak developed in the metal waste line from the B Canyon Building to Waste Storage. All waste lines were tested with 125 pound water pressure. A spare line was placed in service.

The stainless steel Barco joints at T Canyon Tank Farm have been backwelded at all joints to stop leaks developed through the galling of threads.

The leak previously reported in the 24" tile waste water line in East Area was finally corrected by caulking from the inside with red acid putty, and then coating with hot tar and roofing cement.

The shafts on raw water pumps Nos. 1 and 2 at the West Reservoir Pump House were metallized and refitted after inspection disclosed them to be badly scored.

The unit heaters in both East and West Power Houses have been inspected and replacement elements ordered for those that are in poor condition.

All painting requested in the Metal Storage Basin Building was completed during the month.

300 AREA

Routine overhauls were made on 15 furnaces in the Metal Fabrication Building during the past month. One new crucible was installed in each of 13 furnaces and two in each of two furnaces. Pedestals were replaced in 6 furnaces and new steel rings placed on 4 furnaces. The top row of bricks were replaced in one furnace and all brick work was replaced in another furnace.

The hydraulic press for chip recovery in the Metal Fabrication Building is being overhauled completely. The ram is being turned down and the vertical standards machined. Babbitted shoes are being replaced with brass.

Two replacement outgassing containers are being fabricated for the Press Building.

A projecting billet in the rotary hearth furnace in the Press Building resulted in damage to elements and insulation which were repaired.

The lay-up work in the Cold Semi-Works Building is progressing slowly due to press of other work.

700-1100 AREAS

There were 101 houses renovated during the month and 86 orders are now on hand. Of these, 24 are for prefabs.

1224337

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Extensions were made to fences around three substations as a safety measure.

The swimming pool was repaired and placed into use.

Furniture repairs and assembly of new G.I. furniture continues as a major job.

The No. 4 York compressor in the Kadlec Hospital was completely overhauled.

Repairs were made to the 6" water line in two places near the Heating Plant and to the 10" line on Wellsian Way. Work is approximately 50 % complete on the replacement of the 10" line north of the Stores Building.

A fence was constructed around the No. 1 high water tank as a safety measure.

Disconnecting of prefabs for removal from the Project has been completed.

To date there have been 1296 prefabs spray-painted, of which 50% have been completed with trimming. Roofs of 220 prefabs have been painted with two coats of fire-resistant paint. Exterior painting on 112 permanent houses has been done.

PROJECT ENGINEERING

Projects - Work Completed in June

Proj. No.	Title	Estimated Cost
C-69	Section 12-L Jumpers	$ 2,100
C-80	Recycle Treatment	4,200
C-84	Prefabricated House, 1118 Willard, Fire Damage Repair	800
C-85	Additional Head Tank Cells, 1, 2, 3, and 4	1,400
	Total	$ 8,500

Projects Authorized and Under Construction

Project No.	Title	Percent Complete	Date Authorized	Estimated Cost
100 Areas				
C-29	Third Safety Device-Valve Replacement, Buildings 105-B, D, F	80	6-25-45	$ 7,500
C-54	Installation of Strainer in High Tank Water Lines to Buildings B, D, F	0	9-20-45	11,100
C-76	Pneumatic Charging Machines Buildings 105-B, D, F.	90	12-17-45	3,300
C-88	Installation of Ventilating Curtains Buildings 105-B, D, F	0	4-25-46	1,500

[redacted]

Maintenance Department

Project No.	Title	Percent Complete	Date Authorized	Estimated Cost
200 Areas				
C-40	Additions to Laundry Facilities Building 2723-W	80	4-12-46	$ 2,750
C-55	Sampler Clean-up Sink and Dryer Buildings 222 TUB	65	9-28-45	9,900
C-65	Alterations to 300 Sample Cans and Cases - Building 331	95	11-7-45	3,750
C-67	Dismantle T.C. Extra Machinery Storage 200-W & T.C. Pipe Warehouse 200-E	45	11-26-45	3,000
C-73	Process Waste Tie Lines from 241-T to 241-U and from 241-B to 241-C	98	12-17-45	22,350
C-77	Relocation of Monitoring Stations, 200-E & W, Parts I and II	90	12-17-45	3,180
C-90	Additional Solution Preparations Facilities	0	5-20-46	2,050
C-91	200-W Area Laundry-Building 2723 Ventilation	50	5-19-46	1,000
	Total			$ 47,980
300 Area				
C-70	Chip Reclamation Facilities-Bldg. 313	95	12-20-45	$ 28,000
	Total			$ 28,000
700-1100 Areas				
C-79	Braces for Laundry Trays	90	1-16-46	$ 4,800
C-82	Columbia High School Transformer Relocation	25	2-28-46	725
C-87	Telephone Cable-Moisture Proofing	85	4-22-46	1,950
C-89	Barber & Beauty Salon Water Softener	0	5-7-46	1,050
C-93	Time Office Hutment, Heating, Cooling and Lighting Alterations	0	6-12-46	1,800
C-94	Prefabricated House, 508 Smith, Fire Damage Repair	0	6-17-46	775
C-95	Richland Electric Appliance Shop Hutment Addition	0	6-12-46	1,300
	Total			$ 12,400
Plant General				
None				
Grand Total - Work in Progress				$111,780

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Engineering Studies

The following studies were completed and reports were issued:

Curtail Stocks-Personnel Protective Clothing and Equipment
JI Sheets-Test and Inspection of Unfired Pressure Vessels
Consolidation of Transportation Facilities
Temporary School Facilities
Study Air Conditioning System at C. C. Anderson and Style Center
Study of Air Conditioning System at Nursery

Studies in progress at month-end were:

Project Buses, Install Heaters and Defrosters
Locate 200-W Garage Facilities in Vacated Storeroom
Pamona Pump
Downcomer Surge Study
Graphite Expansion Committee Study
Repair Equipment for 291 Fans (Project being prepared)
Replacement Equipment for 291 Fans (Project being prepared)
Investigate Drive on 200-W Crane
Study Removal Tank 361 Sludge
By-Pass Connectors for Section 15
Select Suitable Scale for can Weighing
Arrangement for New Instruments in Crane Cab
Paint Standards
Transportation Department - JI Sheets Heavy Equipment
Field Lubrication Work Sheets 700-1100 Areas
Record of Work Performed in 100-B Area
Maintenance Department - Safety Meeting Topics
JI Sheets - Changing and Installing new Skimmers in Centrifuges
Cost Survey of Commercial Facilities
Review Maintenance Department Spare Parts, including Packing, Gaskets and Belting and suggested Spare Parts to be carried by the Stores.
Curtail Stocks - Fire and Safety Supplies Caption 903-13
6 Assist the Stores Department in inventory and classifying Stainless Steel

[redacted]

ELECTRICAL DEPARTMENT

JUNE 1946

GENERAL

Work Order Summary:

Area	Work on Hand May 25		Work Completed in June		Work on Hand June 25	
	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
100-B	35	107	54	120	33	135
100-D	41	199	80	343	43	164
100-F	22	140	48	247	33	129
200-E	60	203	77	333	58	206
200-W	85	320	91	311	78	247
300	38	103	47	136	54	103
700-1100	65	174	63	243	67	177
Distribution	117	756	135	862	122	706
Totals	463	2002	595	2595	488	1867

100 AREAS

A prolonged shutdown of the Pile Building (D Area) permitted extensive electrical work in addition to the usual routine. All vertical safety rod clutches were examined and greased. No. 33 VSR winch motor was replaced due to a defective clutch bearing. A.C. feed to all teletalks were connected through twist-lock plugs to facilitate removal of the instruments. "D" elevator cab rotation control was blocked to prevent rotation. This elevator was found to be 0.8" low on the south end and required leveling to reduce wear on the guide shoes. Oil circuit breakers for building services were overhauled and checked for correct operation.

Several installations in the power buildings were equipped with additional safety switches to comply with safety procedures for equipment maintenance.

On June 7, an error on the part of the substation operator caused a complete shutdown of the 100-B Area.

200 AREAS

Emphasis has been placed on inspection and routine maintenance of the substations and distribution systems of the 200 Areas during the past month. There were several planned shutdowns during which thorough inspections were made on switchgear, transformers, and primary feeders. The most noteworthy of the conditions found and corrected were (1) a low insulation resistance on feeder E8-L53 which was found to be due to a defective 2300 volt lightning arrester, and (2) a very loose connection on a terminal of the lighting transformer supplying the Concentration Building (224-B).

Special lighting and communication facilities were installed at the site of repair work on the broken pipeline from the Canyon Building (221-B).

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Annual tightening and inspection of hardware and guys on the pole structures for the entire 230 KV and 13.8 KV at Riverland systems were started. Inspections indicated that hardware tightened in 1945 is satisfactory, but work done in 1944 will have to be retightened. Annual inspection and adjustment of all 13.8 and 230 KV relays was completed in all primary substations.

300 AREA

On June 13, a billet was displaced from its saddle in the Rotary Hearth Furnace, Press Building, causing damage to the refractory blocks in Zone 6. The furnace was shut down and repaired.

A change was made in the method of sealing around the terminals of the Rotary Hearth Furnace to prevent the leakage of gas, which is still excessive. The new seal employs stainless steel pressure washers and asbestos rope.

There were no furnace failures this month.

700-1100 AREAS

A start has been made on the re-cataloging and indexing electrical spare parts in the 100, 200 and 300 Areas.

On June 11, 1946 at 6:32 P.M., there was an interruption of electrical service to the Kadlec Hospital of 58 minutes duration. The main building entrance fuses melted because of local heat caused by poor contact on one of the switch blades. The switch was repaired, and special fuse clamps employed to prevent a repetition of the trouble.

Relocation of transformers at Columbia High School (Project C-82) was started on June 24.

During a heavy wind storm on June 12, five poles were blown over or damaged on the 66 KV line between Hanford and the 300 Area. The 66 KV breaker No. 34 at Hanford was also damaged in interrupting the fault on the line. Breaker No. 94 and the station breaker have now been arranged for series operation with parallel controls for tripping faults.

Radio maintenance crews overhauled 38 two-way mobile radio sets, serviced 57 units, and installed seven two-way radio sets.

