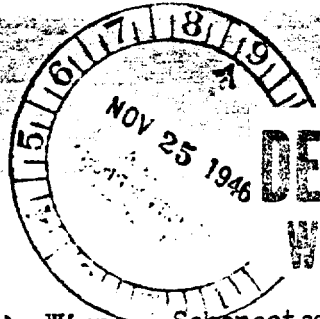


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HANFORD ENGINEER WORKS

MONTHLY REPORT

OCTOBER 1946

REPOSITORY PNL

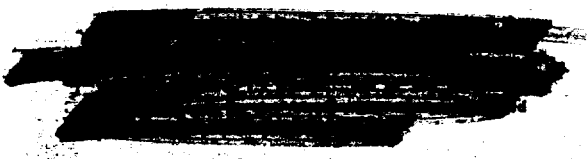
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HW-7-5362-De1

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HW-7-5362-De1

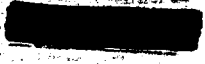
GENERAL SUMMARY

The power levels of the Piles at 100 D and 100 F were maintained at 250 MW and 200 MW respectively. The operating time efficiency was 84.6.

Thirty-nine batches were started through the Canyon Building and forty-three charges were delivered from the Isolation Building.

There was one major injury in October. As of October 31, the plant had accumulated sixteen injury free days.

A Design and Construction Department has initiated operation from its new location in W-4 Dormitory. Mr. F. W. Wilson is Superintendent of this Department and will be responsible for the design and construction of all major developments at the Hanford Engineer Works. It is expected that his personnel will immediately expand to fit the number of projects that are under way.



STAFF

HW-7-5362-De1

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

FORCE REPORT

<u>DEPARTMENT</u>	<u>NON-EXEMPT</u>		<u>EXEMPT</u>		<u>T O T A L</u>	
	<u>9-30-46</u>	<u>10-31-46</u>	<u>9-30-46</u>	<u>10-31-46</u>	<u>9-30-46</u>	<u>10-31-46</u>
Management	-	-	2	4	2	4
Construction & Design	-	-	1	1	1	1
P	177	177	46	43	223	220
S	249	249	51	52	300	301
Technical	120	123	65	76	185	199
Power	355	355	78	78	433	433
Maintenance	419	435	82	86	501	521
Electrical	157	158	35	35	192	193
Instrument	111	109	26	26	137	135
Service	560	574	135	145	695	719
Transportation	514	535	59	59	573	594
Medical	259	266	94	97	353	363
Accounting	<u>582</u>	<u>607</u>	<u>14</u>	<u>15</u>	<u>596</u>	<u>622</u>
TOTAL	3503	3588	688	717	4191	4305

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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	12	11	-	-	11	-	3	43
Operators	11	39	41	-	-	86	-	-	177
Total	17	51	52	-	-	97	-	3	220
S DEPARTMENT									
Supervisors	-	-	-	21	26	-	1	3	51
Operators	-	-	-	124	112	-	12	1	249
Others	-	-	-	-	-	-	1	-	1
Total	-	-	-	145	138	-	14	4	301
TECHNICAL DEPARTMENT									
Supervisors	-	5	-	7	5	11	-	6	34
Chemists, Engineers & Physicists	1	7	3	6	13	35	-	4	69
Analytical Personnel	2	10	8	32	16	20	-	-	88
Others	1	1	-	2	3	2	-	-	8
Total	3	23	11	47	37	68	-	10	199
POWER DEPARTMENT									
Supervisors	7	25	22	6	9	-	2	7	78
Operators	36	98	96	24	32	8	-	34	328
Others	4	5	5	-	7	4	-	2	27
Total	47	128	123	30	48	12	2	43	433
MAINTENANCE DEPARTMENT									
Supervisors	1	6	9	4	12	3	-	25	60
Engineers	-	-	-	-	-	-	-	26	26
Mechanics	8	30	54	30	73	25	-	165	385
Other	1	1	1	4	10	2	-	31	50
Total	10	37	64	38	95	30	-	247	521

P DEPARTMENT

Supervisors
Operators
Total

S DEPARTMENT

Supervisors
Operators
Others
Total

TECHNICAL DEPARTMENT

Supervisors
Chemists, Engineers & Physicists
Analytical Personnel
Others
Total

POWER DEPARTMENT

Supervisors
Operators
Others
Total

MAINTENANCE DEPARTMENT

Supervisors
Engineers
Mechanics
Other
Total

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ELECTRICAL DEPARTMENT

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	TOTALS
Supervisors	1	3	2	2	4	1	12	5	30
Electricians	4	15	17	17	13	7	50	28	145
Others	1	2	1	1	3	-	8	2	18
Total	6	20	20	20	20	8	70	35	193

INSTRUMENT DEPARTMENT

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	TOTALS
Supervisors	1	2	4	2	4	6	-	3	22
Engineers	-	-	-	-	-	1	-	3	4
Mechanics	5	14	14	15	14	17	-	5	84
Others	-	3	3	3	4	7	-	5	25
Total	6	19	21	20	22	31	-	16	135

SERVICE DEPARTMENT

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	TOTALS
Supervisors	9	7	6	9	8	9	7	83	138
Patrolmen	23	50	49	79	72	28	8	57	366
Firemen	15	-	-	-	-	10	-	54	79
Laundry Operators	-	-	-	-	1	-	-	1	2
Inspectors	4	4	4	4	4	-	1	1	22
Janitors	2	5	5	6	9	7	-	38	72
Others	-	-	-	-	10	1	5	24	40
Total	53	66	64	98	104	55	21	258	719

TRANSPORTATION DEPARTMENT

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 Area	TOTALS
Supervisors	1	2	2	2	2	1	8	41	59
Drivers (Based on Areas served)	12	22	27	31	32	18	29	37	208
Mechanics	-	1	1	1	2	-	8	57	70
Trainmen	-	4	4	4	4	-	1	1	18
Laborers	3	4	4	4	5	4	-	60	84
Others	6	10	9	10	14	4	12	90	155
Total	22	43	47	52	59	27	58	286	594

**

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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
MEDICAL DEPARTMENT									
Physicians	-	-	-	-	-	-	5	12	17
Dentists	-	-	-	-	-	-	-	3	3
Nurses	4	4	3	3	3	1	8	78	97
H. I. Specialists	8	8	27	58	58	10	4	10	155
Technicians	2	2	2	1	1	1	-	19	24
Others	-	-	-	-	-	-	-	67	67
Total	14	14	32	39	60	60	17	189	363
ACCOUNTING DEPARTMENT									
Supervisors	-	-	-	-	-	-	-	15	15
Clerks	2	6	7	15	11	11	-	254	301
Telephone & Teletype Operators	-	-	1	-	-	-	-	30	31
Others	2	2	4	4	8	8	-	255	275
Total	4	8	11	19	19	19	-	594	622
CONSTRUCTION AND DESIGN									
	-	-	-	-	-	-	-	1	1
MANAGEMENT									
	-	-	-	-	-	-	-	4	4
GRAND TOTALS	166	409	417	581	407	182	1650	1305	

EXEMPT PERSONNEL ARRIVALS AND DEPARTURES - OCTOBER 1946ARRIVALS

<u>Name</u>	<u>Department</u>	<u>Physical Arrival</u>	<u>Origin</u>
Lowell M. Meeker	S	10-28-46	New
Charles P. Cabell	Technical	10-14-46	New
Howard E. Hanthorn	"	10-8-46	New
Frank E. Krussi	"	10-22-46	New
Charles V. Larrick	"	10-11-46	Trans.-Schenectady, N.Y.
Wayne W. Marshall	"	10-2-46	New
Eugene V. Plock	"	10-31-46	New
Roy E. Tomlinson	"	10-11-46	New
William J. Walsh	"	10-14-46	New
Norman C. Wittenbrock	"	10-28-46	New
Malcolm R. Dempster	Maintenance	10-18-46	New
Vernon R. Hill	"	10-18-46	New
F. Ellis Johnson	Service	10-21-46	New
Dorothy E. Kinkaide	"	10-14-46	New
Robert W. Harvey	Medical	10-28-46	New
Bjorn Lih	"	10-25-46	New
George W. Pomeroy	"	10-21-46	New
Ralph R. Sachs	"	10-14-46	New

DEPARTURES

<u>Name</u>	<u>Department</u>	<u>Physical Departure</u>	<u>Reason</u>
T. N. Stapleton	Management	10-15-46	Trans.-Wilmington, Del.
E. C. Bell	S	10-27-46	Trans.-Wilmington, Del.
J. H. Gillette	"	10-16-46	Trans.-Arlington, N.J.
R. L. Voight	"	10-20-46	Trans.-Wilmington, Del.
C. E. Hockmeyer	P	10-18-46	Vol.-Personal Reasons
K. W. French	"	10-10-46	Trans.-Deepwater, N.J.
T. B. Friend	"	10-28-46	Trans.-Belle, W. V.
C. A. Priode	"	10-21-46	Trans.-Belle, W. V.
R. K. Wahlen	"	9-30-46	Completion of Assignment
R. S. Apple	Technical	10-23-46	Trans.-Wilmington, Del.
I. S. Bubes	"	10-11-46	Completion of Assignment
P. A. Dahlen	"	10-15-46	Trans.-Wilmington, Del.
W. C. Kay	"	10-6-46	Trans.-Wilmington, Del.
D. A. King	"	10-9-46	Trans.-Jackson Lab.
M. B. Vordahl	"	10-9-46	Trans.-Remington, Bridgeport, Conn.

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EXEMPT PERSONNEL ARRIVALS AND DEPARTURES - OCTOBER 1946 (Cont'd)

<u>Name</u>	<u>Department</u>	<u>Physical Departure</u>	<u>Reason</u>
W. D. Webb	Maintenance	10-23-46	Trans.-Wilmington, Del.
H. J. Bowman	Instrument	10-6-46	Trans.-Belle, W. V.
W. T. Cloud	Service	10-31-46	Trans.-Wilmington, Del.
Lucius F. Ewell	Medical	10-6-46	Vol.-Another Job
Roy C. Thorell	"	10-28-46	Vol.-Return to private practice
Richard C. Forbes	Accounting	9-30-46	Completion of Assignment

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	<u>WW</u>	<u>WX</u>	<u>WY</u>	<u>WZ</u>
CA	1,133	74	36,460	2,496
CB	-	2	-	1,487
CC	-	76	-	3,983
CD	1,235	70	34,942	2,203
CE	15,045	47	662,808	2,514
CF	987	4	241,832	942
CG	5,924	23	24,992	99
CH	23,866	79	890,004	3,403
CI	24,377	71	643,276	2,435
CJ	-	7	-	169
CK	-	9	-	613
CL	-	5	-	554
CM	-	4	-	64
CN	-	5	-	66
CO	-	9	-	602
CP	-	8	-	162
CQ	-	1	-	61
CR	-	6	-	57
CS	-	9	-	-
CT	-	11	-	-
CU	-	4	-	-
CV	-	9	-	-
CW	-	7	-	-
NA	-	-	153,473	601.7
NB	8,448	33.1	221,026	867.5
NC	7,358	28.9	184,754	725.2
ND	15,806	62.0	559,253	2,194.4
NE	-	-	97,504	382.7
NF	8,555	33.6	157,246	617.2
NG	7,524	29.5	120,664	473.6
NH	16,079	63.1	375,414	1,473.5
NI	12,821	50.3	201,456	790.7
NJ	1,680	6.6	146,171	573.7
NK	-	-	-	-
NL	14,501	56.9	347,627	1,364.4
NM	-	-	-	386.6
NN	-	-	-	376.1
NO	-	8.3	-	193.9
NP	-	50.8	-	389.0
NQ	-	59.1	-	1,345.6

	<u>WP</u>	<u>WQ</u>	<u>WR</u>	<u>WS</u>
NR	1,352	82	1,250	81
NE	722	37	938	49
NT	24,242(a)	84(a)	18,104(b)	71(b)
NU	16,198	58	14,737	58
NV	54,361	157	42,257	135
NW	15,627	62	11,462	45
NX	-	1	-	2
NY	-	42	-	40
NZ	-	27	-	27
GA	55,969	220	55,969	220
GB	63,887	251	63,780	250
GC	64,256	252	64,090	252
GD	184,112	723	183,839	722
GE	28,080	110.2	29,658	116.4
GF	-	21.0	-	18.8
GG	-	1,326.7	-	1,345.6

	<u>WT</u>	<u>WU</u>
GH	0	98,107
GI	5,835	154,644
GJ	5,648	127,512
GK	11,483	380,263
GL	0	78,073
GM	6,838	128,622
GN	6,077	100,634
GO	12,915	307,329

	<u>WK</u>	<u>WL</u>	<u>WM</u>	<u>WN</u>	<u>WO</u>
GP	10,200,000	1,362,000	-	11,562,000	283,265,000
GQ	9,212,000	1,332,000	-	10,544,000	263,500,000
GR	561,200	71,100	-	632,300	16,829,800
GS	10,144,000	1,508,000	-	11,652,000	255,168,000
GT	-	359,800	-	359,800	9,985,400
GU	10,144,000	1,148,000	-	11,292,200	245,182,600
GV	4,521,000	1,606,000	-	6,127,000	-
GW	-	-	-	2,268,000	-
GX	-	-	-	9,108,000	245,002,160

- (a) Does not include 1,809 unbonded pieces at 7 units.
- (b) Does not include 3,932 unbonded pieces at 16 units.

P DEPARTMENT

OCTOBER 1946

HW-7-5362-De1

I. GENERAL

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

The program of isotope irradiation continued to expand, particularly with respect to the Special Request #15 series, (lithium fluoride). A total of 316 of the Special Request #15 slugs were charged into the operating piles during October. This compares with 121 slugs of this series charged during September.

II. ORGANIZATION AND PERSONNEL

One shift supervisor, C. E. Hockmeyer, terminated on October 18, 1946, for personal reasons. This move, combined with those reported last month, reduces by three the total number of supervisors.

Two operators from the 300 Area were transferred to the 100 Area for training.

III. AREA ACTIVITIES

PILE SUMMARY

	<u>PILE B</u>	<u>PILE D</u>	<u>PILE F</u>
Time operated (%)	-	78.9	90.3
*Power level (MW)	-	250	200
*Inlet water temperature (°C)	11.9	11.0	12.7
*Outlet water temperature (°C)	11.9	47.7	43.3
(Maximum °C, 10 tubes, 0.240 zone)			
Number of Scrams	-	1	1
Number of purges	0	1	1
Helium consumption (cu. ft.)	28,191	100,746**	74,510
Metal discharged (Tons)	0	33.6	29.7
Inhours gained (this month)	-	17	2
*Inhours poisoned	-	344	358
*Inhours in rods	-	51	46

* Month end figures
** High losses incident to purge of pile following extended shut down

PILE BUILDING

General

The D and F Piles were operated at a nominal power level of 250 MW and 200 MW, respectively, except for scheduled outages for metal discharge and maintenance and one unscheduled shutdown in each area. The table given below lists these outages:

P Department

<u>Date of Outage</u>	<u>Scheduled Outages</u>		<u>Unscheduled</u>	<u>Length of Outage (hours)</u>
	<u>Metal Discharge</u>	<u>Maintenance</u>		
10-1-46	D			20.3
10-2-46	F			19.0
10-8-46		D		19.1
10-9-46	F			14.6
10-11-46 to 10-15-46	D*			22.6
10-16-46		F		13.1
10-17-46			D	0.1
10-21-46 thru 10-21-46	D			90.7
10-22-46			F	0.3
10-23-46	F			15.0
10-26-46	D			3.3

* This outage was started about 10 hours earlier than scheduled because #22 Vertical Safety Rod dropped following a routine test and could not be tied out in time to revive the unit.

The unscheduled shutdown at D-File resulted from the malfunctioning of #32 Vertical Safety Rod on a routine test. The cable looped under the ring at the upper end of the rod and when the rod was raised along with the other rods it was pulled above the upper limit switch. The rod was tied out and the clutch clearance adjusted on the next scheduled shutdown. The unscheduled shutdown at F-File resulted from a momentary failure of #1 Process Water Pressure regulator in Building 190.

The fourth scheduled shutdown at D-File was extended to allow the Electrical Distribution group to repair breakers at Bldg. 151-D. Several major projects were completed at Bldg. 105-D during this outage. The fifth scheduled outage at D-File was to remove temporary poison columns needed for the extended shut down.

With the continued reduction of the river temperature, all four refrigeration units were taken off the line at the F-File on October 2, 1946. One refrigeration unit was taken out of service October 23 and another on October 29, at the D-File, leaving two in service at the end of the month. B-File was maintained in a standby condition with a water flow of 4,000 g.p.m.

OPERATING EXPERIENCE

A number of Special Request pieces were processed during the month. Details may be found in the Technical Section of this report.

2

In accordance with Production Test #105-75-P, Tubes #3569-D, 3570-D and 3571-D each were charged with 26-4" pieces centered in regular metal pieces on October 8, 1946. On October 9, 1946, Tubes #1170-F, 1171-F and 1172-F each were charged with 27 4" pieces centered in regular pieces. Total number of 4" pieces charged was 159.

The program of bismuth irradiation is being expanded gradually to meet requirements. The D-File loading underwent the following changes during the month: regular metal was replaced with bismuth in Tube 1971-D

P Department

on October 1, 1946, and Tubes #1485-D and 3385-D on October 8, 1946. Each replacement stringer contained 40 slugs. On October 1, 1946, "B" tubes #0980-D and 3880-D were discharged and recharged with 60 bismuth pieces each.

In accordance with Production Test #105-69-P, material which was barely within specification limits was charged on October 2. Tubes #1072-F, 1075-F and 1076-F each received 27 pieces of metal having low 305 test pile reactivity. Metal having high density was charged into Tubes #3669-F, 3678-F and 3679-F, (27 per stringer). In each instance, the stringer was completed with five slugs of regular metal.

Pressure drop tubes #2465-D, 2469-D, 2479-D and 2483-D were recharged on October 8, 1946, in accordance with the established practice of staggering the discharge of two groups of 4 tubes each in every operating pile to allow the evaluation of film formation by pressure drop measurements. The displaced metal was slightly over the normal discharge concentration when removed from the pile.

High concentration stringers in Tubes #1776-D and 2487-D were moved and reseated on October 1, 8 and 14. On October 23 these stringers were replaced with regular metal and were set aside for inspection.

?
X

The third safety flood tanks and Mason Heilan valves at the B-Pile were tested on October 14, by means of the control room tripping lever. The equipment performed satisfactorily. The pile headers were blanked during the test and the fluid was discharged to the drain. The flood tanks were refilled following the test.

A column of cast metal slugs was discharged from Tube #2084-D on October 23, and held for inspection by the Technical Department. The tube was re-established as a corrosion tube with regular metal.

Tube #2284-F was discharged with difficulty on October 23. The stringer was composed of regular metal being discharged after normal irradiation. Boroscopy revealed the tube to be gouged and it will be replaced early in November. One of the discharged pieces was badly nicked and gouged and had several swollen areas.

The monthly foil exposure at B-Pile was made October 30 by the Technical Department.

X

MECHANICAL EXPERIENCE

3

On October 2, the 20" export water line from the F Area reservoir to the pile failed and the water had to be shut off for one day until repairs were made. The break was directly over the concrete conduit which contained the electric cables running from the area sub-station to the refrigeration units. Because of this, the refrigeration units were taken out of service during the repair work and left out since the uncooled water temperature was sufficiently low to make refrigeration impractical. The semi-yearly pressure testing of vertical rod thimbles was commenced at F Area during October. No leaks have been found with about one-third of the tests completed.



MECHANICAL EXPERIENCE - Cont'd

All steam turbines, blowers and the steam air compressor in the Purification Building of the F Area were overhauled. In general conditions were good. The shroud on the rotating blades on the #2 Drier turbine was found to be out of alignment. New bearings were required on this unit. On the air compressor, the governor shafts were found badly scored from insufficient lubrication. Grease cups were installed to correct this condition.

The chief item for D-Pile during October was the extended shutdown from October 21 through 24, planned mainly to allow for inspection and overhaul of breakers at sub-station #151-D. During this time the major repair and installation items covered were: Installation of Elliot Twin Bucket Strainers in near and far High Tank lines; removal of damaged "B" hole thimble and insert and replacement of the thimble; installation of the neoprene seal in the top joint of the near biological shield; removal of cork and brick over the near side of the unit roof to allow upward expansion; repairs to the discharge chute lining, mattress plates and extensions. These are discussed below:

The "B" experimental hole thimble removal at D Area was complicated by radioactivity as found in each case where equipment is removed from within the pile structure. This work was patterned after #9 Horizontal Rod removal (Ref: Doc. 7-4712). Twenty-four hours were allowed for decay of short period radioactive components, during which time the front shield plug and cold end of the thimble were removed. On the second day the central portion was clamped to a pull cable and drawn into a sheet metal sleeve from a remote position. The vicinity around the withdrawal route was cleared and the thimble and sleeve were pulled to a remote corner of the Pile Restricted Area where they were stored in a lead shield for further decay. The sleeve was used to avoid contamination of ground and equipment. After several months cooling period, the thimble will be inspected and the graphite will be removed.

The Elliot Twin Strainer installation project is a part of the department-wide installation of strainers in High Tank lines to prevent iron rust from the tanks and lines getting into the unit screens. The first stage of this project was started in 100-B Area October 15, when the strainer was installed in the near high tank line to the B-Pile. Both strainers were installed in the D Area in October during the extended shutdown.

The neoprene seal at the top near side of the D-Pile was replaced in accordance with standard practice since the original seal had been stretched taut. This work, and the installation of a neoprene strip over the space once occupied by the cork liner and one course of bricks, was completed on October 24.

Repairs to the D-Pile Discharge chutes on October 23 included replacing one mattress plate and three mattress plate extensions and the placing of several patches on the chute lining proper. It was noted at this

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MECHANICAL EXPERIENCE - Cont'd

time that the chute lining is seriously deteriorated and is separating from the chute floor. These patches are of a temporary nature.

The October 21 shutdown at D-Pile completed a phase of overhauling vertical safety rod magnetic clutches to overcome that part of the vertical rod difficulties which is due to clutch slippage. Two clutches per shutdown were changed October 1 and 8, and the balance of those clutches which showed signs of excessive lubrication were changed on October 23. Other clutches were checked by a feeler type gauge which indicated the remaining clutches were free of grease.

Installation of pneumatic charging machines and the auxiliary venting curtains in B Area was completed in October, closing these projects for the "P" Department.

The last part of Production Test #105-52-P, calling for jacking fifty tubes in the B-Pile, was begun October 21 and completed by the end of the month. A total of six tubes showed some binding, two of these being very slight.

The rear Van Stone flange on Tube 2460-D was inspected on October 15, and was found in good condition. There was no pitting in evidence and only minor etching.

During October, all 4" cross header screens in B riser at the B-Pile were changed. Screens in one riser per month are changed since plugging could not be detected at the low rate of process water flow in that pile.

Numerous measurements were made at the D-Pile during October in connection with the study of pile expansion: On October 1, tubes 2366-D and 2380-D were measured for over-all length by use of measuring tape in the emptied tube and were also tested for freedom of longitudinal movement through pushing and pulling deflection. The initial base measurements of front and rear Van Stone flanges of twelve tubes were started in September and completed October 8, in accordance with production test #105-72-P. Subsequent measurements will detect any tube elongation due to expansional forces.

On October 21, the vertical deflection of tube 4674-D was taken by the Technical Department, using the manometer type traversing equipment. This traverse showed an increase of about 1/16" maximum upward deflection as was expected.

On October 22, the transit type of deflection traverse was made by the Instrument Department on tubes #2451-D and #2496-D. Changes in lateral deflections at maximum points were about 3/32" for #2451 and about 1/8" for #2496.

GAS PURIFICATION

One carload of helium was unloaded to the F Area storage tanks during the period October 5 to 7.

SPECIAL HAZARDS

Following the F Area scram on October 22, the top of the pile was found to be contaminated by rust, presumably driven out of the thimbles by the rapidly falling rods. The area was decontaminated by using damp rags and mops. Similar rust contamination occurs in all pile areas when the vertical rods are scrambled.

Minor contamination has been found in the water of the F Area ash pit. Maximum readings, occurring on the side nearest the retention basin, are of about the same order of magnitude as those of river water near the effluent sewer line. There have been no indications of a leak in the process water sewer line. The retention basins at the F Area are being tested for leakage.

Decontamination of the B Area metal storage basin was actively pursued throughout October. In addition to the pump in the discharge chutes which was installed in September for localized removal of contamination from chutes to the burial pit East of the pile building, a deep well pump was installed for pumping general wash water from #1 transfer pit to this same burial trench. Localized clean-up in the chutes plus general clean-up of sludge in the basin has reduced contamination many fold. A survey and evaluation has been requested from the Health Instrument group so that future action may be determined.

300 AREA - METAL FABRICATION

Extrusion, Outgassing and Machining

Extrusion, Machining and Billet Yields were as follows:

	% Yield (Regular)		
	September	October	To Date 1946
Extrusion	92.9	93.4	92.5
Machining	81.6	81.8	79.8
Billet	75.4	76.4	73.8

	% Yield (S-X)		
	September	October	To Date 1946
Extrusion	93.1	*	93.4
Machining	*	68.9	71.0
Billet	*	64.2	66.3

* None reported this period

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300 AREA - METAL FABRICATION - Cont'd

Extrusion operated four days during this period. Fifty-four TX billets from August and September shipments were extruded on October 11, 1946. These rods were packed and shipped off the Project. Total weight of rods shipped was 5262.75 lbs.

A total of 487 TX billets from the August and September shipments was grouped according to analytical data and T.D.S. values into seven production lots. Forty-four billets taken from the lots, two each from the high, intermediate and low quality ranges in each lot respectively, plus two analyzing high in boron were extruded for production test #311-42-M. A total of 410 TX billets from the above lots, including the 44 for the production test, were extruded October 23, 1946. The remainder of these grouped billets are to be extruded later. The rods produced for production test #311-42-M are to be machined, canned and carried through the test pile. Processing of the remainder of these TX rods is being delayed pending results of the production test.

The sorting of unbonded material stamped with an "R" was completed and a total of 707 pieces, so marked, have been set aside for future processing. These pieces are believed to be rolled material. On October 15, 1946, the processing of the remainder of the unbonded canned slugs was resumed, with the slugs being processed as A's and those falling below A dimensions centerless ground to MZ dimensions. On October 23, 1946, an intermediate classification consisting of all slugs falling between A and MZ dimensions, was established for processing unbonded material. This eliminated centerless grinding and the operation currently consists of stripping in caustic bath, straightening, machining radius on ends of slugs, segregating slugs into the three aforementioned classifications, and canning. The canning of the slugs in the intermediate A-MZ classification will not be done until all the unbonded pieces have been sorted and the factor weight has been set up for this intermediate classification.

The machining of 45 S-X rods extruded in September was completed October 2, 1946.

A total of 290 Bismuth slugs received during this period was machined to a nominal diameter of $1.360 \pm .005$ inches. The slugs, as received, exceeded the maximum diameter from .001 inches to .003 inches.

Chip Recovery and Oxide Burning

The Chip Recovery yield was as follows:

	% Yield		
	<u>September</u>	<u>October</u>	<u>To Date 1946</u>
7	91.5	92.7	92.6

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P Department

300 AREA - METAL FABRICATION - Cont'd

The Chip Recovery process was operated three days during this period. This operation was shut down from October 15, 1946, to October 25, 1946, for revisions on the conveyor between the pulverizer and washer, whereby the discharge end was lowered to reduce the angle of the belt travel. Operations following this revision indicate that the difficulty with chips rolling back on the belt into the pulverizer tank has been eliminated.

The Oxide Burner has been operated daily during this period.

The material burned is as follows:

	Weight Out - Lbs.		
	September	October	To Date 1946
Extrusion Skirts & Floor Sweepings (D-2)	0	2944	2944
Chip Recovery Floor Sweepings (D-2)	0	420	420
Extrusion Oxides (D-6)	5240	369	21063
Chip Recovery Oxides (D-6)	6977	3199	14165
	<u>12217</u>	<u>7432</u>	<u>38592</u>

Canning Operation

Metal Slugs - Type canned and yields obtained were as follows:

	% Canned		% Yield	
	October	To Date 1946	October	To Date 1946
New Machined - A's	0.0	7.4	0.0	78.7
New Machined - A's (Cast)	0.0	0.6	0.0	78.8
New Machined - MZ's	88.3	76.3	91.2	87.2
Recovered - Z's	8.6	8.9	93.2	87.3
Recovered - X's	<u>3.1</u>	<u>6.8</u>	<u>95.2</u>	<u>90.8</u>
	100.0	100.0	91.5	86.8

One hundred pieces of Request No. 15-7, ninety-nine pieces of Request No. 15-8, one hundred ninety-eight pieces of Request No. 15-9, and two hundred eighty Bismuth slugs were canned during this period. One piece of Request No. 15-8 and two pieces of Request No. 15-9 failed to pass the bubble test before canning and will be returned to the vendor. All slugs of the Special Request No. 15 series are lithium fluoride.

A sizing die having a diameter of .420 inches was fabricated in order to use a stock of .035" wall, thin bottom cans held in storage for the canning of Special Request pieces and Bismuth slugs. The die worked satisfactorily and Request No. 15-8, 15-9 and the Bismuth slugs canned this month were canned in .035" wall cans. Previously, this material was canned in .045" wall, thin bottom cans, of which the supply on hand is 500 cans. These will be held for any special processing in

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P Department

300 AREA - METAL FABRICATION - Cont'd

the future which might require this type of can. The current inventory of .035" wall, thin bottom cans is 47,604. The yield was 90.6% on .035" wall cans used this period.

Canning rejects, by cause, were:

	<u>% of Total Canned (Regular)</u>		
	<u>September</u>	<u>October</u>	<u>To date 1946</u>
Non-Seating	1.6	2.0	2.2
Wrinkled Cans	1.3	1.3	1.9
Marred Surface	2.6	2.4	3.4
Al-Si on Outside of Can	0.2	0.3	0.2
Air Pockets	0.1	0.1	0.1
Frost Test Rejects	0.9	1.2	1.4
Warp	0.1	0.1	0.2
Bad Welds	0.3	0.3	0.4
Miscellaneous Causes	<u>0.4</u>	<u>0.8</u>	<u>3.4</u>
	7.5	8.5	13.2

On October 3, 1946, the recovery of T metal from bronze flux by melting process was started. To date, 12,000 lbs. of bronze, 6,400 lbs. of BFC₆ (Separated T Metal Oxide), and 1,000 lbs. of top flux have been recovered. The average analysis of the BFC₆ recovered is 12.7% T metal, which is above the minimum specification required for shipment to the fabricator.

The canning program for S-X slugs was completed October 21, 1946. A total of 7,638 Class I's and 236 Class II's were canned this period. A total of 33,629 slugs were canned for Special Request #24, of which 31,766 pieces were Class I and 1,863 were Class II.

The yields for S-X canning were as follows:

	<u>% Yield</u>	
	<u>October</u>	<u>Final Yield</u>
Class I	96.6	94.2
Class II	78.4	72.3

Canning Rejects, by cause, were:

	<u>% of Total Canned (S-X)</u>			
	<u>October</u>		<u>Final Canned</u>	
	<u>Class I</u>	<u>Class II</u>	<u>Class I</u>	<u>Class II</u>
Marred Surface	0.3	0.0	0.6	0.2
Bad Welds	2.9	21.6	4.8	27.4
Facing	0.2	0.0	0.4	0.1

P Department

300 AREA - METAL FABRICATION - Cont'd

The final shipment consisting of 11,718 canned S-X pieces has been loaded and is scheduled for shipment on November 1, 1946. The total pieces shipped will then be 33,629, which includes 22 experimental pieces shipped in June, 1946.

Recovery Operation

	<u>% Recovered</u>		<u>Average Weight - Lbs.</u>	
	<u>October</u>	<u>To Date 1946</u>	<u>October</u>	<u>To Date 1946</u>
Z Slugs	64.2	52.7	7.785	7.802
X Slugs	32.9	41.1	7.744	7.727
Rejects	<u>2.9</u>	<u>6.2</u>	<u>-</u>	<u>-</u>
	100.0	100.0		

Inspection and Testing

Autoclave rejects were as follows:

	<u>September</u>	<u>October</u>	<u>To Date 1946</u>
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	0.08	0.00	0.06
Recovered - Z's	0.00	0.00	0.00
Recovered - X's	<u>0.00</u>	<u>1.70</u>	<u>0.07</u>
	0.08/M	0.06/M	0.05/M

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

	<u>% Useable (Regular)</u>		
	<u>September</u>	<u>October</u>	<u>To Date 1946</u>
Aluminum Cans	83.5	93.7	82.8
Aluminum Caps	97.7	98.5	96.6
Steel Sleeves	62.5	87.7	72.6

The yield of S-X cans inspected this month is 99.6%. The final overall yield is 99.2%.

300 Area - Test File

This unit was operated 4 eight-hour days, making 97 routine tests on uranium slugs.

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FORCE REPORT- OCTOBER 1946

Force report figures are listed below:

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>300</u>	<u>700 & 1100</u>	<u>Total</u>
Supervisors	6	12	11	11	3	43
Operators	<u>11</u>	<u>39</u>	<u>41</u>	<u>86</u>	<u>0</u>	<u>177</u>
Total	17	51	52	97	3	220

S DEPARTMENT

HW-7-5362-De 1

OCTOBER 1946

I. GENERAL

Thirty-nine batches were started in the Canyon Building during the month and forty were processed through the Concentration Buildings. Forty-three batches were completed in the Isolation Building. The average purity was 99.1%.

The material balances for T and B Plants averaged 103.6% and 105.3%, respectively. Although considerable thought was given during October to possible explanations of the higher than normal balances, no substantiated reasons could be advanced.

The situation with respect to Essential Material was greatly improved during October. The critical status of many items was relieved either by receipt of the material or by promised availability in the near future. A preliminary survey was made to determine the possibilities of expanding the present essential material storage facilities. This study will be continued in November.

Production Performance Data (10/1/46 - 10/31/46, inclusive)

	<u>B Plant</u>	<u>T Plant</u>	<u>Combined</u>
Number of charges started	33	6	39
Number of charges completed	36	4	40

For completed charges:

Percentage of starting product in waste			
This month	5.5	6.4(a)	5.6
Last month	5.7	4.8(b)	5.5
Cumulative to date	6.4	6.7(c)	6.5

Percentage of starting product recovered			
This month	99.8	97.2	99.5
Last month	95.9	96.2	95.9
Cumulative to date	95.5	94.9	95.3

Percentage of starting product accounted for			
This month	105.3	103.6	105.2
Last month	101.5	101.0	101.4
Cumulative to date	102.0	101.6	101.8

G Decontamination Factor (Log.)