During the month, 147 telephone instruments were installed and 134 removed in the Village. In the Areas, 23 instruments were installed and 31 removed. Drop wiring and protectors were removed from 25 excessed prefabs.

As alarm contactors were installed on Project C-87, loop resistance measurements at 68°F were computed for future reference in locating cable trouble.

On June 3 and June 24, portions of the main trunk cables between Richland and the Areas were damaged by rifle bullets. Both were in the general vicinity of the
2 3000 Area.

Electrical Department

On June 17, moisture entered a cracked sleeve on the cable between the "BY" Tandem Station and Point "H" where the cable branches to the Areas, and placed one half of the trunk's facilities in this location out of service for 36 hours until the trouble could be located and repaired.

Procedures for routine maintenance of the telephone system are 80% complete.

POWER SUPPLY INTERRUPTIONS

Date	Area	Circuit Affected	TIME	Duration	Remarks
June 7	100-B	All of 100-B Area	10:08 AM	10:09 AM	Operator opened A-322 by mistake
June 9	Hanford	Ringold Line	9:30 AM	10:30 AM	Fuse D5-X8 blown
June 12	Hanford	All circuits at Hanford	7:22 AM	11:14 AM	Diff. relay, 2 ravens acr line at Whi Bluffs
June 13	Hanford	Hanford - White Bluffs	9:50 AM (6-13)	12:17 AM (6-14)	Trouble on 66 KV lines
June 13	Hanford	Hanford Substation	9:30 AM	11:20 AM	Diff. relay pole top fir at 101 Bldg.
June 14	Rivernita	13.8 & 6.9 KV - Rivernita	6-14-46	6-15-46	Cold storage roof caved i pulling over pole
June 15	Hanford	Hanford-White Bluffs-Pasco	7:45 PM	10:53 PM	Grnd. rela 66 KV bus fuse blown
June 21	200-W	E8-L8 to 241 Bldg.	1:15 PM	2:35 PM	Jumpers bur off temp. on inst.

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POWER STATISTICS - ELECTRICAL DEPARTMENT

FOR MONTH ENDING JUNE 25, 1946

ITEM	ENERGY - KWHRS May	ENERGY - KWHRS June	MAX. DEMAND - KW May	MAX. DEMAND - KW June	LOAD FACTOR - % May	LOAD FACTOR - % June	INCREASE OR DECREASE-% ENERGY	INCREASE OR DECREASE-% MAX. DEMAND
230 KV SYSTEM								
151 B Out	1590	1680	3800	3600	58.1	62.7	5.7	5.3 (d)
151 D Out	8800	10,250	15,800	17,600	77.4	78.3	16.5	11.4
151 F Out	7800	10,260	14,300	15,800	75.8	87.3	31.5	10.5
251 Out	1840	1800	3400	3200	75.2	75.6	2.2 (d)	5.9 (d)
TOTAL OUT	20,030	23,990	37,300**	40,200**	-	-	19.8	7.8
MIDWAY IN	20,556	24,219	35,600*	38,400*	80.2	84.8	17.8	7.9
Transm. Loss	526	229	-	-	-	-	-	-
Percent Loss	2.6	0.9	-	-	-	-	-	-
66 KV SYSTEM								
1151 A Out	1339	1134	4100	4100	45.3	37.2	15.3 (d)	-
1151 B Out	1287	1154	3500	3500	51.1	44.3	10.3 (d)	-
751 A Out	1675	1651	3236	3063	71.9	72.4	1.4 (d)	5.3 (d)
351 A Out	215	206	474	408	63.7	67.8	5.5 (d)	13.9 (d)
351 B Out	254	218	1160	1140	30.4	25.7	14.2 (d)	1.7 (d)
Hanford Out	232	222	500	600	64.4	49.7	4.3 (d)	20.0
TOTAL OUT	5005	4585	12,970**	12,811**	-	-	8.4 (d)	1.2 (d)
Hanford In	232	222	500*	600*	64.4	49.7	4.3 (d)	20.0
Pasco In	4804	4381	12,400*	10,700*	53.8	55.0	8.8 (d)	13.7 (d)
TOTAL IN	5036	4603	12,900**	11,300**	54.2	54.7	8.6 (d)	12.4 (d)
Transm. Loss	31	18	-	-	-	-	-	-
Percent Loss	0.6	0.4	-	-	-	-	-	-
PROJECT TOTAL								
230 KV (Item 5)	20,030	23,990	37,300**	40,200**	-	-	19.8	7.8
66 KV (Item 15)	5005	4585	12,970**	12,811**	-	-	8.4 (d)	1.2 (d)
TOTAL OUT	25,035	28,575	50,270**	53,011**	-	-	14.1	5.5
230 KV (Item 6)	20,556	24,219	35,600*	38,400*	80.2	84.8	17.8	7.9
66 KV (Item 18)	5036	4603	12,900**	11,300**	54.2	54.7	8.6 (d)	12.4 (d)
TOTAL IN	25,592	28,822	45,200*	46,600*	78.6	83.1	12.6	3.1
Transm. Loss	457	242	-	-	-	-	-	-
Percent Loss	1.8	0.8	-	-	-	-	-	-

* Coincidental Demand
** Non-Coincidental Demand
(d) Denotes decrease

Average Power Factor - 230 KV System--99.3%
Average Power Factor - 66 KV System--93.9%

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INSTRUMENT DEPARTMENT

JUNE 1946

GENERAL

Work received in June was 5% less than that received in May.

Work Order Summary:

Area	Work on Hand May 25		Work Completed in June		Work on Hand June 25	
	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
100-B	41	54	64	138	39	69
100-D	49	144	105	370	51	125
100-F	50	163	87	320	52	174
200-E	45	122	183	271	35	125
200-W	51	86	239	288	58	87
300	60	241	93	339	61	274
700	46	111	82	170	34	80
Totals	342	921	853	1896	330	934

100 AREAS

Measurements of bowing of process tubes, using a transit and illuminated scale, have been completed except for certain tubes which are to be re-surveyed periodically. Experimental measurements, using bonded wire strain gauges, are now being made on bowing of tubes and on strain in the "gun barrels". Plumb bobs, for indicating displacement of the pile shield, have been revised to provide more accurate readings.

Five Ring Balance flow-meters were obtained from Hanford to assist the Power Department in measuring steam distribution to various buildings in the 100 Areas.

The graphite stringer in hole D of the 100-F Pile was removed and replaced by a new arrangement of graphite. Details of the new arrangement was recorded in the 100 Area Instrument Engineer's report for this month.

200 AREAS

Integrons and recorders were installed in the Monitor Stations near the Control Laboratory and Concentration Building in the T Plant. An additional installation on top of the Separation Plant awaits electrical power wiring.

All "Poppy" instruments in the Isolation Building were equipped with a vernier adjustment of high voltage. This aids adjustment to a plateau which is usually very narrow on these instruments.

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300 AREA

A machine for making up film packets for finger monitoring has been built for the Health Instrument Section. It operates pneumatically and seals small photographic film disks between short lengths of rubber tape.

A borescope mounting with a micrometer measuring device is being constructed for measuring elongation of 100 Area process tubes.

700 AREA

Installation of thin windows on Integrons, to be used in the 614 Monitor Buildings has been completed. Twenty-five units are in service with four spares.

[redacted]

HW-7-43436
[redacted]

PROTECTION DEPARTMENT

JUNE 1946

PATROL DIVISION

General

Labor turnover in the Patrol Division was 0.45% during June.

Plant Areas

Eleven Special Duty escorts were handled.

Requests handled totalled 1014, mainly consisting of escorts, opening doors and gates for employes of other departments.

A total of 179 Unusual Incident Reports was received, which consisted mainly of unlocked and open doors, windows and files, and traffic violations.

The responsibility of issuing class "B" and "C" Temporary Badges and Pencils during the first shift and the lunch period of the H.I. Group was assumed by the 200 East Area on May 30. These duties, including temporary class "A" Badges, were assumed by the 100-B Area on all shifts as of June 3.

Practice evacuations were held in the 100-D Area on June 6, 100-B Area on June 19 and in the 100-F Area on June 21.

Training

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

	May		June	
	No.	Percent	No.	Percent
Unqualified	32	11	26	8
Marksman	102	34	107	34
Sharpshooter	62	20	70	23
Expert	104	35	110	35
Totals	300	100	313	100

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

High Team Average	$276^{1}/_{5}$	Richland
High Area Average	$250^{19}/_{44}$	Richland
High Individual Score	289	100-F & 200-W (tie)

The tie for High Individual Score will be shot off as soon as possible.

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

	January		June	
	No.	Percent	No.	Percent
Unqualified	40	11	33	9
Marksman	38	11	37	10
Sharpshooter	86	23	82	22
Expert	202	55	210	59
Totals	366	100	362	100

The Machine Gun Course had not been conducted since January 1946.

Richland Area

	May	June
Check on absentees	3	3
*Persons assisted	235	205
Doors and windows found open in commercial facilities	37	11
Lost children found	17	8
Ambulance runs	37	41
Lost dogs reported	5	4
Dog and cat complaints	34	27
Persons injured by dogs	17	10
Totals	385	309

*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 DIVISION

General

A new procedure covering access into the "U" Canyon and Concentration Buildings Area and the removal of material from the area, was established on June 10, 1946, as an aid in maintaining the area in a proper standby condition.

[redacted]

1224348

Special passes authorized by the "S" Department supervision are now required for access into the "fenced in" area. In addition, special passes authorized jointly by the "S" Department supervision and the supervision of the department desiring to remove material from the area, are required for the removal of any type of material or equipment from the area.

Security Education

Security Bulletin No. 16, entitled, "Safeguarding Blueprints" was issued under the date of June 25, 1946.

Security Bulletin No. 17, entitled, "Area Badges - Contraband - Visitors" was issued under the date of June 25, 1946

Two jumbo type security billboards in the plant area, have been changed. The signs state "Protect Your Country's Secret."

A total of 263 Security Meetings were held and attended by 3553 employes throughout the entire plant and administration areas during the period of May 27, 1946 through June 26, 1946.

Plant Visitors

Name-Organization

Wilmington Office Personnel	Purpose of Visit	Access to Areas: Classified	Access to Areas: Unclassified
R. M. Evens, Manager Explosives Department E. I. du Pont de Nemours & Co. Wilmington, Delaware	Company business	X	
John A. Wheeler Technical Specialist TNX Division E. I. du Pont de Nemours & Co. Wilmington, Delaware	Technical consultation	X	
Allied Project Personnel			
Henry W. Newsom U. S. Engineers Office Manhattan District Oak Ridge, Tennessee	Consultation	X	
D. J. Hughes U. S. Engineers Office Manhattan District Oak Ridge, Tennessee	Consultation	X	

7-9345
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Protection Department

Name-Organization	Purpose of Visit	Access to Areas Classified	Access to Areas Unclassified
Allied Project Personnel (Cont.)			
Winston C. Manning Metallurgical Laboratory University of Chicago Chicago, Illinois	Consultation	X	
Outside Service Personnel			
William H. Milton General Electric Co. Pittsfield, Mass.	Consultation	X	
M. J. Hammer General Electric Co. Pittsfield, Mass.	Consultation	X	
Harry J. Gerlach General Electric Co. Pittsfield, Mass.	Consultation	X	
A. G. Sanford General Electric Co. Pittsfield, Mass.	Consultation	X	
Frank H. Cliffe General Electric Co. Pittsfield, Mass.	Consultation		X
Forrest E. Baker General Electric Co. Pittsfield, Mass.	Consultation		X
H. E. Callahan General Electric Co. Pittsfield, Mass.	Consultation		X
Ralph J. Cordiner General Electric Co. Pittsfield, Mass.	Consultation	X	
Dr. G. W. Giddings General Electric Co. Pittsfield, Mass.	Consultation	X	
Thomas B. Patterson Western Gas & Power Company Yakima, Washington	Delivery of propane gas	X	

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Protection Department

Name-Organization Outside Service Personnel (Cont.)	Purpose of Visit	Access to Areas Classified	Unclassified
M. E. Bennett Baldwin Locomotive Works San Francisco, California	Inspection of diesel locomotives		X
H. L. Johnston State Pollution Control Olympia, Washington	Inspection sewage disposal		X
Frank Gates State Pollution Control Olympia, Washington	Inspection sewage disposal		X
Emil C. Jensen State Board of Health Seattle, Washington	Inspection sewage disposal		X
General			
Harlan B. Holmes U.S. Fish & Wildlife Service Seattle, Washington	Inspection and consultation	X	
Scott N. Bair U.S. Fish & Wildlife Service Seattle, Washington	Inspection and consultation	X	
Fred J. Foster U.S. Fish & Wildlife Service Seattle, Washington	Inspection and consultation	X	
F. F. Fish U.S. Fish & Wildlife Service State of Oregon Fish Comm. Portland, Oregon	Inspection and consultation	X	
Alphonse Kemmerich U.S. Fish & Wildlife Service State of Oregon Fish Comm. Portland, Oregon	Inspection and consultation	X	
C. J. Burner U.S. Fish & Wildlife Service State of Oregon Fish Comm. Portland, Oregon	Inspection and consultation	X	
Armie Suomela U.S. Fish & Wildlife Service State of Oregon Fish Comm. Portland, Oregon	Inspection and consultation	X	

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Protection Department

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Name-Organization	Purpose of Visit	Access to Areas Classified	Access to Areas Unclassified
General (Cont.)			
M. T. Hoy U.S. Fish & Wildlife Service State of Oregon Fish Comm. Portland, Oregon	Inspection and consultation	X	
Hanford Thayer U.S. Fish & Wildlife Service State of Oregon Fish Comm. Portland, Oregon	Inspection and consultation	X	
J. W. Flanagan Bonneville Power Adm. Portland, Oregon	Consultation on special instruments		X

Statistical Summary

	May	June
Number of employes cleared for classified information.....	33	20
Number of visitors cleared for classified information.....	0	0
Number of authorization cards issued to employes.....	58	17

Number of employes having access to each classified area as of month-end were (A, B and C denote type of clearance):

Area	May A	May B	May C	May Total	June A	June B	June C	June Total
100-B	400	595	338	1333	359	617	326	1302
100-D	660	531	347	1538	639	542	336	1517
100-F	702	480	355	1537	703	476	341	1521
200-Z	713	707	331	1753	692	714	321	1727
200-W	901	660	304	1865	883	656	293	1832
200-N	63	406	177	646	65	400	175	640
300	578	537	170	1285	560	555	174	1289

Area	Temporary Access May	Temporary Access June
100-B	39	17
100-D	46	44
100-F	40	35
200-Z	46	8
200-W	46	11
200-N	28	5
300	45	36
Total	290	146

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INVESTIGATION DIVISION

Investigation

The following summary reflects the work of this Division:

	May	June
Cases pending at beginning of month	220	93
Cases received during month	225	252
Cases closed during month	352	253
Cases pending at end of month	93	92
Number of employes approved for clearance	33	20
Construction personnel files reviewed for transfers	34	21
Number found satisfactory for employment	36	38
Number found unsatisfactory for employment	4	7
Number of Personnel Security Questionnaires concerning concessionaire employes processed and forwarded to Military Intelligence office without investigation	40	58

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PATROL DIVISION - RICHLAND OFFENSES

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Offenses May	Actual Offenses June	Offenses Cleared By Arrest	Offenses Cleared By Other Action	Perpetrators Involved
Assault	0	0	0	0	0	0	0
Attempted Suicide	0	0	0	0	0	0	0
Burglary-Breaking and/or Entering	1	0	1	1 (a)	0	1	2
Larceny-Theft (except auto & bike):							
(a) - $50.00 and over value	0	0	0	0	0	0	0
(b) - Under $50.00 value	8	2	10	6 (b)	0	1	7
Auto Theft	1	1	0	0	0	0	0
Bicycle Theft	6	1	1	5 (c)	4	0	2
Tricycle Theft	0	0	1	0	0	0	0
Destruction of Government Property	4	0	1	4 (d)	2	1	3
Destruction of Personal Property	1	0	2	1 (e)	0	1	1
Disorderly Conduct	0	0	2	0	0	0	0
Drunkenness	6	0	6	6	6	0	6
Missing Persons	0	0	0	0	0	0	0
Offenses against family & children	0	0	1	0	0	0	0
Prowlers	0	0	1	0	0	0	0
Rape	0	0	0	0	0	0	0
Sex Offenses	0	0	1	0	0	0	0
Vagrancy	0	0	0	0	0	0	0
Miscellaneous	2	0	4	2 (f)	0	2	3
Juveniles (other than reported above) Disorderly Conduct	5	0	6	5 (g)	0	4	14
	34	4	37	30	12	10	38

(a) - The one offense was perpetrated by two juveniles, of ages 10 years.
(b) - One of the offenses was perpetrated by seven juveniles, of ages 8, 12, 13, 14 and 15 years.
(c) - Four of the offenses were perpetrated by two juveniles, of ages 13 years.
(d) - Two of the offenses were perpetrated by three juveniles, of ages 14, 15 and 16 years. Same juvenile of age 16 years was perpetrator of offense reported in January, cleared this month by arrest.
(e) - The one offense was perpetrated by one juvenile, of age 12 years. Same juvenile of age 12 years cleared in item 'b'.
(f) - The two offenses were perpetrated by three juveniles, of ages 14, 17 and 18 years.
(g) - Four of the offenses were perpetrated by fourteen juveniles, of ages 5, 8, 11 and 15 through 17 years.

rough June 26 was $213.50 (includes five bicycles).

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Protection Department

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 Average	Wash., Oregon & Calif. One Month Average	Richland Six Months (July-Dec. 1945)	Richland May	Richland June
Murder	0.225	0.037	0	0	0
Robbery	5.32	0.89	0	0	0
Aggravated Assault	2.49	0.615	0	0	0
Burglary	30.97	5.16	7.33	0.66	0.66
Larceny	86.08	14.34	63.33	8.0	7.33
Auto Theft	23.96	3.97	6.66	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 Average	State of Washington One Month Average	Richland Six Months (July-Dec. 1945)	Richland May	Richland June
Murder	0.215	0.036	0	0	0
Robbery	3.62	0.6	0	0	0
Aggravated Assault	1.17	0.19	0	0	0
Burglary	27.8	4.63	7.33	0.66	0.66
Larceny	81.22	13.53	63.33	8.0	7.33
Auto Theft	24.04	6.0	6.66	0	0

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

Classification	National Average (1945)	Richland Six Months (July-Dec. 1945)	Richland May	Richland June
Robbery	58.6%	0	0	0
Burglary	64.4	63%	0	100%
Larceny	49.6	27	17%	45
Auto Theft	80.3	20	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.