1	This month	7.35	7.07	7.32
	Last month	7.17	7.17	7.17
	Cumulative to date	7.28	7.23	7.26

(a), (b), (c): Includes waste from processing recycle. The recycle wastes are estimated as: (a) 0.97%, (b) 0.21%, and (c) 0.21%.

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Isolation Building Performance Data (10/1/46 - 10/31/46, inclusive)

	% of Incoming Product			
	<u>Prepared for Shipment</u>	<u>Recycle</u>	<u>Losses</u>	<u>Material Balance</u>
Average for this month	94.5	3.1	0.12	97.7
Average for last month	96.5	3.5	0.05	100.0
Average to date	96.9	3.9	0.14	101.0

II. ORGANIZATION AND PERSONNEL

Lowell M. Maeker was placed on the S Department roll on October 28, 1946, as a Shift Supervisor and assigned to B Plant. B. E. Clark, Jr. R. L. Lance and J. R. Cartmell completed their basic training and assumed the full responsibilities of Shift Supervisors in the Department.

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants

Decontamination Factors

Decontamination factors showed marked improvement in B Plant during October. The factors in T Plant were lower than usual but no conclusions could be drawn due to the small number of charges processed. The acid wash in B Plant was made following B-6-10-F14 and a normal pickup of product was recovered. The final product solution from the Concentration Building was exceedingly high in fission product activity, as was the case with the previous acid flush. This material was added to Runs B-6-10 D20 and 21 and both runs were processed with normal decontamination. The high fission product pick-up of the last two acid washes has been attributed to the fact that both washes have included a flush of the Section 3 waste effluent tank where high fission activity was undoubtedly picked up. Future acid washes of this tank will not be returned to the system but will be sent to waste instead.

High Section 16 Byproduct Loss in B-6-10-D23

On Run B-6-10-D23 difficulty was encountered with Section 14 precipitator tank to centrifuge transfer jets with the apparent result that a small heel containing phosphoric acid was left in the precipitator tank prior to cake solution. This resulted in incomplete dissolution of the product cake in nitric acid despite the addition of an extra 500# of acid. The product solution was analyzed and processed through Section 16 with a resultant byproduct cake loss of 4.3%. This byproduct cake solution was reoxidized and processed as Special Run B6-10-D23A. The byproduct loss on this run was 2.31% and was discarded since it was not considered feasible to attempt to reduce it further. The faulty Section 14 transfer jet was replaced and no further difficulty was encountered during the balance of the month.

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S Department

T and B Plants - Cont'd

Evaluation of New Source of Hydrofluoric Acid

One car of double distilled hydrofluoric acid was received from a new vendor. This material was evaluated by means of a Production Test on Runs B-6-10 D21 through D28. Results of this test will be issued by the Technical Department.

Cell E Centrifuge Skimming

During October it was discovered that the Cell E centrifuge in the B Plant Concentration Building was being skimmed to approximately 63 pounds instead of the standard 83 pounds (10 gal.) heel. The skimmer stops were reset and an immediate improvement in the product effluent waste losses of approximately 0.2% to 0.3% was obtained. The possibility of further improvement in these losses by skimming to an even larger heel will be investigated during November in both the T and B Plants. Such a study may explain the variation in these effluent losses between the two Concentration Buildings.

B Canyon Process Leak

On 10/30/46 B Canyon was shut down to determine the source of a product leak suspected from an increase in the product content of the cell drainage water. A program of step-wise water flushing of all cells and the trench in conjunction with water conductivity measurements was followed, employing the conductivity meter installation mentioned under Mechanical Performance. Conductivity readings indicated leak possibilities in Cells 8L, 8R, 13L, 15R and 17R. Visual inspection from the crane revealed no signs of leakage, however, and the cells were started up step-wise with a small amount of water being permitted to flow onto each cell floor. The conductivity meter readings indicated a leak in the precipitator centrifuge transfer jet in Cell 17R and a possible leak in the centrifuge to product solution tank transfer assembly in Cell 8L. Leaks in the other suspected Cells were not confirmed. Repairs were made in Section 8 and 17.

Experimental Dissolving of Bi Metal

The 750# of Bismuth metal scheduled for October's receipt was received in T Plant. A second experimental dissolving of 150# of metal will be made early in November, followed by a full scale dissolving of 600# Bismuth in M101 Tank as outlined in September's monthly report.

RECOVERY OF 1131

Preparations were under way at month end to furnish a stipulated quantity of solution containing radio-active 1131 at a concentration previously made in the stack monitoring building in B Plant.

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S Department

Isolation Building

Product Recycle in 231 Building

As the result of a study made by the Technical Department concerning the weight of product recycled from 231 Building it is indicated that the first cycle supernate is responsible for the differences in product recycled from B Plant and T Plant material. T Plant first cycle supernate contains more product than B Plant material by a factor of 1.65. The Technical Department will continue to investigate this matter, in an effort to determine the reason for this difference.

Failure of Recycle Run to Precipitate

Run T-6-10 MRC3 failed to precipitate properly in the first cycle precipitation tank. Based on the results of laboratory tests made with samples of the solution, the peroxide supernate was heated to 35°C, held for two hours at this temperature, cooled to 20°C and treated with additional peroxide. The solution precipitated normally and was processed without further difficulty. The cause was attributed to incomplete reduction before precipitation.

WASTE DISPOSAL

T and B Plants

Cribbing of Second Cycle Wastes

A survey was started during October to recheck the amount of product and fission product activity in process waste effluents being discarded to the ground. Representative samples of second cycle wastes were also taken and analyzed to afford a comparison in view of the proposed plans to similarly dispose of these wastes. Initial findings indicate that the product content of second cycle wastes is less than that contained in Isolation Building wastes currently being cribbed to the ground while its fission product activity is comparable to Concentration Building wastes that are being similarly discarded. In order to further evaluate the proposed cribbing of second cycle wastes, it was considered advisable to determine the amount of sludge that has accumulated in second cycle storage since start-up. Tanks X-110-T, X-111-T and X-112-T in T Plant were checked by means of ionization chambers and it was determined that while the sludge level in the first tank was evenly distributed on the bottom of the tank to a depth of 38", there was no indication of sludge in the second and third tanks in series. A request was made to the Project Engineering Group to prepare a project to cover the cribbing of second cycle wastes in both T and B Plants, using the X-110-B and X-110-T storage tanks for settling purposes.

Bypassing of 361 Tank

Bypass facilities were installed in both plants to permit the diverting of Concentration Building wastes from 361 tank to the 201 tank for settling and overflow into underground cribs. The 361 tanks at month end were being used solely for handling Canyon Building cell



S Department

Bypassing of 361 Tank - Cont'd

drainage, and appeared to be functioning satisfactorily. In order to protect these concrete tanks from the corroding effects of acidified cell drainage wastes both plants adopted the practice of adding 15 lbs. of 50% NaOH to each batch of waste jetted to the 361 tanks.

Diversion of Metal Wastes to X-104C Tank

On 10/29/46 the X-103C metal waste storage tank in B Plant reached a point six inches below the overflow level. The necessary diversion box changes were made and the metal waste was diverted to X-104C tank.

Additional Waste Storage Facilities

Project Proposal, C-112, providing for additional underground waste tank facilities in the 241-B Plant Tank Farm, was prepared and submitted for approval during October. The preparation of this project was based on the final recommendations of the 200 Areas Waste Committee and its execution will provide requisite storage space for ten months' additional operation at current production rates.

Isolation Building

Product Distribution in Isolation Building Wastes

Data collected from the sampling of neutralized sump tank solutions over a two week period to determine whether product is introduced to the crib system in solution or in sludge form indicated that the bulk of the product is in the solid phase. Sludge comprises less than 0.1% of the sump solution.

The status of the Waste Storage Areas on October 31, 1946, is shown in the following table:

Bldg. 241 Tanks	Type Waste	% Full				Reserve Capacity in Batches to Process				Total
		<u>B</u>	<u>T</u>	<u>C</u>	<u>U</u>	<u>B</u>	<u>T</u>	<u>C</u>	<u>U</u>	
x101,2,3	Metal	100	100	100	48.8	0	0	0	138) 806
x104,5,6	"	-	-	0.3	-	-	-	269	269	
x201,2,3,4	"	0	0	0	0	28	28	37	37	
x107,8,9	1st Cycle	100	100	0	0	0	0	338	338) 1109
x110,1,2	"	-	-	64.1	7.7	-	-	121	312	
x104,5,6	"	-	100	-	-	-	0	-	-	
x104,5,6	2nd Cycle	18.1	-	-	-	372	-	-	-) 617
x110,1,2	"	100	100	-	-	0	0	-	-	
x105,6	"	-	5.6	-	-	-	245	-	-	

S Department

MECHANICAL PERFORMANCE

T and B Plants

Section 17 Precipitator Tank Jacket Leak

The leak in the B Plant Section 17 precipitator tank water jacket which was discovered during the bi-yearly cell and trench inspection made last month was successfully welded.

Crane Solenoid Brake

In the past considerable difficulty has been experienced with the linkage pins on the solenoid brakes of the area cranes. The pins have been keyed in place by means of cotter keys. Due to vibration causing wear, the keys have failed several times, permitting the linkage pins to drop out, thereby destroying the effectiveness of the brake. Upon the recommendation of the Project Engineering Group the linkage pins in all S Department cranes are being replaced with pins which have a bolt head on one end and are threaded and drilled for a castle nut on the other end.

No. 1 Stack Fan at B Plant

The bearings of the #1 stack fan in B Plant were replaced in November of 1945. Vibration and noise again became excessive in August of 1946, when temporary repairs were made by shimming the outboard bearing to compensate for wear at the pillow block. On 10/27/46 it was again necessary to take this fan out of service. Temporary lead shielding was installed at the fan to permit the replacement of the fan bearings. Actual replacement was in progress at month end. Since it is suspected that the fan is not in perfect balance or has a bent shaft, work on Project C-100 providing for the necessary emergency shielding to permit replacement of the entire fan is being expedited.

D-2 Centrifuge Motor

The D-2 centrifuge motor in the B Plant Concentration Building shorted out on 10/24/46 and was replaced with a new motor. This is the first failure of this nature in a centrifuge motor since start-up. The motor will be disassembled to determine the cause of failure.

Semi-Annual Cell Check

All flange bolts in the B Plant Concentration Building were inspected and tightened during October. General condition of the equipment was found to be good.

Cell F Tank Leak

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During a routine survey of F Cell in B Plant a small crack was found near the bottom of the metathesis wash waste tank. The area above the crack was damp but no appreciable material had been lost. Repairs were successfully made by welding.

Mechanical Performance - Cont'd

HF System

At month end the hydrofluoric acid system in the T Plant Concentration Building was dismantled for extensive valve and piping replacements as outlined in last month's report. At the conclusion of this work the HF system in the 211-T Tank Farm will be emptied and checked thoroughly and the 9' x 36' storage tank will be hydrostatically tested and inspected. Advantage will be taken of this cleanout to incorporate recommended and approved piping changes resulting from the major injury investigation that took place in October. At month end a study was in progress to determine the feasibility of using the small HF tanks in the operating gallery and in the Service Building of each plant in conjunction with the 9' x 36' storage tanks to permit repairs to be made more safely and conveniently in the future.

Canyon Leak Prevention Program

Considerable progress was made during October with respect to the Canyon Leak Prevention Program outlined in September's monthly report. Action was taken on the following items:

1. An improved type conductivity meter was installed in the cell drain inlet to the Section 5 cell drainage tank in B Plant Canyon. Experience obtained during the month demonstrated its sensitivity to very dilute acid concentrations. It proved to be of considerable value in detecting the source of product leakage encountered during the latter part of the month.
2. The necessary data was obtained to permit the formulation of a preventive maintenance schedule for changing all critical gaskets and all critical pipe assemblies that contain gaskets which cannot be changed. Since this program is based on the promise that G9 gaskets continue to be used and is designed to anticipate their failure by scheduled replacements, its adoption has been held up pending the results of connector tests employing gaskets made of GX, a material that to date has evidenced virtually complete resistance against corrosion when properly installed.
3. In order to evaluate the resistance of GX gaskets to deformation under stress, several GX gaskets were installed in connectors in a mock up cell in B Plant and impacted and removed several times. The condition of the gaskets after this rigorous treatment was excellent. The present indicated resistance of this gasket material - rejected for use during construction due to its tendency to flow under stress - is attributed to the use of the slower impact wrench in service today. Since construction the impact wrench has been reduced in speed from 1600 rpm to 560 rpm and the time of impacting standardized.
4. During the month Product slurries in Sections 14 and 17 in both T and B Plants were cooled to 35°C rather than 50°C prior to centrifugation. It is expected that the lower temperature will prolong the life of the G9 gaskets and equipment in general.

7



SPECIAL HAZARDS

T and B Plants

Contaminated Area Over Waste Lines in B Plant

A third contaminated spot appeared at the first of the month over the waste lines at the rear of the B Plant Canyon Building about 240' downstream from the original spot at R3 Stairwell as described in September's monthly report. Fourteen test holes approximately 11' deep have been driven at strategic points bordering the entire area of contamination. These test wells will permit detection of the contamination should it continue to spread underground. The area above the contamination was being covered at month end with coarse gravel to a depth of three feet. This work was approximately 75% complete. When this is completed a climb-proof fence will be erected and the area posted as a permanent Danger Zone. Test holes have also been driven on each side of the area roads where they pass over the waste lines. Similar holes adjacent to area roads will be sunk in T Plant and both plants will survey and patrol the waste line areas in an effort to minimize the seriousness of any future piping leaks underground.

Process Transfer

Through the use of orifices and minor ventilation changes it was possible during October to maintain the process receiving vessel in the Concentration Building at both plants under negative pressure when receiving process solution from the Canyon Buildings. Prior to these changes the receiving vessel was under positive pressure during a portion of the jetting period with the resulting escape of contamination into C Coll.

Constant Iodine Monitoring Instrument

Work continued in T Plant during October on the constant iodine instrument installed in the crane cab. Calibration of the unit was not completed at month end. Further work on the B Plant installation was held up pending results obtained at T. Plant.

Overloading of Sample Can

A sample can in the Isolation Building was inadvertently overloaded through an error in calculation. No spill occurred and the can was successfully unloaded with no loss of product. Steps were taken to prevent a recurrence.

METEOROLOGICAL SECTION

Ninety-one pre-dissolving forecasts were furnished to the T and B Plants, and twenty high wind or thunderstorm warnings were issued to the electrical Department.

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DECLASSIFIED

S Department

Meteorological Section - Cont'd

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

Maximum average hourly wind velocity at 200'	38 mph
Minimum average hourly wind velocity at 200'	1 mph
Maximum average hourly wind velocity at 50'	33 mph
Minimum average hourly wind velocity at 50'	1 mph
Prevailing wind direction	WNW
Prevailing wind quadrant	W
Maximum air temperature (4 feet)	76°F
Minimum air temperature (4 feet)	21°F
Number of days precipitation and/or fog occurred	9
Number of days precipitation occurred	7
Number of days fog occurred	2
Greatest duration of precipitation	10.9 hours



S Department

FORCE REPORT - OCTOBER 1946

Force report figures are listed below:

	<u>200 E</u>	<u>200W</u>	<u>Plant General</u>	<u>700 & 1100</u>	<u>Total</u>
Supervision	21	26	1	3	51
Operators	124	112	12	1	249
Others	-	-	1	0	1
	<u>145</u>	<u>138</u>	<u>14</u>	<u>4</u>	<u>301</u>

Plant General: - Includes Meteorological and 200 North Area
700 & 1100 : - Includes Richland Supervision and Records Group
200 West : - Includes 231 Building

TECHNICAL DEPARTMENT

OCTOBER 1946

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GENERAL

T. W. Hauff and W. K. Woods attended the General Information Meeting held at Clinton Laboratories, Oak Ridge, Tennessee, on October 14, 15 and 16. The former spent October 17-19 at the Argonne National Laboratory, in Chicago, primarily for the purpose of reviewing progress on solvent extraction studies and discussing information exchange. J. M. West left for Chicago on October 29, where he is to study A.N.L. procedures for checking the reactivity of uranium billet samples.

The following group from the Research Laboratory, at Schenectady, were visitors in the department October 25-30 to obtain background information for their projected program on materials: J. H. Hollomon, J. P. Howe, E. G. Rochow and W. E. Ruder.

Beginning with this October report, a Bibliography of significant technical documents issued by the department during the month will be appended. This first listing includes material of September issue.

ORGANIZATION & PERSONNEL

As noted in the plant Force Report, total personnel in the Technical Department increased from 185 on September 30 to 199 as of October 31. The divisions affected will be apparent from the following table:

	<u>September 30</u>	<u>October 31</u>
Laboratories	146	150
100-300 Technical	18	24
200 Technical	6	8
Chemical Development	7	10
Statistics	6	5
General	<u>2</u>	<u>2</u>
Total	185	199

Most of the increase was due to exempt roll additions, mainly as Engineers (Chemical) and Jr. Technologists. The Laboratories Division added several laboratorians to the weekly roll.

W. A. Briggs, an Area Supervisor in the Laboratories Division, was assigned to the Service Department for a special Central Files methods study, starting October 14. The necessary temporary revision of laboratories organization was effected.

K. L. Boring and G. E. Syrov, of the General Engineering and Consulting Laboratory at Schenectady, arrived and have been assigned to the 100 Area Physics group.



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Technical Department

100 AREAS

Physics

General

A discrepancy of 10 MW between the calculated power of the F Pile and the level indicated by the Thermohm Power Indicator was reported last month. This discrepancy was reduced to 6 MW after the refrigeration of inlet water was discontinued during the shutdown of October 2. The instrument was then adjusted to read the true power. Subsequent experience has shown that frequent readjustment of the Power Indicator is necessary to keep it in agreement with the level calculated from measured temperatures and flow rates.

A survey of recent temperature maps has indicated that shifts in temperature produced by a change in the unbalance of the P-column pattern are not completely predictable by current methods. Apparent anomalies have been discovered which indicate that a horizontal unbalance in the P-column pattern will produce only one-half as much temperature shift as a vertical unbalance of the same magnitude. The vertical effects are in agreement with current theory. This matter is being investigated further.

Calculations have been made on the production of polonium as a function of the number of slugs per tube for exposures of 90, 120 and 150 days. Based upon these calculations and considerations of operating convenience, the increased production schedule will be met by 10 tubes in the D Pile containing 50 slugs each and 12 tubes in the F Pile containing 45 slugs each. The exposure cycle will be 120 days.

A calculation on the effect of metal density on pile reactivity indicates that a 1% decrease in density of metal in an entire pile will cost 6.7 ih. It is planned to check this by experiment. Additional data on the reactivity absorbed by impurities were developed to assist in the analysis of trends in metal quality.

Assistance was given the P Department in predicting critical conditions, and in choosing the number and location of temporary P-columns used during the startup period following the extended shutdown of D Pile (October 21 to October 25).

The Army has laid down the policy that metal accepted at this site should be of such quality as to maintain the cold, clean reactivity of the piles at approximately the levels which existed on October 15; namely, 805 and 751 ih for the D and F Piles, respectively.

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

Technical Department

	<u>D File</u>	<u>F File</u>
Amount in rods	50 inhours	46 inhours
Amount in lead-cadmium slugs	0	64
Amount in Special Requests:		
within poison pattern	308	261
outside poison pattern	0	15
Amount held in Bi columns	34	16
Dummy columns	2	12
Xenon	497	427
Amount in overall coefficient	<u>-77</u>	<u>-76</u>
Total clean, cold reactivity	814 inhours	755 inhours

Graphite Monitoring-Production Test 105-1-P

Samples of graphite taken from a piece removed from the D test hole of the D File after an exposure of 921 MD/AT have shown expansions which are only 28% of the expansions expected at this exposure. Measurements of other exposure-sensitive properties of this particular piece have also been low.

Graphite recently removed from No. 9 rod thimble at D File is being examined as a possible source of expanded samples for use in annealing experiments at various temperatures and in various atmospheres.

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

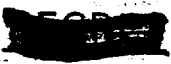
Exposure of foils on October 30 in the B File indicated no change in reactivity, which remains 1.5% below critical.

Xenon-Free Reactivity Coefficients - Production Test 105-78-P

This test was carried out on October 25 and 26, just before the D File was returned to full power. The data are in process of analysis. Preliminary study of the results has indicated that some modifications of the procedure are desirable, and it is planned to repeat the experiment at the F File using the modified procedure.

Special Irradiations

The present status of this program is summarized below. Those items which were active during October are marked with an asterisk. Items listed as completed last month will receive no mention. The number in parenthesis under "Status" indicates the number of the Production Test, Series 105-P, and "Final" indicates that a final report has been issued. The letter suffix after a tube number denotes the pile.



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Technical Department

<u>Req.No.</u>	<u>Material</u>	<u>Quantity</u>	<u>Exposure</u>	<u>Status on October 31, 1946</u>		
3-1*	Thorium	43 slugs	2 months	charged 2082-F 7/24/46, discharged 10/2/46; awaiting shipment (49-B)		
5	Np ²³⁷	200 Area Item				
6	U ²³³	1 slug	1 year	charged 3282-F 4/2/46 (57)		
7*	Np ²³⁷	5mg-1slug	120 days	Completed; shipped 10/11/46 (62 Final)		
9-3*	BeO, mixed oxides	8 slugs	120 days	completed; shipped 10/11/46 (62 Final)		
10-A*	Sm oxide	1 slug	120 days	completed; shipped 10/11/46 (62 Final)		
10-B	Gd oxide	1 slug	--	Postponed		
11*	Radium	1 gram	120 days	charged F, test hole 10/2/46		
12A	U ²³⁵	--	--	Postponed		
12-B	Pu ²³⁹	540 mg-1 slug	8 months	charged 3378-F 4/18/46 (59)		
13-1*	Be ₃ N ₂	69 slugs	60 days or longer	35 pieces charged 1474-F 7/24/46 discharged 10/2/46 shipped 10/11/46 (70) 34 pieces charged 3274-F 7/24/46		
13-2	Be ₃ N ₂	60 slugs	60 days or longer	charged 3169-D 8/6/46; 2666-F 8/7/46 (70-A)		
14	Al-U Alloys	3 slugs	2, 12, >12 months	slugs in preparation at another site		
15-2*	LiF	36 slugs	50 days	completed, shipped 10/11/46 (55B)		
15-3*	LiF	48 slugs	50 days	discharged 24 pieces 1569F 10/2/46; shipped 10/11/46 discharged 24 pieces 2082D 10/8/46; awaiting shipment (55C)		
15-4	LiF	99 slugs	50 days	charged 50 pieces 2374-F 9/4/46 12 pieces 3276-D 9/3/46, 23 pieces 1579-D 9/3/46, 14 pieces 2682-D 9/17/46, (55D)		
15-5*	LiF	197 slugs	50 days	<u>Pieces</u>	<u>Tube</u>	<u>Charge Date</u>
				31	2666-D	10/1/46
				34	2374-D	10/1/46
				35	2082-F	10/2/46
				35	1569-F	10/2/46
				19	1474-F	10/2/46
				21	2682-F	10/2/46
				22	2682-D	9/17/46
						(55E)

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Technical Department

Req.No.	Material	Quantity	Exposure	Status on October 31, 1946		
				Pieces	Tube	Charge Date
15-6*	LiF	100 slugs	50 days	14	2682-F	10/2/46
				24	2082-D	10/8/46
				26	1569-D	10/15/46
				36	1579-F	10/16/46
					(55F)	
15-7*	LiF	100 slugs	50 days	32	3179-D	10/15/46
				2	1579-F	10/16/46
				36	3179-F	10/16/46
				18	1474-D	10/23/46
					(55F)	
15-8*	LiF	99 slugs	50 days	27	2066-D	10/23/46
					(55F)	
16-2	95-241	2mg-1 slug	8 months	charged 3378-F 4/18/46 (59)		
17	Graphite	16 lb. pcs.		three pieces shipped to date		
19*	Mercury	100mg-1slug	90 days	discharged 10/15/46 awaiting shipment (68)		
20	Thallium nitrate	5 mg.-1slug	3 months	charged 2271-F 8/7/46 (71)		
21,22,23	Unallocated					
24*	X slugs	40 tons	Fabricate	completed		
25-3*	Be ₃ N ₂	1 slug	90 days	discharged 10/8/46 awaiting shipment (66)		

Engineering

Pressure Drop

Effective November 1, 1946 routine monitoring of the accumulation of film in central tubes will be taken over by the P Department. Technical will continue to follow periodically the distribution of film between orifice zones as indicated by the Panellit units.

For the month of October the average rates of pressure drop increase in the D and F Piles were 0.10 and 0.09 lbs./sq.in.(day), respectively. A purge of the F Pile on October 2 reduced the accumulated pressure drop change from 6.8 to 2.3, 11 to 6, 27 to 18, and 42 to 30 lbs./sq.in. in the 0.240, 0.200, 0.175, and 0.140-inch orifice zones, respectively. A purge of the D Pile on October 21 reduced the film formation in the central zone from 9.7 to -2.1 lbs./sq.in.

Technical Department

Corrosion and Blistering

The results of examination of exposed material are summarized in the following table:

<u>Tube</u>	<u>MD/tube</u>	<u>Exposure(days)</u>	<u>Number of Blistered Pieces</u>	<u>Penetration, mils/mo.</u>	
				<u>Av.</u>	<u>Max.</u>
2487-D	65	418	29	0.04	0.08
2382-D	63	383	32	0.04	0.08
2083-D*	25	161	20	0.03	0.05
2084-D*	30	197	27	0.04	0.05
1462-D**	25	169	20	No data	
2284-F**	25	216	24	No data	

* Cast material (CA)

** Regular discharge.

All experience to date has shown that there is no significant difference between the blistering shown by cast material and that shown by the regular extruded material.

Corrosion Tube 1776-D was discharged on October 23. Examination of these pieces will complete the experimental work under Production Test No. 105-76-P, "Discharge of Highly Exposed Slugs".

On October 23 difficulty was encountered in the normal discharge of Tube 2284-F. Borescopic examination of the tube after discharge, and examination of the discharged pieces, showed that the 6th slug from the upstream end of the active zone was badly deformed with large swollen areas, numerous small blisters, and some warp. The slug surfaces which had been in contact with the tube walls were colored dark gray, indicating that they had been operating at a high temperature. This exposure, which corresponds to approximately 185 MD/AT, is the lowest at which severe blistering has been encountered.

The downstream Van Stone flange of Tube 2460-D was examined on October 14. There was some minor etch which had been covered over with a bronze-colored film, but there were no signs of pitting and the flange appeared in very good condition.

Four-inch slugs were charged into the central zone of six process tubos on October 8 and 9, in pairs arranged with the welded ends together. Initial underwater weighings were obtained for every alternate pair of slugs. Particular attention is to be paid to qualitative observations of corrosion of the thin end caps.

Graphite Expansion

Tubes 1874-D and 3074-D were tested with the pneumatic jack for gun-barrel sum-clearance, and the overall lengths were measured. Results were in reasonable agreement with previous data. These data complete the initial set of measurements on 18 tubes at the D Pile. Readings taken last August will be repeated in December.

Jacking tests have been carried out on an additional 54 tubes in the B Pile. Gun barrel binding was encountered in six of these tubes. No binding has been encountered as yet in any tube below the 30 Tube Row of either the B or D Piles.

After the thimble had been removed from the B Test Hole in the D Pile, the hole was borescoped on October 22. Eighteen longitudinal cracks were found in the bottom of graphite blocks which carry process tubes in the 22 Tube Row and 14 cracks were found in the top of similar blocks in the 21 Tube Row. All of these cracks were confined to the Tube Columns 61 to 87.

Tube 4674-D was traversed for vertical bowing on October 21. The maximum observed difference in elevation was 2-5/16 inches, representing an increase of 3/32 inches since September 17.

Miscellaneous

A river temperature survey was made on October 15 downstream of the 100-F Area to determine how the river temperature distribution had been affected by damage to the effluent lines. A band of warm water was found near the southwest bank, with the maximum temperature near the bank. At comparable distances downstream the temperature increases caused by the effluent water were about four times as great as those found during a previous survey on April 19, 1946.

200 AREAS

General

Acid Wash

The October acid wash at B Plant recovered a normal amount of product but an unusual amount of by-product activity. The final product solution from the Concentration Building was more active than that from any previous run; it was recycled into Runs B-6-10-D-20 and 21 at D-1 Tank without causing increased activity of their final product solutions. The high by-product pickup of the last two acid washes at B Plant was probably due to the flushing of 8-3 (extraction waste receiving tank) with the solution later sent to 8-4 Tank and used as the source of the run. The 8-3 flush will be sent to waste on future acid washes.

Decontamination at B Plant

With the exception of the acid wash mentioned above, decontamination was satisfactory during the month. The occasional poor decontamination encountered in the preceding few months did not occur in October.

Material Balance

For most of October the P-1 assays seemed about two percent high, causing a high material balance from extraction through P-1 and a low Isolation Building balance from P-1 through AT. The P-1 assays suddenly dropped to a more reasonable level near the end of the month (TD-2, BD-21, BD-22, BD-23).



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Technical Department

Canyon Buildings

Waste Storage

Samples of the supernatant solution in second cycle underground waste tanks X-110T, 111T, and 112T were analyzed. Alpha counts ranged from 20 to 80 c/m/ml, beta from 400 to 650 c/m/ml, and gamma from 4 to 180 c/m/ml. These data indicate that (1) second cycle waste supernates discharged to the ground will contain less product per run than either Concentration or Isolation Building wastes presently sewered, (2) the beta content will be comparable to the beta activity of Concentration Building wastes, and (3) the gamma activity will be several-fold greater than previously discharged to the soil.

High 16-4 BP Loss on B-6-10-D-23

Jetting difficulties in 14-1 Tank at B Plant apparently left a heel of solution containing phosphoric acid in 14-1 after Run B-6-10-D-23. This caused incomplete dissolution of the 14-4-P product cake in nitric acid, even though 500 extra pounds of 60% HNO₃ were added. The 16-4-BP loss was 4.3%; it was partially recovered by oxidizing and repeating the by-product strike in Section 16. The faulty "A" jet from 14-1 to 14-2 has been replaced.

Neutralization of Sump Waste

The coil drainage which collects in the deep sewer cell 5-7 is usually acidic, with pH sometimes as low as 2. This material is now being neutralized before jetting to 361 Tank since the highly alkaline Concentration Building wastes no longer go to 361.

Temperature of Centrifugation

To attempt to reduce gasket failures, the temperature of starting centrifugation in product precipitation steps (Sections 14 and 17) was further lowered to 35°C at both T and B Plants; this temperature had been previously reduced from 50° to 40°C.

Concentration Buildings

Cell E Product Precipitation Losses

The skimmer stop on E-2 centrifuge at B Plant has been moved to give a larger skim heel (nearer the desired 10 gallons). This has reduced the E-3-W losses at B by 0.2 to 0.3%. Further study of this loss and calibration of E-2 will be made after the current HF test mentioned below.

Production Test SE-224-B-PA-4

Use of a trial shipment of hydrogen fluoride from a new vendor has been started on a production test basis at B Plant. The D-4-BP and E-3-W waste losses on eight runs with a blend containing 98.5% test HF (1.5% control HF from weigh tank heel) have not been significantly different from the corresponding values on preceding control runs. The iron content of E-3-W is also unchanged. These initial test results appear satisfactory, and additional tank car lots from the new source will be used.

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Plugging of A-1 to A-2 Jet

Pieces of the solid responsible for recurrent plugging of the A-1 to A-2 jet at B Plant have been examined. These are hard flakes of a yellow-green precipitate which probably were dislodged from a tank wall or agitator shaft where a layer had built up. Preliminary laboratory findings show insolubility in hot concentrated nitric acid, solubility in cold concentrated hydrochloric acid, and qualitative presence of bismuth. Further analysis will be made spectrographically.

Isolation Building

Weight of Product Recycled

Data from T Plant runs in the 6-09 and 6-10 series show about five times as much product in first cycle supernates as in second. When this difference is compared with the similar three-fold disparity in B Plant runs, it is apparent that the first cycle supernates of T runs contribute all of the additional product which makes T runs recycle 50% more product than B runs. It is also evident that the first precipitation in T runs removes whatever deleterious substance is present, for the weights of product in T and B second cycle supernates are equivalent.

Nutsche Leaches

In the quarterly leaching of the N-1 nutsches in both Cells 3 and 4, a more efficient procedure was used. Use of a larger number of elutions showed a regular decrease in recovery of product. It should be possible on the next routine leach to obtain essentially complete recovery of product by extending the number of elutions slightly.

Run T-6-10-MRC-3

Very little product peroxide precipitated when Run T-6-10-MRC-3 was processed by the usual procedure in the Isolation Building, although the P-1 solution contained 61% of a standard run. After laboratory pilot experiments demonstrated a digestion at 35°C as a means of overcoming the difficulty, the main charge was digested at 35°C for 2 hours and then cooled to 20°C for further H₂O₂ addition. Precipitation was then essentially complete and the recycled product from the first cycle amounted to 3.1% (P-1 basis). Cause of the initial difficulty is not known, but incomplete reduction is suspected.

300 AREA

Uranium Quality Control

Evaluation of Impurities in TX Metal-Production Test No. 314-42-M

To obtain information on the relation between the reactivity of uranium metal and its quality, as indicated by chemical analysis and density, with the ultimate objective of setting up specifications on metal quality, approximately 29 tons of TX (remelted turnings scrap) uranium billets for the August and September shipments have been classified into seven lots in

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Technical Department

the order of decreasing quality. Six billets from each of these lots, plus two billets of high boron content, will have their identity preserved through fabrication and testing, to determine the distribution of impurities in extruded rods, the effect of quality on reactivity, and the effect of impurities on canning characteristics. This material has now been extruded. Approximately eleven tons of TX metal from the July shipment, which has already been machined, is being held pending results of the foregoing test.

Revised System of Metal Classification

Beginning with the September shipment of uranium, a new system of lot assignments has been put into effect. Under the new system, billets of normal purity will be grouped, insofar as possible, into lots consisting of the same individual billets used in determining the TDS results. This lot identification will be maintained throughout 300 Area processing and testing, and will also be used to identify scrap obtained from the lot. In those cases exhibiting abnormal impurities, lot classification will be made on the basis of analytical data, billets having similar density and impurity content being grouped together. This new system is expected to facilitate both the distribution of scrap for reprocessing, and the study of causes and effects during processing.