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PATROL DIVISION - TRAFFIC CONTROL STATISTICS

Motor Vehicle Accidents

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	May	June	May	June	May	June	May	June
Plant	0	2	0	0	0	0	0	0
Richland	11	12	0	0	0	1	2	3
Totals	11	14	0	0	0	1	2	3

Accident Causes

	Negligent Driving		Failure to Yield Right-of-Way		Reckless & Drunken Driving		Miscellaneous Causes	
	May	June	May	June	May	June	May	June
Plant	0	1	0	0	0	0	0	1
Richland	6	5	2	5	2	2	2	0
Totals	6	6	2	5	2	2	2	1

Plant Warning Traffic Tickets Issued

	Speeding		"Stop" Sign		Parking		Improper License		Defective Equip.		Totals	
	May	June	May	June	May	June	May	June	May	June	May	June
Plant	3	2	0	2	0	2	0	0	0	2	3	8
Richland	21	16	12	10	112	67	13	7	45	37	203	137
Totals	24	18	12	12	112	69	13	7	45	39	206	145

Court Citation Traffic Tickets Issued

	Speeding		"Stop" Sign		Drunken Driving		Reckless Driving		Negligent Dr.		Other Violations		Totals	
	May	June	May	June	May	June	May	June	May	June	May	June	May	June
Plant	3	4	1	1	0	0	0	0	0	0	1	1	5	6
Richland	10	10	14	18	2	0	1	0	3	6	6	13	36	47
Totals	13	14	15	19	2	0	1	0	3	6	7	14	41	53

	May	June
Traffic Volume - Downtown Street (average car count - 24 hour period).....	10,783	9,887

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SERVICE DEPARTMENT

JUNE 1946

PLANT SERVICE

PERSONNEL

Department	Roll Additions	Inter-Dept. Transfers In	Inter-Dept. Transfers Out	Roll Terminations	Net Roll Change
Management	-	-	-	-	-
P Department	-	-	-	4	- 4
S Department	-	-	-	11	- 11
Technical	5	-	1	13	- 9
Power	1	-	-	5	- 4
Maintenance	2	-	-	9	- 7
Electrical	-	-	-	3	- 3
Instrument	-	-	-	8	- 8
Protection	5	-	-	2	+ 3
Service	7	1	-	7	+ 1
Transportation	-	-	-	14	- 14
Medical	4	1	-	12	- 7
Accounting	5	-	1	28	- 24
Totals	29	2	2	116	- 87

Roll Additions

	Exempt	Non-Exempt	Total
New Hires	1	10	11
Re-employs	5	-	5
Reinstates	-	6	6
Other Plant Transfers	1	-	1
Net Additions	7	16	23
Payroll Exchanges	6	-	6
Gross Additions	13	16	29

Terminations

Another Job	-	18	18
Dissatisfied with Job	-	1	1
Illness in Family	-	4	4
Pregnancy	-	4	4
Getting Married	-	4	4
Going Home	-	2	2
Husband Leaving Project	-	2	2
Going to School	-	4	4
Voluntary Unexplained Absence	-	2	2
Reduction of Force	4	33	37
Transfer to Other Plants	13	4	17
Discharge	-	1	1

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Service Department

	Exempt	Non-Exempt	Total
Other	4	10	14
Net Terminations	21	89	110
Payroll Exchanges	-	6	6
Gross Terminations	21	95	116

Approximately 24% of all terminations occurred in the Accounting Department; 12% in the Transportation Department; and 11% in the Technical Department.

Personnel Turnover	May	June
Total Turnover	3.36%	2.53%

Plant Absenteeism (Non-Exempt)		
Male	1.91%	1.81%
Female	2.69%	3.00%
Plant Average	2.06%	2.05%

Non-Exempt Personnel - Interviews		
Accepted	19	30
Rejected	196	247
Others	197	161
Total Interviews	412	438

Non-Exempt Personnel - Placed on Roll		
Current Month Interviews	19	16
Previous Month Interviews	-	-
Total Placed on Roll	19	16

Military Service Personnel (World War II)	June	To Date
Employees Entering Military Service	-	151
Employees Returned from Military Service	7	41
Employees of Other du Pont Plants Added to Roll	2	41
Other Veterans Hired	5	409
Total	14	491

SELECTIVE SERVICE

Number of 4-F, 2A(F) and 2B(F) Classifications	51
Number of 1-C's	108
Number of male employees 18-25, excluding 4-F, 2A(F), 2B(F) and 1-C Classifications	30
Total number of male employees under 26	189

[redacted]

PRIVACY ACT MATERIAL REMOVED

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Service Department

Number of 4-F, 2A(F) and 2B(F) Classifications	96
Number of 1-C's	67
Number of male employees 26-29, excluding 4-F, 2A(F), 2B(F) and 1-C Classifications	182
Total number of male employees from 26-29	345

CENTRAL FILES

	May	June
Classified Documents Received (In Mail)	141	384
Unclassified Documents Received (Total)	2,422	3,225
Classified Documents Issued	2,081	2,140
Inter-Area Transfer (Classified)	3,236	1,745
Documents Routed (Classified)	4,204	5,396
Requests - File Documents (Classified)	860	772
Requests - Technical Library	119	102

SAFETY AND FIRE PROTECTION

Safety

Plant Safety Record - 166 Days

Injury Statistics

	May	June	Year to Date
Major Injuries	-	-	1
Non-Tab. Major Injuries	1*	1	3
Sub-Major Injuries	3	4	16
Minor Injuries	237	226	1456

* Personal Injury No. 27, Non-Tabulatable.

Sub-Major Injury No. 64

May 31 - (Transportation Department, Tile Yard, White Bluffs), sustained a fracture of the right little toe, middle phalanx. Injured was stacking tile (approximately 30" in length and weighing 22#) in a cannon wagon. A fellow employee was standing on the ground handing the tile to the injured. As injured received a tile and turned to place it on the load a piece of the tile broke in his right hand allowing the tile to slip from his left hand and strike his right little toe just behind the safety cap of his shoe.

Sub-Major Injury No. 65

June 3 - (Technical Department, 200-W Area), sustained a chip fracture of distal phalanx left middle finger. Injured unlocked the lid of an International Reinforced, Type SB, Centrifuge by means of moving the lid handle. Holding the lid handle with his right hand he lifted the lid, simultaneously reaching inside the centrifuge with his left hand.

PRIVACY ACT MATERIAL REMOVED [redacted]

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The lid handle slipped from his hand, allowing the lid to fall approximately 6" to 8". Injured's left middle finger was caught between the lid and the centrifuge body.

Sub-Major Injury No. 66

June 13 - (S Department, 200-E Area), sustained a transverse fracture of distal phalanx right middle finger. Injured was moving a 400# barrel of chemicals on the prongs of a Mercury jeep. By means of the hoist he placed the barrel on edge in a leaning vertical position onto a platform skid. Injured got off the jeep and rolled the barrel on its edge into position for storing. As he allowed the barrel to fall into place he became overbalanced causing his right middle finger to be wedged between the moving barrel and a stationary barrel. Injured was wearing gloves.

Sub-Major Injury No. 67

June 25 - (Production Department, 300 Area), sustained a transverse fracture of middle phalanx left great toe. Injured was placing a platform skid, weighing approximately 40# on top of another identical skid. The skid slipped from injured's hand and fell on his left foot striking just behind the safety cap of his shoe and resulting in injury to his left great toe.

Minor Injuries

See charts appended to this departmental report.

A total of 459 Safety Meetings were held, with an attendance of 5,932.

At midnight, June 3, 1946, the Hanford Engineer Works completed 144 days without a time-losing injury to win the General Managers' No-Accident Award. Complimentary letters extending congratulations for this accomplishment have been received from Mr. J. N. Tilley, Assistant Manager, TNX Division and from H. L. Miner, Manager, Safety & Fire Protection Division, Wilmington, Delaware. Arrangements have already been completed for the distribution of the Safety Award Prize to all employees.

A new barrel handling truck has been procured and put into service in the 300 Area Production Department. The truck handles 55-gallon drums.

The training subject covered in the weekly meetings of the Safety Engineers and Fire Department Supervisors was "The Care and Use of Fiber and Wire Rope."

The 700 Area has put into use a test bench for testing safety valves, which it is expected will assist materially in expediting this important program.

Fire Protection

Fires	Number of Fires		Estimated Damage	
	May	June	May	June
Village	6	10	$65.00	$3,600.00
Plant	7	6	-	-
Miscellaneous	6	5	-	-
Totals	19	21	$65.00	$3,600.00

[redacted]

Service Department

With the exception of one serious fire the majority of fires occurring in Village and Areas were of a minor nature. The $3,600.00 fire damage sustained was the result of a Village fire which occurred on June 22 at 12:33 A.M. to an "A" type house located at 1446 Thayer Drive. The fire, which damaged practically all of the interior finish of the house was probably caused by occupant falling asleep on daveno while smoking a cigarette, which fell from his hand and ignited daveno. Occupant and his wife were seriously burned while their two children and a sister-in-law escaped injury. The estimated cost of repairs to house and furniture was, house: $2,950; furniture: $650.00.

The fire also caused slight damage to front stoop of adjoining property, 1444 Thayer Drive, small smoke damage to ceiling of living room and approximately six square feet of shingles on roof. Estimated cost of repairs to 1444 Thayer Drive is included in the cost of repairs to 1446 Thayer Drive.

Fire breaks are being cut around all plant areas power lines, and where needed, around Village areas. Tall grass and weeds were also removed around fire plugs at various locations in Village.

Fire exit drill was held in Administration Building at 4:00 P.M. on June 11. Various faults which were observed were corrected in a wardens' meeting held on June 14.

229 homes were inspected and the fire hazards found were reported to Village Organization.

Tank Truck T-2 was sent from Fire Station No. 1 to "Y" to assist in preventing fire in burning grocery store spreading to adjoining property. Truck was sent at 11:00 P.M. on June 25.

Lectures on fire prevention were delivered to various groups in Village and Plant areas during the month.

INDUSTRIAL RELATIONS AND TRAINING

Contacts are summarized as follows:

	May	June
Policy	23	13
Military Service	-	3
Insurance	5	3
Housing	24	18
Personal	23	18
Income Tax	3	6
Miscellaneous	17	13
Municipal (Facilities)	1	2
Total	96	76

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Welfare Section

Sixteen men's softball teams, comprising approximately 240 players, are split into two eight team leagues and playing a regular schedule as Plant leagues. High school fields No. 1, 2 and 3 are being used. The leagues, according to action by their own official bodies, have assessed each team $10.00 for the wholesale purchase of bats and balls, and have appealed to Villagers, Inc. for further financial help.

Two issues of the Safety Bulletin "Life Line" were prepared and distributed to employees.

GENERAL DIVISION

Laundering volumes were as follows:

Plant Laundry (Bldg. 2723)	May	June
Coveralls - Pieces	14,264	13,851
Towels - "	4,872	5,406
Miscellaneous "	21,910	22,355
Total Pieces	41,046	41,612
Total Dry Weight - Lbs.	57,862	56,064
700 Area Laundry (Bldg. 723)		
Flatwork - Pieces	30,947	31,305
Rough Dry - "	18,729	19,089
Finished - "	1,990	1,990
Total Pieces	51,666	52,384
Total Dry Weight	29,450	29,859

The project for air conditioning in the 2723 Laundry is approved and the work is now under way.