Lubrication during Extrusion

Apparatus has been designed for the purpose of applying lubricant to the billet containers more uniformly and safely.

Canning Studies

Special Requests

During October, 100 pieces of Request 15-7, 99 pieces of Request 15-8, and 198 pieces of Request 15-9 (all lithium fluoride) were canned. Three leaky pieces were returned to the Army. Beginning with Request 15-8, these slugs are being canned in cans of 0.035-inch wall thickness instead of the 0.045 inch thickness previously employed. The finished slugs have a diameter of approximately 1.421 inches, instead of the former 1.438 inches.

The canning of four-inch unbonded Clinton slugs was completed on Request 24. The total yield was 33,629 pieces, including 1,863 Class II (porous uranium) pieces. Oven tests of 56 Class I (sound uranium) slugs showed no failures, whereas out of 54 Class II pieces three failed because of porous welds and six were bulged by internal gas pressure.

The P Department has assumed responsibility for the canning of all special material which may be handled by established procedures. Apparatus has been developed to simplify the stripping of cans.

Flux Recovery

The melting method of separating uranium oxide and bronze from used flux has been adopted for plant use.

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Technical Department

Thermal Analysis of Bronze

Control of bronze composition by thermal analysis has been turned over to the P Department.

Thermocouple Slugs

A special uranium slug containing a thermocouple well has been canned and has passed autoclave tests. Additional slugs are in preparation.

Metallurgical Studies

Heat-Treated Slugs - Production Test No. 313-81-M

The preparation of thermally-cycled slugs for studies of blistering under process conditions has been delayed by apparatus difficulties.

LABORATORIES

Work Volume Statistics

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

	<u>Samples</u>	<u>Determinations</u>
Routine Control, 200 Areas	1523	2543
Routine Control, 100 Areas	600	809
Water Control, 100,700 Areas	10242	18892
Process Reagents, 200 Areas	734	1334
Essential Materials	171	870
Special Samples	923	1764
Total	14193	26212

200 Area Process Control

B and T Plants

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

<u>Laboratory</u>	<u>September</u>		<u>October</u>	
	<u>Geometry</u>	<u>No. Tests</u>	<u>Geometry</u>	<u>No. Tests</u>
B Plant	50.54%	172	50.53%	227
Isolation Building	50.51	37	50.53	46

Six quadruplicate determinations were made on a standard synthetic starting solution (sample 8-1-MR). The average value obtained, $2,015 \times 10^6$ c/m/ml, indicates a recovery of 97.30% based on the accepted value of 2.066×10^6 c/m/ml. The results obtained varied from 1.954×10^6 c/m/ml to 2.047×10^6 c/m/ml. The precision for the last 100 determinations on the routine 8-1-MR sample was $\pm 1.24\%$.

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Technical Department

Measurements have been made on the density of the sludge formed in the extraction waste storage tanks. These measurements were requested as an aid for construction of new waste tanks. The density of the sludge, after settling for twenty-three days, was 1.385. This sludge was centrifuged to determine the maximum density which was 1.545 to 1.645.

Rm B-6-09-AW-1, an acid wash, was too active to be sent to the Isolation Building. Samples were taken to determine the source of the activity. Decay curves indicated a mixture of 28-day and 275-day cerium. A fission product separation for cerium was performed which indicates that approximately 80% of the beta activity was due to this element.

Isolation Building

During the report period 141 determinations were made on five different standard iron solutions, as a means of checking the accuracy of the chemical titration procedure used in the determination of plutonium in the final solutions in the Isolation Building. One-hundred and eight of the 141 determinations (76.5%) were within $\pm 2\%$ of the accepted values. The results for the five different solutions (five weeks) follow:

Assay Value	Group Ave.	% Diff.	No. Dets.	Precision($\pm\%$)	
				Single	Duplicate
12.19	12.30	+ 0.89	26	3.64	2.57
10.04	9.97	- 0.70	30	2.88	2.04
10.32	10.49	+ 1.55	25	5.52	3.90
15.93	16.09	+ 1.00	24	1.47	1.04
12.19	12.33	+ 1.15	36	2.63	1.86

The following is a summary of the precision for the last 100 routine determinations on the starting solution (sample P-1), and the final solution (sample AT). A comparison is made with the results reported in September.

Sample	September		October	
	Precision($\pm\%$)	No. out of Control	Precision($\pm\%$)	No. out of Control
F-1	1.69	3	1.81	4
AT	0.95	2	1.01	4

The average range for 44 duplicate determinations on AT sample during the report period was 0.85%.

The purity of the final product solution (Sample AT) is determined by removing the plutonium by hexone extraction, and then evaporating the residual acid to dryness and weighing the residual solids. The apparatus used for the hexone extraction has many mechanical disadvantages. An attempt has been made to design and construct a simplified continuous flow apparatus which could be operated more safely with greater ease and more quickly than the present equipment. It was found during the course of this work that there is apparently a lower limit beyond which the hexone would not remove alpha activity, and that this residual activity is due to some element other than plutonium. It appears, therefore, that there is a limit to the purity determination by this method.

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The most satisfactory type extractor tried in these studies to date is the batch flow type, with sintered glass plate and air agitation. The best result to date on the removal of alpha activity was obtained on this type using 7.7N nitric acid and 35 ml. of hexone, the residual activity in the acid layer being 3.4×10^4 c/m from a starting solution containing 7.3×10^8 c/m. Work will be continued on this type in order to perfect it for routine work.

300 Area Process Control

Considerable study and experimentation has been done on the spectrochemical analysis of uranium billets. Some contamination or lack of removal has been noted in the gallium oxide preparations. Evidence of silicon contamination due to grinding samples in Mullite mortars also was noted. It is felt that a purer sample of uranium than now available should be obtained for a standard. It is expected that these points will be clarified during the visit of Laboratories Division representatives to M.I.T., which is scheduled for early November.

REDOX PROCESS DEVELOPMENT

General

The activities of the Chemical Development Division during the month of October were devoted to expanding the organization plans and to the design of the glass demonstration apparatus and auxiliary equipment. Design of the various equipment parts has been projected forward without total completion of detail, in many cases, in order to survey the procurement requirements.

As a medium for transmitting design data to the Engineering Section, a series of Redox "Specifications Letters" is being issued by this Division. These letters outline by sketches and descriptions the basic requirements for the design of each part or group of equipment, and include a suggested design or layout meeting these requirements. Specifications Letter No. 1, issued October 21, outlined the over-all flow-sheet for the glass demonstration apparatus. Specifications Letter No. 2, now ready for issue, presents a suggested overall layout of equipment. The primary purpose of this general layout is to point up the architectural, electrical, and ventilation changes involved, in order to initiate design of these major construction features.

Procurement and Construction Schedule

The materials and equipment survey for procurement requirements has been very nearly completed. All procurement items have been divided into two groups: (A) Those items which must be on hand nearly in toto in order to start construction, and (B) those items whose delayed procurement will not hinder construction. Certain items in the latter group for which shipping delays are expected, such as explosion-proof motors and stainless steel wire for Fenske packing, are being expedited as Group A items.

Of the Group A items approximately sixty percent have been ordered, with the latest shipping date promised for December 15. Bids are being awaited on the remainder. Of the Group B items, orders have been placed for about twenty percent. Although bids are being awaited for nearly all of the remainder, no extraordinary delays in procurement are expected, except possibly for the

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Fenske packing wire. At present, a trial order of this packing is being made from an available supply of slightly off-specification wire. If successful, the prospective delay in procurement of this item will be removed.

Tentative scheduling for construction of the glass demonstration apparatus is as follows: Group A procurement to end by January 1, 1947, and Group B by February 15; shop fabrication to start by December 1, 1946, and to end by February 1, 1947; construction in the Semi-Works Building to start by January 1 and to end early in March.

Electrical Survey

To carry out large-scale handling of volatile solvents safely in the Semi-Works Building, extensive revision of the existing electrical services is necessary. Layout design has placed all solvent handling facilities within the main canyon, and this area is the only one that needs to be explosion-proofed. The Electrical Department completed a survey of all electrical services within the canyon, and has submitted purchase requests for all equipment and materials necessary for conversion.

Semi-Works Contamination

The greater bulk of the plutonium contamination which existed in the Semi-Works Building has been removed by acid swabbing. However, in view of the uncertainty that all contamination in this area had been definitely located, the entire canyon floor has been covered with protective paper. In addition, all of the process equipment was roped off and declared a restricted area. Entry to the equipment area is covered by an extended work permit. All opening of equipment is to be deferred until later and will be covered by special work permits at the time.

Materials Receiving

The Accounting Department (Property Section) has requested that all incoming materials and equipment be properly inventoried and tagged. In addition, transfer of materials of construction from storage to installation is to be covered by issuance of "Permanent Investment Transfer" notices. To facilitate this and provide readily accessible storage, a Quonset hut is being erected within the Semi-Works Building fenced enclosure. A materials supply clerk will be assigned to the duties of receiving, disbursing, inventorying and ordering all supplies.

Waste Storage Facilities

Remaining waste solution storage capacity at the Semi-Works Building has been measured by individual rodding of the four underground tanks. Of the original 120,000 gallons capacity, room for approximately 57,000 gallons remains. One tank is full, two are one-half full, and the fourth is empty. If the plans for sewerage certain cold process wastes during the semi-works studies are approved, this storage capacity provides for more than a year of operation for the program as now planned.

Metal Solution Preparation

To carry out "hot" studies in the semi-works with fission product activities

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high enough to measure accurately decontamination factors as great as 10^7 , it has been decided to dissolve irradiated metal from a 100 Area pile. The 100-300 Technical Division has calculated that the metal required can be supplied by selection from regular production. One 2.7 KW slug (180 days exposure) will furnish enough activity for a regular 440-lb., 4-cut dissolver charge after 125-day cooling to reduce the I^{131} off-gas activity below continuous-breathing tolerance when diluted with 1000 cfm. of air. A carrier for such a slug requires about five inches of lead shielding and would weigh about 1000 lbs. Except for lanthanum and iodine, the fission-product spectrum for the 125-day cooled metal would closely resemble that for standard 60-day cooled metal.

Layout plans and design details for the preparation of metal solution have been completed and are to be issued in Redox Specifications Letter No. 3. The equipment involved is to be supplied largely by regrouping of existing facilities and will be located in Cells A and B. The flowsheet arrangement lists a dissolver, wash-water hold-up tank, dissolver solution storage, centrifuge, catch-tank storage, centrifuge slurry tank, oxidizer, and waste neutralizer. In addition, a uranium solution concentrator is specified for recovering used solutions. This equipment will be used for "cold" dissolving first and then for "hot" dissolving, with heavy shielding to be provided for the latter work.

Feed Tanks

Designs now completed call for two types of feed tanks. The first group consists of a series of constant-head tanks placed for gravity-feed to the bellows pumps. These tanks, converted 55-gallon stainless steel drums, are to be located on a platform to be erected on the northeast balcony in the canyon. Solutions to be supplied to these tanks from the respective make-up rooms will include IAS, IAX, ICX, methyl-cyclo-hexane, and $Al(NO_3)_3$. All solvent handling or contacting tanks will be provided with an inert gas blanket and catch pans are specified.

The second type of feed tank is the two-liquid displacement tank. There are to be eight of these tanks, 5 to 55 gallons in capacity, arranged in groups of two supplying alternately each of four columns. These tanks will be located in a ventilated room at floor level under the east balcony in the canyon and will be operated by pumping an immiscible liquid phase at a controlled rate to displace either a heavier or lighter liquid feed to the columns.

Receivers

Design of the receivers includes four types of service. Four IAW receivers will be manifolded together to provide alternate service for each of the three IA columns. These tanks will be small (15 to 25 gal.) stainless steel drums located in the displacement tank room. Four IAU receivers, of 25-to 55 gallons capacity, will be located on the east balcony, manifolded to all three IA columns. Two ICU and two ICW receivers, all 55-gallon drums, make up the last two service types. These tanks will also be located on the east balcony, with inert gas seals and the necessary auxiliaries.

Pump Control Station

All column feeds are to be transferred by means of a battery of bellows pumps to be located on the northeast balcony. Eleven separate pump stations have been

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designed, divided into two separately-driven groups. Each pump station will be supplied with two bellows and two sets of check valves, to provide for continuous operation in the event of any single pump failure. A single reduced-speed drive is furnished for each group of pumps, with individual adjustment provided for each pump. Control panels are designed to include rear-mount rotameters, water-sealed surge chambers, strainer pots, pressure gauges, and by-pass and shut-off valves.

Aqueous Solution Make-Up Room

The make-up of all aqueous solutions is to be handled in the existing chemical make-up room. Presently installed pumps will be used to supply 60% HNO₃ and 50% NaOH to the header systems from drums. One other pump will be used to transfer ICX solution from a dolly make-up tank to the canyon head tanks. A fourth pump will transfer IAS solution from a large 500-gallon make-up and storage tank. The fifth pump remains as a spare. Storage of bulk dry chemicals will be provided in the basement immediately beneath, with a revamped electric chain hoist used for handling the containers.

Solvent Handling Facilities

Designs now nearly completed specify a consolidation of all hexone pretreatment, recovery, and solution make-up equipment in a ventilated room under the east balcony in the canyon. Drum storage and unloading stations are to be located outside the south wall of the building. The solvent room will contain a still and condenser, wash decanter, two large storage tanks, and two 55-gallon drum make-up tanks. Air-driven pumps are to be used to effect solvent transfer within and out of this room.

Equipment Ventilation

Ventilation design has been initiated, in order to survey the architectural requirements involved. Preliminary design outlines the construction of two transite-walled rooms under the east balcony. The first of these will contain all equipment for large-volume handling of solvent and the second the displacement feed tanks containing solvent under hydrostatic pressure. The room floors will be surrounded by concrete curbing and both rooms will be tied together in a new ventilation system. The column battery will be enclosed in a similar transite duct with transparent plastic front from floor to roof. A separate ventilation system will exhaust the column enclosure, which will also rest on a concrete floor curb.

STATISTICAL STUDIES

Metal Quality Studies - Problem Assignment ST-1

The poor state of impurity control in present uranium TX metal billets from Metal Hydrides, reported last month, was studied further to determine the effect on metal reactivity. Correlation analyses revealed that nitrogen and density were prime factors in reducing the reactivity of Metal Hydrides TX billets, and that silicon and iron were adversely affecting density.

Coefficients computed by the 100 Area Technical group made it possible to estimate the effect of impurities on shipments where TDS values were not on

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hand, and to compare the effects observed in the correlations with theoretical expectancies. The significant correlations of TDS with nitrogen and density of TX metal were consistent with these theoretical considerations.

Control charts for virgin uranium metal received from Mallinckrodt during 1946 were prepared. Several impurities were found to be out-of-control sufficiently to cause seriously lowered reactivity. In comparison to virgin metal from Electro-Met (February 1945 shipment) the 1946 Mallinckrodt shipments were higher and less uniform in density, iron, nitrogen, and silicon, but were lower in manganese. Since June the slugs fabricated from Mallinckrodt virgin metal have been out-of-control in Test Pile reactivity (dih) checks.

Control charts for TDS during 1946 show the Mallinckrodt virgin metal decreasing in reactivity from January through March, and improving significantly since April.

Correlation analyses between TDS and CDS showed less than 10% relationship between these two measures of metal reactivity.

Miscellaneous

The first plant-wide monthly control chart Safety Report covering minor injuries was prepared in cooperation with the Service Department (Safety Division).

Quality control techniques have been applied to the 8-1-MR assay, similar to the control previously adapted to the AT and P-1 assays.

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HW-11-5362-1
[Redacted]

BIBLIOGRAPHY OF DOCUMENTS ISSUED

HW-7-5362-De1

SEPTEMBER AND OCTOBER 1946

GENERAL

"Technical Progress Letters" numbers 114 to 121, inclusive, were issued routinely on a weekly basis.

100 AREAS

	<u>Title</u>	<u>Date</u>	<u>Doc.No.</u>
<u>Production Tests</u>			
105-4-P,	"Detection of Slug Failure" (Final Report)	9/14/46	7-4671
105-49-P,	Supplement A, "Irradiation of Myrnalloy"	9/11/46	7-5081
105-50-P,	"Reactivity Coefficients"	9/18/46	7-5103
105-52-P,	Supplement E, "Graphite Expansion"	10/22/46	7-5275
105-54-P,	"Transient Poison Constants" (Final Report)	9/18/46	7-5102
105-55-P,	Supplement A, "Special Irradiation Request 15-1" (Final Report)	9/10/46	7-5080
105-55-P,	Supplement A, "Special Irradiation Request 15-2" (Final Report)	10/ 3/46	7-5207
105-55-P,	Supplement D, "Special Irradiation Request 15-4"	9/13/46	7-5059
105-55-P,	Supplement E, "Special Irradiation Request 15-5"	9/26/46	7-5161
105-55-P,	Supplement F, "Special Irradiation Request 15"	10/ 2/46	7-5162
105-62-P,	"Special Irradiation Requests 7, 9-3, 10A, and 16-1" (Final Report)	10/10/46	7-5208
105-64-P,	"Corrosion of Aluminum Thimble" (Final Report)	10/ 8/46	7-5215
105-74-P,	"Reactivity Coefficients"	9/16/46	7-5073
105-75-P,	"Exposure of Four- Inch Slugs"	9/19/46	7-5070
105-76-P,	"Discharge of Highly Exposed Slugs"	9/16/46	7-5074
105-77-P,	"Special Irradiation Request 11"	9/30/46	7-5148
105-78-P,	"Xenon-Free Reactivity Coefficients"	10/10/46	7-5204
105-79-P,	"Exposure of Rolled Slugs"	10/11/46	7-5205
105-80-P,	"Measurement of Slug Temperatures"	10/11/46	
105-81-P,	"Probe Tests on Top Central Tubes"	10/23/46	7-5249
<u>Meetings</u>			
"100-300 Area Program Meeting - September 10, 1946"		9/10/46	7-5027
"100-300 Area Program Meeting - September 26, 1946"		9/26/46	7-5092
"100-300 Area Program Meeting - October 8, 1946"		10/ 9/46	7-5179
"100-300 Area Program Meeting - October 22, 1946"		10/24/46	7-5262
"Graphite Expansion Committee"		10/ 7/46	7-5172
<u>Memoranda</u>			
"Graphite Expansion Unit Motion Measurements"		9/23/46	7-5117
"Graphite Expansion Unit Motion Measurements"		10/22/46	7-5248
"Status of Water and Corrosion Work"		9/19/46	7-5067
"Columbia River Studies at 100-F"		10/22/46	7-5243
"Cleaning of B Storage Basin"		9/17/46	7-5060
"Handling of Special Irradiations"		10/10/46	Restricted

<u>Title</u>	<u>Date</u>	<u>Doc.No.</u>
<u>Memoranda Cont'd.</u>		
"Irradiation of Antimony"	9/13/46	7-5046
"Postum Production Schedule"	9/24/46	7-5168
"Revised Postum Production Schedule"	10/15/46	7-5246
"Unusual Incident-Charging of Request 11"	10/ 3/46	7-5166
"Effect of Metal Impurities"	10/18/46	7-5225

200 AREAS

Production Tests

221-T-PA-11, "Plant Evaluation of Bismuth Subnitrate Solution Prepared from Metallic Bismuth"	9/20/46	7-5214
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Meetings

"200 Area Waste Disposal Committee Meeting-September 24, 1946"	9/25/46	7-5071
"Meeting on 200 Area Problems - September 19, 1946"	9/27/46	7-5112
"Meeting on 200 Areas Active Waste Disposal - October 3, 1946"	10/ 4/46	7-5147
"Meeting on 200 Area Problems - October 17, 1946"	10/18/46	7-5222

Memoranda

"200 Area Active Waste Facilities"	9/20/46	7-5052
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Production Tests

313-81-M, "Preparation of Heat Treated Slugs for Pile Exposure"	9/12/46	3-5018
314-42-M, "Evaluation of Metal Impurities - TX Material"	10/22/46	7-5273

Memoranda

"Billet Groupings - Shipment B-105"	9/11/46	3-5002
"Classification of Billets by Lots"	10/10/46	3-5030
"Classification of TX Billets by Lots - August and September Shipments"	10/17/46	3-5044
"Classification of Billets by Lots"	10/22/46	3-5045
"Procedure for Thermal Analysis of Bronze"	10/16/46	3-5038
"Handling and Treatment of Waste Bronze Flux"	9/17/46	3-5008
"Barium Chloride for Bronze Flux"	9/30/46	3-5019
"Procedures for Canning Special Requests"	10/14/46	3-5033
"Lubrication of Extrusion Press Containers and Dummy Blocks"	10/16/46	3-5041
"Recommended Procedure for Separation of Bronze Flux Skimmings by Remelting"	10/24/46	3-5057

<u>Title</u>	<u>Date</u>	<u>Doc.No.</u>
<u>LABORATORIES</u>		
Report SE-PC-93, "Investigation of Stabilization of Neutralized Extracted Wastes"	8/30/46	3-3639
"Inventory of Books and Journals in the Technical Library"	10/29/46	
<u>CHEMICAL DEVELOPMENT</u>		
"Request for Project on Redox Development Semi-Works"	9/ 9/46	7-5010
"Critical Survey of Redox Process Status and Recommendations for Development Program"	9/16/46	7-5084
"Solvent Extraction Information Desired from Chicago"	10/11/46	3-5037
"Redox Specifications Letter No. 1"	10/21/46	3-5054
"Procurement Status and Tentative Schedule"	10/24/46	Restricted
<u>STATISTICAL</u>		
<u>Problem Assignments</u>		
ST-1, "Metal Quality Studies"	10/31/46	7-5291
<u>Meetings</u>		
"Meeting on Metal Quality - October 9, 1946"	10/11/46	3-5032
"Meeting on Metal Quality - October 15, 1946"	10/24/46	3-5056
<u>Memoranda and Reports</u>		
"Relationship Between Sample Size and BGO Counting Time"	9/26/46	3-5017
"Comparison of TX Metal from Amos and Metal Hydrides"	9/30/46	3-5020
"Statistical Report on Quality for 300 Area, September, 1946"	10/ 7/46	3-5025
"Relationship Between Chemical Assay and Specific Gravity of AT Solutions"	9/13/46	Restricted
"Comments on Proposed Production Test to Study Effect of Slug Elistering".	9/13/46	3-5007
Statistical Methods at H.E.W., Part III, The Relationship Between Variables	10/15/46	3-5060

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A study of the essential materials reserve supplies relative to possible future delays in deliveries, has resulted in a plan to increase our storage quantities of most items to a six months' supply. Additional shipments of materials have already been affected with the expectation of reaching desired quantities in approximately four months' time.

ORGANIZATION AND PERSONNEL

No significant changes occurred during the month.

100 AREAS

A recent inspection of the No. 13 river pump in F Area disclosed excessive removal of the metal in the lower bowl adjacent to the impeller position. The condition was similar to conditions present on some previous pump inspections, but of an exaggerated nature. In accordance with the manufacturer's advice, a bronze liner has been installed in this bowl similar to installations made on three other pump bowls at an earlier date.

On October 2 a leak developed in the export system supplying the Pile in F Area. Investigation revealed that one section of the 20-inch cast iron line was cracked longitudinally. Emergency repairs were completed and the line returned to service in thirty-two hours. Underground high voltage cables supplying the refrigeration units were in close proximity to the leak and were removed from service for drying and inspection.

The refrigeration system in F Area was closed down for the season on October 2 coincident with the development of the export system water leak mentioned above. At that date the average river water temperature was 15.4° C. Two additional refrigeration units in D Area were removed from service on October 28 and 29, on which dates the average river water temperature was 11.3° C and 11.4° C respectively. Only two refrigeration compressors remain in service in the D Area.

On October 22 the process water pressure supplying the Pile in F Area suddenly decreased 65 psi and remained there for a period of eight minutes when normal pressure was restored. Although the incident undoubtedly emanated from the Republic pressure control system, a full investigation has failed to determine the exact source of the difficulty. Complete inspection of the equipment in question has been made.

200 AREAS

On October 3 the raw water reservoir in the West Area was drained, inspected, and cleaned. There was a small amount of sediment present in the bottom of the reservoir. The general condition, however, was very good.

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300 AREA

On October 2 the point of supply of feedwater chemicals in the heating plant was changed from the feedwater headers to the individual boiler drums. Difficulty with sticking of feedwater regulators prompted the alteration.

On October 7 the second boiler was placed in service in order to meet the increased seasonal steam demand.

700 AREA

On October 23 the air pressure for the 700 Area was increased from 90 psi to 100 psi in order to meet increased pressure demands at the Transportation Garage.

1100 AREA

On October 28 the Village irrigation system was removed from service for the season.

The installation of an electric heater at the Consumers' Pump House in place of the original coal-burning heater was completed during the month.

In order to provide clean water for flushing the suction strainer of the recirculating pump in the Sewage Plant, a gravity-filled flush tank was installed.

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ORGANIZATION - POWER DEPARTMENT

OCTOBER 31, 1946

Distribution of Personnel by Areas

Area	Supervision	Operators	Others	Totals
100-B	7	36	4	47
100-D	25	98	5	128
100-F	22	96	5	123
200-E	6	24	0	30
200-W	9	32	7	48
300	0	8	4	12
700 - 1100	7	34	2	43
Plant Gen.	2	0	0	2
Totals	78	328	27	433

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POWER DEPARTMENT STATISTICS

(October 1, 1946, to October 31, 1946, Inclusive)

	Unit	100 Areas		
		100-B	100-D	100-F
<u>River Pump House (Building 181)</u>				
River Stage	Ft. above sea level	(max. 387.5 min. 385.0 ave. 386.2)	379.5 377.9 378.6	365.9 364.1 364.9
River Temperature	ave. ° F.	57.6	57.4	56.8
Water Pumped to Reservoir	gpm ave. rate	8669	37700	39318
Water Pumped to Refrigeration Plant (condenser water)	gpm ave. rate	-	14704	1572
<u>Reservoir (Building 182)</u>				
Water Pumped to Filter Plant	gpm ave. rate	6395	32086	34629
Water Pumped to Export System	gpm ave. rate	1681	1785	696
Water Pumped to Condenser System	gpm ave. rate	593	3829	3993
Chlorine Added at No. 1 Inlet	lb.	0	0	0
Water Pumped to Export System	normal flow	4162	4162	4162
<u>Filter Plant (Building 183)</u>				
Filtered Water to Power House	gpm ave. rate	75	288	269
Filtered Water to Process	gpm ave. rate	4388	29407	30851
Filtered Water to Fire and Sanitary	gpm ave. rate	98	169	152
Chlorine Used in Water Treatment	lb.	1509	9000	11000
Lime Used in Water Treatment	ppm ave. lb.	.63 10080	.75 61300	.85 78900
Ferrifloc Used in Water Treatment	ppm ave. lb.	4.2 32182	5.1 231000	6.1 278800
Carbon Used in Water Treatment	ppm ave. lb.	13.5 0	19.3 0	21.7 0
Raw Water Analysis	ppm ave. pH ave.	0 8.3	0 8.29	0 8.25
Finished Water Analysis	ppm ave. pH ave.	No Analysis 61	7.37 60	7.32 60
Alkalinity - M. O. Raw	ppm ave.	56	52	50
Alkalinity - M. O. Finished	ppm ave.	56	52	50
Residual Chlorine - Settled	ppm ave.	.43	.23	.50
Residual Chlorine - Finished	ppm ave.	.05	.14	.09
Iron - Raw	ppm ave.	.09	.06	.07
Iron - N. Clearwell	ppm ave.	No Analysis	.01	.011
Iron - S. Clearwell	ppm ave.	No Analysis	.01	.012
Chlorides - Filtered Water	ppm ave.	1.1	1.3	1.2
Hardness - Finished Water	ppm ave.	65	69	70
Turbidity - Raw Water	ppm ave.	2.8	2.2	4.0
Turbidity of Filtered Water	ppm ave.	No Analysis	0	0
<u>Refrigeration (Building 189)</u>				
Refrigeration Produced	tons/day	-	6347	400
Temperature Process Water In	ave. ° F.	-	58.3	60.4
Temperature Process Water Out	ave. ° F.	-	47.8	49.6

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	Unit	100 Areas		
		100-B	100-D	100-F
<u>Power House (Building 184)</u>				
Steam Generated - Total	M lb.	24141	101553	98803
Steam Generated - Ave. Rate	lb./hr.	32448	136496	132800
225# Steam to Plant (est.)	M lb.	21244	90083	83982
15# Steam to Plant (est.)	M lb.	33	488	220
Coal Consumed	Tons	1947	7812	7485
Coal in Storage (est.)	Tons	12585	27738	27432
<u>Deaerator Plant (Building 185)</u>				
Water Flow (ave.)	gpm	4138	29157	30601
Chemicals Consumed:				
Dichromate	lb.	4000	24300	26700
Sodium Silicate	lb.	28815	254740	325600
Chemical Analysis:				
pH	pH	7.64	7.66	7.65
Dichromate	ppm	No Analysis	1.9	1.9
Silica	ppm	No Analysis	6.4	6.2
Dissolved Iron	ppm	.02	.01	.01
<u>Process Pump Room (Building 190)</u>				
Total Water Pumped	gpm ave.	4103	28982	30426
Water Temperature	ave. ° F.	59.2	55.0	58.8
Total Water Pumped	normal flow	4103	31897	31550
<u>Valve Pit (Building 105)</u>				
Chemicals Consumed:				
Line	lb.	0	0	0
Hydrogen Peroxide	lb.	0	0	0
Oxalic Acid	lb.	0	0	0
Solids	lb.	0	2250	1800
Chemical Analysis:				
A, B, C & D Headers				
Standard Limits				
pH		(max. 7.75)	7.70	7.70
		(min. 7.55)	7.55	7.60
		(ave. 7.65)	7.63	7.65
SiO ₂	ppm	(max. 6.5)	7.5	8.0
		(min. 4.5)	5.0	5.5
		(ave. 5.3)	6.4	6.4
Na ₂ Cr ₂ O ₇ · 2H ₂ O	ppm	(max. 2.2)	2.1	2.2
		(min. 1.9)	1.9	1.8
		(ave. 2.0)	1.9	1.9
Iron	ppm	(max. .03)	.02	.02
		(min. .02)	.005	.01
		(ave. .03)	.01	.015
Free Chlorine as Cl ₂	ppm ave.	.05	.11	.14

Power Department Statistics (Continued)

	Unit	200 Areas		
		200-E		200-W
<u>Reservoir (Building 282)</u>				
Raw Water Pumped	gpm ave. rate	2819		1344
<u>Filter Plant (Building 283)</u>				
Filtered Water Pumped	gpm ave. rate	408		375
Chlorine Consumed	lb. 358	358		265
Alum Consumed	lb.	1655		2450
Chlorine Residual - Sanitary Water	ppm	.71		.61
<u>Power House (Building 284)</u>				
Steam Generated - Total	lb.	18510000		21594000
Steam Generated - Ave. Rate	lb./hr.	24379		29024
Coal Consumed (est.)	tons	1462		1664
Coal in Storage (est.)	tons	12182		12011
		<u>300, 700, 1100 Areas</u>		
		<u>300</u>	<u>700</u>	<u>1100</u>
<u>Power House (Buildings 384 and 784)</u>				
Steam Generated - Total	lb.	10425000	16495000	
Steam Generated - Ave. Rate	lb./hr.	14012	22171	
Coal Consumed - Total (Est.)	tons	842	1272	
Coal in Storage (Est.)	tons	8435	5865	
<u>Sanitary and Fire System (1100)</u>				
Well Water Pumped - Total	gal.			78278000
Well Water Per Day	gal.			2525000
Well Water	gpm ave. rate			1753
Chlorine Residual	ppm			0.2
<u>Sewage Treatment Plant (1100 Area)</u>				
Total Treated	gal.			50600000
Treated Per Day	gal.			1632000
Ave. Rate	gal.			1133

MAINTENANCE DEPARTMENT

OCTOBER, 1946

HW-7-5362-D-1

GENERAL:

A Maintenance employee suffered a major injury on October 15, 1946 when he was burned with hydrofluoric acid. He was installing a small acid pump in the 211-B acid tank farm and received a splash as he pushed back his hood to remove fog from the window. The acid splash was caused by a 1/2" by-pass line rupturing due to jarring of the pump discharge line. The injured man received deep acid burns on the side of his face which required hospitalization for several weeks. A new and improved type acid hood is now in use and the piping system is being revised to prevent a recurrence.

The departmental safety program proceeded on the same basis as last month with the following safety topics being discussed:

1. Working Procedures and Guarding Wood Working Machinery.
2. Encouragement of Safety Suggestions From Employees.
3. Improved Locking and Tagging Enforcement on Repair jobs.
4. Organization of a Department Safety Contest.

The largest increase in volume of work took place in the Engineering Section where approximately one hundred twenty-five separate jobs are now being handled. This includes projects, studies, design, estimates, surveys, and drawing revisions.

ORGANIZATION AND PERSONNEL:

The total personnel of the Maintenance Department increased by sixteen during the month. Eighteen men were added to the roll and two terminated or transferred from it. The eighteen new hires were as follows:

- | | |
|-----------------------|----------------|
| 11 Painters | 1 Jr. Engineer |
| 1 Millwright | 1 Welder |
| 1 Helper | 1 Draftsman |
| 2 Assignment Engineer | |

Personnel of the Engineering Section was increased from sixty-three to seventy-one during the month to handle the increased volume of work. Ten graduate engineers and ten draftsmen were hired during the month but have not yet reported for work. The majority of these people will be assigned to the new Design and Construction Department as soon as it is sufficiently organized to use them. The eleven painters newly hired from outside for the Maintenance Department will largely be used on the expanding interior painting program in the 700 and 1100 Areas during the coming winter months.

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MAINTENANCE DEPARTMENT

The positions of Area Engineer and Assistant Area Engineer of the Engineering Section were filled by promotion within that organization.