VILLAGE ADMINISTRATION

HOUSING

Permanent Village Houses

	Family Occupancy Figures		
	Moved In	Moved Out	Month End
Du Pont	64	81	2148
Government	14	9	175
Totals	78	90	2323

[redacted]

[redacted]

Service Department

Summary:

Houses occupied by family groups	2323
Houses utilized by Housing Section	2
Houses utilized by Medical Department (Public Health Section)	1
Houses assigned but unoccupied pending arrival and installation of furniture	9
Houses available for assignment	159
Government houses without lease in du Pont possession exclusive of authorized rent-free houses	6
Total Houses	2500

Prefabricated Houses

	Family Occupancy Figures		
	Moved In	Moved Out	Month End
Du Pont	14	65	1073
Government	14	4	90
Totals	28	69	1163

Summary:

Houses occupied by family groups		1163
Unoccupied pending installation of effects and arrival of families		6
Houses available for assignment		67
Government houses without lease in du Pont possession		7
Total prefabs (active)		1243
Closed and available for excess		-
Turned over to excess	559	
Removed from Project	469	
Awaiting removal		90
Total prefabs on Project		1333
Total Prefabs moved from Project during month		None

Tract Houses

Occupied	57	(Includes occupancy by du Pont, Government, Sub-contractors and concessionaires, in Richland and vicinity)
"	10	(Includes occupancy by Bonneville Power in Priest Rapids and White Bluffs)
"	1	(Special - fumigation)
Vacant	40	
Total	108	(Includes Richland, Priest Rapids and White Bluffs)

Dormitories

Occupied by men	6	
Occupied by women	7	
Assigned to Community Organizations	3	(1 to Teen-Age Club; 1 to Youth Council; 1 to Pre-School Nursery)

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Service Department

Held as emergency additional hospital accommodations	1
Vacant	8
Total	25

General

All current commitments for shipment of excess prefabricated houses off the Project have been met. As of June 10 vacant prefabricated dwellings, not already excessed, were made available for rental. The 90 prefabricated houses awaiting removal are held by the Excess Section of the Accounting Department and will be transferred back into permanent records as needed.

COMMERCIAL FACILITIES

General

A temporary modification to the existing rental agreement with the Washington Motor Coach Company was approved by the Area Engineer to be effective June 1 through August 31, 1946.

The inspection of food handling establishments by a representative of the State Health Department was completed and the report received by the Public Health Section. A meeting was held June 21 with all food handling facility operators and the results of the inspection reviewed with them.

A project has been approved for the installation of a hutment annex to the Electric Appliance Shop to provide additional display space.

Planting of grass in the down town area was completed during the month.

Corrections were made in the permanent room rate schedule at the Transient Quarters.

Changes were made in down town store hours to permit merchants to adjust working schedules to comply with the 40-hour requirement for female employees, as established by the State Department of Labor and Industries.

Barber Shop closing hours were changed from 6:30 P.M. to 6:00 P.M., due to the small number of customers patronizing the shop after 6:00 P.M.

Operation

Progressive Cafeterias	May	June
Cafeteria Meal Customers	32,729	33,625
Total Dollar Sales	14,399	14,758.21
Per cent of room-day occupancy, Transient Qrtrs.	90.40%	88.00%

[redacted]

Service Department

Carnation Company	May	June
Gallons of milk sold	47,597	47,541
Gallons of cream sold	1,123	1,963
Gallons of ice cream sold	3,495	3,618
Pounds of Cottage Cheese sold	1,070	630
"Richland" and "Village" Theaters		
Customer Count	41,697	43,989
Gasoline Sales	**April**	**May**
Total gallons, all stations	101,618	97,833

COMMUNITY ACTIVITIES

Schools

School District No. 400 sponsored-summer-program of recreation and handicraft was begun on June 24. This includes programs at the Hi Spot Club and High School for high school children, and at the Park, Youth Center and Grade Schools for grade school children.

Churches

For a period of two weeks during the month, Church Schools were conducted by the Catholic (264), United Protestant (388) and Redeemer Lutheran Churches (33). All school grades were included in the training programs completed by 685 children.

General

The Richland Park Swimming Pool was opened June 6. Village Memorandum No. 37, issued May 27, announced the opening and the hours of operation. During the period June 6 to 23 the average attendance was 493, with the peak attendance of 708 on June 18 and the low attendance of 40 on June 16. Arrangements have been made with Villagers, Inc., for the operation of a check room. A ten-cent per basket service charge is collected by this organization with the profits, if any, to be used to underwrite other community activities.

VILLAGE - GENERAL

Registration of voters closed on June 22, with 3700 new registrations. This makes a total of 5300 registrations in the books.

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MONTHLY INJURY ANALYSIS

Period - May 26 through June 25, 1946

Minor Injuries

	Misc. Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Unclassified	TOTAL JUNE	TOTAL LAST MONTH
Production P	1	3	0	5	0	2	0	0	2	13	16
S	7	7	2	3	2	2	0	0	1	24	29
Technical	3	4	3	8	1	0	0	1	1	21	23
Power	1	4	1	2	1	1	0	2	0	12	17
Maintenance	7	13	6	19	4	10	0	5	3	67	65
Electrical	2	4	1	9	0	1	1	1	2	21	8
Instrument	1	3	0	5	0	0	0	0	1	10	13
Protection	0	2	2	3	0	0	1	1	0	9	9
Service	1	1	1	2	1	1	1	0	3	11	11
Transportation	2	3	1	4	2	0	3	0	3	18	22
Medical	0	1	3	1	0	0	2	0	1	8	16
Accounting	0	2	3	3	0	2	1	1	0	12	8
TOTAL	25	47	23	64	11	19	9	11	17	226	237

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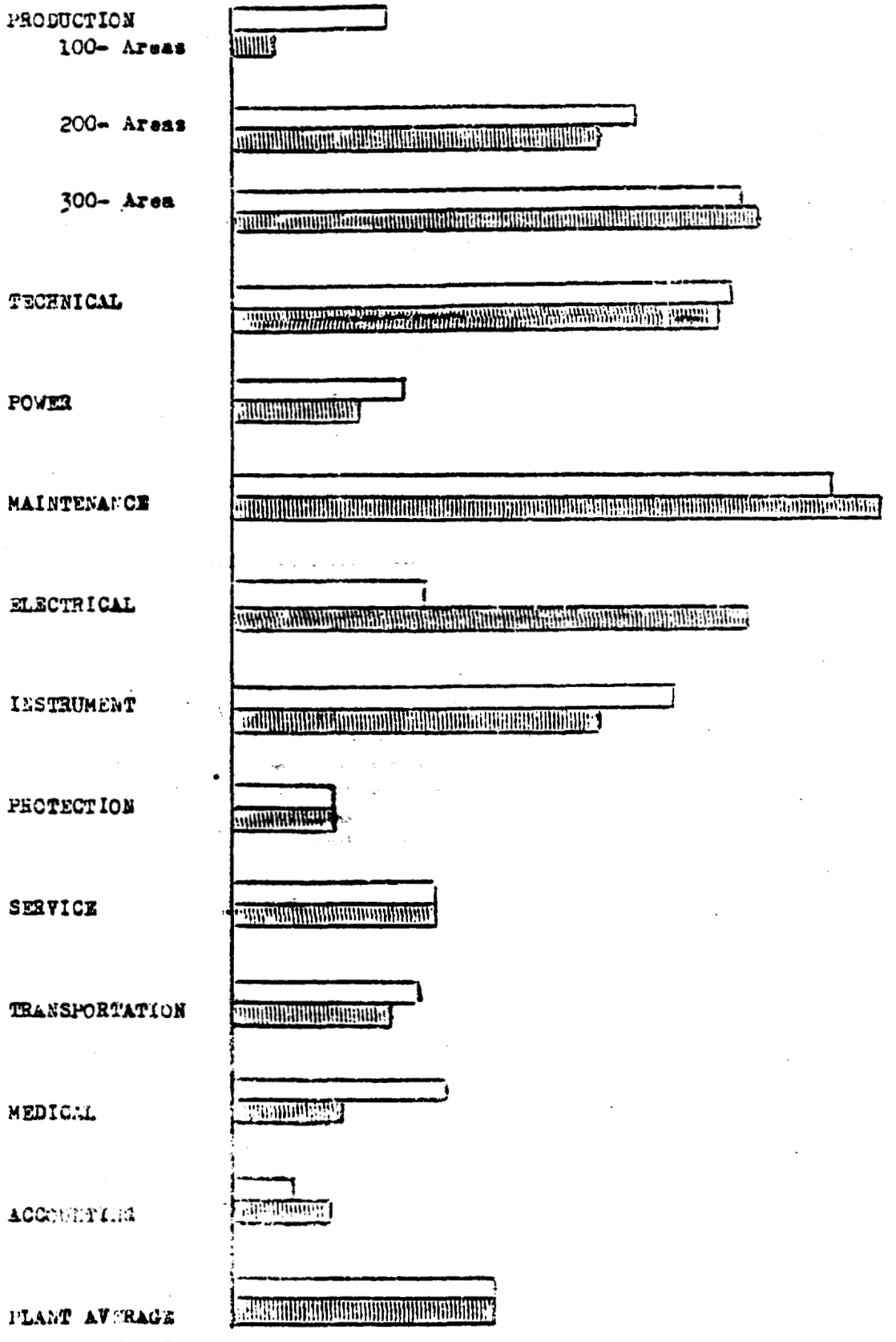
Last Month
This Month

JUNE
FREQUENCY RATE CHART
Minor Injuries



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TRANSPORTATION DEPARTMENT

JUNE 1946

RAILWAY AND AUTOMOTIVE OPERATIONS

A further reduction of automotive equipment inventory was effected with thirty-two units being declared excess.

Under the program of disposing of and exchanging non-standard types of automotive units and replacing those worn beyond economical repair, three units have been exchanged since May 25, 1946. On June 10, all of the 29-passenger buses in service between Richland and the Plant areas were replaced with new 37-passenger units.

Off-the-plant automobile trips (Company business and official visitors) totaled 25.

Comparative figures for plant bus trips are:

	Average Daily Trips	
	May	June
Passenger Buses - 100-B	9	5
Passenger Buses - 100-D	11	8
Passenger Buses - 100-F	12	9
Passenger Buses - 200-W	18	13
Passenger Buses - 200-E	13	9
Passenger Buses - 300	8	6
Inter-area passenger service (Stretchouts)	3	3
Inter-area express service (1 panel delivery)	1	1
Inter-area mail service (1 panel delivery)	1	1

Significant daily averages for Village bus operation are:

	May	June
Total passengers handled, including transfers	2,189	2,242
Total bus trips	87	87
Total bus miles handled	504	504
Revenue	$107.30	$110.05

MECHANICAL AND LABOR

Work Order Summary:

	Work on Hand May 25		Work Completed in June		Work on Hand June 25	
Areas	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
Labor:						
100,200,300	125	524	271	1167	84	404
700 & 1100	135	1744	253	2766	167	1537
Repairs:						
100,200,300	5	138	7	228	6	154
Riverland	52	541	22	322	54	424
700 & 1100	478	2007	504	1829	497	2133
Totals	795	4954	1057	6312	808	4652

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Transportation Department

Bulk fuel plant statistics (in gallons):

	Gasoline	Diesel Fuel	Kerosene
Stock at start of month	38335	8963	360
Received during month	106400	17100	1520
Delivered to Area Stations:			
du Pont	77022	19058	1085
Government	33270	965	0
Totals	110292	20023	1085
Stock at end of month	34443	6040	795

Repair and Service statistics for du Pont-operated equipment are:

	May Totals	June 100 B	100 D	100 F	200 W	200 E	300	700-1100	Portable Units	Totals
Inspections (Preventive Maintenance)	1209	39	82	66	112	84	-	641	238	1262
Grease Jobs	1209	39	82	66	112	84	-	641	238	1262
Shop and Repair Orders	2156	-	96	112	3	-	2	2203	-	2485*
Gasoline Dispensed (Gallons)	77959	3040	4893	4656	6781	5674	837	38384	8383	75561**
Kerosene Dispensed (Gallons)	492	76	7	3	-	-	2	-	259	347
Diesel Fuel Dispensed (Gallons)	16275	-	-	-	-	-	-	-	11507	18167
Antifreeze Dispensed (Quarts)	0	-	-	-	-	-	-	-	-	0

* Includes 69 shop and repair orders at Riverland Yard.
** Includes 2913 gallons disbursed from Morrison-Knudsen underground tanks.
*** Includes 6660 gallons diesel fuel from Riverland Yard.

Labor work volume statistics are as follows:

	May Totals	June 100 B	100 D	100 F	200 W	200 E	300	700-1100	Totals
Cars Coal Unloaded	36	-	248	214	39	22	5	25	553
Cars Other Materials Unloaded	27	-	7	8	5	5	4	2	31
Personal Effects Moved Including Baggage & Freight	62	-	-	-	-	-	-	22	22

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Transportation Department

RICHLAND TRAFFIC OFFICE

The work volume statistics are as follows:

Office Business	May	June
Household Goods Movements Arranged	18	12
Household Goods Movements Traced	7	8
Automobile Shipments Arranged	3	4
Automobile Shipments Traced	0	1
Rail Bills Approved	113	92
Truck Bills Approved	172	163
Express Bills Approved	86	81
Household Goods Claims Filed	7	11
Household Goods Claims Collected - Number	6	19
Household Goods Claims Collected - Amount	$111.17	$969.95
Work Orders Issued - RHG Repairs	43	30
Insurance Riders Issued	26	62
Insurance Bills Approved	36	21
Freight Claims Filed	3	2
Freight Claims Collected - Number	8	5
Freight Claims Collected - Amount	$243.58	$23.98
Requests for Billing	2	3
Rail Reservations Made	53	59
Air Reservations Made	73	63
Ticket Refund Claims Filed - Number	4	13
Ticket Refund Claims Filed - No. of Tickets	4	13
Ticket Refund Claims Collected - Number	17	9
Ticket Refund Claims Collected - Amount	$626.84	$382.06
Freight Shipments Traced	53	25
Express Shipments Traced	0	0
Carload Shipments Received	123	690
Carload Shipments Outbound	3	12
Hotel Reservations Made	27	26
Expense Accounts Checked	34	25
Freight Shipments Converted	82	600
Express Shipments Converted	0	6
Government Bills of Lading Accomplished	71	70
Freight Bill Pre-Audit Savings	$171.25	$136.00
Rates, Routings, Schedules Checked	319	788
Routing Instructions Issued	5	10

Household Effects	May	June
Lots Shipped Out	19	14
Lots Pending	42	43
Automobiles Shipped Out	3	4
Household Goods Via Express	36	26
Household Lots Via L.C.L. Freight	4	2

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Transportation Department

Commodities Received - Carloads	May	June
Argon Gas	1	0
Asphalt	2	1
Bismuth Subnitrate	1	0
Caustic Soda	10	13
Chemicals	5	4
Chlorine	1	1
Coal	43	613
Cross Ties	4	0
Ferric Sulphate	7	9
Ferrous Ammonium Sulphate	1	1
Hydrofluoric Acid	1	0
Hospital Car	0	1
Lime	2	6
Lubricating Oil	0	1
Lumber	3	1
Merchandise	5	5
Nitrate of Soda	0	1
Nitric Acid	13	13
Oxalic Acid	1	0
Phosphoric Acid	4	3
Plywood	0	3
Rail Creepers	0	1
Roofing	1	0
Salt	0	1
Silicate of Soda	10	3
Soda Ash	3	5
Sulphuric Acid	1	2
Tie Plates	3	0
Tires	1	0
Tractor	0	1
Transformer	0	1
Totals	123	690

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MEDICAL DEPARTMENT

JUNE 1946

HEALTH INSTRUMENT SECTION

100 Areas

General

A horizontal rod and thimble were removed without incident. A steel stud in a graphite stringer produced some very high radiation levels when removed from a Pile. Polonium contamination on returned containers continues to be a problem.

Work Permit Summary

Special Work Permits were processed as follows:

	May	June
100-B	193	177
100-D	547	581
100-F	546	628
Total	1286	1386

Retention Basin Effluent

The activity of water leaving the Retention Basins was as follows:

	100-B	100-D	100-F
Power level (MW)	0	250	200
Average beta dosage-rate (mrep/hr)		0.7	0.6
Average gamma dosage-rate (mr/hr)		1.3	1.5
Average total dosage-rate (mrep/hr)		2.0	2.1
Average integrated dose in 24 hrs. (mrep)		48	50
Maximum integrated dose in 24 hrs. (mrep)		53	60

Pile Buildings

The #9 horizontal control rod and thimble were removed from the 100-D Pile. The work was very well planned, and high radiation levels were avoided by remote control methods. The control rod was removed first and the tip of the rod, which gave 1000 mr/hr at ten feet, was placed in a lead shield. The thimble which could not be freed from the shield plug was sawed with a long-handled saw and then hauled to a lead shield which was located outside of the Pile Building. Before the thimble was placed in its shield, a reading of 90 mr/hr was obtained 25 feet from the center.

The removal of a graphite stringer from the D test hole in the 100-F Pile produced some very high radiation levels because a steel stud had been left in the end of one of the pieces, and had been irradiated in the Pile. A reading of 20,000 mrep/hr was obtained twelve inches from the steel plug.

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The neoprene seals on the top far sides of the 100-B and 100-D Piles were changed with very little direct radiation hazard. The old neoprene pieces were somewhat contaminated and frequent glove changes were necessary.

The polonium contamination on returned containers was spread further around the 100-D Pile Building while the casks were being reloaded. The lead casks after loading were placed in new painted wooden crates for shipment. The painted wooden boxes have been returned, and they too have been contaminated with polonium.

200 Areas - T and B Plants

General

A cave in caused by a broken metal waste line was found to be very contaminated because of the presence of waste solution in the dirt. Rather high levels of airborne contamination were observed during the removal of a centrifuge from a cell.

Survey Statistics

	May			June		
	T	B	Total	T	B	Total
Special Work Permits	426	330	756	413	341	754
Other routine & special surveys	390	506	896	453	450	903
Smear samples for alpha counts	850	833	1683	958	740	1698
Smear samples for beta counts	763	852	1615	1017	760	1777
Air monitoring samples	442	384	826	430	414	844
Thyroid checks	291	255	546	295	218	513

Canyon Buildings

A broken metal waste line caused a cave in outside the B Plant Canyon near Cell R-34. The dirt in the cave in soaked up some of the waste solution producing an area with very high radiation levels outside regularly controlled areas. A reading of 4,000,000 mr/hr was observed about one foot above the pit; readings larger than this, but of undetermined exact magnitude, existed in the pit. A reading of 500 mr/hr was obtained at the edge of the top of the Canyon overlooking the cave in. There were two over-exposures of 130 mr and 110 mr caused by personnel walking past this pit before it was found to be a radiation hazard.

Airborne contamination in the B Plant Canyon was observed while the 13-2 centrifuge was being replaced. An air sample taken above the crane cab had beta activity of 2.8×10^{-5} μc/liter, and a sample taken at the same time within the cab had 1.7×10^{-6} μc/liter. An air sample taken near the 13-4 sampler had 2.4×10^{-9} μg Pu/cc.

Control Laboratories

The use of finger films has indicated that some of the personnel doing decontamination work have been receiving over tolerance amounts of

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radiation on their fingers and hands. The increase in monitoring by the people concerned is helping to reduce these exposures. Contamination of surfaces with alpha and beta-emitting substances has been maintained at about the same levels as previously. Product contamination in the air has been very low. The maximum value was only 1.4×10^{-11} µg Pu/cc.

Concentration Buildings

The contamination conditions were maintained at normal levels with no large spills occurring. The F-10 room in the T Plant Concentration Building has a low degree of contamination over large areas so that the total amount present may be about 100 µg Pu. The C and E cells also have contamination of that order of magnitude.

200 Area Isolation Building

Air Monitoring

The maximum concentration found in spot check air samples was 2×10^{-10} µg Pu/cc; the next highest was 6×10^{-11} µg Pu/cc. A total of 204 spot check samples were taken, and 198 of these had less than 10^{-11} µg Pu/cc. 76 Little Sucker air samples run continuously by shifts showed a maximum concentration of 6×10^{-12} µg Pu/cc. Big Sucker samples of the filtered hood air had a maximum of 5×10^{-12} µg Pu/cc, out of a total of 14 samples.