WORK ORDER SUMMARY:

FIELD FORCES

<u>Area</u>	<u>Work on Hand 10/1</u>		<u>Work Completed Oct.</u>		<u>Work on Hand 10/31</u>	
	<u>No. of Orders</u>	<u>Estimated Man Days</u>	<u>No. of Orders</u>	<u>Estimated Man Days</u>	<u>No. of Orders</u>	<u>Estimated Man Days</u>
100-B	65	227	90	248	77	213
100-D	33	121	225	504	68	179
100-F	108	125	158	328	128	287
Overhaul	71	1498	164	1000	54	1596
200-E	169	421	398	877	208	693
200-W	442	1530	533	1465	505	1406
300	133	332	262	612	158	355
700-1100	921	2471	1165	3611	1090	3341
Totals	1942	6727	2995	8895	2288	8071

ENGINEERING SECTION

<u>Area</u>	<u>Work on Hand Oct. 1</u> <u>Estimated Man Days</u>	<u>Work Completed In Oct.</u> <u>Estimated Man Days</u>	<u>Work on Hand Oct. 31</u> <u>Estimated Man Days</u>
Methods Control	574	196	536
Project Engineers	650	409	1135
Totals	1224	605	1771

As indicated in the above Work Order Summary figures, the estimated man days of work on hand increased from 6727 on October 1st to 8071 on October 31st. On the basis of this much work added 458 men are required. The actual assigned man power was 435. This indicates the need to continue hiring at about the present rate. Also, in the Engineering Section, the work on hand increased from 1224 on October 1st to 1771 on October 31st, indicating an increase in volume of work commensurate with the personnel increase indicated previously.

100 AREAS:

The cleaning of the storage area basin in 105-B continued throughout the month. A 6" deep well pump was installed in the transfer area in "A" pit. Silt and other foreign material on

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MAINTENANCE DEPARTMENT

the floor are being washed into the pit by means of fire hoses. All this material is being pumped into an excavated waste ditch a short distance from the building.

The outside steam lines in B Area were checked for grad and all of them showed some vertical misalignment. These conditions were corrected and the lines graded to the drain points. One of the lines was found to be as much as 9" low at one point.

On October 1st the #32 vertical safety rod in the 105-D Building was buffed with fine emery cloth to remove excess rust. This method of repair was not satisfactory and on October 24th the rod was removed from the unit and buffed to within twelve inches of the lower end of the rod tip. This method of repair was found satisfactory.

The neoprene seal on the near side of the 105-D unit was removed and replaced with a larger one to provide for further expansion.

Three new mattress plate extensions were installed in the discharge area of 105-D and a number of patches were made on the neoprene chute lining.

The "B" test hole thimble in 105-D developed a water leak which was impossible to repair so the thimble was removed and a new one installed.

In Building 185-D the automatic and kidney valves were removed from the dichromate system and spool pieces installed in their place. These valves were not needed as the system can be operated by gravity flow.

The impeller on #6 motor driven process pump in Building 190-D froze in the packing glands and stuffing box bushings, scoring the bearing and shaft badly. A replacement impeller assembly was installed in the pump. The failure was caused by the pump operating with insufficient water on the bearing.

Large sight feed oil cups with control valves were installed on all turbine oil pumps in 105-F to provide oil for priming when the turbines are started. These replace the small priming cups formerly used and it is expected they will prevent failure of oil supply to the turbine bearings.

Blower turbines #1 and #2 in 115-F were repaired on a scheduled overhaul. The condition of these units was generally good. The turbine oil pump piping was redesigned so that the machines could be partially dismantled in the future without removing the entire oiling system.

Drier turbine #1 in 115-F was repaired on a scheduled overhaul. The carbon rings required replacement and the out-board bearings required readjustment. The turbine oil pump piping was revised in the same manner as on the other units.

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MAINTENANCE DEPARTMENT

Drier turbine #3 in 115-F was repaired on a scheduled overhaul. Conditions found were generally good. The piping to the turbine oil pump was revised on this unit also.

The steam driven air compressor in Building 182-F was overhauled on schedule. Replacement was necessary on the intake and discharge valves and seats and the pilot governor valve.

An additional safety shower was installed near the point of unloading railroad cars at Building 183-F.

#1 sluice pump in 184-F was repaired on a scheduled overhaul. Also #2 sluice pump was repaired, and new lantern rings were installed.

#2 boiler in 184-F was overhauled on schedule. The rear wall and baffle, as well as the arch piers, were replaced. Some repairs were necessary to the stoker line shaft assembly and the Coppus turbines.

Scheduled overhaul was completed on the forced draft fan and turbine, #2 boiler feed pump, and #1 boiler feed pump in Building 184-F. Only minor repairs were necessary on these units.

All refrigeration units in 189-F were disconnected for the winter season.

The air compressor was removed from 108-F and installed in 190-F tank room. An after cooler was fabricated in the shop and installed with this unit.

#2 air compressor in 190-F had to be shut down and repaired. Carbon was removed from the cylinders and pistons. Replacement of the low pressure cylinder was necessary.

200 AREAS:

Two piping details were fabricated in the shops for the cells in "B" plant and two for "T" plant.

The 4" chemical-ware sewer line was repaired in section #3 of the pipe gallery in the B Canyon Building. It was necessary to renew the line as the original tile had deteriorated on the inner surface sufficiently to prohibit further use.

The skimmer operating mechanism in section 13 of the B Canyon Building was repaired and the main king pin was replaced.

The E-2 centrifuge in the B Concentration Building developed a leak in the case spray header. This was repaired by welding in place. In the E cell sampler line a leak developed in the flanged connection. The Teflon gasket was replaced.

MAINTENANCE DEPARTMENT

A 3 GPM transfer jet assembly failed in the threads. This was in service in F cell of the B Canyon Building. It was replaced with a newly fabricated detail.

The D-2 centrifuge motor in the B Concentration Building failed in service. It was replaced in conjunction with the Electrical Department. The motor used was taken from the 224 standby centrifuge held in the 272 East shop.

The receipt of a copper tubed element for the Buffalo unit heater in the control laboratory permitted removal of the original steel tubed coil from service and installation of the new one. This coil failed some time ago but had to be repaired and kept in service until a replacement arrived.

Similarly, the arrival of nine copper tubed elements for the Tranc unit heater in the East Area Power House permitted replacement of leaking steel tube elements that had been in service.

The bearings on the fly ash fans in the East Area Power House continue to require replacement at regular intervals. Apparently the design is such that steam and condensate are permitted to work into the bearing housing. A solution to this problem is being worked out in conjunction with the Power Department.

A 6" wooden water line serving the Transportation garage in the East Area developed a leak at a joint where the line leads into a steel valve. The wood had deteriorated sufficiently to cause the leak. Repairs were made by installing a metal band around the leaking section.

In the T Canyon Building a class "A" inspection was made on the #2 Pennsylvania Air Compressor. Improper installation of the piston rings had been causing blow-by with resultant roughening of the cylinder walls. The rings were reinstalled after properly staggering the gaps.

At the request of the "S" Department the valve and header assembly on the HF system in the T Concentration Building was replaced with new pipe and fittings. The section of piping removed will be examined and tested for evidence of crystallization.

The bearings in the P.S.Q. acid pump in the T Canyon tank farm failed because of lack of lubricant. Investigation showed that the original design of the housing contemplated the use of oil as a lubricant rather than grease. The point of grease application is being changed to permit the lubricant to come in contact with the bearings.

On the T control laboratory air conditioning unit, the freon condenser was removed and overhauled. The tube sheets

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[REDACTED]

MAINTENANCE DEPARTMENT

were warped and remachining was necessary to permit reinstallation.

Exterior painting of wood buildings in both East and West Areas is progressing satisfactorily, with the majority of the buildings receiving the first coat and a considerable number already having the second coat applied. This program is also being carried on in Riverland and the North Area.

As part of the preventive maintenance program in both East and West Areas, the roofs of wooden structures are being mopped with 200° asphalt. This program is approximately 70% complete.

300 AREA:

Steam and air services were run to the new paint shop so that it could be used during the winter months.

A new platform, ramp, and piping arrangement was installed for the handling of hydrofluoric acid in Building 313 and a wooden side was installed on the acid shed.

The 2" water main that formerly passed directly through the furnace area in Building 313 was rerouted around the area to eliminate what might have been an unsafe condition.

The angle of incline of the chip recovery conveyor belt between the pulverizer discharge and chip washer inlet was reduced to eliminate the plugging of the pulverizer discharge.

Repairs were made to the concrete block wall at the south-east corner of Building 314 where the wall had moved away from the steel structure approximately 3/4 of an inch.

The Copes water regulating system on No. 1 boiler was completely overhauled. A portion of the brick work in the boiler was replaced and all major steam valves were repacked.

Hydrostatic tests of pressure vessels in all buildings have been completed.

Survey of electric grounding has been completed throughout the area and work orders have been issued to install grounds where necessary.

700 AREA:

The installation of barbed wire on the fence in front of the Administration Building was completed.

Three partitions in 703 Building were moved and new walls were installed to enclose several offices. The material is now being gathered to start on the large job in the west wing of the first floor.

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MAINTENANCE DEPARTMENT

DECLASSIFIED

Roofing repairs were made on the west wing of 703 Building, and the Patrol Headquarters Building as a result of the damage caused by the high wind several weeks ago.

All the lumber has been cut for the fabrication of crates for shipping files off the plant. Assembling the crates will continue for several weeks at the present rate.

Three underground water line leaks due to the corrosion of thin wall pipe were repaired.

The safety painting of the Village streets, consisting of center striping, cur painting, and parking stripe marking has been completed and approximately 15 miles of area roads have been center-striped.

Four locomotives were striped and about 50 registration numbers were changed on transportation equipment.

1100 AREA:

The fan bearings on the air conditioner at the Kadlec Hospital were replaced to reduce the noise made by the conditioner.

The defective radiator valves and traps in the Kadlec Hospital have been repaired or replaced.

Three underground water leaks in the thin wall pipe on Wellisian Way were repaired. There have been 15 leaks in this line to date and it will be recommended to the Power Department that the line be replaced as soon as possible.

Additional drinking fountains were installed in several of the schools to afford better drinking facilities for the children.

The testing and repairing of steam relief valves in the commercial facilities is 40% complete.

One hundred seventy-eight repair jobs to household furnaces were completed and the jacket from one furnace was removed so that the Electrical Department could proceed with the installation of electrical heating elements.

In addition to the damage to the roofs in the 700 Area, some shingles were torn off of the Marcus Whitman and Lewis and Clark Schools, 1182 Pump House, Signal Corp Warehouse, and all of the dormitories; also approximately 300 Village houses. These are being repaired at present by the entire roofing group and the job should be finished within the next two weeks.

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Sixty Village houses have been winterized and ten dewatered to date. This work will continue throughout the winter

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MAINTENANCE DEPARTMENT

as houses are vacated and occupied, the work is being done on blanket work order and check sheets made on each house as it is winterized.

The number of plumbing patrol calls has increased about 30% in the last several weeks and it is expected they will maintain this higher level during the balance of the winter season.

The plastic weather stripping on the windows of eleven prefabs has been replaced with metal. Aluminum replacement strips will be used exclusively in the future.

The elements on eighty stove terminals were repaired by brazing the wires rather than twisting as originally. This will make the junction last considerably longer.

The damage caused by fires at four houses during the month was repaired. Three of these were caused by overheated furnaces, and one by a fire from hot ashes in the ash can.

The roof cleaning and painting program has been speeded up considerably during the past month and it is expected to reach completion during the first week of November. During the month no reports on leaking roofs have come from the housing group. A good start has been made on the second coat spray painting on the outside of the prefabs and two groups are now working on this job.

Because of the extremely bad condition of the exterior of the "E" Houses it is decided to start painting these houses so that they would all be completed prior to the winter weather. It is now expected that these houses will be finished by the first of December. The remainder of the permanent house painting group has completed forty-nine houses in Division #1 during the month.

The use of a patrol order instead of an individual work order for each renovation was started during the month and is proving satisfactory.

The overhaul of #2 boiler feed pump was completed and stainless steel sleeves were installed on the pump. The new ash ejector nozzle in 784 Building caused more plug-ups than the old one. It has been removed and the old nozzle replaced.

An underground steam leak in the line to the post office was repaired, and at the same time a badly needed shut-off valve for isolating this section of the system was installed. A leak developed in the underground steam line leading from the cafeteria to dormitory W-11, the exact location has not as yet been determined.

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Maintenance Department

DECLASSIFIED

ENGINEERING SECTION

PROJECT GROUP

Projects and Suspense Codes Authorized and Under Construction

100 AREAS

<u>Proj. No.</u>	<u>Title</u>	<u>% Phys. Complete</u>	<u>Date Auth.</u>	<u>Estimated Cost</u>
C-29	Third Safety Device Valve Replacement Bldg. 105 B,D,F,	80	6/25/46	\$ 7,500
C-54	Installation of Strainers in High Tank Water Lines to Bldg. 105 B,D,F	50	9/20/46	11,100
C-88	Installation of Ventilation Curtains Bldg. 105 B,D,F	95	4/25/46	<u>1,500</u>
Total Estimated Cost 100 Area Projects:				\$20,100

200 AREAS

C-67	Dismantle TC Extra Machinery Storage 200-W and TC Pipe Warehouse 200-E	95	11/26/45	\$ 3,000
C-100	Fan Shielding and Replacement Eqt. 291 T.U.B.	1	9/17/46	9,600
C-103	Remodel 2713-W Bldg. for Transportation garage	50	9/17/46	4,400
C-106	Intermediate Waste Tank By-Pass Jumper 221-TB	0	9/20/46	3,350
C-107	Re-routing of Waste Lines from Sect. 9 to 221-B	45	9/20/46	<u>1,300</u>
Total Estimated Cost 200 Area Projects				\$21,650

700-1100 AREAS

C-87	Telephone Cable Moisture Proofing	99	4/22/46	\$ 1,950
C-89	Barber & Beauty Salon Water Softener	10	5/7/46	1,050
C-94	Repair Fire Damage to Prefab, 508 Smith	75	6/17/46	775
C-97	Additional Village Street Paving	50	8/16/46	10,450
C-99	Repair Fire Damage to House, 1446 Thayer	25	8/13/46	3,125
C-101	Install Bus Heaters and Defrosters	85	8/30/46	12,150
C-102	Hutment Additions to School Facilities	85	8/30/46	24,960
C-105	Build 20 Zeuto Inst.	5	9/11/46	<u>1,900</u>
Total Estimated Cost 700-1100 Projects				\$56,360

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MAINTENANCE DEPARTMENT

Multiple and Miscellaneous Areas

<u>Proj. No.</u>	<u>Title</u>	<u>% Phys. Complete</u>	<u>Date Auth.</u>	<u>Est. Cost</u>
C-96	Riverland R.R. Shops- Electric Heating	75	7/10/46	\$ 3,700
Total Estimated Cost for Active Projects in All Areas				\$101,810

Projects Being Routed for U.S. Government Authorization

<u>Proj. No.</u>	<u>Title</u>	<u>Date Magr.Appr.</u>	<u>Estimated Cost</u>
C-90	(Part III) Additional Solution Preparation Facilities-Bldg. 231 (Cost Parts I & III)	10/22/46	\$ 2,540
C-108	Recording Thermometers for Food Store Refrigerators	10/18/46	4,350
C-109	Reactivate 87 Prefabs (Work Started on Suspense Code)	10/24/46	5,655
C-112	New Underground Waste Area at 241-B	10/25/46	<u>1,667,000</u>
Total			\$1,679,545

Projects Being Routed for Plant Approvals

<u>E.R.No.</u>	<u>Title</u>	<u>Circulation Started</u>	<u>Estimated Cost</u>
574	Revise Pumps at Sewage Lift Station	10/30/46	\$ 2,200
755	Relocate Building 251 Dis- connect Switch	10/31/46	3,275
759	Coal Bunker for 3000 Area Barracks	10/28/46	<u>4,200</u>
Total			\$ 9,675

Projects and Suspense Codes - Work Completed in October

<u>Proj. No.</u>	<u>Title</u>	<u>Estimated Cost</u>
C-76	Pneumatic Charging Machine	\$ 3,300
C-104	Additional Conc. Building Waste Facilities	2,575
C-93	Building 705 Hutment Alterations	1,600
C-95	Electrical Appliance Shop Hutment Addition	1,500
C-98	Wheel Alignment Equipment for Commercial Garage	<u>900</u>
Total		\$ 9,875

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MAINTENANCE DEPARTMENT

DECLASSIFIED

Project Group - Area Reports

100-300 AREAS

Design jobs completed and awaiting approvals were "B" Test Hole Facilities and Outside Ponds and Added Water Sources for Fish Hatchery.

Study was completed and Recommendation Report #70 submitted on Removal and Control of Rust on Vertical Rods in 105 Buildings.

New design work added includes Test Exposure Facility and Dry Air to Test Holes, Vertical Rod Rust Removal Equipment, Coal Handling Equipment Layout for 300 Area Change House.

The bi-monthly survey of Process Piles was made during October.

200 AREAS

Along with extensive designs prepared for the new 241 Project, the 200 Area Group reported the following results on other area problems:

The limits of the contaminated ground southeast of 221-B Building were defined by means of pipes driven in the ground, gravel was spread over the surface, and the zone is being fenced.

Designs were completed and approved for lint catchers for rotary dryers in the 2723 Laundry.

A project is being prepared in connection with diverting second cycle waste to ground sewers and thus releasing four additional 500,000 gallon underground tanks for other wastes.

A study is being made on HF. Pumping and Piping as a result of recent difficulties with HF.

Design of a cover plate to protect sampler caps from damage in the Canyon Building is being made.

The Cask car locking device is being redesigned to eliminate seizing and binding which have been giving trouble.

"As Built" drawings are being delayed because of more urgent work.

700-1100 AREAS

The following projects are being prepared:

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<u>E.R.No.</u>	<u>Title</u>	<u>% Engr'g. Complete</u>
761	Grounds Improvement 703-705 Buildings	50
766	Village "Shot and Cover" paving	50

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MAINTENANCE Department

<u>E.R. No.</u>	<u>Title</u>	<u>% Engr'g. Complete</u>
778	Alterations to 705 Employment Bldg.	75
804	Install Fire Alarms in Dormitories	75
803	Replace Shingle Roofs on Dorms 15, 16, 17, 19, 20, 21	5

Study Group

Completed during the month

<u>E.R. No.</u>	<u>Title</u>
4271	River Temperature Survey - 100-F (New study entirely completed this month)
4261	Air Conditioning Survey - Transient Quarters- Report in process of being issued.
4265	Increased Furniture Repair Facilities
4268	Cost Review - 700 Area Laundry
4270	Village Painting Survey - Report in process of being issued.

New Studies Added This Month

<u>E.R. No.</u>	<u>Title</u>
4272	Well Drilling Cost Estimate
4274	Estimated Equipment Needs - Transportation Department

Other Active Studies

4113	Paint Standards
4264	Air Conditioning Survey - 703 Building
4266	Additional Swimming Pool Facilities - Village
4267	Riverland - Richland Transportation Terminal Consolidation
4269	Improved Fuel Handling Facilities - 300 Area
4270	H.E.W. Painting Survey

Drafting and Print Control Summary

	<u>Last Month</u>	<u>This Month</u>
Drawings and Sketches Completed	228	180
B & W and Blueprints Produced	2,426	4,227
Photostats Produced	8,766	13,122
Portographs	47	1,825
Other Prints Handled	578	4,998

MAINTENANCE DEPARTMENT

Development Group

This group is now composed of three engineers and one draftsman all working on Cold Redox Semi-works design under suspense code 10109. Pump and panel board arrangement drawings for Building 321 are nearly completed.

Final prints are being made and procurement has been initiated on special items required for this phase of the work.

A survey of electrical equipment needed to convert the 321 Building Cell Area to hazardous (flammable vapor) operating conditions has been made and procurement initiated on a list of special motors, lighting fixtures, and wiring supplies required.

Preliminary arrangement drawings are being made for the purpose of determining materials needed and initiating their procurement. These drawings will cover architectural and ventilation items in the 321 Building.

Redox Specification Letter No. 1 has been received covering a schematic flowsheet of the glass demonstration columns and associated equipment. The procurement of certain special pieces of equipment indicated in this flowsheet has been initiated. Arrangement drawings for the equipment shown on this flowsheet will be started during the coming month, with detailed drawings to follow..

HW-7-5362-De1
[Redacted]

ELECTRICAL DEPARTMENT

OCTOBER 1946

HW-7-5362-De1

GENERAL

Work Order Summary:

Area	Work on Hand Sept. 30		Work Completed in Oct.		Work on Hand Oct. 31	
	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
100-B	22	98	25	109.3	33	86.2
100-D	54	190	80	335.0	40	178.1
100-F	33	139	80	314.5	35	113.9
200-E	63	270	123	390.4	81	196.0
200-T	101	247	117	268.9	74	269.4
300	56	97	89	170.5	52	108.3
700-1100	34	275	64	395.3	120	355.6
Distribution	101	515	118	393.4	163	632.9
Totals	512	1351	691	2376.4	598	1900.4

The departmental safety contest was completed during the month with gratifying results in all groups. The Electrical safety handbook was completed and copies distributed to all employees in the department.

An engineering study of electrical heating for the permanent type residences in Richland is nearly completed and will be issued as a report in a few days. A similar study of telephone system operations was completed during the month and substantial savings are possible with installation of fully automatic equipment.

ORGANIZATION AND PERSONNEL

No organizational changes occurred during the month. However, work load is rapidly increasing in the 300, 700, and 1100 Areas and requisitions for eight new employees were approved with hiring proceeding at the present time.

A. Distribution of Personnel

	100-B	100-D	100-F	200-T	200-E	300	700-1100	Plant General	Total
Supervisors	1	3	2	4	2	1	5	12	30
Electricians	4	15	11	13	17	7	28	50	145
Others	1	2	1	3	1		2	8	17
Total	6	20	14	20	20	8	35	70	193

AREA ACTIVITIES

100 Areas

Approximately 80% of electrical installation was completed on Project C-96-E31 (electric heating for Riverland Yard).

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AREA ACTIVITIES100 Areas (Cont'd.)

Other than routine preventive maintenance, the following corrective measures were taken. The No. 22 vertical safety rod had apparently coasted after daily test causing unit to shut down. During subsequent test in service, the slipping action could not be repeated and clutch assembly was removed for further shop tests. It was found that excess weight of 150 lbs. was required to cause slippage. After several tests at various clearances, varying DC voltages, and load values, it is concluded clearances should be reduced below the .032" specified by the manufacturer. On extended shutdown October 21, the clearances on all clutches were reset to .025" or less. Only clutch assemblies were replaced on vertical safety rod No's. 17, 22, 23, 27, 29, 30, and 31 in Building 105-D.

The defective control board minitrol switches controlling horizontal rods were replaced with a G.E. type SB-1 switch. No difficulties have occurred since new switches were installed.

The voice power & phone on "C" and "D" elevator amplifiers were replaced with microphones, giving decided improvement in speech transmission. The station 13 telstalk was relocated from the valve pit to the new E.I. office.

Difficulty in starting refrigeration motors in Building 189-F was traced to the control switches adjustments. They were adjusted to function in 15° steps.

In the 100-F Area on October 2, an expert water main failed and flooded the area between the 189 and main substation buildings. Cable pits and connecting conduit containing 13,800 volt cable became flooded. Pits were cleaned, conduit blown out and dried with compressed air. Subsequent check and test of all cables indicated no damaged insulation. Excavations were made to inspect concrete conduit duct with no visual breaks detected.

Line crews completed tightening hardware, pulling slack and chcking guys on all 15.8 KV lines in the 100-D Area. New secondary and services were provided for the heating load at Riverland Yard. A new pole top 66 KV disconnect was installed at White Bluffs and all 115 KV disconnects at Hanford Substation were overhauled. Operational checks and adjustments were made to 230 KV Oil Circuit Breakers A-364, A-364, and A-366. Oil Circuit Breaker 346 received complete annual overhaul.

Power system surges originating on the Bonneville Power Administration system occurred at 6:04 PM, October 15, with no effect on plant operations. A second disturbance occurred at 8:55 AM, October 31. The No. 15 pump in Building 181-D tripped off about five minutes later, probably due to improper action of Rowan dashpot.

200 Areas

For the first time in the operating experience of the cells containing large centrifuges, a 40/10 H.P. centrifuge motor failed in service when the stator winding became grounded on cell D2, B Concentration Building on October 24, 1946. The motor was replaced with a spare. It is not known whether the degree of contamination will permit salvage and repair of the motor.

AREA ACTIVITIES

200 Areas (Cont'd.)

Work completed during the month was chiefly of a preventive maintenance nature, with emphasis on distribution lines and substations while weather remained favorable for out door work.

There was collaboration with the Design and Construction Department on electrical phases of proposed new Waste Storage Tank group for the 200-E Area.

Project C-103, revisions to Building 2713 (Stores) for conversion to Area Garage, is now 5% complete.

300 Area

The preliminary study on conversion of certain electrical equipment in the Semi-Works Building (321) to explosion-proof type for use with the Redox process was completed and the necessary equipment and supply items placed on requisition.

A preliminary estimate was made on the installation of induction furnace equipment in a proposed addition to the Press Building (314).

In the Material Preparation Building, there were two failures of pot furnace elements due to terminal corrosion by flux.

700-1100 Areas

A study and report on methods and costs of electrical heating of Richland conventional type houses was completed.

Line crews completed above core inspections of 115 distribution transformers, case grounding and installation of wood molding on ground wires. By-pass disconnects were installed on 6.9 KV oil circuit breakers in the 700 Area. The Pasco substation was inspected and checked by supervision, work being performed by the Pacific Power and Light Co.

Project status is as follows:

ER-663	- Time Office Eutments	100%	Completed
C-55	- Richland Appliance Shop	100%	"
10,103	- School Eutments (12)	95%	"
C-102	- School Eutments (4)	40%	"
WO. 70476	- W-4 Dormitory	5%	"
WO. 17312	- Garms's Special Booth	100%	"
WO. 18088	- Electric Heating for 1182 Building	100%	"

Telephone Group

During the month, 219 telephone instruments were installed and 165 removed in the Village. In the areas, 25 instruments were installed and 21 removed.

The traffic analysis and report on the village board was completed.

The formulation of procedures for describing routine planned maintenance work and recording results was completed.

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11-5362

Electrical Department

DECLASSIFIED

AREA ACTIVITIES

Telephone Group (Cont'd.)

A re-grouping of two-party resident numbers was made before the issuance of a new directory, in order to obtain full use of cable pairs.

Some changes were made on switchboard lamp caps for the purpose of relieving operators eye strain and decreasing answering time.

Three small pin-hole leaks in the Richland section of the Richland-BY trunk cable were found and repaired.

Work done on the telephone system during the month includes:

Project C-37 - Installation of gas pressure system on trunk telephone cables	99.5	Complete
Installation of voice repeater on "O" level trunk to BY	95%	"
Installation of emergency switchboard at BY office	100%	"
Prepare emergency board for areas	0	"

Radio Maintenance

Twenty-nine mobile radio sets were overhauled, fifty-seven units serviced, and three new mobile installations were completed. Relocated radio station at Yakima Barricade.

POWER SUPPLY INTERRUPTIONS

<u>Date</u>	<u>Area</u>	<u>Circuit Affected</u>	<u>Time</u>	<u>Duration</u>	<u>Remarks</u>
Oct. 21	Hanford	OCD's B-34 & B-43	10:00 AM	10:45 AM	Closing B-41 ground at White Bluffs
Oct. 24	Richland	700 Area fence lights	5:52 PM	6:54 PM	Wire pulled out of fixture
Oct. 27	Richland	Section of DL-16 from Disc. on pole 8-41	3:00 PM	3:30 PM	Wire down

OUTAGE REPORT - RADIO STATIONS

Oct. 4	Station WUGN	4:00 PM	to	10:00 PM)	All off due to defective tubes.
Oct. 16	Station WUGN 9	8:05 AM	to	9:10 AM)	
Oct. 21	Station WUGN 2	8:30 AM	to	10:54 AM)	
Oct. 24	Station WUGN 4	9:35 AM	to	10:10 AM)	

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SECRET

POWER STATISTICS - ELECTRICAL DEPARTMENT

FOR MONTH ENDING OCTOBER 31, 1946

ITEM	ENERGY - kWhrs.		MAX. DEMAND - kW		LOAD FACTOR - %		INCREASE OR DECREASE - %	
	Sept.	Oct.	Sept.	Oct.	Sept.	Oct.	Energy	Max. Demand
230 KV SYSTEM								
151 B Out	1,460	1,480	3,500	3,000	57.9	66.3	14.4	14.3 d
151 D Out	13,050	10,520	21,200	18,000	85.5	78.6	19.4 d	15.1 d
151 F Out	10,990	7,470	16,800	15,900	90.0	63.1	32.0 d	5.4 d
251 Out	1,740	1,990	3,200	3,300	75.5	81.0	14.4	3.1
TOTAL OUT	27,240	21,460	44,700**	40,200**	-	-	21.2 d	10.1 d
MIDWAY IN	27,567	21,847	43,200*	37,600*	88.6	78.1	20.7 d	13.0 d
Transm. Loss	327	387	-	-	-	-	-	-
Per Cent Loss	1.2	1.7	-	-	-	-	-	-
66 KV SYSTEM								
1151 A Out	1,190	2,044	3,800	5,000	43.5	54.9	71.8	31.6
1151 B Out	1,242	1,876	3,600	4,700	47.9	53.6	51.0	30.6
751 A Out	1,747	2,021	4,219	4,393	57.5	61.8	15.7	4.1
351 A Out	230	250	486	504	65.7	66.7	8.7	3.7
351 B Out	206	240	880	1,120	32.5	28.8	16.5	27.3
Hanford Out	# 273	269	500	600	75.8	60.2	1.5 d	20.0
TOTAL OUT	4,888	6,700	13,485**	16,317**	-	-	37.1	21.0
Hanford In	561	297	500*	600*	-	-	47.1 d	20.0
Pasco In	4,362	6,411	11,600*	15,200*	52.2	56.7	47.0	31.0
TOTAL IN	4,923	6,708	12,100**	15,800**	56.5	57.1	36.3	30.6
Transm. Loss	35	8	-	-	-	-	-	-
Per Cent Loss	0.7	1.2	-	-	-	-	-	-
PROJECT TOTAL								
230 KV (Item 5)	27,240	21,460	44,700**	40,200**	-	-	21.2 d	10.1 d
66 KV (Item 15)	4,888	6,700	13,485**	16,317**	-	-	37.1	21.0
TOTAL OUT	32,128	28,160	58,185**	56,517**	-	-	12.4 d	2.9 d
230 KV (Item 6)	27,567	21,847	43,200*	37,600*	88.6	78.1	20.7 d	13.0 d
66 KV (Item 18)	4,923	6,708	12,100**	15,800**	56.5	57.1	36.3	30.6
TOTAL IN	32,490	28,555	51,600*	47,200*	87.5	81.3	12.1 d	8.5 d
Transm. Loss	362	395	-	-	-	-	-	-
Per Cent Loss	1.1	1.4	-	-	-	-	-	-

Average Power Factor - 230 KV System --- 99.5%
 Average Power Factor - 66 KV System --- 96.0%

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

See Sept. Report
 3000 kWh fed to Hanford from Pasco October 14, 1946.

HW-7-5362
[Redacted]

INSTRUMENT DEPARTMENT

OCTOBER 1946

GENERAL

HW-7-5362-De/

Although a considerable load of fabrication work on new instruments is expected, most of this work is in design stages at present. Shop forces have been expanded, and it will be necessary to accelerate some of the design work in order to avoid being overloaded later. Procurement of materials has also held up some of the work, and the Purchasing Office is assisting in overcoming this difficulty.

Training of new Helpers has continued and, having completed a series of lectures on general plant instrumentation, the men are now in the midst of lectures of fundamental principles of measurement. An electronic training course has been prepared and will follow the work on electrical and mechanical training.

Work Order Summary:

<u>Area</u>	<u>Work on Hand Oct. 1</u>		<u>Work Completed in Oct.</u>		<u>Work on Hand Oct. 31</u>	
	<u>No. of Orders</u>	<u>Estimated Man Days</u>	<u>No. of Orders</u>	<u>Estimated Man Days</u>	<u>No. of Orders</u>	<u>Estimated Man Days</u>
100-B	36	59	63	96	36	62
100-D	49	164	112	384	50	124
100-F	60	155	120	366	65	168
200-E	45	98	219	377	45	103
200-W	59	72	237	296	58	72
300	52	215	123	396	65	246
700	47	42	67	171	52	68
Totals	348	805	941	2086	371	843

ORGANIZATION AND PERSONNEL

The various developmental activities of the department have been consolidated under the new Instrument Engineering Section as illustrated by this month's organization chart. These activities include the work on optical equipment and service manuals which was formerly handled by special assignment engineers reporting to the Assistant Superintendent. The Instrument Engineering Section thus includes six men at present, a supervisor, an optical engineer, three electronic engineers and an engineer on preparation of manuals. Several transfers between areas and appointment of a new Craft Foreman, M. W. Bjur, have been made to obtain personnel for development work.

LOC AREAS

- 1 Measurement work on distortion of the Pile structure is being transferred back to the Technical Department which has increased its personnel. The Instrument Department will continue to assist in devising special equipment for this work.

1199134

Measurements of strain in Van Stone flange connections were made this month but have not been evaluated. Other measurements of horizontal bowing were made on tubes 2451 and 2496 at 100D. These tubes are bowed to an extent which prevents a complete survey from one end, and future measurements will require readings taken from both ends and paired at the center.

Response of Beckman Controllers to power interruptions in the 100 Areas was tested. One unit failed to re-close its relay quickly on re-application of power. It is intended that these units restore their circuits within the time delay for which the master safety relay (LXX) is set. This makes it possible for pile control to be maintained through brief power interruptions of as much as five cycles duration. As a result of this experience, relay action in the Controllers is being investigated with the purpose of getting uniform behavior of all units.

An unscheduled shutdown occurred on October 22 in 100F Area. The cause was a sudden drop in Control Air pressure to the master pressure regulator in the Process Pump House. Water pressure dropped to 285 p.s.i., causing the Pile to shut down. A thorough investigation of the air lines did not reveal the source of the trouble, and it is believed that some dirt had been in the line and was blown free.

200 AREAS

Ventilation air for the crane cab in the T Canyon is now being monitored by means of a GM tube and counting rate meter. The tube is enclosed in a lead shield through which a sample of the air is drawn.

Clogging of "dip legs" for Ring Balance liquid level and specific gravity recorders continues. In the B Canyon, one dip leg became clogged beyond hope of clearing and it has been necessary to operate the liquid level recorder from the same dip leg as the specific gravity recorder. It would appear that any new design for replacement dip legs should incorporate some convenient device for cleaning them.

- 2 An experimental conductivity meter which was installed to monitor waste water from the B Canyon has been improved to give successful performance. The water is fed into a stainless steel box to maintain constant level and conductivity is measured between two stainless steel electrodes, using a Bristol recorder which gives about 50% of full scale deflection for 0.025% acid. The equipment is useful to operating personnel in locating process leaks.

Four two-fold "Handees", for measuring alpha contamination of the hands, have been installed. If these units give satisfactory results, it is planned to devise a unit in which two probes are arranged to feed pulses into a single recording unit.

300 AREA

- 2 An experimental neutron survey meter has been built for Health Instrument work. It involves an amplifier using the same type of methane filled chamber which

was formerly used with a Linemann electrometer in the "Chang and Eng" survey meter. Improvements were also made on a survey meter, received from Clinton Laboratories, which employed an evacuated chamber to eliminate collection of ions by wiring while attempting to make zero adjustment in the presence of radiation. These stray ion currents were eliminated by the addition of "guards" which shield the wiring from electrostatic forces and avoid the necessity of maintaining a vacuum.

Work has been started on accurate calibration of the Brown Radiomatic Heads, used to measure temperature of extruded uranium rods. These instruments have given satisfactory service as indicators but have not been previously checked to insure true temperature readings.

700-1100 AREAS

A flame conductivity relay has been installed on the pilot flame of the gas furnace at the Sewage Disposal Plant. This relay closes the main gas line if the pilot flame goes out and replaces a thermocouple unit which did not give reliable service.

An Integron chamber and amplifier have been adapted to serve as a resistivity meter to check leakage of insulators. It has been found that this unit can be used to test 16 insulators in one hour as compared to one per hour under previous methods. The Integron circuit is the most sensitive of our standardized current measuring and recording devices.

DEVELOPMENT

Principal activities of this new section of the department have been reported above under Organization and Personnel. It has required considerable time and effort to get laboratory space which was made available on the last day of the month. Reference literature to aid this work has been obtained by writing to manufacturers of electronic equipment and parts. Work on initial problem assignments will be reported next month.

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INSTRUMENT DEPARTMENT

MONTHLY FORCE REPORT

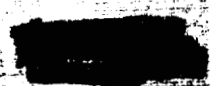
Date: October 31, 1946

<u>CLASSIFICATION</u>	703 Bldg.	100B Area	100D Area	100F Area	200F Area	200E Area	200H Area	300 Area	700 Area	Total
Supervisors (Monthly)	1	1	2	4	4	2		6	2	22
Engineers (Monthly)	2							1	1	4
Instrument Mechanics (Weekly)		5	14	14	14	15		17	5	84
Others (Weekly)			3	3	4	3		7	5	25
TOTALS	3	6	19	21	22	20		31	13	135

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SERVICE DEPARTMENTOCTOBER 1946PERSONNEL

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GENERAL

Preliminary sketches were submitted to the Drafting Room incorporating the changes to be made to Building 705 to provide additional space for consolidation of all personnel activities. The drafting of plans for this reconstruction is progressing in the Drafting Room at this time.

ORGANIZATION AND PERSONNELEmployment and Investigations

The Employment and Investigations Division organization remained unchanged during the month except for the transfer of an investigator to the Security Section effective October 1, and the addition of an interviewer effective October 29. All of the personnel attached to this Division was assigned to the 700 Area.

Industrial Relations

Effective October 1 the Industrial Relations Division organization was expanded by the addition of two Industrial Relations Counselors. One of the Counselors as shown on the September report was made Section Supervisor of the Industrial Relations Section.

Education and Training

During the month of October, F. Ellis Johnson, former Dean of Engineering at Wisconsin University, joined our staff in the capacity of Chief Supervisor of Education and Training. Mr. Johnson is at the present time lining up an educational program to be used at this Works.

Women's Activities

During the month Dorothy Kinkaid reported to this Division in the capacity of Section Supervisor of Women's Activities.

ACTIVITIESEmployment and Investigations

Properly authorized photographic passes for all employees were released on October 11, and distribution of these passes was accomplished by the various departments through line organization. Completion of this assignment accounted for an appreciable increase in work volume handled by the Photographic Group. During October, 1472 passes were laminated as compared with 4878

Service Department

during September.

Employment interviews and volume of new cases received for investigation showed a decline during the month. A total of 1238 applicants for employment were interviewed during October as compared with 1714 during the month of September. New cases received for investigation dropped from 388 in September to 368 in October. At the beginning of the month there were 138 open requisitions for weekly salary personnel of which 81 were covered with interim commitments. At the month's end there were 101 open requisitions of which 53 were covered with interim commitments.

Initial steps were taken and work was begun on the classification of all applications for employment that were retained in the active applications file in order to improve the reference value of this file and the procurement of personnel.

Industrial Relations

Effective October 14 an Area Schedule for Industrial Relations Counselors was initiated, with a Counselor assigned to the 100 Areas and another assigned to the 200 Areas. A third was assigned to the 700 Area, devoting a majority of his time to the editing of the "Life Line" and the orientation of new employees. During this period two issues of the "Life Line" were prepared, edited and distributed. The orientation of 132 new employees was given.

The Section Supervisor for Industrial Relation has been covering the 300 Area in the morning and the 700 Area in the afternoon.

During the month of October the Industrial Relations Section received 443 contacts as shown below:

CONTACTS

Policy	91
Military Service	25
Insurance	97
Recreation	7
Housing	45
Facilities	22
Personal	59
Miscellaneous	67
Income Tax	23
Sugar Rationing	7
Total	<u>443</u>

This compares to 186 contacts in September when there were no Counselors in the areas. The results to date have been most gratifying as a very cordial reception has been accorded to the Counselors by all members of Supervision and employees upon their return to an established schedule. (See appended Industrial Relation Schedule, Exhibit "A")

The Industrial Relations Division was charged with the responsibility of handling the Community Chest Fund for this Works. The drive was concluded on October 7 with the following results: \$12,682.58 contributed by employees for a percentage of 98.2% of the established quota of \$12,905.00, excluding General Electric Company's \$2,000.00 contribution. Including General Electric's contribution, this Works contributed a total of \$14,682.58 for a percentage of 113% of the established quota.

Selective Service has been comparatively inactive during the month of October with only a few questions arising. Present status as to the Plant's Selective Service picture is outlined below:

Selective Service

19 through 29 Year Group (Non-fathers)

<u>Technically Trained</u>	<u>1C</u>	<u>4F</u>	<u>Other</u>	<u>Total</u>
Married	7	4	21	32
Single	<u>4</u>	<u>2</u>	<u>31</u>	<u>37</u>
Total	11	6	52	69

<u>Non-technically Trained</u>	<u>1C</u>	<u>4F</u>	<u>Other</u>	<u>Total</u>
Married	94	32	0	126
Single	<u>53</u>	<u>30</u>	<u>4</u>	<u>87</u>
Total	147	62	4	213

Lien called into Military Service during the month of October	0
42A (Spec. Revised) Forms completed and mailed for month of October	0

In the Insurance and Compensation Division, a trip was made to Seattle and Olympia for the purpose of discussing four liability claims with a representative of the Travelers Insurance Company and eleven compensation claims with the Department of Labor and Industries.

A complete detailed report on this trip is on file in the office of the Chief Supervisor of Personnel.

Compensation and Insurance activities during the month of October included:

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Service Department

	<u>This Month</u>	<u>Last Month</u>	<u>Total Since Sept. 1, 1946</u>
Workmen's Compensation Claims reported to the Department of Labor and Industries	1	4	5
Workmen's Compensation Claims reported to Travelers	0	0	0
Liability cases reported to Travelers	2	0	2
Unreported cases	2	0	2
Cases handled for du Pont	7	2	9

Education and Training

This Division is in the process of being organized and a tentative program is being drawn up at this time.

Women's Activities

This Section is compiling copy for the publication of a handbook of information to be distributed to all H.E.W. employees by the first of the year and subsequently to all new employees. Briefly, this handbook will contain Industrial Relations Plans and Policies, History of General Electric, Work Rules, Health, Safety, Security and Richland Village information.

Assistance is being given towards the planning of various women's recreational activities, including a shopping trip to Seattle which is being sponsored by the Dormitory Club for the weekend of November 22 and 23. This Section is also assisting in the reorganization of the Dormitory Club whose aim is to foster social activities for single men and women in Richland.

STATISTICS

Employment and Investigations

Significant Employment and Investigation statistics are tabulated as follows:

Employment Statistics

<u>Number of Employees on Rolls</u>	<u>9/30</u>	<u>10/31</u>
Exempt	688	717
Non-exempt	3503	3588
Total	4191	4305

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Service Department

Additions To The Rolls

	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
New Hires	24	118	142
Reemployees	0	1	1
Reinstates	0	2	2
Transfers from Other Plants	<u>3</u>	<u>0</u>	<u>3</u>
Net Additions	27	121	148
Payroll Exchanges	<u>7</u>	<u>0</u>	<u>7</u>
Gross Additions	34	121	155

Terminations from the Rolls

	<u>Exempt</u>	<u>Non-exempt</u>	<u>Total</u>
Net Terminations	5	29	34
- Payroll Exchanges	<u>0</u>	<u>7</u>	<u>7</u>
Gross Terminations	5	36	41

Approximately 76.5% of all terminations were on a voluntary basis, and most of these were for the following reasons: (a) Business for self (20.6%), (b) Another job (17.6%), and (c) To go with husband (11.1%).

General

	<u>Sept.</u>	<u>Oct.</u>
Applicants Interviewed	1,714	1,238
Absenteeism Statistics (Weekly Salary Roll)		
Male	1.64%	2.14%
Female	2.70%	3.28%
Total Plant Average	1.85%	2.38%

Investigation Statistics

	<u>Sept.</u>	<u>Oct.</u>
Cases pending at beginning of month	265	385
Cases received during the month	388	368
Cases closed	268	181
Cases pending at end of month	385	572
Number of employees approved for clearance	73	76
Number found satisfactory for employment	166	204
Number found unsatisfactory for employment	12	9

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Service Department

	<u>Sept.</u>	<u>Oct.</u>
Number of Mohawk Wrecking & Lumber cases where Military Intelligence was advised to issue permanent badges	73	40
Number of Personnel Security Questionnaires concerning Concessionaire employees processed and forwarded to M.I. Office without investigation	20	58

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DECLASSIFIED

EXHIBIT "A"

SCHEDULE OF
INDUSTRIAL RELATIONS COUNSELORS

Effective October 14, 1946

AREA	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
100-D W. D. Smythe Ph. 5563	12:30 Noon to 4:18 P.M.	12:30 Noon to 4:18 P.M.	12:30 Noon to 4:18 P.M.	12:30 Noon to 4:18 P.M.	12:30 Noon to 2:30 P.M.
100-F W. D. Smythe Ph. 6663	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon
200-E T. A. Purton Ph. 8863	12:15 Noon to 4:18 P.M.	12:15 Noon to 4:18 P.M.	12:15 Noon to 4:18 P.M.	12:15 Noon to 4:18 P.M.	12:15 Noon to 2:45 P.M.
200-W T. A. Purton Ph. 7763	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon
300 S. E. Linter Ph. 3363	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon	7:48 A.M. to 12:00 Noon
700 & 1100 S. E. Linter Ph. 406	1:00 P.M. to 4:45 P.M.	1:00 P.M. to 4:45 P.M.	1:00 P.M. to 4:45 P.M.	1:00 P.M. to 4:45 P.M.	1:00 P.M. to 4:45 P.M.

100-B: On call only (see 100-D and 100-F schedule)
Riverland: On call only (see 100-D and 100-F schedule)

PLANT

SAFETY & FIRE PROTECTION

HW-7-5362-D-1

Safety

Plant Safety Record - 16 Days

Injury Statistics

	<u>September</u>	<u>October</u>	<u>Year to Date</u>
Major Injuries	-	1	3
Non-Tab. Major Injuries	-	1	4
Sub-Major Injuries	1	-	20
Minor Injuries	298	255	2,555

Major Injury No. 30, Non-Tab.

October 3 - (Production Department, 100-F Area), was loading material on the far balcony of the 105 Building in the Transfer Area when he felt an insect crawling on the back of his neck. He reached back to brush it off and felt a slight sting. The insect was recovered and identified as a black widow spider. He reported to first aid immediately and from there he was sent to Richland first aid and given 2.5 c.c. of anti-venom serum I.M. There was no reaction. He reported for work the next day and on October 7 he was discharged by first aid. On October 10, at about 11:00 P.M., he came back to Richland first aid suffering from reaction of the medication given to counteract the bite. At this time he was hospitalized and remained in the hospital until noon on October 11 and returned to his job.

Major Injury No. 31

October 15 - (mechanic in the Maintenance Department, 200-E Area), was installing an acid pump in the 211-B Tank Farm. , who was wearing a full regulation acid suit, broke the union at the pump spacer, removed the spacer, and set the pump in position. At this time his hood visor became fogged and he stepped back a few steps and lifted his hood to clear his visor. As he lifted the hood, a strain in the by-pass line caused a joint to fail at the threads, spraying a fine stream of acid, striking on the right side of his head and neck. He was given first aid treatment on the spot, was then taken to first aid in 200-E Area, and later brought to Kadlec Hospital in Richland and hospitalized.

Minor Injuries

See charts appended to this departmental report.

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Service Department

A total of 544 Safety Meetings were held during the month of October, with an attendance of 7,612.

During the month 31 pairs of prescription safety spectacles were ordered; 30 pairs were received, checked and fitted; and 209 adjustments and repairs made to all types of safety spectacles.

There were 375,728 exposure hours from October 15, 1946 to and including October 31, 1946.

Experiences

300 Area

Minor Injuries	44
Days since last tabulatable major injury	1034
Days since last Sub-major Injury	71
Days without a Minor Injury	10
Safety Meetings conducted	64
Number in attendance	796
Safety suggestions received	49
Safety spectacles delivered	5
Safety spectacles serviced	45

A survey and study was made of the exhaust hoods in laboratories when it was felt that noxious fumes were escaping from them. Work is under way to remove deposits that have collected in the ducts reducing the air flow to such an extent that it will not carry off fumes.

It has been found that compressed air is again being used to clean off machines in some departments. After reviewing this problem with supervision involved, it was found that safety rules were being violated in one case and in another case the reducer valve on the air line had never been installed. This is being corrected.

A new program has been initiated and sponsored by the area council to make area building and grounds inspections, and is to be known as the Area Accident Prevention Committee. This committee is composed of wage roll and monthly salary employees who are appointed every two weeks by the area council chairman. This program will replace the Safety Monitor program which has been discontinued.

The HF acid handling equipment and procedure has been revised by the "D" Department. Corrective measures have almost been completed this date.

The problem of smoking in the locker room section of the change house, and the parking of motor vehicles close to buildings has been reviewed and a request made to the Area Safety Council to issue a ruling on this problem.

The various Departments who have been troubled with black widow spiders are following directions as set forth in Safety Flash and are keeping the

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DECLASSIFIED

Service Department

situation under control.

The Transportation Department has looked over the roads and parking lots of the area for the purpose of estimating cost of black topping the spots where it may be needed. The black top work cannot be started until spring. Minor repairs are to be made on area roads to eliminate unsafe conditions until black top can be laid.

100-B Area

Minor Injuries	4
Days since last tabulatable Major Injury	758
Days since last Sub-Major Injury	292
Days without a Minor Injury	27
Safety Meetings conducted	22
Number in Attendance	177
Safety suggestions received	0
Safety spectacles delivered	2
Safety spectacles serviced	1

A flag with two stars and a plaque with a bar was presented to 100-B Area with proper ceremony. Plant administrator W. H. Milton, Jr. spoke in honor of the occasion of two years without a Major Injury in the area.

100-D Area

Minor Injuries	20
Days since last tabulatable Major Injury	462
Days since last Sub-Major Injury	79
Days without a Minor Injury	14
Safety Meetings conducted	46
Number in attendance	510
Safety suggestions received	2
Safety spectacles delivered	2
Safety spectacles serviced	1

100-F Area

Minor Injuries	19
Days since last tabulatable Major Injury	555
Days since last Sub-Major Injury	588
Days without a minor Injury	17
Safety Meetings conducted	52
Number in attendance	584
Safety suggestions received	39
Safety spectacles delivered	3
Safety spectacles serviced	1

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200-E Area

Minor Injuries	50
Major Injuries	1
Days since last tabulatable major injury	16
Days since last Sub-major Injury	201
Days without a Minor Injury	7
Safety Meetings conducted	35
Number in attendance	374
Safety suggestions received	23
Safety spectacles delivered	5
Safety spectacles serviced	75

200-W Area

Minor Injuries	49
Days since last tabulatable Major Injury	294
Days since last Sub-Major Injury	150
Days without a Minor Injury	8
Safety Meetings conducted	46
Number in attendance	489
Safety suggestions received	13
Safety spectacles delivered	6
Safety spectacles serviced	75

700-1100 Areas

Minor Injuries	69
Days since last tabulatable Major Injury	90
Days since last Sub-Major Injury	34
Days without a Minor Injury	5
Safety Meetings conducted	279
Number in attendance	4682
Safety suggestions received	57
Safety spectacles delivered	7
Safety spectacles serviced	11

Richland Schools

The Elementary School Supervisor reported the following statistics:

Minor Injuries	30
Major Injuries	0
Sub-Major Injuries	0
Safety Meetings conducted	1010
Number in attendance	35,642

The slippery conditions of the steps and landing at the entrance of Lewis and Clark School has been corrected.

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DECLASSIFIED

Service Department

Plant Activities

The Plant Area safety sign located near the 300 Area barricade has been completed and arrangements have been made with Patrol to post daily the Plant and Departmental records.

An article covering safety and fire prevention was submitted to Industrial Relations to be inserted in the new General Electric handbook for all employees.

An article on safety and fire prevention was submitted to the Village Organization for publication in the forthcoming guide to procedures in Richland.

Various material items and procedures were investigated by the Safety Engineers and suggestions and recommendations were submitted to clear up safety hazards.

The slide film projectors and the 16 mm. movie projectors were used frequently to show films and illustrate safe practices to various groups throughout the Plant Areas and Richland.

An investigation of two Near Serious accidents was made, as follows:

- a) In 100-B Area, where an overhead crane was wound the wrong way and broke the cable, dropping the hook and block.
- b) At the Riverland Round house where an abrasive wheel exploded.

Fire Protection

Fires

	<u>Number of Fires</u>		<u>Estimated Damage</u>	
	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>
Village	9	9	\$425.00	\$255.00
Plant	6	2	-	15.00
Miscellaneous	<u>1</u>	<u>1</u>	<u>-</u>	<u>-</u>
Totals	16	12	\$425.00	\$270.00

The estimated \$255.00 damage shown under "Village" fires was the result of three fires. Damage amounting to \$120.00 was caused when combustible material placed on top of hot ashes ignited coat hanging on post in basement of 1405 Gunnison Court. Blaze from coal ignited joist and underside of flooring. Damage estimated at \$100.00 occurred when an uninsulated boot and wall box ignited joist, flooring and stud in house at 1521 Hains Avenue from excessive heat in furnace and faulty damper control. The third fire, causing damages estimated at \$35.00 occurred when an uninsulated wall box in the house at 209 Armistead Street permitted excessive heat from furnace to ignite floor and joist.

Service Department

Estimated damage of \$15.00 for "Plant" fires was caused when seat cushions were ignited from burning cigarette in Government truck #H068B-2283, in 200-A Area.

The activities scheduled for National Fire Prevention Week were conducted as listed in the program. A detailed report showing the extent of publicity, the activities of the special inspection committees, fire exit drills, safety meetings and fire extinguishment demonstrations was submitted on October 15, 1946.

Conducted inspection of all commercial buildings, schools, dormitories, churches, hospital, and fire extinguishers in Village and 700 Area; also, all buildings and extinguishers in Plant areas.

107 homes were inspected and the occupants advised of all fire hazards found in their home.

All water pump can extinguishers in Village, 700 Area and Plant areas were charged with anti-freeze solution; also, water barrels throughout Village, Plant areas and Morrison and Knudsen Labor Camp at Benton City.

An important recommendation was submitted to remove the damper from all room registers in the living room and kitchen of all conventional type homes. This would eliminate excessive heat from furnace igniting framing timber and floor around uninsulated heat ducts and pipes.

All fire alarm boxes in Village and Plant areas were tested; also, fire exit drills were held in all buildings having evacuation alarm signals.

Special articles were published in the local paper and the "Life Line" warning citizens of various fire hazards in the home.

All fire hydrants and hose houses were flushed and inspected in the Plant areas.

Recommendations were submitted for the installation of Rockwood alarm valves in 3706 Building, and sprinkler valve pull boxes and alarm valves in Instrument Building in 300 Area.

All Fire Department vehicles were winterized during the month.

Fire Extinguishers

Inspected	3,113
Installed and relocated	36
Refilled	273

Fire Drills and Lectures

Outside	124
House Drills	126
Auxiliary Brigade	30
Safety Meetings	61

Service Department

All water pump cans throughout the Project were winterized during the month.

18,600 feet of fire hose was tested.

All hose houses in the Plant Areas were inspected.

100 pounds of CO₂ was used to recharge extinguishers for Government controlled Fire Department on Project.

GENERAL DIVISION

Laundrying volumes were as follows:

<u>Plant Laundry (Bldg. 2723)</u>	<u>September</u>	<u>October</u>
Coveralls - Pieces	11,909	14,589
Towels - "	4,459	4,466
Miscellaneous "	<u>20,628</u>	<u>24,549</u>
Total Pieces	36,996	43,604
Total Dry Weight - Lbs.	51,759	63,320
<u>700 Area Laundry (Bldg. 723)</u>		
Flatwork - Pieces	28,189	33,571
Rough Dry - "	17,990	19,684
Finished - "	<u>1,742</u>	<u>2,108</u>
Total Pieces	47,921	55,363
Total Dry Weight	27,314	31,557

CLASSIFIED FILE

During the month of October the Classified File Section began a re-organization program to meet current and anticipated requests indicated by an increasing work flow. An Area Supervisor from the Technical Department was loaned to the Service Department for a period of six months to take charge of the re-organization.

The former Section Supervisor was transferred to other work and two new Section Supervisors appointed to cover 700 area and 300 area Files.

The above change in organization increases the number of supervision in this group from one to three.

Files were checked for seven employees prior to their transfer or termination.

The following figures provide a comparative study of the volume of work involved in the handling of classified documents. Although indicative of the general volume, these figures do not reflect the time or the detail required for the completion of adequate job performance:



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Service Department

	<u>September</u>	<u>October</u>
Classified Documents Received (In Mail)	136	267
Unclassified Documents Received (Total)	4,642	4,478
Classified Documents Issued	2,378	3,275
Inter-Area Transfer (Classified)	4,885	3,879
Documents Routed (Classified)	6,478	6,721
Requests - File Documents (Classified)	2,606	2,427
Requests - Technical Library	198	194

Service Department

PROTECTIONGENERAL

As the Protection Division was made a part of the Service Department and new card passes were issued to all personnel, the suffix to payroll numbers were changed from "F" to "S" and made effective Friday, October 18, 1946.

On October 25, 1946, a gate was installed to exclude unauthorized individuals from the immediate vicinity of the Military Intelligence Building after regular office hours. A key is maintained at the 700 Area Badge House for use in case of fire or disaster only.

A Restriction Procedure was established in the Cold Semi-Works Building, in the 300 Area, on October 2, 1946. The procedure provides for a special area badge symbol for authorized personnel, a challenging, by employees, of all persons not regularly employed in this building, frequent patrol surveys on off-shift hours checking locked doors, in offices where classified documents are stored, and locked and sealed outer doors other than the main entrance, as noted in a memorandum furnished all department heads under date of October 2, 1946.

ORGANIZATION

Effective October 1, 1946, R. S. Jaynes was transferred from the Investigation Section of the Personnel Division to the Security Section of the Protection Division as a Section Supervisor.

PATROL

Seven special duty escorts were handled.

The 200-East and 200-West Areas handled 264 special escorts, within the 200 areas.

Requests handled totalled 810, mainly consisting of opening doors and gates for employees of other departments.

A total of 217 unusual incident reports was received, which consisted mainly of unlocked and open doors, windows and files, and traffic violations.

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

Practice evacuations were held in the 100-B area on October 25, 100-D area on October 30, and 100-F area on October 29.

Training

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

Service Department

	<u>September</u>		<u>October</u>	
	No.	Percent	No.	Percent
Unqualified	16	4	27	7
Marksman	107	31	117	32
Sharpshooter	74	21	80	22
Expert	<u>154</u>	<u>44</u>	<u>140</u>	<u>39</u>
Totals	351	100	364	100

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

High Team Average	280 4/5 (Tie)	200-East & 100-F
High area Average	247 59/75	200-West
High Individual Score	294	200-West

Qualifications in the F. B. I. Course firing were as follows:

	<u>September</u>		<u>October</u>	
	No.	Percent	No.	Percent
Unqualified	58	40	65	45
Marksman	41	28	33	23
Sharpshooter	28	19	30	21
Expert	<u>19</u>	<u>13</u>	<u>16</u>	<u>11</u>
Totals	146	100	144	100

The Sub-Machine Gun Course was not fired during the month of October.

Health talks were given on the subject "The Heart".

Richland Area

	<u>September</u>	<u>October</u>
Check on absentees	3	1
*Persons assisted	242	243
Doors and windows found open in commercial facilities	61	47
Lost children found	6	9
Ambulance runs	32	29
Lost dogs reported	7	4
Dog and cat complaints	35	43
Persons injured by dogs	<u>13</u>	<u>4</u>
Totals	399	380

*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.

Service Department

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

New 22x28 inch Security Posters, referring to the "Threat of Espionage", were widely distributed throughout the plant and administration areas, on October 30, 1946.

Security Bulletin No. 1, entitled "Expansion at H. E. W." was issued under the date of October 21, 1946.

A total of 297 Security Meetings was held and attended by 4,534 employees throughout the entire plant and administration areas during the period of October 1, 1946, to October 31, 1946.

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

	<u>September</u>	<u>October</u>
Employees	73	76
Visitors	0	0
Authorization cards issued	368	65

Protection of Plant Facilities

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

<u>Area</u>	<u>September</u>			<u>Total</u>	<u>October</u>			<u>Total</u>
	<u>A</u>	<u>B</u>	<u>C</u>		<u>A</u>	<u>B</u>	<u>C</u>	
100-B	365	628	330	1323	370	664	378	1412
100-D	624	568	340	1532	631	601	356	1588
100-F	579	507	338	1424	580	533	358	1471
200-E	699	694	309	1702	732	716	326	1774*
200-W	787	713	315	1815	777	751	330	1858
200-N	68	442	158	668	68	461	157	686
300	608	552	168	1328	628	583	138	1404

(*) Includes 21 badges at Riverland.

Service Department

Temporary Badges

<u>Area</u>	<u>Temporary Access</u>	
	<u>September</u>	<u>October</u>
100-B	5	12
100-D	10	32
100-F	13	13
200-E	11	15
200-W	17	22
200-N	0	10
300	<u>23</u>	<u>39</u>
Total	79	143

Plant Visitors

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Access to Areas</u>	
		<u>Classified</u>	<u>Unclassified</u>
<u>Schenectady Office Personnel</u>			
J. H. Hollomon General Electric Company Schenectady, New York	Consultation	X	
J. P. Howe General Electric Company Schenectady, New York	Consultation	X	
E. G. Rochow General Electric Company Schenectady, New York	Consultation	X	
W. E. Ruder General Electric Company Schenectady, New York	Consultation	X	
<u>Other General Electric Personnel</u>			
L. W. Baur General Electric Company Seattle, Washington	Inspection	X	
G. M. Clifton General Electric Company Seattle, Washington	Consultation		X
F. P. Criddle General Electric Company Seattle, Washington	Consultation		X

Service Department

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Access to Areas</u>	
		<u>Classified</u>	<u>unclassified</u>
<u>Outside Service Personnel</u>			
M. E. Bennett Baldwin Locomotive Works San Francisco, California	Inspection of locomotives		X
G. P. Church E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation		X
P. B. Collins E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation		X
Rodney Cox Style Center Walla Walla, Washington	Consultation		X
A. B. Crane Milwaukee Railroad Seattle, Washington	Inspection and consultation		X
Merton Elliott E. I. du Pont de Nemours & Co. Tacoma, Washington	Consultation		X
H. B. Gardner E. I. du Pont de Nemours & Co. Tacoma, Washington	Consultation		X
Lee Gillette Western Equipment Company Ephrata, Washington	Consultation		X
S. E. Hazlet Washington State College Pullman, Washington	Consultation		X
H. S. Hughes E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation		X
Alvin Jensen Jensen - Byrd Company Spokane, Washington	Consultation		X
J. W. Mercke E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation		X

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Access to Areas</u>	
		<u>Classified</u>	<u>Unclassified</u>
<u>Outside Service Personnel - continued</u>			
S. F. Patterson Western Gear Works Seattle, Washington	Consultation		X
Percy Pharr State Tax Commission Olympia, Washington	Consultation		X
E. L. Fleninger E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation		X
D. D. Schaeffer Westinghouse Electric Co. Portland, Oregon	Inspection and consultation	X	
L. K. Sorenson Milwaukee Railroad Seattle, Washington	Inspection		X
R. A. Thompson Westinghouse Electric Co. Portland, Oregon	Inspection of turbines	X	
L. Wylie Milwaukee Railroad Seattle, Washington	Inspection		X

PATROL DIVISION - TRAFFIC CONTROL STATISTICS

	<u>Motor Vehicle Accidents</u>		<u>Fatalities</u>		<u>Major Injuries</u>		<u>Minor Injuries</u>	
	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>
Plant	1	0	0	0	1	0	0	0
Richland	<u>10</u>	<u>16</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>3</u>	<u>2</u>
Totals	11	16	0	0	1	0	3	2

	<u>Accident Causes</u>		<u>Failure to Yield Right-of-Way</u>		<u>Reckless & Drunken Driving</u>		<u>Miscellaneous Causes</u>	
	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>
Plant	1	0	0	0	0	0	0	0
Richland	<u>7</u>	<u>7</u>	<u>2</u>	<u>7</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>3</u>
Totals	8	7	2	7	1	1	0	3

	<u>Plant Warning Traffic Tickets Issued</u>		<u>Improper License</u>		<u>Defective Equip.</u>		<u>Totals</u>	
	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>
Plant	2	3	0	0	1	3	3	6
Richland	<u>19</u>	<u>14</u>	<u>0</u>	<u>124</u>	<u>33</u>	<u>61</u>	<u>187</u>	<u>215</u>
Totals	21	17	0	124	34	64	190	221

	<u>Court Citation Traffic Tickets Issued</u>		<u>Drunk Driving</u>		<u>Negligent Dr.</u>		<u>Other Violations</u>	
	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Sept.</u>	<u>Oct.</u>
Plant	1	0	0	0	0	0	1	1
Richland	<u>5</u>	<u>12</u>	<u>1</u>	<u>2</u>	<u>1</u>	<u>5</u>	<u>5</u>	<u>23</u>
Totals	6	12	1	2	1	5	6	25

Traffic Volume
 Richland - Downtown Street* (average car count - 24 hour period) 8,109
 September 9,097

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PATROL DIVISION - RICHLAND OFFENSES

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Offenses		Offenses Cleared		Perpetrators Involved
			Sept.	Oct.	By Arrest	By Other Action	
Assault	0	0	0	0	0	0	0
Attempted Suicide	0	0	0	0	0	0	0
Burglary-Breaking and/or Entering	2	0	2	2	0	(u)	(u)
Larceny-Theft (except auto & bike):	2	0	3	2	0	1	1
(a) - \$50.00 and over value	17	6	11	11 (a)	1	2	2
(b) - Under \$50.00 value	0	0	1	0	0	0	0
Auto Theft	9	2	3	8	0	(u)	(u)
Bicycle Theft	2	1	1	1 (b)	0	1	1
Destruction of Government Property	2	0	3	2	0	1	1
Destruction of Personal Property	2	1	2	1	0	2	2
Disorderly Conduct	2	1	2	2	2	0	0
Drunkennes	2	0	5	2 (c)	1	2	2
Missing Persons	2	0	2	2	0	0	0
Offenses against family & children	0	0	1	0	0	0	0
Prowlers	2	0	2	2	0	0	(u)
Rape	0	0	0	0	0	0	0
Sex Offenses	0	0	0	0	0	0	0
Vagrancy	0	0	0	0	0	0	0
Violation State Game Laws	1	0	0	1	0	1	1
Miscellaneous	3	1	2	2	0	1	1
Juveniles (other than reported above)	2	0	7	2 (d)	0	1	3
Disorderly Conduct	48	11	45	38	4	9	20

- (a) - One of the offenses was perpetrated by a person, of age 22 years.
- (b) - The one offense was perpetrated by two juveniles, of ages 3 years.
- (c) - The two offenses were perpetrated by five juveniles, of ages 12 through 14 years.
- (d) - One of the offenses was perpetrated by three juveniles, of ages 14, 16 and 18 years.
- (u) - Represents "unknown".

10 of property recovered for the month of October was \$300.00 (includes five bicycles).

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:

<u>Classification</u>	<u>Wash., Oregon & Calif.</u>		<u>Richland</u>		
	<u>Six Months (Jan-June 1946)</u>	<u>One Month Average</u>	<u>Six Months (Jan-June 1946)</u>	<u>Sept.</u>	<u>Oct.</u>
Murder	.198	.033	0	0	0
Robbery	3.87	.645	0	0	0
Aggravated Assault	1.85	.308	0.66	0	0
Burglary	31.14	5.19	2.65	1.33	1.33
Larceny	131.31	21.89	40.98	11.33	14.0
Auto Theft	27.75	4.63	7.99	0.66	0

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

<u>Classification</u>	<u>State of Washington</u>		<u>Richland</u>		
	<u>Six Months (Jan-June 1946)</u>	<u>One Month Average</u>	<u>Six Months (Jan-June 1946)</u>	<u>Sept.</u>	<u>Oct.</u>
Murder	.225	.038	0	0	0
Robbery	6.15	1.03	0	0	0
Aggravated assault	1.41	.234	0.66	0	0
Burglary	35.59	5.93	2.65	1.33	1.33
Larceny	92.01	15.34	40.98	11.33	14.0
Auto Theft	34.89	5.82	7.99	0.66	0

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

<u>Classification</u>	<u>National Average (Jan-June 1946)</u>	<u>Richland</u>		
		<u>Six Months (Jan-June 1946)</u>	<u>Sept.</u>	<u>Oct.</u>
Robbery	55.6	0	0	0
Burglary	62.2	25%	0	0
Larceny	47.0	25%	29%	4.76%
Auto Theft	76.8	40%	0	0

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

In Richland every delinquent juvenile is entered in the records.

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[REDACTED]

Service Department

VILLAGE

GENERAL

Village Memoranda

Three Village Memoranda were issued during October. Number 46 advised residents of the first general delivery of kindling and the method of securing kindling in the event it was needed prior to the scheduled delivery or in case additional supplies were required. Number 47 requested that tenants of conventional type dwellings remove window and door screens prior to the advent of winter weather for reasons of conservation. Number 48 furnished information concerning current coal deliveries and the assistance residents could give to delivery crews. Information was also given with respect to the replacement of coal bin boards.