Surface Contamination

Three hundred twenty-nine non-regulated items were found to be contaminated. 253 of these were found in the laboratories, and 40 in Process Areas. The control of contamination on equipment has been improving recently, the most striking gains being made in the Process Areas. The improvements are the result of increased monitoring by those who must handle equipment and material which is contaminated.

Gamma Radiation

The maximum levels observed are somewhat higher than they have been for recent months. The maximum level was 43 mr/hr at the side of a PR container.

300 Area

Metal Fabrication Plant

Thirty-seven air samples were taken in the Press Building, and 19 of these had more than 1.5×10^{-4} µg U/cc. The maximum concentration observed was 2.8×10^{-3} µg U/cc. The new operation of converting some of the scrap to oxide provided a large number of the high samples. The operation has been improved since it was first started, but the samples there are still a little high.

Separations Laboratories

A special job with active materials resulted in the spread of some contamination in the hood and on equipment in one of the laboratories.

Thirty-two air samples were taken, and no sample had as much as 2 x 10^{-11} µg Pu/cc.

Plant General

Well and River Water Monitoring

One-hundred ninety water samples were taken during the month. The maximum concentration in river water was 8.1 x 10^{-4} µc/liter in a sample taken near Richland. The average for river water was 2 x 10^{-4} µc/liter. The maximum concentration for a well sample was again found at Ranch #13, which had 1.8 x 10^{-4} µc/liter. No other wells had as much as 5 x 10^{-5} µc/liter. None of the well or river samples had positive alpha counts. Rain samples collected in the 200 Areas during dissolving runs had up to 8.1 x 10^{-4} µc/liter.

Atmospheric Monitoring

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

Location	Integrons (mrep/24 hrs) May	Integrons (mrep/24 hrs) June	C Chambers (mrep/24 hrs) May	C Chambers (mrep/24 hrs) June
100-B	0.2	0.6	0.3	0.2
100-D	0.1	0.4	0.4	0.3
100-F	0.3	0.5	0.4	0.3
200-W	0.4	0.5	0.5	0.4
200-E	1.3	1.7	0.8	0.9
Riverland	1.0	1.5	-	-
Hanford	0.1	0.5	-	-
300 Area	0.7	0.8	0.6	0.6
Richland	0.3	0.2	-	-
Benton City	0.7	0.7	-	-
Kennewick	0.1	0.1	-	-
Pasco	0.3	0.3	-	-

The maximum concentration recorded on a constant iodine monitor was 1.6 x 10^{-6} µc/liter on the instrument on the 200-East Area. The Benton City instrument recorded a maximum of 1.0 x 10^{-6} µc/liter. Spot checks in the 200 Areas made with hand pumps had up to 1.6 x 10^{-5} µc/liter.

Vegetation Contamination

There was very little change in the iodine contamination levels on vegetation during the month. No off-area samples other than those listed were taken. The average values were:

Location	µc/kg May	µc/kg June
North of 200 Areas	0.19	0.31
Hanford	0.17	0.17

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Vegetation Contamination (continued)

Location	May (μc/kg)	June (μc/kg)
Near 200 Areas	1.21	1.90
South of 200 Areas	0.13	0.20
Richland	0.06	0.06
Benton City	0.05	0.13
Kennewick	0.05	0.05
Ritzville	0.04	-
The Dalles	0.15	-

Laundry Decontamination and Hand Counting

54,482 items were monitored in the Plant Laundry, including 12,700 coveralls, 16,689 gloves, and 12,050 overshoes. 21,039 alpha hand counts, and 21,725 beta hand counts were recorded. About 0.7% of the alpha counts, and 1.0% of the beta counts were above the warning limits.

Calibration Service

Radium calibrations were:

Type	Instrument	Number of Calibrations May	Number of Calibrations June
Stationary:	Integron	409	400
	HM & GE Chamber	225	194
	Total	634 *	594 **
Portable:	Beckman Survey Meter	178	163
	Lauritsen Electroscope	70	63
	Victoreen Survey Meter	115	117
	GE Survey Meter	43	44
	Miscellaneous	48	24
	Total	454	411
Personnel Meters:	Pencils	6960	6360
	Badges	960	960
	Total	7920	7320
Total Radium Calibrations		9008	8325

X-Ray and Intermediate energy gamma and beta calibrations:

Portable Instruments:		
Pencils	6263	5957
Miscellaneous Film	980	885
Total	7243	6842
Grand Total	16,251	15,167

* 394 furnished by Area H.I.
** 384 furnished by Area H.I.

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Miscellaneous

Three fish taken from the Columbia River had a radioactivity of the order of 10^{-2} μc/kg. Part of this activity has a half-life of about 15 days. Some long-lived material has been found on some of the vegetation samples, the half-life of this activity has not yet been determined.

Some new radioactive sources are being made by irradiating samples of calcium, cobalt, mercury, phosphorous, strontium and tin in one of the experimental holes in a Pile. These samples are to be used for calibration work on survey instruments. Two new neutron sources Po-Be and Po-B have been obtained for calibrating the neutron measuring instruments.

Personnel Meters

Pencils

	100-B * 100-D	100-F	(ZAN) 200	200-W	300	Total
Total Pencils read:	10,450	9,890	24,925	27,663	10,340	83,268
No.of single readings: (100 to 200 mr)	38	49	104	179	33	401
No.of paired readings: (100 to 200 mr)	0	3	8	12	3	26
No.of single readings: (over 200 mr)	57	66	58	102	89	372
No.of paired readings: (over 200 mr)	0	0	3	4	1	8

* Pencil Meter Service at 100-B is provided from the 100-D Area when necessary.

Badges

Badge results by Areas were:

	100-B	100-D	100-F	200-E	200-N	200-W	300	Total
Badges processed	2400	3795	4265	3362	775	4004	2739	21,340
No. of readings: (100 to 300 mrep)	11	1	12	28	0	3	80	135
No. of readings: (300 to 600 mrep)	4	0	0	3	0	0	0	7
No. of readings: (over 600 mrep)	3 *	0	0	0	0	0	0	3
No.of lost readings:	0	5	0	1	0	2	4	12

* All three were caused by light struck film.

Two pencil readings for 200-East Area personnel with over 100 mr were confirmed by badge readings. All the readings over 301 mrep in the 100-B Area were due to light struck or fogged film. Two of the three readings over 301 mrep in the 200-East Area were less than 500 mrep; the other was 560 mrep.

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Medical Department

PLANT MEDICAL SECTION

Physical Examinations

	May	June	Year to date
Pre-employment	19	33	316
Annual	298	274	1617
Sub-contractor (Food Handlers, etc.)	22	20	202
Rechecks	137	124	826
Interval rechecks (Area)	845	944	5939
Terminations and Transfers	151	102	664
Army and Government	39	55	234
Assist to Clinic, A&H Insurance, etc	2	2	30
Total	1513	1554	9828

Laboratory Examinations

Clinic Laboratory

Pre-employment, terminations, transfers	1103	1005	6595
Annual	2000	1848	10647
Rechecks (Area)	4192	5782	31503
First Aid	40	37	252
Plant Visitors	100	121	470
Clinic	2044	1967	13331
Hospital	1708	1487	10813
Public Health (Including Food Handlers)	164	163	915
Military	80	133	516
Total	11431	12543	75042

X-Ray

Pre-employment, terminations, transfers	166	174	1018
Annual	315	288	1744
First Aid	59	75	411
Clinic	249	236	1492
Hospital	92	99	578
Public Health (Including Food Handlers)	30	16	252
Military	11	37	113
Total	922	925	5608

Electrocardiographs

Industrial	125	81	734
Clinic	13	11	67
Hospital	12	5	68
Military	0	0	7
Total	150	97	376

Allergy

Skin tests	9	11	49

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Medical Department

First Aid Treatments

	May	June	Year to date
Occupational Treatments.....	294	299	1806
Occupational Retreatments.....	743	769	5177
Non-occupational (Welfare) Treatments....	2845	2580	19189
Total	3882	3648	26172

Absentee Investigation Report

Total number calls requested.....	38	27	473
Total number calls made.....	38	27	473
Number absent due to illness in family...	5	3	34
Number not at home when call was made....	5	4	37

General

The health topic for the month of June was Tuberculosis. An opportunity was given to all residents of Richland to secure chest x-rays during the month at the nominal rate of one dollar. 1496 residents, mostly wives and children of our employees, took advantage of this offer. By special request, the offer has been extended for one week.

There has been, thus far, no evidence of occupational disease due to special or other chemical hazards of operation.

VILLAGE MEDICAL SECTION

Clinic

Treatment Summary	Men	Women	Children	May	June	Year to date
First Visits	152	138	104	500	394	3457
Retreatments	791	1664	491	2968	2946	17005
Total				3468	3340	20462

Seen in Well-Baby Clinic.....	201	185	1246

Clinic Visits

Medical.....	609	488	3398
Pediatrics.....	402	313	2995
Surgical.....	717	656	3784
Gynecological.....	249	279	1680
Obstetric (new).....	23	48	258
Obstetric (recheck).....	418	425	2479
Venereal Disease.....	58	58	447
Ear, Nose & Throat.....	116	283	1412
Eye.....	221	189	1395
Visits handled by nurses(hypodermics, dressings, etc.).....	236	202	1650
Night Clinic Visits.....	419	399	964
Total	3468	3340	20462

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Medical Department

Home Visits	May	June	Year to date
Doctors	168	91	971
Nurses	58	44	381
Total	226	135	1352

Dental Health Center			
Patients treated	1669	1610	9773

Kadlec Hospital Section

General

There was an increase this month in the number of admissions and discharges, but there were fewer patient days. This is probably due to the large number of one-day cases, most of which were in the ENT department. The average daily census was slightly less in June than in May. There was a decided increase in the number of ENT operations.