Village Population

The total population as of October 31 was 13,253, an increase of 516 over the population as of September 30, 1946. Population groups are as follows:

Females over 18	4204
Males over 18	<u>4021</u>
Total	8225
Children under 18	<u>5028</u>
TOTAL POPULATION	13,253

General Village Improvements

The following project requests have been submitted:

- (1) Installation of klaxon-type fire alarm system in all dormitory buildings in accordance with recommendations of the Safety and Fire Protection Division.
- (2) Replacement of composition shingles on roofs of Dormitories W-15, 16, 17, 19, 20 and 21.

Work orders have been issued to Maintenance Department to cover the following projects:

- (1) Installation of electric water heaters at the Columbia High School and Sacajawea, Lewis & Clark and Marcus Whitman Grade Schools.

The Project Engineering Group has been requested to submit plans and estimates to convert dormitory units to light-housekeeping apartments.

ORGANIZATION AND PERSONNEL

There has been no change in the organization set-up of the Village during the month of October.

Service Department

DIVISIONAL ACTIVITIES

Housing

Following is a report of the housing utilization as of October 31, 1946:

Houses occupied by family groups	Conven- tional	Prefab	Tract	Total
Operations	2062	987	27	3076
Government	177	120	24	321
Facilities	112	83	4	199
Total Occupied Houses	2351	1190	*55	3596
Houses Utilized for Special Purposes	3	-	1	4
Houses Assigned - (leases written)	(35)	12	1	48
Houses Assigned - Awaiting Tenant's move	(43)	4	-	47
Government Houses - Unassigned			**51	51
Operations Houses Unassigned - Vacant	(68)	***124	-	192
Operations Houses to be Released by Moves	(21)	(18)		(39)
TOTAL HOUSES	2500	1330	108	3938

* Occupancy figure includes 4 houses occupied by Bonneville Power in Priest Rapids and White Bluffs.

** The unoccupied figure includes houses which are unfit for occupancy. Government Property Section is offering 14 Tract Houses for sale as salvage.

***This figure includes 85 prefabs, formerly excessed, which are to be reconnected and reconditioned for use, and 5 prefabs, fire damaged, being repaired.

Service Department

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<u>Housing Turnover During Month</u>	<u>Begin Month</u>	<u>Moved In</u>	<u>Moved Out</u>	<u>Month End</u>	<u>Difference</u>
Conventional Type	2295	123	67	2351	Plus 56
Prefabricated	1173	85	68	1190	Plus 17
Tract	*59	1	5	55	Minus 4
TOTAL	3527	209	140	3596	Plus 69

* Tract House K-784, erroneously placed on the inactive list, is still an active lease.

Assignment of Housing

The following tabulation indicates the public response to the program initiated in September to meet the desire of residents to move from one house to another in the Village:

<u>Date</u>	<u>No. Posted</u>	<u>No. Applicants</u>	<u>No. Assigned</u>
9-2-46	196	249	98
9-19-46	84	76	21
10-3-46	38	128	20
10-17-46	25	69	11
10-31-46	48	123	36

On the postings of October 3 and 17 no prefabricated units were listed since the number of applications for prefabricated units by new employees exceeded the units available. Further posting of this type unit may be limited until a larger number becomes available as a result of the program for reconnection of the 87 units previously excessed and which are now in process of renovation and reconnection. As of the end of this month, two of these units have been finished and 13 more are nearly completed.

As of October 31, the posting of single unit dwellings has been discontinued, all such dwellings available being held for management assignment to key personnel.

The program instituted in September to expedite the removal of personal furniture from the houses of transferred du Pont employees has resulted in freeing the majority of houses tied up. Compared with the September 27 figure of 75 dwellings, as of the end of October, only 13 houses hold personal belongings. An additional five houses will be available at a later date due to the transfer of du Pont representatives.

Service Department

Dormitory Experience

Following is the Dormitory Statistics report for the month of October, 1946.

<u>Dormitories</u>	<u>No.</u>	<u>Total Occupants</u>	<u>Total Vacancy</u>	<u>Total Beds</u>
Men - Occupied	5	146	49	195
Men - Unoccupied	3	-	117	117
Women - Occupied	5	158	32	190
Women - Unoccupied	6	-	240	240
Women's Dormitories Occupied By:				
Community Org.	3			
Medical Dept.	1			
Government Offices	1			
G. E. Offices	* 1			
TOTAL DORMITORIES	25			

* This Dormitory, W-4, has been assigned to personnel of the du Pont Company and to the General Electric Design Group for administrative and office use. Ultimately, the unit will be used exclusively by the Design Group.

Allocation of Housing to Government Employees and Military Personnel

At the request of the office of the Area Engineer, as of October 23, the housing of individuals previously allocated by the Community Management Branch became the responsibility of the Village Organization. Allocations for governmental employees, military personnel and others will henceforth be handled as all other allocations, with certain minor exceptions.

Future Housing Requirements

The October 14 forecast of future employments points to an increase of 455 new employees by April 1, 1947. As of the date of the forecast, housing figures showed 297 units unassigned with an additional 53 potentially available, a total of 350 units. Various means of meeting the deficiency between units available and the projected number of new employees include: (1) a project for conversion of dormitories into apartments; (2) the release of dwellings occupied by personnel of the Mohawk Construction Company and others who may become ineligible; and, (3) a survey of vacant track houses to ascertain the extent of repairs necessary to place them in satisfactory condition; and, (4) building of additional living units.

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[Redacted]

Service Department

Partial Furniture Rentals

Due to an increasing desire on the part of residents to rent small quantities of furniture to supplement personally owned furniture, the Area Engineer has approved a proposal that available items of furniture, to a total cost valuation of \$300, may be rented at a monthly rental charge of 75 cents per \$50 valuation, with the understanding that the tenant will pay for the handling involved in delivery or removal.

Tenant Service and Village Maintenance

Following is a tabulation of all work Orders processed during the month of October:

<u>Patrol Orders</u>	<u>Work Orders</u>	<u>Total</u>
3650	986	4636

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

<u>Tract</u>	<u>A</u>	<u>B</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>L</u>	<u>Prefab</u>	<u>Total</u>
0	28	20	0	4	16	1	9	4	26	108

On October 17, the Area Engineer approved a program to permit the acquisition, at project expense, of necessary quantities of cold water paint in a range of pastel colors for use by those tenants who desire to use color in their interior decorating plans. The paint will be applied by the tenant in accordance with instructions issued by the Maintenance Department. The necessary supplies of paint have been ordered.

During the month of October, two dwelling fires were caused by the combination of overheated furnaces and inadequate insulation in the vicinity of heat registers. Upon the recommendation of the Safety and Fire Protection Division, a work order has been issued to the Maintenance Department to remove dampers in certain registers in the various type houses as specified by Safety and Fire Protection Division.

COMMERCIAL FACILITIES

The following figures indicate the trend of current activity as related to various basic items:

	<u>September</u>	<u>October</u>
Cafeteria Meal Customers	35,198	36,511
Percent of room-day occupancy Transient Quarters	86.30%	89.05 %
Gallons of ice cream sold	8,583	6,197
Gallons of milk and cream sold	44,670	49,862

Service Department

	<u>September</u>	<u>October</u>
Theater customer count	34,250	43,289
Cases of soft drinks sold	5,640	6,088
	<u>August</u>	<u>September</u>
Gallons of gasoline sold	100,109	97,968

A total of 1,205 dog tags have been sold to date. Animals on hand at Pound as of September 30, 6; animals impounded during October, 30; released during month, 5; disposed of, 28; animals on hand as of October 31, 3.

Various improvements have been made on the premises of the facilities, the expense to be borne by the operators:

- (1) Installation of a neon sign and repainting of the building of the Standard Service Station.
- (2) Installation of bicycle racks at the two theaters.
- (3) Installation of unlighted signs over the entrances to the Hardware Store.
- (4) Permission was granted the Riverside Stables to build a roping and riding ring in the area across the highway south of the stables.

Various changes and improvements were initiated at project expense. These include the installation of front-end alignment machine in the Commercial Garage; replacement of a projection screen and foyer carpeting for the Richland Theater; completion of the hutment addition to the Electrical Appliance facility; and correction of settling conditions in the water softening room of the Commercial Laundry.

In addition, the seeding of areas immediately surrounding Food Stores "B", "D" and "E" and Drug Store "B", was completed during the month.

To assist in maintaining the tidy appearance of the Village, portable trash receptacles were ordered for downtown street intersections.

In order to conform with fire protection regulations governing the use of popcorn machines, changes were made in the lobbies of the two theaters and the Recreation Hall. Similarly, to meet Public Health requirements, an order was issued to provide additional hot water in three food stores.

B. M. Mason purchased the partnership interest of A. G. Lanier in the Motor Coach Lunch on October 1, and the transfer of this sub-contract to an individual operation was approved by the Area Engineer on October 15.

R. E. Johnson replaced O. W. Brown as local manager of the Railway Express Agency on October 10.

Raymond Moller replaced R. G. Moller as manager of the Riverside Stables.

Service Department

CONTRACTS AND NEGOTIATIONS

The request of the Richland Shoe Salon for reconsideration of the rental basis for that operation was rejected, it being the belief that no action should be taken to reduce the rental, at least until after the first of January, 1947, when the end-of-year statement could be examined.

This month, a recommendation was submitted proposing that the Hardware Store rental be increased from 3 percent to 3 1/2 percent of the total monthly gross receipts for the period of October 1 through December 31, 1946, with the understanding that the matter of the amount of the rental rates shall be further reviewed and determined after the year-end financial statement has been received.

The Hardware Store submitted a proposal to establish a repair shop in the facility. This proposal was approved.

The operator of the State and County License Agency submitted a request that he be permitted to enlarge his activities in the facility to include operation of a public accounting practice and the sale of liability, fire, casualty and fidelity insurance, and to sublet a part of the premises to the Richland Motor Company as a sales office at a rental of \$15.00 per month. This proposal was approved.

Inventories

Work was continued on preparation and execution of inventories of respective facilities and community organizations so that, as of the present, 75 percent of facilities and organizations have executed property inventories.

Audit report on financial operation of the Recreation Building, prepared by the Government Auditor for Government Chief Project Auditor has been received. The recommendations made by the auditor are being forwarded to the operator for immediate compliance.

COMMUNITY FACILITIES

Churches

The Reorganized Latter Day Saints Church conducted revival meetings from October 20 through October 27, in the Marcus Whitman Grade School.

Schools

The enrollment for School District #400, on October 30, 1946, was as follows:

Sacajawea Grade School	921	
Lewis & Clark Grade School	737	
Marcus Whitman Grade School	643	
Jefferson Grade School	<u>327</u>	
Total, all Grade Schools		2628

Service Department

Columbia High School	673
Nursery Schools	<u>95</u>
Total, all schools	3396

On October 30, there were 77 children enrolled in the Richland Nursery school with an average attendance of 70. This is an increase of 7 children during the month. On this day there were 18 children enrolled in the Extended Day Care program of the Nursery School, with an average attendance for the month of 14.

One additional hutment was completed and occupied by a Lewis & Clark third grade class on October 21.

Other Community Activities

As approved by the Area Engineer on October 29, three new organizations (recommended for approval by the Recreation Advisory Committee on October 15) were established in Richland. These included the Leathercraft Club, Tri-County Bar Association, and the Richland Boat Club.

Total receipts from the Community Chest Drive, as of October 28, were \$17,627.33, which was 109.45 percent of the budget. Total campaign expense was \$301.18. By approval of the Board of Directors, \$700.00 from the 1945 campaign overage was set aside for a special Welfare Fund to be used for local cases referred to the Chest Welfare Committee by the Project Public Health Division or by other established local agencies. If additional funds are needed for this purpose, the 1946 campaign overage may be used.

On October 22, a listing of all approved Richland Organizations was prepared and distributed. This listing revealed that there are 134 separate groups using Village public facilities. This included 13 Churches, 12 Boy Scout groups, 16 Camp Fire Girls groups and 16 Girl Scout groups. Of this total, 25 separate organizations have contracts to operate buildings, including 6 public schools, 4 churches, and 15 community organizations.

The Community Concert Series ticket sales campaign was not scheduled to be concluded until November 2. The committee advised that 415 tickets had been sold and that four concerts were assured.

The Jack and Jill Village Pre-School reopened on October 28 with morning and afternoon classes offered to pre-school children. The school is operated for two periods, Mondays through Fridays from 9:00 A.M. to noon and 1:00 P.M. to 4:00 P.M., at a cost of \$10.00 per month per child per period.

Service Department

Major Activities during the month included:

October 3	"Christmas for Tiel" Drive	School & Churches
October 6 - 12	Fire Prevention Week	
October 7 - 12	Registration Week	
October 4	Football, Richland High vs. Walla Walla High School	Football Stadium
October 19	Clothing and Food Collection by "Christmas for Tiel" Committee	
October 19	Co-ordinate Club Roundup	Co-ordinate Club
October 20	LDS (Reorganized) Revival	Marcus Whitman School
October 23	Mestersingers Concert	Columbia High School
October 25	Football, Richland High vs. Pasco High School	Football Stadium
October 31	School Halloween Parties	All Schools

TRANSPORTATION DEPARTMENTOCTOBER 1946

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GENERAL

Du Pont Transportation Department records considered of no further reference value have been accumulated and disposed of as requested. Records needed for future reference have been inventoried and will be retained pending later accumulation for permanent storage.

Effective October 14, 1946, the responsibility for the operation of the Bus Terminal Ticket Office and supervision of Bus Ticket Accountability Clerks was transferred from the Accounting Department to the Transportation Department.

The departmental absentee percentage for the month of October (period 10-1-46 to week-ending 10-27-46) is 2.5%. There were 10,530 man days worked and 216 man days absence. The departmental percentage from January 1, 1946 (period 1-1-46 to week-ending 10-27-46) is 1.84%. There were 112,275 man days worked and 2,068 man days absence. The plant average is 2.14%. The departmental percentage was under the plant average for 33 weeks and over for 9 weeks. The low week percentage for the period is 0.71%, and the high is 4.04%.

It may be assumed that departmental functions continued on a normal basis except as otherwise noted under sectional activities.

ORGANIZATION AND PERSONNEL

The organization as shown on the chart as of September 30, 1946, remained unchanged during the month. A Truck Foreman, assigned temporarily to the Railway and Automotive Operations Division was transferred to the Mechanical and Labor Division.

Employment Requisitions were issued during the month to increase the force by six in total number of employees; new hires are five Mechanics and one Laborer.

The distribution of personnel for the Transportation Department, by areas, and Morrison-Knudsen, sub-contractors engaged in Railroad Track Maintenance, for October is shown in table appended. Not included in this table are clerical personnel assigned from the Accounting Department; employees in this category as of October 31, 1946, numbered twenty-eight.

SECTIONAL ACTIVITIES1. Railway Operations:

Railway operations continued on a normal basis and train movements were effected as scheduled. Hold-over of one train crew and Yardmaster on October 15, 1946, was necessary in order to handle a special car movement. This move was completed without incident. The actual movement of coal cars; empties to and loads from Hanford for the Pacific Coast Coal Company, started on October 17, 1946.

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The following indicates the volume of Railroad operation activities during the month:

<u>Carload Movements</u>				<u>Mohawk Wrecking Co.</u>	
<u>Project</u>					
<u>Loads</u>	<u>Empties</u>	<u>Loads</u>	<u>Empties</u>	<u>Empties</u>	<u>Loads</u>
<u>In</u>	<u>In</u>	<u>Out</u>	<u>Out</u>	<u>In</u>	<u>Cut</u>
744	20	26	715	176	169

The volume represented by these movements is best reflected by the total cars handled, which was 7435 for the month, including the Intra-Plant movement of Process cars.

Two diesel electric locomotives transferred in from Army Surplus, numbers 39-3726 and 39-2727, were placed in active service October 11, 1946.

2. Automotive Operations:

The Area bus system and the Village Local bus system operated during the month as scheduled. Miscellaneous automotive operation services including (a) Motor Pools, (b) Inter-area Shuttle Service, (c) Inter-area freight, mail and express service, (d) Towing and wrecker services, were rendered during the month with no change.

Off-the-Plant automobile trips (Company business and official visitors) totaled 65.

Comparative figures for the Plant bus trips are:

	<u>Average Daily Trips</u>	
	<u>September</u>	<u>October</u>
Passenger Buses - 100-B Area	5	5
Passenger Buses - 100-D Area	9	9
Passenger Buses - 100-F Area	10	10
Passenger Buses - 200-W Area	14	14
Passenger Buses - 200-E Area	10	10
Passenger Buses - 300 Area	7	7
Inter-area passenger service (Stretchouts)	3	5
Inter-area express service (Panel delivery)	1	1
Inter-area mail service (Panel delivery)	1	1

2 The following tabulation of total monthly passenger counts, by shifts, for all areas indicates the extent of Area bus traffic:

<u>Shift:</u>	<u>12 - 8</u>	<u>8 - 4</u>	<u>4 - 12</u>	<u>Total</u>
	16,624	29,727	28,912	75,263

Transportation Department

Significant daily averages for Village bus operation are:

	September	October
Total passengers handled, including transfers	2,031	2,103
Total bus trips	87	87
Total bus miles operated	504	504
Revenue	\$ 99.40	\$102.85

The Government Equipment Section filled requests for additional automotive units from their Reserve Pool. Sixteen units were received, of which only three were rebuilt and acceptable as new. It was necessary to overhaul thirteen units before they were assigned. The Procurement Procedure remained unchanged, and the Disposition Procedure was revised to consider depreciation and to determine outgoing unit valuation. The outgoing value of equipment transferred from the Project will be determined by mutual agreement of a representative from the Area Engineers Equipment Section and a representative of the General Electric Transportation Equipment Section. Effective October 14, 1946, the transfer of automotive units, outlined under "Consolidation of Motor Pools", was completed. This transfer consisted of 180 automotive units, and the assignments are as follows:

- 48 units to the Administration Motor Pool
- 10 units to the Repair Pool
- 122 units re-assigned to the Area Engineer

The Area Engineers Equipment Section will be considered as another operating department with respect to assignment, repairs, and maintenance of automotive units reassigned.

Units on inventory and in service are shown under the respective Plant departments to which they are assigned as shown in the Equipment Inventory appended.

The following tabulation gives the mileage of passenger type equipment for the month of September 1946:

CODE	TYPE	NO. UNITS	TOTAL MILEAGE
1A	Sedans	273	356,618
1B	Buses	66	114,819
1C)	Pickups,		
1D)	Station Wagons,		
1G)	Etc.	285	180,853
Total Mileage			652,290

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During the month, arrangements have been completed whereby General Electric Transportation Department will assume responsibility for dispatching and maintenance of all automotive and construction equipment formerly maintained and dispatched by Army personnel, with exception of units assigned to the Prison Industries Operation and Military Police Detachment No. 2.

Transportation Department

By directive from the Office of the Area Engineer, a program to completely overhaul all Project station wagons has been started.

Personnel assigned to the Area Engineer's Equipment Section has been authorized to inspect all Government owned automotive and construction equipment on the Project and to check procedure in the Repairs Section dealing with the Preventive Maintenance Program. This is in order to insure compliance with various Army regulations. Spot Check Inspection Unit Reports are being received from the Area Engineer by the department as a result of this action. The Repairs Section of the Mechanical and Labor Division act upon these Unit Spot Check Reports at the time the unit is scheduled for Class B inspection.

Conducting examinations and drivers tests continued. The volume involved in examining applicants and issuing permits is indicated by the following tabulation:

Applicants:	Male	74	Number retested	10
	Female	4	Total tests given	88
	Total	78	Number rejected	0

Permits Issued:

Limited to driving with glasses	11
Unlimited	67
Total	78

Mechanical and Labor

1. Mechanical Operation:

The maintenance and repair facilities functioned with little change.

The Work Order Control System continued with no changes. Following is the Work Order Summary for the mechanical operation:

Areas	Work on Hand September 31		Work Completed in October		Work on Hand October 31	
	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
Mechanical:						
100,200,300	17	153	8	247.4	17	170.0
Riverland	59	414	43	2255.7	61	480.3
700 & 1100	604	2263	856	2354.2	654	2241.0
Totals	680	2835	907	4857.3	732	2891.3

The following Repair and Service Statistics for Project equipment indicate the volume of work involved in these service inspections and other shop repair orders, and the distribution of work among the various areas:

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Transportation Department

Preventive Maintenance Inspections	October							River-land	Port. Units	M.K.	TOTALS
	100 B	100 D	100 F	200 W	200 E	300 -	700-1100				
Class "A"	-	-	-	-	-	-	86	-	-	-	86
Class "B"	52	79	85	121	97	-	819	-	330	-	1583
Units Lubricated	52	79	85	121	97	-	819	-	330	-	1583
Shop Repair Orders	71	53	109	69	129	4	2727	87	-	-	3249
Gasoline (Gallons)	2780	5127	4955	7755	6964	951	48818	-	9585	3136	90071
Kerosene (Gallons)	11	-	-	50	11	2	-	-	1369	-	1443
Diesel Fuel (Gallons)	-	-	-	-	-	-	-	10260	6076	-	16336
Antifreeze (Quarts)	51	102	91	205	108	32	1616	72	521	10	2808

The distribution of fuel continued during the month without change. Bulk fuel plant statistics (in gallons) for October are shown in the following table:

	Gasoline	Diesel Fuel	Kerosene
Stock at start of month	22292	5000	1564
Received during month	<u>115614</u>	<u>17400</u>	<u>3900</u>
	137906	22400	5464
Delivered to Area Stations:			
General Electric	95191	15391	2529
Government	<u>22826</u>	<u>2079</u>	<u>54</u>
	118017	17470	2583
Stock at end of month	19850	4930	2881

Equipment performance in general was satisfactory for the month.

The following items merit specific mention:

- a. Project Number 101 - "Install Bus Heaters and Defrosters." The installation was completed on 62 active buses on October 31, 1946. This number represents seventy-nine percent completion.
- b. Immediately prior to October 1, 1946, revised tire pressure charts were posted at all stations and are being followed very closely in order to maintain recommended pressures. Since October 1, 1946, tires on units in the inactive pool at 1131 Building and units in Government excess yard have been checked semi-weekly.
- c. On October 23, 1946, the air hose gauges at all service stations and garages were replaced with standard hand type air gauges. The hose type gauges are simpler to use but lack accuracy and dependability.

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- d. On October 7, 1946, effective with the 12 to 8 shift, daily inspection of buses was discontinued in favor of semi-weekly inspection. The new schedule requires approximately 13 bus inspections on shifts Number 1 and Number 3, thereby permitting shift Number 2 to devote full time to repairs to other types of equipment. The approximate maximum mileage on any single unit between semi-weekly inspections will be 375 miles.
- e. On October 9, 1946, 120 Ton Baldwin locomotive 39-372, having been in daily service since May 25, 1944, was taken out of service for scheduled repairs. This work included replacement of cracked cylinder heads with new heads of improved design, realignment of the crankshaft and the grinding of trucks to remove worn spots in the wheels and flanges. A representative of the Baldwin Locomotive Works was present from October 10, 1946, to October 18, 1946, inclusive, to offer advice and assistance in the above repairs.
- f. Flange oiler equipment was ordered October 16, 1946, for installation on two 120 Ton Baldwin locomotives in an attempt to control flange and rail wear because of extreme curvature of track.
- g. The program of servicing all Project equipment with antifreeze was completed on October 25, 1946.
- h. The program of servicing all equipment with winter type lubricants was started on October 14, 1946. On October 31, 1946, this program was 80 percent complete.
- i. The program for conserving energy of Area bus batteries during the winter months was started by removing the three cluster lights, front and rear of buses. This does not in any way affect the use of the clearance lights.

2. Labor Operation:

a. Areas

- 1) General - It may be assumed that work in the areas continued on a routine basis with nothing to report unless otherwise noted.
- 2) 200 West - A by-pass line was installed at 361-T Tank Farm requiring the movement of 2000 cubic yards of earth and the digging of 45 post holes.

There was an excavation and back filling operation at the 241-T Tank Farm requiring considerable hand work in handling the 3000 cubic yards of earth moved.

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Work was started during the month in connection with the Project No. C-103 to move the Transportation Garage from a temporary construction building to a new and centralized location at Building No. 2713-W, the latter being a standard operating type building. On October 31, 1946, the work was 50 percent complete.

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Nine car loads of ballast were loaded by 200 West forces for rail-road track maintenance.

Excavation and back fill was completed for the pipe line from Building 272 to Buildings 2722 and 2723.

- 3) 200 East - Twenty-five steel test wells were driven to a depth of eleven feet near Building 271-B.

An area near 221-B Building was covered with 450 cubic yards of pit-run gravel which was loaded and trucked from the 200 West stock pile.

Near 221-B Building, 300 cubic yards of earth was removed from over the waste lines and back fill completed.

Six man days of crane operation were required to open and close diversion boxes.

The area road from the area entrance badge house to the area garage was repaired requiring 100 cubic yards of black top material.

Fire lanes were cut around the inside and outside of the area fence.

- 4) Labor volume statistics are as follows:

	Sept. Totals	100 B	100 D	100 F	200 W	200 E	300	700-1100	Totals
Cars Coal Unloaded	494	43	227	173	53	52	12	78	638
Cars Other Materials Unloaded	20	0	10	6	2	3	2	1	24

Work Order Summary is as follows:

Areas	Work on Hand September 30		Work Completed in October		Work on Hand October 31	
	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
Labor:						
100,200,300	133	963	246	1690.8	123	929.1
700 & 1100	298	1939	382	4584.4	234	1136.3
	431	2902	628	6275.2	357	2065.4

b. Road and Street Maintenance

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- 1) Outer area roads and Village streets were maintained and repaired in the normal manner.
- 2) Entrances and driveways at two Commercial Gasoline Stations in the Village were paved with a two inch bituminus mat.

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3) Forty-five feet of 42 inch concrete pipe was installed at former wooden bridge site, one mile west of Richland on Van Giesen Street. The bridge opening was closed with a compacted fill of earth and gravel. The new fill was surfaced with crushed rock. Standard guard rail posts were set on each side of the road along the new fill.

4) Road asphalt statistics (gallons) are as follow:

	<u>MC 1</u>	<u>MC 3</u>	<u>MC 5</u>	<u>FT</u>
Stock at start of the month	6,800	33,500	10,050	0
Received during month	0	0	0	0
Repairs to Richland streets	0	0	200	0
Prime Airport Road, Clark Road & DeRussy Place	0	0	0	0
Stock at end of month	6,800	33,500	9,850	0

c. R. R. Track Maintenance - Plant Forces

- 1) The work of this section for the month was of a normal routine nature.
- 2) Four cars of ballast were placed on the 183 Building track in the 100-F Area.

d. R. R. Track Maintenance - Sub-Contractor Forces

- 1) The work of this section for the month was of a normal routine nature. Two hundred and fifty ties were changed out, four cars of ballast used, and special attention given to track alignment during the month.
- 2) A new bulk-head and ramp has been installed on 1125 Warehouse spur track to facilitate the loading of wheeled equipment for shipment from the Project.
- 3) Three revisions were made in procedure, in the interest of Safety, for the railroad maintenance groups. The Safety Rule prohibiting an employee to spike over a rail has been rescinded. The procedure governing the use of yellow flags and the issuance of dispatchers line-ups to track foremen has been revised and approved and will become effective November 1, 1946.
- 4) A comprehensive study of switch point condition has been completed and recommendations covering the purchase of new points and the substitution of points from lesser used turnouts are under consideration. In this regard, quotations on patent switch point protectors have been requested.
- 5) No further information relative to the procurement of cross ties from Government Surplus has been received. It is apparent that tie renewals will be heavy during the next year.

Transportation Department

e. Village Services

- 1) Lawn mowing and irrigation of public lawns was discontinued at the end of the month. Equipment used for this work is being placed in winter storage.
- 2) The program of delivering kindling to Village houses, consisting of two garbage cans per dwelling unit, was started October 14, 1946 and was 60 percent complete October 31, 1946.
- 3) Additional men and equipment were utilized during the month delivering coal to Village residences. For the month of October, 3232 dwelling units were serviced.
- 4) Additional areas were seeded to grass at the following locations: Village Food Store, Campbell Food Store, Groceteria Food Store, Pennywise Drug Store and the Marcus Whitman School.
- 5) Activities at Building 1125 (Furniture Warehouse) continued at a high level. This work consisted principally of packing and shipping of personal effects of employees transferred from the Project.

Traffic Division

Traffic Division activities and operating procedures continued during the period on a routine basis.

The following items are of interest:

- 1. On two occasions the Milwaukee train from Beverly arrived too late at Riverland Interchange to permit the handling of loads to the areas on the date of arrival. This resulted in poor utilization of Project train crews and presented a demurrage problem. Officials of the Milwaukee Railroad were contacted and it was agreed that in the future the normal arrival time of the train from Beverly would be not later than 8:00 a.m.; any variation in this schedule would require prior authorization by the Yardmaster.
- 2. On October 19, 1946, the Milwaukee Railroad advised that effective October 23, 1946, the practice of holding empties at the Riverland Interchange at carrier's convenience for prospective outbound loading would be discontinued.
- 3. On October 17, 1946, the Milwaukee Railroad appropriated ten empty gondolas which were in service for the movement of Project coal from Kleenburn, Wyoming to Hanford, and ordered them spotted for outbound loading of coal by the Pacific Coast Coal Company for shipment to Seattle. This appropriation of empty gondolas has continued at the rate of ten to fifteen cars per day and will continue until such time as the Milwaukee Railroad is able to furnish sufficient cars to handle this movement. Upon protesting against this practice to the Milwaukee officials in Seattle, we were assured that there would be no interruption of our coal deliveries from Kleenburn.

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Transportation Department

- 4. Purchase Order was issued on October 11, 1946, to General American Transportation Corporation, Chicago, Illinois, to cover cost and application of two rubber linings to be installed in two 8000 gallon tank cars which are to be leased to us for use in the transportation of Phosphoric Acid. The delivery of the first car has been promised about November 18, 1946.
- 5. A request has been made to the Purchasing Department to contact the Traffic Division for routing on any carload shipments of material prior to the time the order is placed. This procedure will insure advantageous freight rates.
- 6. The following is a summary of savings in freight charges through October 21, 1946, as a result of rate reductions secured from the carriers.

<u>Commodity</u>	<u>Origin</u>	<u>Savings thru September 30</u>	<u>Savings for October</u>	<u>TOTAL</u>
Caustic Soda	Tacoma (H)	\$ 6,811.88	\$ 487.35	\$ 7,299.23
	Tacoma	2,155.92	306.79	2,462.71
Soda Ash	Trona & N End, Cal.	3,393.60	636.30	4,029.90
Hydrated Lime	Evans, Wn.	346.75	36.46	383.21
Office Records	Hanford to New- bridge, Del.		2,525.12	2,525.12
	Total	\$12,708.15	\$3,992.02	\$16,700.17

(H) Purchased thru Henderson, Nev., but supplied from Tacoma.

- 7. Statistics outlining the routine work of this division follow:

Office Business

	<u>September</u>	<u>October</u>
Household Goods Movements Arranged	48	80
Household Goods Movements Traced	25	31
Household Storage Bills Approved	74	69
Automobile Shipments Arranged	4	3
Automobile Shipments Traced	0	2
Rail Bills Approved	131	405
Truck Bills Approved	200	190
Express Bills Approved	51	123
Household Goods Claims Filed	2	3
Household Goods Claims Collected - Number	8	3
Household Goods Claims Collected - Amount	\$245.47	\$62.38
Work Orders Issued - HHG Repairs	65	36
Furniture Dates to Expense Accounts	0	21
Insurance Riders Issued	53	100
Insurance Bills Approved	57	81
Freight Claims Filed	3	3
Freight Claims Collected - Number	4	6

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Transportation Department

	<u>September</u>	<u>October</u>
Freight Claims Collected - Amount	\$234.97	\$1,180.50
Rail Reservations Made	49	51
Air Reservations Made	48	41
Ticket Refund Claims Filed - Number	3	4
Ticket Refund Claims Filed - No. of Tickets	5	5
Ticket Refund Claims Collected - Number	2	6
Ticket Refund Claims Collected - Amount	\$73.58	\$81.23
Freight Shipments Traced	40	44
Carload Shipments Received	603	743
Carload Shipments Outbound	13	23
Hotel Reservations Made	27	16
Expense Accounts Checked	67	43
Bills of Lading Converted - Freight Shipments	597	424
Government Bills of Lading Accomplished	29	53
Freight Bill Pre-Audit Savings	\$96.40	\$520.33
Rates, Routings, Schedules Checked	857	814
Routing Instructions Issued	3	3

Household Effects

	<u>September</u>	<u>October</u>
Lots Shipped Via Van	17	60
Lots Pending	77	18
Automobiles Shipped	4	3
Household Lots Via Express	41	21
Household Lots Via L.C.L. Freight	2	1
Baggage Shipments	16	23

Commodities Received - Carloads

	<u>September</u>	<u>October</u>
Automobiles	0	1
Ammonium Silico Fluoride	1	0
Asphalt	3	0
Batteries	1	0
Caustic Potash	0	1
Caustic Soda	8	9
Cement	0	1
Chemicals	2	2
Chlorine	1	1
Coal	543	680
Fire Brick	0	1
Ferric Sulphate	6	17
Ferrous Ammonium Sulphate	1	0
Helium Gas	2	1
Hydrogen Peroxide	1	0
Hydrofluoric Acid	0	1
Lime	2	3
Locomotives, Diesel	4	0
Lubricating Oil	1	0
Merchandise	4	6
Nitrate of Soda	1	0
Nitric Acid	10	9

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1199181

Transportation Department



	<u>September</u>	<u>October</u>
Oxalic Acid	0	1
Phosphoric Acid	1	3
Salt	1	0
Silicate of Soda	6	4
Sodium Dichromate	1	0
Soda Ash	1	3
Sulphuric Acid	2	0
	<hr/>	<hr/>
Totals	603	744

7-536

DECLASSIFIED

HANFORD ENGINEER WORKS
TRANSPORTATION DEPARTMENT
DISTRIBUTION OF PERSONNEL
October 30, 1946

DEPARTMENT PERSONNEL

	General	AREA							River-land	Total
		100 B	100 D	100 F	200 W	200 E	300	700-1100		
1. Supervision	6	1	2	2	2	2	1	41	2	59
2. Drivers	23	12	23	27	32	31	18	37	6	208
3. Mechanics	1	-	1	1	2	1	-	57	7	70
4. Trainmen	-	-	4	4	4	4	-	1	1	13
5. Laborers	-	3	4	4	5	4	4	60	-	84
6. Oilers	-	-	1	1	3	1	-	32	1	39
7. Tool and Stores Attendants	-	-	-	-	-	-	-	7	-	7
8. Crane Operators	-	1	1	1	3	2	-	2	-	10
9. Tractor Operators	-	1	2	2	2	2	1	5	-	15
10. Helpers	-	1	3	2	2	2	2	43	8	63
11. Trackmen	-	3	3	3	3	3	1	-	-	16
12. Weighmaster	-	-	-	-	-	-	-	-	1	1
13. Equipment Inspector	2	-	-	-	1	-	-	1	-	4
Totals	32	22	43	47	59	52	27	236	26	594

R. L. Brown, M-529-R, transferred to Engineering Maintenance.
Effective 11-1-46.

0-530

HANFORD ENGINEER WORKS
TRANSPORTATION DEPARTMENT
DISTRIBUTION OF PERSONNEL
October 31, 1946

MORRISON KNUDSEN CONTRACTORS
Benton City Camp

MONTHLY:

Office Manager	1
Track Foremen	<u>6</u>
Total	7

HOURLY:

Timekeeper	2
Stenographer	1
Chef	1
1st Cook	1
2nd Cook	1
Dishwashers	2
Bull Cooks	2
Truck Drivers	7
Watchman	1
Laborers	<u>64</u>
Total	82

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1199184

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TRANSPORTATION DEPARTMENT
EQUIPMENT INVENTORY

DECLASSIFIED

October 1, 1946 through October 31, 1946

	1-A - SEDANS	1-B - BUSES - 29	1-B - BUSES - 37	1-B - BUSES - SEMI	1-B - STRETCHOUT	1-C - PICKUPS	1-D - CARRYALLS	1-D - PANELS	1-D - STATION WAGONS	1-G - JEEPS	1-G - WEAPON CARRIERS	5 - BATCH PLANTS	6 - ROAD SWEEPERS	6 - ROAD BROOMS	6 - TAR HEATERS	6 - PAINT SPRAYERS	10 - GRINDERS	10-A - FLAT CARS
Accounting	1	1				9	1											
Electrical	8					25	1	2			7							
Government	42	1			1	30	3	2		2	2							
Instrument	6					6		2										
Maintenance	8				1	37	1	1	2		6						1	
Medical-H.I.	13						4	1										
Power	8					15	1					1						
Protection	40					2	2				9							
"P" Dept.	3					3												
"S" Dept.	4					6	1											
Service	8	2				11	2	2										
Technical	10							1										
Transportation:																		
Automotive	4	37	73	1	3	2		2	1									15
Mechanical	9					27	5	2	2		2	1	1	3	4		5	
Adm. Pool	22	1			1	4			1	1	1							
Medical Pool	12								1		1							
300 Area Pool	6					2												
Repair Pool	10					21			4	2	2							
TOTAL	286	42	73	1	6	302	26	16	11	5	22	2	1	3	4	1	5	15

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Transportation Department
Equipment Inventory
Page 2 of 4

10-B	-	WELL BOTTOM CARS
10-C	-	DUMP CARS
10-D	-	GONDOLAS
10-E	-	MOTOR CARS
10-F	-	CABOOSE
10-G	-	PUSH CARS
10-H	-	TANK CARS
13	-	COMPRESSORS
16	-	CONVEYORS
17	-	CRAWLER CRANES
17-T	-	MOTOR CRANES
22	-	EARTH AUGERS
33	-	MOTOR GRADER
33-A	-	PULL GRADER
39	-	STEAM LOCOMOTIVE
39	-	DIESEL LOCOMOTIVE
39	-	GA S LOCOMOTIVE
40-A	-	CONCRETE MIXERS

Accounting

Electrical

Government

Instrument

Maintenance

Medical - H.I.

Power

Protection

"P" Department

"S" Department

Service

Technical

Transportation:

Automotive	11	5	2		2		6							1	8	5	2
Mechanical				13		18		15	3	10	4	1	5	1			
adm. Pool																	
Medical Pool																	
300 Area Pool																	
Repair Pool																	

TOTAL	11	5	2	13	2	18	6	20	3	10	4	2	5	1	1	8	5	2
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1199185

17-5302

Transportation Department
Equipment Inventory
Page 3 of 4

DECLASSIFIED

	45	49	52	55	59	63	63	64	68-A	68-B	68-C	68-D	68-E	68-G	68-H	68-J	68-K
	VIBRATING SCREEN	PUMPS	ROLLERS	SCRAPEERS	SPREADERS	RUBBER TIRE TRACTORS	CRAWLER TRACTORS	SEMI - TRAILERS	DUMP TRUCKS	FLAT TRUCKS	TANK TRUCKS	FIRE TRUCKS	TRUCK TRACTORS	AMBULANCES	GARBAGE TRUCKS	WINCH TRUCKS	LINE TRUCKS
Accounting								3	4				3				
Electrical								8	4							1	4
Government								4	2	8	4	10	4	3		1	1
Instrument																	
Maintenance		16						3	17				1			7	
Medical - H.I.								1	1					14			
Power																	
Protection																	
"P" Department																	
"S" Department											1						
Service		1							1			25					
Technical															1		
Transportation:																	
Automotive		3											1				
Mechanical	1	15	8	6	6	10	20	19	19	47	13	1	20		6	1	
Adm. Pool										1							
Medical Pool																	
300 Area Pool																	
Repair Pool																	
TOTAL	1	34	8	6	6	10	20	35	21	23	13	26	23	15	6	10	4

1-199187

10530

Transportation Department
 Equipment Inventory
 Page 4 of 4

	68-L - WRECKER TRUCKS	71 - FARM WAGONS	73 - WELDERS	74 - LIGHT PLANTS	78 - FARM MACHINERY	80 - KERRICK CLEANER	<u>ATTACHMENTS</u>				8 - DRAGLINE BUCKETS	8 - CLAMSHELL BUCKETS	17-A - BACKHOE	17-B - SHOVELS	29 - ENGINE - POWER UNIT	47 - SNOW PLOW	63-A - DOZERS	63-B - P. C. U.	63-C - SIDEROOM	TOTALS
Accounting																				22
Electrical			1	6																62
Government																				122
Instrument																				14
Maintenance			33																	141
Medical - H.I.					3															37
Power					1															26
Protection					3															57
"P" Department																				8
"S" Department															1					16
Service																				53
Technical																				12
Transportation:																				
Automotive																1				190
Mechanical	3	14	3	25	19	1		7	15	1	2					12	15	2	442	
Adm. Pool																				102
Medical Pool																				15
300 Area Pool																				8
Repair Pool																				39
TOTAL	3	14	37	38	19	1		7	15	1	2	1	1	12	15	2				1310
Total Units																				56
Total Attachments																				1366

1199188

Hw-7-3362

HEALTH INSTRUMENT SECTION

Hw-7-5362-De1

Organization

There was no significant change. Distribution of personnel is given in the appendix.

General

J. W. Healy and the writer visited the Radiation Laboratory, University of California, Berkeley, to indicate some of the methods and policies of radiation protection developed at Hanford, that might also be of value in the Radiation Laboratory. At the same time, Mr. Healy and Miss Loyer studied the techniques of radio-autograph work as practised in the Crocker Laboratory. The cooperation of Dr. J. G. Hamilton and his associates, especially Miss Axelrod, in this training was greatly appreciated.

The writer attended the Information Meeting at the Clinton Laboratories, October 16, 17 and 18. The Hanford Engineer Works system of analysis for plutonium in the urine was severely criticized in a contribution by the Los Alamos group. The primary source of the objection appears to be that this system reports positive values less than the background counting rate in the Los Alamos system. This appears to be possible for two reasons:

- (1) General personal and equipment contamination is much lower here, making it possible to obtain samples essentially uncontaminated, without the elaborate procedures that have been instituted at some locations.
- (2) Improved construction, mainly originating in the Metallurgical Laboratories, and better maintenance, provided by the Instrument Department, have combined to provide superior equipment.

However, it is a valid criticism that the currently assumed elimination rate of 0.001% per day is unduly conservative, and an upward revision is anticipated.

Three days were also spent at the Argonne National Laboratory. These visits will be more fully reported elsewhere.

Operational Division

100 Areas

Salient Points

Bowing measurements of Pile tubes continued. An irradiated Uranium slug was found during the cleaning of a Storage Area Basin. Six lead slugs were discharged onto a 0-foot level catwalk. Contamination was found in a stagnant pond between a Pile Building and the Retention Basin. A defective Uranium slug caused binding in a process tube such that it had to be pushed by hand. A near side top neoprene seal was changed, and an experimental hole thimble was replaced. Considerable work, involving handling of high level radioactive material, was done during an extended shutdown. Contact readings on tip-offs were as high as 1.5 rep per hour.

1199189

Work Permit Summary

	<u>September</u>	<u>October</u>
100-B	61	151
100-D	556	833
100-F	286	465
Total	903	1449

Retention Basin Effluent

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

	<u>100-D</u>	<u>100-F</u>
Power level	250	200
Average beta dosage-rate (mrep/hr)	0.4	0.4
Average gamma dosage-rate (mrep/hr)	1.3	1.4
Average total dosage-rate(mrep/hr)	1.7	1.8
Average integrated dose in 24 hrs. (mrep)	41	43
Maximum integrated dose in 24 hrs. (mrep)	48	50

A leak at the inlet end of the 100-D Retention Basin showed a Zeuto reading of 12 mrep/hr. The west side of the 100-F Area Retention Basin was taken out of service on 10/26/46 in an attempt to determine if the contamination found in the stagnant pond, between the F-Area Pile Building and the Retention Basin, was due to current leakage or to residual contamination from the previous leak. Preliminary checks indicated that the west side of the Retention Basin leaked. Contamination of approximately 2×10^{-2} $\mu\text{c/liter}$ of water and 0.3 $\mu\text{c/kg}$ of mud was found at the pond area. The effluent water readings from the east side of this Retention Basin increased by about 25% when it alone was in service. River water samples taken about 50 to 100 feet below the F-Area broken effluent line increased to about 0.1 $\mu\text{c/liter}$ from the previous level of 0.01 $\mu\text{c/liter}$. This may have been a result of a lower river level that would place the emission point of active water in an area of low river velocity and poor mixing. Parallel studies of river water temperature by the Technical Department are of interest here. A water sample from the 105-F Area Storage Basin read 2.5×10^{-3} $\mu\text{c/liter}$. Readings up to 60 mrep/hr were reported inside the inlet shack of the F-Area Retention Basin. The readings decreased quickly after the door was opened.

File Buildings

Decontamination of the 105-B Storage Area Basin has continued. Loose sludge was easily removed and most of the contamination remaining is on the basin floor and the top of the ledges between the columns. The columns are not badly contaminated. When the basin was pumped down to 1/2 inch of water, what is thought to be an active Uranium slug was found on the basin floor. A reading of 50 mr/hr was reported at the wood floor approximately 20 feet above the slug. A reading of 15 mr/hr exists along the edge of the special sludge and water trench in back of the 100-B File Building. A dirt sample from this trench gave a reading of 56 $\mu\text{g Pu/kg}^*$ and 2.5×10^4 $\mu\text{c/kg}$.

* Calculated on the pessimistic assumption that the entire alpha particle count was due to plutonium.

An ionization chamber in the "A" experimental hole of the 100-D Pile was replaced. A reading of 2 roentgens per hour was recorded two feet from the wooden box in which the chamber was placed. The beam from the open hole after the chamber was removed was estimated at 675 mr/hr. A stringer of graphite removed from the D hole in March was shipped to the 300 Area. A measure of 200 mrep/hr 6 inches from the stringer was recorded before it was shielded for shipment. A shutdown of about 20 minutes' duration was necessary to tie out one of the vertical safety rods. A reading of 20 mr/hr on the 70-foot level was reported while tying out the rod. The maximum reading on top of the D-Area Pile around the rod rail was 200 mr/hr. A dosage-rate of 180 mrep/hr due to active gas was obtained at the Machinery Room door and operation of the vertical safety rods was observed from this point. The reading increased to 250 mrep/hr when air was blown into the third safety device sewer line in an effort to remove the active gas. However, this was ineffective as the headers still read up to 1.5 roentgens per hour at 3 inches, making it necessary to break the unions to the rod thimbles and the third safety device headers in order to evacuate the gas.

During the extended shutdown of the 105-D Pile, the thimble and contents of the "B" experimental hole were removed and the thimble replaced. When about four feet of the thimble and the last ring of the shield plug were removed, a reading of 13 roentgens per hour was reported at the hole, 200 mr/hr at the end of the thimble, and 40 mr/hr at ten feet on the stair landing. The thimble was returned to the Pile until additional shielding, which reduced the maximum dosage-rate to 60 mr/hr, had been provided. The thimble was removed by remote saw cuts. Its unshielded activity registered 350 mr/hr at 30 feet and 110 mr/hr and 38 mr/hr at 60 and 90 feet, respectively. Shielded readings were 7.5 mr/hr through the 6" lead sidewall, and 53 mr/hr through the 4" lead top. The beam from the open "B" hole read 7 roentgens per hour, which fell to 3 roentgens per hour when the new thimble was inserted.

The Neoprene seal on the top near side of the 100-D Pile was replaced. A Zeuto reading of 40 mrep/hr was reported on the aperture when the old seal was removed; paper shielding reduced this reading to 7 mrep/hr, indicating the presence of a rather soft beta radiation. The inside of the old seal read 17 mrep/hr. No readings due to gas were present as the unit was under negative pressure. Three tubes were emptied for bowing measurements, and six lead slugs from tube #2651 were deposited on the 0-foot level catwalk. What was thought to be all of these slugs were removed with tongs at a distance of 12 feet in a field of 60 mr/hr. Later, when the elevator was lowered to the 0-foot level, another lead slug partially shielded by an underwater light which was on the catwalk was found. The reading on this slug was 400 mr/hr at 1½ feet; it was removed with long tongs. The cork and one layer of brick were removed from the wall between the top of the unit and the inner rod room. The resulting aperture was closed on the inner rod room side by a Neoprene seal. No contamination was found on material removed. During the discharge operation, while work was proceeding on row 18 in the rear face, a cap on row 8 suddenly blew off. The area was immediately evacuated until the water pressure on that tube was reduced from the front face. Upon re-entry, it was discovered that the water had discharged two stainless steel dummy slugs; however, no unusual reading was noted.

When the Storage Area Basin water level was lowered for mattress plate repairs, the following readings were reported; floor level 4 mr/hr, mattress plates 280 mrep/hr on contact, and the concrete pad under the discharge elevator 250 mrep/hr contact. Leather gloves worn during the buffing and polishing of vertical safety rod #32 read up to 70 mrep/hr on contact. Rubber gloves used on the same job showed 2 mrep/hr contact.

A slow neutron survey of each of the experimental holes and of every fifth tube in every fifth row on the front face of the D-area Pile gave a maximum of about 0.8 mrem/hr at experimental hole "A".

A one-gram sample of Radium was loaded into the "B" experimental hole of the F-area Pile. Before pushing the radium into the Pile, it was necessary to examine the casing to make sure that the proper end was headed into the hole. It was planned to do this by means of a mirror arrangement and by pushing the end of the capsule out of the shield so that it could be inspected. The check proved the capsule was placed in the shield backwards and if pushed into the Pile it would have been impossible to remove it by normal means. The capsule came out of the shield and fell to the canvas "safety net" about one foot below. The following readings were obtained in the surrounding area:

Over the edge of the top of the Pile	15 mr/hr
Charging elevator	1.5 mr/hr
0-foot level at head level	34 mr/hr
First landing above experimental level	50 mr/hr
Experimental level at about 8 feet	165 mr/hr

After careful planning, the capsule was picked up with a special pair of tongs and placed in the unit. The maximum point of exposure was about 1 roentgen per hour approximately three feet from the sample. * No undue personnel exposure occurred.

During the F-area discharge operation on 10/23/46, tube #2284 could not be pushed with the charging machine and it was discharged by hand. It was then borescoped and found to be badly scratched. The Uranium slugs discharged from the tube were examined in the underwater viewing pit and one slug was found to be badly "pimpled". The following readings were obtained during the borescoping of the tube:

Maximum reading on cleaning swab	100 mrep/hr contact
Maximum reading on borescope	150 mrep/hr contact

Radiation levels as high as 800 mrep/hr on the top of the F-area Pile and 45 mrep/hr in the Machinery Room were found following a scream caused by the Pile on 10/22/46. A survey of the roof over the inner rod room showed a maximum reading of 100 mr/hr against the wall facing the east side of the Pile. Horizontal Rod #2 was being used to control the Pile.

*This was one of the rare cases in which a practical field observation can be checked by the reader. The dosage-rate at 3 feet from a one-gram Ra source in a normal capsule is

$$\frac{8.4 \times 1000}{[36 \times 2.54]^2} \text{ r/hr} = 1.0 \text{ r/hr}$$



MEDICAL DEPARTMENT

HW-7-5362-De-1

HW-7-5362-20

A slow neutron survey made along the top of the vertical safety rod rail on the top of the F-Area Pile gave a maximum reading of 1.3 mrem/hr. A slow neutron survey around the "D" hole shield on the experimental level showed a maximum reading of 5.4 mrem/hr on the top of the shield.

The 200 Areas - T and B Plants

Salient Points

Very high contact radiation readings were reported on sampling ports. New contamination was found outside the R-3 danger zone area in line with the Process Waste Solution lines. Contamination was reported in another burning ground. Very high radiation readings were encountered over a diversion box when opened.

General Statistics

	September			October		
	T	B	Total	T	B	Total
Special Work Permits	317	376	693	289	361	650
Other routine and special surveys	378	509	887	362	505	867
Smear samples for alpha counts	681	494	1175	756	816	1572
Smear samples for beta counts	697	494	1191	726	816	1542
Air monitoring samples	451	311	762	440	261	701
Thyroid checks	298	350	648	241	291	532

Canyon Buildings

Contact radiation measurements of the B-Plant Canyon sampling ports were as high as 1.5 rep per hour. Beckman readings at four inches showed a maximum of 100 mr/hr, and one Zeus measurement of 300 mr/hr at 2 inches was recorded. A new contaminated location was found about 140 feet outside the R-3 - R1 danger zone. An area of about 2 square feet was involved and was located in the path of the Process Waste Lines from the Canyon Building to the 154-B diversion box. The original level of 15 mr/hr at 2 inches increased to 1 roentgen per hour at 4 inches when about 10 inches of dirt was removed. The R-3 - R1 danger zone was extended to the B-Plant fence to include this area, and a test hole was dug outside the fence over the waste lines. No contamination was found in dirt samples from this hole. The area above the waste lines inside the B-Plant fence has been filled in with gravel to a depth of about 2 feet.

Two cases of high level Canyon Deck contamination occurred when difficulty in taking an 8-1 MR sample was experienced and when a jet gasket was replaced with the jet assembly on the deck. The maximum dosage-rates reported were 2 rep per hour and 200 mr/hr at 4 inches, and 12 rep per hour contact and 300 mr/hr at 2 inches, respectively. A reading of 50 rep per hour was reported on a connector lead at Section 12 in the B-Plant Canyon.

The maximum reading reported on a sampling port in the T-Plant Canyon was 240 mrep/hr contact and 44 mr/hr at 2 inches.

Control Laboratories

A total of about 19 µg Pu was reported during the month in the B-Plant

5

1199195

MEDICAL DEPARTMENT

Control Laboratory. Of this, about 4 ug was reported on sampling equipment in Room 1 and about 15 ug in Room 7. In Room 7, product contamination was located on work benches, sinks, tongs, tweezers, and other miscellaneous equipment. Contamination on a drying lamp jammed the survey instrument. Approximately 0.2 ug Pu was found on counting equipment in Room 9. Contact readings of 620 mrep/hr were reported on the Goldberg in Room 7 and 600 mrep/hr on a sampler tray paper in Room 1.

Work in the T-Plant Control Laboratory was completed and the Building closed.

Concentration Buildings

A total of about 6.3 ug Pu was reported in the B-Plant during the month. Of this, about 2 ug was found on a Beckman instrument. Three instances of contamination on assault masks were also reported.

Considerable contamination was found on the roof fans at the T-Plant. Smears of the fans and motors indicated up to 2700 d/m with contamination present on all smears. Air samples taken at the cell fans gave positive results from A, E and F Cells. Extensive contamination outside of the T-Plant F-10 greenhouse was caused by a leak in the F-8 air valve. Product was also reported outside of the F-10 chained area, and on several occasions was reported outside of the enclosure but within the chained area.

Fan House

A survey of the Process Stack #1 Fan in the B-Plant was made in preparation for the erection of lead shielding to facilitate maintenance work. A reading of 3 roentgens per hour before shielding was recorded. After shielding, readings of 300 mr/hr to 1.2 roentgens per hour were obtained in the work zone. Most work, however, was done in a 300 - 500 mr/hr zone.

Waste Disposal

The B-Plant 151-C Diversion Box was opened to make a jumper change. A reading of 25 roentgens per hour was reported over the center of the box caused by a past spill of metal waste solution which was not reduced by hosing. One man entered a 9 roentgen per hour region for observation purposes but was under a 20-second time limit.

One spot of contamination was found in the T-Plant burning ground to the extent of 85 mrep/hr at the surface and 8 mr/hr at 2 inches. Five other points of contamination were reported by Site Survey. Most of this contamination has been cleaned up but better control of waste to prevent recurrence is indicated.

200 Area Isolation Building

Air Monitoring

6 The maximum concentration found in a spot check air sample was 4×10^{-10} ug Pu/cc during maintenance work in Cell 4. Two hundred fifty-four spot samples were taken, and 243 had less than 10^{-11} ug Pu/cc. Forty-three Little Sucker air samples run continuously by shifts had, as the highest result, 8×10^{-12} ug Pu/cc in Cells 3 and 4. Fourteen samples of the 903 system exhaust air were taken; the highest result was 8×10^{-12} ug Pu/cc.

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Surface Contamination

Two hundred forty-one non-regulated items were found contaminated in surveys made by Technical, H.I., and "S" Departments. Fourteen were greater than 20,000 d/m, and two were greater than 80,000 d/m. Two hundred and three of these were in the laboratories, and thirty-four in the Process Areas. There were four cases of floor contamination, two in Room 32 and one each in Rooms 43 and 45. The maximum reported involved 0.02 µg in Room 45.

Gamma Radiation

PR Container (maximum)	45 mr/hr
At Process Hood (maximum)	6 mr/hr
S.C. (maximum)	5.5 mr/hr

300 Area

General

Special Work Permits	68
Air Monitoring Samples	35

Metal Fabrication Plant

A total of twelve air samples was taken in the Press Building. Two had more than 1.5×10^{-4} µg U/cc with the maximum of 1.2×10^{-3} µg U/cc taken at the center of the building. Six air samples were taken in the Machining Building at the Chip Recovery operation and four had more than 1.5×10^{-4} µg U/cc. The high result of 1.2×10^{-3} µg U/cc was at the Biscuit Press. Five special air samples were taken at the Oxide Burner Exhaust Stack upon request from "F" Department. All were above 1.5×10^{-4} µg U/cc. Twenty smears were taken in the lunchroom and eight were between 100 and 300 d/m.

Site Survey measurements disclosed contaminated locations in the burning grounds. Maxima of 70 mrep/hr in the burning grounds outside the area and 60 mrep/hr in the burning ground inside the area were recorded. A plan of control and clean-up is being formulated by the "P" Department.

The stockpile North of the Warehouse Building 3722-A yielded another contaminated item. A large, stainless steel kettle reading 60 mrep/hr on the bottom surface. The foot checker in the Machining Building was placed in operation. The alarm is set to ring at 2500 c/m. The "four-fold" Hand Count program was placed in operation, and cards supplied for it and the foot checker.

Technical Building

A total of ten air samples was taken, all less than 2×10^{-11} µg Pu/cc. Smears of equipment in the lunchroom detected one chair contaminated. The smear was 220 d/m, and subsequent smears located uniform contamination over the seat. It was checked with a Poppy and was less than 1000 d/m. A small, contaminated needle and a sample measuring greater than 250,000 d/m found in Room 58 were discarded. Two pairs of sharp pointed tweezers were found contaminated, and one pair of blunt tweezers involved in a minor injury was contaminated. A procedure for handling and checking sharp pointed tweezers has been adopted by personnel in Room 59.

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Cold Semi-Works Building

Inspection work in the Building is proceeding under Extended Special Work Permit procedure when areas adjacent to contaminated tanks, centrifuges and sampler ports need be entered.

Special Machining Building (Technical)

A 3-foot graphite rod reading 200 mrep/hr at four inches was machined into small pieces for checking. A 3-foot graphite stringer reading 850 mrep/hr at contact was received from a 100-Area for machining.

Laundry, Decontamination and Hand Counting

Items monitored in the Plant Laundry totaled 63,141 of which 48,204 were checked for both alpha and beta radiation. Included were 13,292 coveralls, 23,653 gloves and 13,862 overshoes.

A total of 34 air samples was taken during the month. Of these, 25 were greater than 1×10^{-11} $\mu\text{g Pu/cc}$, and four were greater than 1×10^{-10} $\mu\text{g Pu/cc}$. The maximum of 6×10^{-10} $\mu\text{g Pu/cc}$ occurred while separating 300 Area clothing, cleaning filter on #3 Dryer, and sweeping the receiving room. High air samples were obtained whenever samples were run during the sorting of clothing. This observation is in striking disagreement with reports from three other Project locations recently visited. In all cases clothes were sorted under conditions that have long been considered hazardous at Hanford. Where air samples were taken at all, no reading of special significance was reported. Whatever the cause of this difference it was evidently not due to greater primary contamination of the Hanford garments.

The totals of alpha and beta hand counts were, respectively, 25,043 and 27,456. About 0.2% of the alpha counts, and 0.4% of the beta counts, were above the warning limits.

There was no recorded attempt to reduce one high alpha score and two high beta scores. Where decontamination was attempted, it failed in only one case to reduce the count below the usual conservative standards.

Personnel Meters

<u>Pencils</u>	100-B	(E&N)			300	Total
	100-D	100-F	200	200-W		
Total Pencils Read:	10,369	11,030	26,812	26,276	13,299	87,786
No. of single readings: (100 to 200 mr)	31	33	86	99	33	282
No. of paired readings: (100 to 200 mr)	2	0	4	8	0	14
No. of single readings: (over 200 mr)	81	118	187	185	85	656
No. of paired readings: (over 200 mr)	1	2	3	5	1	12
Paired readings lost:	1	1	1	1	0	4

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<u>Badges</u>	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>200-E</u>	<u>200-N</u>	<u>200-W</u>	<u>300</u>	<u>Total</u>
Badges processed:	1,894	3,814	3,161	3,422	814	4,464	2,743	20,312
No. of readings: (100-300 mrep)	2	0	0	11	1	1	67	82
No. of readings: (301 and over)	1 ^a	0	0	0	0	0	3	4
No. of Lost Readings:	0	0	0	0	1 ^b	1 ^c	0	2

- a - Badge temporarily lost in rain.
- b - Back plate and packet lost in area.
- c - Light struck.

Of the three defective readings, perhaps only one should be ascribed to faulty handling by the badge personnel. This represents a notable improvement over the performance in recent months.

Development Division

Water Monitoring

Test well and drinking water samples indicated very little radioactive contamination. A drinking water sample from Midway and a test well sample from Ranch #13 each had beta activity 5×10^{-5} $\mu\text{c/liter}$; no other positive beta result was obtained in the total of 114 samples. The only positive results for alpha activity were in the #1 and #2 300-Area wells, and at the Pistol Range, which had 4 ± 2 dis/min/liter, 4 ± 4 dis/min/liter, and 2 ± 1.6 dis/min/liter, respectively. Such readings were of doubtful significance.

All of the 98 river water samples were about normal except for one sample taken at the River Pump House in the 100-D Area. This sample had 1.1×10^{-3} $\mu\text{c/liter}$, and 14 other samples taken at the same location had no value over 5×10^{-5} $\mu\text{c/liter}$. The next highest sample was obtained at Hanford which had 5.8×10^{-4} $\mu\text{c/liter}$. One sample from the Yakima River indicated 5×10^{-5} $\mu\text{c/liter}$ which is just detectable with the present sampling techniques, three other samples from the same location gave no detectable contamination. The contamination for this sample and the other very high sample at 100-D may have been introduced in the preparation of the samples. Springs at the 100-D and 100-F Areas had maximum activities of 2.2×10^{-4} $\mu\text{c/liter}$ and 3.6×10^{-4} $\mu\text{c/liter}$, respectively. Two positive alpha counts of about 2 dis/min were found in samples taken at the Pump Houses in the 100-B and 100-D Areas.



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Atmospheric Monitoring

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

<u>Location</u>	<u>Integrans (mrep/24 hrs.)</u>		<u>C Chambers (mrep/24 hrs.)</u>	
	<u>September</u>	<u>October</u>	<u>September</u>	<u>October</u>
100-B	0.5	0.6	0.3	0.4
100-D	0.5	0.7	0.4	0.4
100-F	0.5	0.4	0.4	0.4
200-W	0.4	0.9	0.4	0.4
200-E	1.7	1.7	1.2	0.9
Riverland	0.9	1.3	---	---
Hanford	0.8	1.0	---	---
300 Area	1.0	1.0	0.4	0.5
Richland	0.6	0.6	---	---
Benton City	0.9	0.2	---	---
Kernewick	0.2	0.6	---	---
Pasco	0.5	0.7	---	---

Air samples as obtained by the constant iodine monitors and hand pumps had about the same maximum values as the last month. The constant monitors in operation in Benton City and the 200-East Area indicated maxima of 3.2×10^{-7} uc/liter and 4×10^{-7} uc/liter respectively. The highest value for a hand pump sample was 9×10^{-6} uc/liter. Some new rain collecting equipment has been installed and there are now twenty locations from which samples, if any precipitation occurs, are to be collected every week. The rain samples in the 200-West and East Areas had maxima of 3.7×10^{-2} uc/liter and 2.1×10^{-3} uc/liter. A rain sample from Pasco had 2×10^{-4} uc/liter and this was the highest obtained for any of the outlying areas.

Vegetation Contamination

Vegetation Contamination levels have not changed significantly during the month. The average readings for the last two months are:

	<u>ucI¹³¹/kg</u>	<u>ucI¹³¹/kg</u>
	<u>September</u>	<u>October</u>
North of 200 Areas	0.24	0.13
Hanford	0.20	0.18
Near 200 Area	0.99	0.82
South of 200 Area	0.26	0.17
Richland	0.07	0.13
Benton City	0.07	0.09
Kernewick	0.14	0.09
Pasco	0.14	0.11

Bio-Assay Laboratory

Some progress has been made in reducing the backlog of urine samples by putting the counting on shift work to get more use of the present equipment. One hundred sixty-nine samples were collected and 386 were processed. Six of the processed samples gave results greater than 0.6 dis/min and these will have to

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be checked by resampling. * Thirteen resamples, taken to check previously obtained high counts, had no result greater than 0.4 dis/min.

Miscellaneous

Some samples of Massilon latex and Stanzoil rubber gloves were tested to determine whether plutonium-bearing solutions could be transmitted through them after rough usage. One sample of each glove was treated with concentrated nitric acid and with cleaning solution, then washed with Lano-kleen. After this treatment, these samples and similar untreated samples were exposed to a solution containing 250 µg Pu/cc in nitric acid for periods up to 90 hours. The treated latex sample failed mechanically after about 20 hours exposure. The other samples showed no measurable transmission of the active solution.

Twenty-four animals collected in and around the 300 Area were examined for alpha and beta activity. Highest activities were found in the caeca of water fowl which had alpha activities up to 7×10^4 dis/min/kg, and beta activity 8×10^{-2} µc/kg. Muscle and edible tissues had 5.2×10^3 dis/min/kg, and 2.8×10^{-2} µc/kg of alpha and beta activity, respectively. **

Rough models of a beta monitor for the 100 Area Effluent water have been made using a continuous water curtain surrounding a glass-walled G. M. tube. Water flow sufficient to operate this device properly is not available. Preliminary measurements indicated a counting rate of at least 300 c/m above background. This was approximately double the rate in the existing equipment. Tests in the laboratory indicate that very little contamination of the counter should result. If confirmed, this would be the prime advantage of the method.

Calibrations

Tests made on a C.P. Meter after circuit changes in the Instrument Shop indicate that the extra-cameral ionization, formerly encountered, has been successfully eliminated.

• At the time these were obtained, some blank samples had picked up contamination and it is possible that some of the regular samples were likewise contaminated.

** The figure reported last month in this section of the narrative should have read " 1.3×10^4 dis/min/kg in the caeca of a coot".

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Calibration Service

Radium calibrations were:

<u>Type</u>	<u>Instrument</u>	<u>Number of Calibrations</u>	
		<u>September</u>	<u>October</u>
Stationary:	Integron	356	430
	Hm & GE Chamber	<u>174</u>	<u>127</u>
	Total	530*	557**
Portable:	Beckman Survey Meter	148	178
	Lauritsen Electroscope	51	72
	Victoreen Survey Meter	92	110
	GM Survey Meter	43	51
	Miscellaneous	<u>57</u>	<u>28</u>
	Total	391	439
Personnel Meters:	Pencils	6,699	5,708
	Badges	<u>741</u>	<u>720</u>
	Total	<u>7,440</u>	<u>6,428</u>
Total Radium Calibrations.....		<u>8,361</u>	<u>7,424</u>
X-ray and Intermediate energy gamma and beta calibrations:			
Portable Instruments		27	37
Pencils		6,052	4,743
Miscellaneous film		<u>658</u>	<u>658</u>
Total		<u>6,737</u>	<u>5,438</u>
Alpha Calibrations:			
Portable Instruments		--	<u>41</u>
Grand Total.....		<u>15,098</u>	<u>12,903</u>

* 341 furnished by the Areas
 ** 283 furnished by the Areas

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H. I. Section Force Report:

(As of October 31, 1946)

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>200-E</u>	<u>200-W</u>	<u>300</u>	<u>700</u>	<u>P.G.</u>	<u>Total</u>
Supervisors	0	1	4	3	3	9	4	1	25
Engineers	0	3	4	6	5	9	0	3	30
Others	<u>0</u>	<u>4</u>	<u>4</u>	<u>18</u>	<u>28</u>	<u>40</u>	<u>6</u>	<u>0</u>	<u>100</u>
Total	0	8	12	27	36	58	10	4	155

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MEDICAL DEPARTMENT

MONTHLY REPORT

OCTOBER, 1946

GENERAL

There has been to date no evidence of occupational disease due to hazards of operation.