Census	May	June	Year to date
Admissions	286	322	1906
Discharges:			
Surgical	77	60	435
Medical	38	40	257
Obstetric & Gynecologic	61	68	378
Eye, Ear, Nose & Throat	36	86	340
Pediatrics:			
Children	43	33	274
Newborn	38	39	203
Total	293	326	1887
Patient days	1917	1859	11674
Average stay	6.5	5.7	6.1
Average daily census	63.9	59.9	64.1
Discharged against advice	1	0	4
One-day cases	39	92	305

Operations			
Transfusions	7	8	105
Eye, Ear, Nose & Throat	22	80	257
Dental	2	4	13
Casts	11	15	73
Minors	49	45	448
Majors	25	29	159
Deaths	2	3	15
Deliveries	35	38	180
Stillborns	1	0	3

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Medical Department

Physiotherapy Treatments	May	June	Year to date
Clinic	140	80	504
Hospital	17	27	171
Army	19	5	95
Industrial:			
Plant	46	50	439
Personal	10	25	260
Total	232	187	1469

Pharmacy			
Number of prescriptions filled	1699	1356	9130

Patient Meals			
Regulars	2238	2127	12594
Lights	242	175	1830
Softs	1331	1027	6903
Surgical Liquids	130	147	794
Tonsils & Adenoids	86	210	788
Specials	175	216	2615
Liquids	243	300	1937
Total	4445	4202	27461

Cafeteria Meals			
Noon	1236	1232	8852
Night	219	178	1470
Total	1455	1410	10322

Nursing Personnel		
First Aid Nurses	22	23
Clinic Nurses	12	12
Public Health Nurses	7	7
Hospital General Nurses	54	53
Aides and Orderlies	39	38
Total	134	133

Public Health Section

General

Vision testing at Columbia High School was completed during the month of June. There were 231 defects reported from the 543 pupils receiving eye tests. Eighty-one students wearing glasses were found to have major visual defects. Twenty-five students wearing glasses from ophthalmologists were found to need further follow-up work. Two hundred fifty office nursing visits were made regarding eye conditions.

Physical examinations were given to children expecting to go to camp and about 50% of these children took advantage of the Rocky Mountain spotted fever injections. Further dates have been set for examination of other groups of children going to camp.

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The official report of the food-handling establishment survey made by the State Department of Health completed in May was received. The rating was 77.46 out of a possible 100, which is above the average insofar as the remainder of the state is concerned. This rating also represents a vast improvement over a similar survey made a year ago.

In a meeting with the food concessionaires, the results of the survey were discussed and the criticisms were explained. The rating system devised by the Medical Department, while serving the desired purpose, does not agree with the procedure utilized by the State Department of Health. Therefore, it has been decided to conform with this agency in respect to grading hereafter.

The swimming pool was opened for operation on June 6. Bacteriological analysis indicates satisfactory operation thus far. Because of the sand beach bordering the pool, the water becomes very dirty on the third or final day prior to cleaning, and it is difficult or impossible to see the bottom of the pool. This fact is detrimental to the operation of a sanitary pool.

The sewage plant operation has been satisfactory as indicated by the bacteriological analysis.

Fumigations have increased slightly the past month, which apparently is a result of the warmer weather.

Following laboratory examinations of producer milk supplies, an inspection was made of all supplies which showed a high bacteria count. The inspections revealed a laxity on the part of the operators in cooling the milk sufficiently as warmer weather approached. This problem is continuing to receive the attention of this department and the contractor, and in most cases the situation has been corrected. Four new producers have been accepted as having an approved supply and a like number have been eliminated for failure to comply with regulations. Bacteria counts on the pasteurized supply have been well under the allowable limits.

Despite the excessive rise of the Columbia and Yakima Rivers, reasonable mosquito control has been effected. A five percent DDT residual coverage was made by plane spraying of areas in and around the village where there was evidence of excessive adult mosquito harborage. This area approximates two hundred acres. The overall control area has increased about twenty-five percent in the last month and as a result another truck spraying unit has been provided, together with an additional driver and one laborer for emergency use.

Communicable Diseases Reported	May	June	Year to date
Diphtheria	0	0	0
Chickenpox	2	4	68
German Measles	0	2	17
Measles	20	15	104
Mumps	19	0	35

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Medical Department

	May	June	Year to date
Scarlet Fever	3	0	11
Pinkeye	0	0	3
Influenza	1	0	116
Impetigo	2	1	18
Ringworm	1	0	26
Scabies	0	0	21
Vincent's Infection	0	0	49
Syphilis	0	2	6
Gonorrhea	0	0	19
Tuberculosis	0	1	2
Total	48	25	495
Immunizations			
Smallpox	39	16	11463
Diphtheria	51	24	174
Whooping Cough	46	31	182
Schick Test	4	2	43
Tetanus	49	31	204
Total	189	104	12066
Administration			
Newspaper articles	6	0	17
Committee meetings	2	0	6
Attendance	37	0	95
Staff meetings	0	0	9
Lectures and talks	2	1	28
Attendance	126	15	640
Sanitation Inspections	149	123	840
Bacteriology Laboratory			
G. C. Smear	21	17	253
G. C. Culture	16	13	228
Fungus Culture	27	39	109
Vincent's Examinations	6	2	136
Trichomona's Examinations	22	16	169
Sputum for T. B. organisms	18	15	77
Bacterial Cultures	30	27	197
Examinations for parasites	29	5	164
Throat Smear and Cultures	20	11	111
Blood Cultures	2	3	15
Stool Cultures	0	16	36
Eye Smears	0	1	17
Examinations for spermatozoa	2	1	9
Quantitative determination of blood alcohol	0	0	4
Type for pneumococcus	2	0	3
Treated water samples	77	97	480
Untreated (raw water) samples	90	93	529
Milk Samples (Milk,cream,ice cream)	73	55	437
Sewage Samples	8	9	55
Examinations for eosinophiles	0	19	25
Dark field examinations	1	1	5
Total	446	440	3059

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ACCOUNTING DEPARTMENT

JUNE 1946

GENERAL

The Advance Account remains at $6,000,000.00.

The average hourly rate for the Monthly and Weekly Salary Rolls was $2.58 and $1.79, respectively.

ACCOUNTING

Through June 31st, billings totaling $366,863,300.32, representing 10,893 public vouchers (Form 1034) have been submitted to the Government, of which the General Accounting Office has approved 10,645, with a total value of $365,855,738.92.

CLERICAL

Government had the Seattle and Portland leased lines disconnected at the close of the month. They have requested us to use long distance service for a period of one month in order to ascertain the value of the leased line service from a cost standpoint.

The interior of the telephone exchange was repainted during the month. This work improved considerably the lighting conditions within the exchange.

A work order was processed to repair and refinish twenty-five (25) desks in anticipation of additional requirements due to overlapping personnel when the change-over to General Electric is effected.

Work was started on a project approved during the month to improve the heating, ventilating and air-conditioning equipment in the hutment annex to the Time Office.

Shipments of excess material off the project were discontinued during the month. Reduction of excess inventory as reflected in the attached statistics is accounted for by use of the material on the plant site.

We were requested by the Government during the month to take over the functions of receiving and warehousing of normal stores stock material and the procurement of direct charge materials formerly handled by Government personnel.

Purchasing Section completed the procurement of merchandise samples to be awarded to employees at this Works in connection with the General Manager's Safety Prize.

Purchasing Section had instituted an expediting follow-up on all old purchase orders in order to bring the work as current as possible as of September 1st.

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STATISTICS

Accounting (calendar month basis)

	May		June	
	No.	Amount	No.	Amount
P.O.'s Received	948	—	905	—
MR's Received	1,847	—	1,892	—
APV's Entered	2,288	$ 565,131.06	1,928	$ 540,350.58
Checks Issued	1,679	638,784.30	1,214	582,677.99
Cancelled	65	—	26	—
PR Transfers	5	1,219,009.93	4	964,973.24
RB's Entered	414	4,302.52	246	2,908.50
1034's Issued	341	1,299,107.86	312	1,389,250.14
Reimbursed	288	2,328,163.70	278	715,433.22
Non-Payment Credits	0	—	0	—
War Bonds Issued (Maturity Value)	4,633	132,525.00	3,250	120,756.00

Purchasing

	May	June
FHX Purchase Orders Placed	1,048	1,080
Orders Placed by Government	52	86
Requisitions Received	1,542	1,871
Requisitions Placed	1,642	1,450
Requisitions on Hand (unplaced at month-end)	363	420

Stores

Returnable Containers Received	547	253
Returnable Containers Returned	633	907
Balance on Hand (at month-end)	4,038	3,384
Shipments Made (OROM)	47	26
Receiving Reports Issued	1,739	2,197
Material Exception Reports Issued	67	47
Items Set-up in Stores Stock (at month-end)	40,974	40,747
Excess Material Shipped to Date	$ 3,276,756.30	$ 3,517,000.14
Value of Excess Material Inventory	1,252,079.69	1,587,156.19
Stores Disbursements	64,661.42	70,383.98
Spare Parts Disbursements	16,148.01	2,552.09
Value of Stores Stock (at calendar month-end)	1,015,347.86	1,018,371.30
Value of Spare Parts (at calendar month-end)	1,098,200.20	1,119,125.32
Value of Special Process Materials (at calendar month-end)	214,050.37	214,549.81

Essential Materials

Value of Materials Consumed during Month	$ 371,283.53	$ 349,043.36
Value of Materials in Stock (at calendar month-end)	370,804.06	386,362.36

Miscellaneous Clerical

Duplicating & Printing Orders Received	4,807	4,282
Duplicating & Printing Orders Completed	4,602	4,241
Mail Handled (Incoming)	17,254	12,273

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PROJECT AND RELATED PERSONNEL

	5/25/46		6/25/46	
Government Employees				
Civilian Personnel - Corps of Engineers	245		274	
" " - GAO	5		4	
Commissioned Officers (exclusive of MP's and MI)	17		17	
MP Company (including C.O.)	213		206	
MI Detachment (including C.O.)	26		26	
Special Detachments	5		-	
Military Personnel (other than above)	10		10	
Total		521		537
Prison Industries (total)		278		364
Mohawk Wrecking and Lumber Company . .		298		170
Richland Village Personnel				
Facilities	604		651	
Schools and Churches	177		177	
Total		781		828
Morrison-Knudsen Personnel		88		90
Du Pont Personnel		4390		4303
GRAND TOTALS		6356		6292

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