No serious procurement problems exist.

Dr. Norwood and Dr. Vosburgh attended the du Pont Annual Medical Convention in Wilmington, and spent a day in Schenectady discussing health problems pertaining to the G. E. Nucleonics Project.

Dr. Parker attended a health conference sponsored by the Manhattan District at Oak Ridge. He also visited the University of California in a consulting capacity, and conferred with members of the staff of Argonne National Laboratories on health protection problems.

Arrangements were made to transfer a senior member of the Health Instrument Section to Schenectady at an early date to aid in the setting up of a Health Instrument program for the Nucleonics research program there.

Dental treatments were low, but with several new dentists arriving a normal schedule is expected.

Clinic visits were slightly decreased while hospital days were increased by ten percent.

PLANT MEDICAL SECTION

<u>Physical Examinations</u>	<u>September</u>	<u>October</u>	<u>Year to date</u>
Pre-employment.....	161	148	840
Annual.....	261	223	2552
Sub-contractor (food handlers, etc.).....	43	15	332
Rechecks.....	109	148	1292
Interval Rechecks (Area).....	740	985	9579
Terminations & Transfers.....	82	42	1078
Army & Government.....	36	35	382
Assist to Clinic, A & H Insurance, etc.....	11	0	64
Total.....	1443	1596	16119

Laboratory Examinations

Clinical Laboratory

Pre-employment, terminations, transfers....	1562	1255	12721
Annual.....	1981	1702	17517
Rechecks (Area).....	3736	4985	50151
First Aid.....	31	28	385
Plant Visitors.....	92	84	955
Clinic.....	1767	2127	21451
Hospital.....	1527	1854	17279
Public Health (including food handlers)....	267	145	1907
Military.....	8	51	656
Total.....	10971	12231	123022

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Medical Department

<u>X-Ray</u>	<u>September</u>	<u>October</u>	<u>Year to date</u>
Pre-employment, terminations, transfers....	265	216	2097
Annual.....	281	233	2738
First Aid.....	44	58	638
Clinic.....	227	209	2427
Hospital.....	96	116	948
Public Health (including food handlers)....	49	19	392
Military.....	8	17	168
Tuberculosis Survey.....	0	0	1813
Total.....	<u>970</u>	<u>868</u>	<u>11226</u>

Electrocardiographs

Industrial.....	106	110	1131
Clinic.....	13	5	110
Hospital.....	8	7	102
Military.....	0	4	12
Total.....	<u>127</u>	<u>126</u>	<u>1355</u>

Allergy

Skin Tests.....	6	9	95
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First Aid Treatments

Occupational Treatments.....	438	326	3245
Occupational Retreatments.....	916	927	8983
Non-occupational (welfare) Treatments.....	3149	3601	31688
Total.....	<u>4503</u>	<u>4854</u>	<u>43916</u>

Absentee Investigation Report

Total number calls requested.....	41	41	535
Total number calls made.....	41	41	535
Number absent due to illness in family.....	3	1	42
Number not at home when call was made.....	4	2	51

General

The health topic for the month of October was "Your Heart".

A serious hydrofluoric acid burn was obtained by a maintenance employee, involving his right ear, face, neck and scalp. He is still hospitalized and probably will require some plastic surgical procedures. No other serious injury occurred during the month.

VILLAGE MEDICAL SECTION

<u>Clinic</u>	<u>Men</u>	<u>Women</u>	<u>Children</u>	<u>September</u>	<u>October</u>	<u>Year to date</u>
First Visits	325	355	168	1022	848	6859
Retreatments	776	1278	375	2405	2429	28223
Total.....				<u>3427</u>	<u>3277</u>	<u>35082</u>
Seen in Well-Baby Clinic.....				167	160	1924

Medical Department

Clinic Visits

	<u>September</u>	<u>October</u>	<u>Year to date</u>
Medical.....	552	546	5717
Pediatrics.....	549	340	4740
Surgical.....	550	549	6278
Gynecological.....	247	312	2890
Obstetrical (new).....	42	57	450
Obstetrical (recheck).....	441	446	4359
Venereal Disease.....	42	51	657
Ear, Nose & Throat.....	212	241	2365
Eye.....	75	203	2071
Visits handled by nurses (hypo., dressings).....	242	242	3053
Night clinic visits.....	475	290	2502
Total.....	<u>3427</u>	<u>3277</u>	<u>35032</u>

Home Visits

Doctors.....	105	140	1450
Nurses.....	24	28	551
Total.....	<u>129</u>	<u>168</u>	<u>2001</u>

Dental Health Center

Patients treated.....	1186	1090	14892
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Kadlec Hospital Section

Census

Admissions.....	260	289	3022
Discharges:			
Surgical.....	67	47	707
Medical.....	36	45	390
Obstetric & Gynecologic.....	76	76	664
Eye, Ear, Nose & Throat.....	17	45	496
Pediatrics:			
Children.....	19	26	376
Newborn.....	48	43	371
Total.....	263	282	3004
Patient Days.....	1831	2031	19171
Average Stay.....	6.9	7.2	6.9
Average Daily Census.....	61	65.5 ✓	63.3
Discharged against advice.....	2	1	11
One-day Cases.....	28	43	552

Operations

Transfusions.....	9	26	172
Eye, Ear, Nose & Throat.....	8	37	373
Dental.....	2	1	19
Casts.....	6	12	112
Minors.....	55	50	671
Majors.....	27	18	252

Medical Department

	<u>September</u>	<u>October</u>	<u>Year to date</u>
Deaths.....	1	3	24
Deliveries.....	42	45	372
Stillborn.....	0	0	5
<u>Physiotherapy Treatments</u>			
Clinic.....	55	108	860
Hospital.....	32	46	299
Army.....	3	2	131
Industrial:			
Plant.....	47	60	694
Personal.....	26	40	385
Total.....	<u>163</u>	<u>256</u>	<u>2369</u>

Pharmacy

Number of prescriptions filled.....	1587	1856	15968
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Patient Meals

Regulars.....	2275	2444	21187
Lights.....	259	124	2771
Softs.....	959	1052	10646
Surgical Liquids.....	88	79	1114
Tonsils & Adenoids.....	0	138	1088
Specials.....	221	407	3823
Liquids.....	255	324	3056
Total.....	<u>4057</u>	<u>4568</u>	<u>43685</u>

Cafeteria Meals

Noon.....	1128	1193	13369
Night.....	128	114	2027
Total.....	<u>1256</u>	<u>1307</u>	<u>15396</u>

Nursing Personnel

First Aid Nurses.....	23	23
Clinic Nurses.....	11	12
Public Health Nurses.....	3	4
Hospital General Nurses.....	57	58
Aides & Orderlies.....	36	36
Total.....	<u>130</u>	<u>133</u>

General

Procurement needs were well taken care of when we secured a surgeon and several additional dentists for replacements.

While there were a few less out-patient treatments, the average daily hospital census was increased from 61 to 65.5.

No new cases of Poliomyelitis were reported for the month.

Medical Department

Public Health Section

<u>Communicable Diseases Reported</u>	<u>September</u>	<u>October</u>	<u>Year to date</u>
Amoebic Dysentery.....	0	1	1
Poliomyelitis.....	4	0	8
Whooping Cough.....	4	3	17
Meningococcal Meningitis.....	0	0	1
Diphtheria.....	0	0	0
Chickenpox.....	0	1	77
German Measles.....	1	3	22
Measles.....	1	0	110
Mumps.....	1	3	41
Scarlet Fever.....	3	12	30
Pinkeye.....	0	0	3
Influenza.....	0	0	118
Impetigo.....	8	3	34
Ringworm.....	3	1	31
Scabies.....	2	4	34
Vincent's Infection.....	1	3	56
Syphilis.....	3	4	18
Gonorrhoea.....	2	1	24
Tuberculosis.....	3	2	10
Total.....	36	41	635

Immunizations

Smallpox.....	2	1	11471
Diphtheria.....	33	18	298
Whooping Cough.....	27	16	294
Schick Test.....	6	5	64
Tetanus.....	29	21	322
Typhoid.....	0	0	2
Total.....	97	61	12451

Administration

Newspaper Articles.....	1	2	24
Committee Meetings.....	0	0	6
Attendance.....	0	0	95
Staff Meetings.....	1	2	14
Lectures & Talks.....	1	1	30
Attendance.....	73	350	1063
<u>Sanitation Inspections</u>	156	216	1509

Bacteriological Laboratory

G. C. Smear.....	24	25	379
G. C. Culture.....	22	17	329
Fungus Culture.....	15	22	190
Vincent's Examinations.....	6	3	154
Trichomona's Examinations.....	11	14	233
Sputum for T. B. Organisms.....	11	6	119

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Medical Department

<u>Bacteriological Laboratory (cont'd)</u>	<u>September</u>	<u>October</u>	<u>Year to date</u>
Bacterial Culture.....	63	57	424
Examinations for Parasites.....	12	9	233
Throat Smear & Culture.....	25	17	198
Blood Cultures.....	8	4	42
Stool Cultures.....	6	11	68
Eye Smears.....	11	2	37
Examinations for spermatzoa.....	0	0	9
Quantitative determination of blood alcohol	0	6	10
Type for pneumococcus.....	0	0	3
Treated water samples.....	66	90	832
Untreated (raw water) samples.....	84	93	904
Milk samples (includes milk, cream, ice cream)	103	90	815
Sewage samples.....	8	10	92
Examination for eosinophiles.....	19	15	96
Dark field examinations.....	2	1	12
Total.....	496	492	5179

General

Dr. Ralph R. Sachs returned as Supervisor of Public Health, and one new nurse joined the staff of public health nurses during the month of October.

The Richland and Pasco health departments held a joint staff conference on orthopedic nursing in Richland. Financial assistance was arranged for some of the poliomyelitis patients through George O. Beardsley of Prosser, Wash., who is Chairman of the Benton County Chapter of the National Foundation for Infantile Paralysis.

Dr. Sachs attended the State Public Health Association meeting in Seattle and Miss O'Leary attended the State Nurses' Association meeting in Olympia during the month.

The demand for residence fumigations has subsided considerably with the advent of colder weather. This trend has been counter-balanced somewhat by the fact that people are able to move from one house to another more easily; consequently, some infestations are being detected which ordinarily would not be discovered until the tenant left the village.

The black widow spider has caused considerable alarm in some of the areas recently. This department, in conjunction with the safety department, has recommended that spray guns and creosote spray be made available in the areas so infested. It was also recommended that all spider webs and egg sacs be destroyed when encountered, as well as destroying the adult spider.

The schools are being graded this year on a monthly basis by a committee composed of a representative from housing, fire and safety, and public health. Also, the janitor and the principal from the school concerned is asked to accompany the group on the inspection of each building. Thirty points are allowed for safety, twenty-five points for public health, thirty points for fire prevention, and fifteen points for house-keeping conditions throughout the school. The Marcus Whitman school with 98% had the highest score for the month of October.

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Medical Department

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HW-7-5362-De1

The sanitary aspect of the eating establishments remains approximately the same. There is much to be desired from an aesthetic as well as a physical standpoint in the older eating establishments particularly. A complete renovating program is needed in respect to painting, floor repairs, and replacement of some obsolete and worn equipment.

The results of bacteriological analysis of samples collected from the sewage plant were satisfactory.

The need for the services of the mosquito control crew has been eliminated as of the first of October. However, work is still in progress relative to permanent measures such as ditching and drainage. Steps have been initiated to secure more adequate equipment for the ground control crew. Experiences of this past season have indicated that the conventional type truck is not practical for much of the territory that must be controlled. A complete report of the mosquito control program for the past season is in the process of being written and will be forthcoming in the near future.

Accompanied by a milk specialist of the State Department of Agriculture, a survey was made of the entire milk shed supplying the project, and also the pasteurization plant. Orders were issued to six producers to make necessary improvements immediately relative to structural features of their respective buildings, or elimination of their product from the market will be forthcoming. Certain measures which will result in safer methods of milk handling and processing in the plant have been instituted and it is felt that this will eliminate the sporadic high bacteria counts of the pasteurized product.

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MEDICAL DEPARTMENT PERSONNEL

October 31, 1946

	Physicians	Dentists	Nurses	Aides & Orderlies	H. I. Specialists	Technicians	Others
<u>Areas</u>							
100-B)				
100-D			4)		8		2
100-F)		12		
200-E			3		27)	
200-W					36	2)	
200-N)	
300			1		58		1
Plant General	5		8		4		
700-1100	12	3	78	36	10	19	31
Total	17	3	97	36	155	24	31

Total - all employees 363

Note: This report covers persons on leave of absence.

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DECLASSIFIED

ACCOUNTING DEPARTMENT

OCTOBER 1946

HW-7-5362-D-21

GENERAL

Accounting Department activities continued to include a large amount of work relating to the transition from du Pont to General Electric operations. This included conferences with the Area Engineer's organization and representatives of General Accounting Office relative to disbursements and reimbursements of funds.

At the request of the Area Engineer, a special Organization Chart of Hanford Engineer Works was prepared. This chart was supported by schedules showing the number of employees in each job classification within each department, and the salary range for each job classification.

Community Chest Drive was completed and the Accounting Department attained 65.2% of its goal. This represented aggregate contributions of \$1,186.87.

Statistics

<u>General</u>	<u>September</u>	<u>October</u>
H.E.W. Instructions Letters issued	10	5
Office Letters issued	2	2
Organization Announcements issued	10	2

<u>Employees and Payrolls</u>	<u>Total</u>	<u>Monthly Payroll</u>	<u>Weekly Payroll</u>
Employees on payroll at beginning of month	4190	687	3503
Additions and transfers in	146	25	121
Removals and transfers out	(34)	(5)	(29)
Transfers from Weekly to Monthly Payroll	-	7	(7)
Employees on payroll at end of month	<u>4302</u>	<u>714</u>	<u>3588</u>
Gross amount of payroll	\$ 1,207,954	\$ 291,774	\$ 916,180
Average salary rate per hour	\$1.766	\$2.378	\$1.637

<u>Employee Plans</u>	<u>September</u>	<u>October</u>
<u>U. S. Savings Bonds</u>		
Number participating at beginning of month	2113	1955
New authorizations and transfers in	31	55
Voluntary cancellations	(145)	(55)
Removals and transfers out	(44)	(13)
Number participating at end of month	<u>1955</u>	<u>1942</u>
% participating	<u>46.7%</u>	<u>45.1%</u>
Bonds issued - maturity value	\$ 87,625	\$ 132,250
- number	2346	3615
Refunds issued	87	41
Revisions in authorizations	43	35

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Accounting Department

	<u>September</u>	<u>October</u>
<u>Group Life Insurance</u>		
Number participating at beginning of month	2698	2757
New participants and transfers in	28	160
Cancellations	(4)	(6)
Removals and transfers out	(25)	(23)
Number participating at end of month	<u>2757</u>	<u>2888</u>
% of eligible employees participation	<u>75.9%</u>	<u>79.5%</u>
<u>Group Disability Insurance - Personal</u>		
Number participating at beginning of month	3611	3626
New participants and transfers in	56	65
Cancellations	(1)	(1)
Removals and transfers out	(40)	(28)
Number participating at end of month	<u>3626</u>	<u>3662</u>
% of eligible employees participation	<u>93.3%</u>	<u>95.0%</u>
<u>Group Disability Insurance - Dependents</u>		
Number participants at beginning of month	2477	2487
Additions and transfers in	20	64
Cancellations	(2)	(1)
Removals and transfers out	(8)	(60)
Number participating at end of month	<u>2487</u>	<u>2490</u>
<u>Group Disability Insurance</u>		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	5	17
Daily Hospital Expense Benefits	0	21
Special Hospital Services	0	22
Surgical Operation Benefits	0	13
Dependent Benefits Paid		
Daily Hospital Expense Benefits	1	49
Special Hospital Services	1	50
Amount of claims paid by insurance company:		
Employee Benefits	\$ 66.43	\$ 1,463.24
Dependent Benefits	<u>17.00</u>	<u>1,572.18</u>
Total	<u>\$ 83.43</u>	<u>\$ 3,035.42</u>

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Accounting Department

	<u>September</u>	<u>October</u>
<u>General Accounting</u>		
Number of Accounts Payable Vouchers entered		
G. E.	619	1751
Du Pont	<u>1390</u>	<u>1051</u>
Total	<u>2009</u>	<u>2802</u>
Amount of Cash Disbursements (Accounts Payable)		
G. E.	\$ 529,027.95	\$ 531,975.31
Du Pont	<u>1,495,967.90</u>	<u>1,369,929.58*</u>
Total	<u>2,024,995.85</u>	<u>1,901,904.89</u>
*Includes \$1,000,000.00 returned to Government by du Pont as a reduction of advance.		
Number of checks issued		
G. E.	376	1140
Du Pont	<u>1015</u>	<u>674</u>
Total	<u>1391</u>	<u>1814</u>
Public Vouchers submitted to Area Engineer - G.E.		
Amount not reimbursed at beginning of month	-0-	-0-
Amount submitted during month	-0-	\$ 864,959.52
Amount reimbursed during month	-0-	<u>16,096.64</u>
Amount not reimbursed at end of month	-0-	848,862.88
Amount approved but not reimbursed	-0-	<u>708,007.64</u>
Amount not approved at end of month	-0-	<u>\$ 140,855.24</u>
Number not reimbursed at beginning month	-0-	-0-
Number submitted during month	-0-	47
Number reimbursed during month	-0-	5
Number not reimbursed at end of month	-0-	42
Number approved but not reimbursed	-0-	40
Number not approved at end of month	-0-	2
Public Vouchers submitted to Area Engineer - du Pont		
Amount not reimbursed at beginning of month	\$ 493,466.08	\$ 929,852.43
Amount submitted during month	<u>1,248,094.05</u>	<u>398,725.87</u>
Total	<u>1,741,560.13</u>	<u>1,328,578.30</u>
Amount reimbursed during month	<u>811,707.70</u>	<u>1,122,255.19</u>
Amount not reimbursed at end of month	929,852.43	206,323.11
Amount approved but not reimbursed	<u>929,852.43</u>	<u>206,323.11</u>
Amount not approved at end of month	<u>-</u>	<u>-</u>
Number not reimbursed at beginning of month	62	58
Number submitted during month	<u>124</u>	<u>93</u>
Total	<u>186</u>	<u>151</u>
Number reimbursed during month	<u>128</u>	<u>87</u>
Number not reimbursed at end of month	58	64
Number approved but not reimbursed	<u>58</u>	<u>64</u>
Number not approved at end of month	<u>-</u>	<u>-</u>

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Accounting Department

	<u>September</u>	<u>October</u>
<u>Cash Receipts - General Electric</u>		
Advances by U. S. Government	\$2,500,000.00	\$ -
Accounts Receivable		
U. S. Government	-	16,096.64
Rent	75,569.45	50,329.01
Hospital	24,949.38	26,150.26
Telephone	2,510.33	3,227.99
Miscellaneous	306.41	466.40
Community Chest	6,970.83	8,212.25
Employees Sales	882.55	1,289.46
Group Insurance	13,382.72	4.82
U. S. Savings Bonds	21,540.42	6.25
Bus Fares	6,230.95	6,993.45
All Other	995.84	1,171.15
Total	\$ <u>2,653,338.88</u>	\$ <u>113,947.68</u>

<u>Cash Receipts - du Pont</u>		
Accounts Receivable		
U. S. Government	\$ 811,707.70	\$ 1,122,255.19
Hospital	1,682.37	8,356.07
Rent	919.28	313.40
Telephone	302.24	377.44
Miscellaneous	1,892.17	3,162.72
Collateral Fund - Insurance Companies	-	28,013.53
Washington State Insurance Accounts	374,175.29	-
All Other	12,368.19	4,904.48
Total	\$ <u>1,203,047.24</u>	\$ <u>1,167,382.83</u>

<u>Property Inventory Transfers</u>		
Number received	331	298
Number of items affected	1075	725

<u>Inventories</u>		
Essential Materials	\$ 1,223,929.39	\$ 1,340,376.22
Excess Materials	1,021,192.42	650,489.26
Memo Employees Sales	7,910.15	7,426.20
Precious Metals	40,602.97	40,602.97
Returnable Containers	9,420.97	10,756.57
Spare Parts	1,443,312.72	1,443,482.56
Special Process Materials	478,564.40	478,426.00
Stores for Cash Sales to Employees	10,740.20	12,290.74
Stores Stock (general)	973,205.18	973,468.77

<u>Inventory Disbursements</u>		
Essential Materials	286,000.96	330,075.86
Excess Materials	97,370.88	417,958.67
Memo Employees Sales	620.29	1,052.39
Precious Metals	0	0
Returnable Containers	1,100.00	1,224.00
Spare Parts	11,209.68	8,450.06
Special Process Materials	0	2,138.40
Stores for Cash Sales to Employees	823.91	1,247.08
Stores Stock (general)	75,258.14	93,139.23

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Accounting Department

	<u>September</u>	<u>October</u>
<u>Stores</u>		
Number of items added to stores stock	484	201
Number of items deleted from stores stock	198	47
Items in stores stock at month end	41,125	41,359
Receiving Reports issued	1,967	2,270
Shipments on hand not checked	19	7
Material Exception Reports issued	94	159
Material Exception Reports cleared	76	167
Material Exception Reports open at month end	29	21
Certificates of Inspection issued	5	8
Certificates of Inspection cleared	3	7
Certificates of Inspection open at month end	26	27
Store Orders filled	5,223	7,706
Emergency Store Orders filled	0	1
Returnable Containers received	828	487
Returnable Containers shipped	160	463
Returnable Containers on hand at month end	3,704	3,728
Returnable Containers on hand over six months	974	1,424
Returnable Container Return Orders received	18	11
Returnable Container Return Orders closed	5	27
Returnable Container Return Orders on hand at month end	229	213
Shipping Orders received	23	61
Shipping Orders closed	20	60
Shipping Orders on hand at month end	7	8
<u>Purchasing</u>		
Requisitions received	1,319	1,962
Requisitions placed	1,119	1,985
Requisitions on hand at month end	511	488
HW Orders placed	892	(PHX) 1,247
OHEW Orders placed	153	138
MO Orders placed	42	95
OGT Orders placed	5	22
Alterations issued	51	68
Requests to expedite received	70	56
Scrap Sales completed	0	0
Value of scrap sold	0	0

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Accounting Department

	<u>September</u>	<u>October</u>
<u>Miscellaneous Clerical</u>		
Office Machines repaired in shop	97	139
Office Machine service calls	100	124
Lines working as Class A Telephones	156	161
Lines working as Class C Telephones	225	224
Lines working as Class C Party Telephones	10	10
Total Official Telephones	391	395
Lines working as Class B 2 Single Telephones	70	73
Lines working as Class B 1 Single Telephones	172	169
Lines working as Class B Party Telephones	1,092	1,116
Total Residence Telephones	1,334	1,358
Vacant lines	75	47
Items of First Class Mail received	13,278	15,778
Items of Parcel Post received	536	730
Items of Registered Mail received	70	87
Items of Insured Mail received	52	65
Items of Special Delivery Mail received	28	19
Amount of money used on postage meter machine	\$492.66	\$ 664.60
Multilith orders received	166	589
Multilith orders completed	138	575
Balance of multilith orders on hand at month end	55	69
Mimeograph orders received	1106	1215
Mimeograph orders completed	1101	1214
Mimeograph orders on hand at month end	5	6
Ditto orders received	2,481	3,305
Ditto orders closed	2,481	3,305
Ditto orders on hand at month end	0	0

Accounting Department

% of absenteeism	2.06	2.26
Number of employees on roll at the end of the month	596	622
Terminations	32	11
New hires	43	37
% of termination	5.69	1.85
Major injuries	0	0
Minor injuries	22	17

ORGANIZATION AND PERSONNEL

K. C. Weld was assigned on loan from General Office as of October 15, 1946, for a period of approximately six weeks to assist Works Accountant on transitional work.

Accounting DepartmentSECTIONAL ACTIVITIESAssigned, Field & Miscellaneous Clerical

Telephone directory listings were completed, checked, typed, proofread and forwarded to the Printing Section for printing by the end of the month as scheduled.

The clerical work on telephone toll tickets was transferred to the Accounts Receivable Section on October 4, 1946. This transfer was effected to eliminate the overlapping of some phases of the work in the Accounts Receivable Section and the Telephone Section.

The three Bus Terminal cashiers were transferred from the Miscellaneous Clerical Section to the Assigned Clerical Section (Transportation) on October 14. The duties of these cashiers have been primarily to afford change fund coverage during the time village buses operate and to prepare miscellaneous reports incidental to the bus operation. It was felt that inasmuch as their work is closely related to Transportation Department work in the same area, a better distribution of the work load could be effected by this change.

The Office Equipment Section started work on the accumulation of data relative to the condition, age, and maintenance history of office machines in use at the Works. Repair work has increased in recent months and this data will be used to determine which machines should be replaced with new or reconditioned equipment.

Barracks 3002 in the 3000 Area was assigned to the Office Equipment Section on October 18. Furniture and office equipment which has been stored in the 703 Building, Warehouse 5 in the 1100 Area, and Dormitory W-20 will be consolidated in this barracks.

As a result of an organization change in the Transportation Department, separate controls in the 200-E and 200-W Areas were established to handle Transportation Department work orders. Prior to October 1, this work for both the 200-E and 200-W Areas was handled in the 200-W Area.

Cost

A proposed procedure for operation of a central work order control cost system was drafted during the month. Work on revisions to the cost code book was continued.

Arrangements were completed to have the Production Superintendent, Works Engineer, and Construction Superintendent furnish the Cost Section data relative to contemplated expenditures which will affect Government budget appropriations.

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Accounting Department

Cost (continued)

A Kardex system was established for recording this information as received.

A general control code (8000) complete with supplemental detail codes, was opened in the Operations Cost Ledger to record expenses incurred by the new Chemical Development Section of the Technical Department.

Stores

Government authorization was received on October 18 to ship to the War Assets Administration, Fort Harrison, Montana, approximately 25% of the excess material currently on hand.

Shortly before announcement was made that the operation of the Hanford Engineer Works would be transferred to General Electric Company on September 1, 1946, an agreement was reached with the Area Engineer to restrict circulation of lists of excess material available at Hanford Engineer Works to projects within the Manhattan District until such time as it could be more accurately predicted that the material available for excess would not be needed in the contemplated research and development program.

Since the order included all excess material items on hand classified alphabetically from A through F, the Works Engineer was asked to have the order reviewed and to designate items which should be retained for future use. As a result of this program completed on October 31, the Stores Section has been authorized to proceed with the actual shipment of approximately 75% of the value of the order received. The value of the material retained for future use will be transferred from Excess Material Inventory to a sub caption in General Stores Inventory specially designated for this purpose.

Four 60' x 40' hutments were requisitioned from local Government excess facilities for erection within the 700 Area. Two of the hutments were erected West of Building 44 and a third between Building 713 and Building 714 prior to month end. It is expected that the fourth will be received and erected South of Building 729 during the first week in November. This additional storage space will be used to complete the consolidation of General Stores Stock material within the 700 Area and to warehouse additional material required to adjust fast moving material stocks to cover an estimated six months maximum inventory.

The Stores Section also acquired a recently abandoned Government Transportation Yard during the month. This yard, located Southeast of the Salvage Yard, is a fenced-in area enclosing three small buildings and will be used primarily for warehousing excess material and material not included in regular store stock to be held for future use.

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Accounting DepartmentStores (continued)

A stores regulation requiring the return of an empty gas cylinder to obtain a full one was modified to encourage prompt return of empty cylinders from the field. The modified regulation permits the return of an empty gas cylinder in exchange for a full one or a colored disc which may be subsequently returned to obtain a full cylinder of gas.

A program was started to review the necessity to procure a limited part of the stores stock replacement on the basis of "no substitution". This will be accomplished as material is reordered by referring questionable items to the interested Department Superintendents for verification that the item must be procured without substitution.

Purchasing

The volume of work handled during the month was approximately 50% greater than the preceding month. This was accomplished, in part, by working a total of 192 overtime hours.

Procurement difficulties continued unabated. It has become almost impossible to obtain firm quotations on many commodities as vendors are protecting themselves against price increases by inserting escalator clauses in their quotations which provide that billing will be made at prices in effect at the time of shipment.

The buyer assigned to expedite du Pont orders reduced the open orders as of October 31 to 177.

Arrangements were made with du Pont for permanent retention by General Electric of a numerical and an alphabetical ditto copy of all du Pont Construction Purchase Orders. These will be used to check replacement part specifications and to augment source of supply information contained in files set up alphabetically by vendors.

Heretofore, one contact only was made with the vendor when authorized requests to expedite were received. This procedure was modified to extend expediting service to include follow-up until material is received.

At the request of the Area Engineer, requisitions for an estimated twelve months supply of radiation detection instruments and the special electronic equipment and component parts used in conjunction therewith were submitted to the Area Engineer for procurement through Government channels.

The procurement of essential materials continued to be a problem as indicated by the following comments which outline some of the difficulties experienced during the past month:

Accounting Department

Bismuth Subnitrate: J. T. Baker Chemical Company have not made any shipments of this material since October 1 due to a breakdown of their grinding equipment. They have advised that spare parts needed for the repair of the equipment have been on order since 1944. Some of the parts were received during the week of October 21, and the balance was to be shipped to them on October 30. They have promised shipment of 5,000 pounds on November 5 and 5,000 pounds on November 7, the balance to be shipped as rapidly as the material can be ground. There was 15,950 pounds (seven weeks supply) of Bismuth Subnitrate on hand as of October 31. Close contact will be maintained with the vendor to make sure that shipments are resumed as promised and future shipments made at regular intervals.

Phosphoric Acid: The stock of Phosphoric Acid on hand October 31 was 152,865 pounds (one months supply). Virginia-Carolina Chemical Company has promised to ship one carload November 4, which should arrive here November 22, and an additional carload the first part of December.

Three additional carloads are on order with A. R. Maas Chemical Company at South Gate, California. Car USOX 17201 was dispatched from Hanford on October 25 to transport the first carload of Phosphoric Acid from Maas. This car is scheduled to return to Hanford about November 25, at which time it will be unloaded and sent back for an additional load. USOX 17200, an additional stainless steel car assigned to this plant by the Army Engineer Corps, arrived here on October 21. It has been inspected, loaded with the necessary nitric inhibitor, and will be sent to A. R. Maas Chemical Company on November 4. This will complete arrangements for transporting the three carloads of acid which Maas has promised to supply.

Monsanto Chemical Company has scheduled one carload for shipment November 1 and one car November 25 to complete present outstanding orders placed with them. They have promised to advise on November 15 what may be expected in the way of future shipments.

Arrangements were completed to lease two rubber lined tank cars from the General American Transportation Corporation for transporting Phosphoric Acid. The first car is scheduled to be completed at Akron, Ohio, on or about November 11 and the second car approximately thirty days later.

Tentative arrangements have been made to procure 200,000 pounds of Elemental Phosphorus from T.V.A. This will be shipped to Virginia-Carolina Chemical Company and they will convert the Elemental Phosphorus to Phosphoric Acid. 200,000 pounds of Elemental Phosphorus can be converted to make eight carloads (four months supply) of acid. The rubber-lined cars referred to above will be used to transport the Phosphoric Acid from Virginia-Carolina's plant to this project.

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Accounting Department

Phosphoric Acid: (continued)

The present stock on hand, plus the seven cars on order, will supply sufficient acid to operate the plant until March 15, 1947. The completion of arrangements for procuring 200,000 pounds of Elemental Phosphorus will supply a potential source of supply of acid for operation through July 15.

In the interim the Purchasing Section will attempt to complete a satisfactory contract for future requirements.

Ammonium Silicofluoride: On October 25 Davison Chemical Corporation advised that the marine strike had cut off their supply of raw materials, and they would be unable to ship a carload of this material scheduled for shipment that day. The strike was settled and Davison will be urged to ship as soon as possible. There was four months supply of this material on hand October 31.

Sodium Nitrate: W. R. Grace Company in Seattle, Washington, also advised that they were unable to ship a carload of this material as scheduled due to the marine strike which is still in progress in the Seattle Area. The stock on hand as of October 31 was approximately two months supply. We have an additional source of supply for this material and, if the strike in Seattle is not settled by November 8, a carload of Sodium Nitrate will be procured from an Eastern plant of the Barrett Division of Allied Chemical & Die Corporation, even though the cost is higher than cost of the material procured from W. R. Grace.

Coal: In view of the threatened coal strike, the amount of coal on hand and on order was reviewed on October 23 with the Power and Transportation Departments. As of that date, three and a half months supply of industrial coal and two and one-half months supply of domestic coal was on hand. As a result of this review, shipments of domestic coal will be increased to five cars per day, which is the maximum amount of cars the domestic coal unloader can handle per day. Earlier in the month industrial coal shipments were increased to the maximum amount that can be handled per day.

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Accounting Department

Salary and Banking

Work was started during the month, with the cooperation of the Labor Relations Officer, to accumulate a file of current applicable District Bulletins relating to administration of salary rate schedules for Hanford Engineer Works. This is necessary in order that classification of new employees, reclassification of employees, and recommendations for promotional and merit increases may be made properly.

Federal Social Security report was filed for third quarter. Permission was obtained from Federal Government permitting the combining of salary paid by both du Pont and General Electric in determining when tax had been deducted on first \$3000 of employees earnings. This will eliminate the necessity of filing claims for refunds of amounts deducted by du Pont and General Electric for combined deductions in excess of \$30 which would have been required if deductions were made for 1% of salary paid by du Pont on first \$3000 and 1% from salary paid by General Electric on first \$3000 per employee.

Group Life Insurance and Group Disability Insurance records were completed and necessary records and statistical data furnished to General Office. Reporting of Group Life Insurance changes to General Office will be coordinated by the Salary and Banking Division for both monthly and weekly paid employees.

Time Office

Insurance records were completed and necessary records furnished to General Office. Processing of Group Disability Insurance Claims under policy with Metropolitan Life Insurance Company for both monthly and weekly paid employees has been assigned to Time Office. These are now filed with the San Francisco Office of the Metropolitan Life Insurance Company instead of being handled by the New York Office which has reduced the time required to receive benefit checks.

General Accounting

Superior Air Lines Sub-Contract

During the month a written memorandum was received from the Chief Project Auditor, Hanford Engineer Works, listing additional statistical and other data required by the Auditor and the General Accounting Office to be submitted in connection with individual invoices from Superior Air Lines before reimbursement under the contract would be made by the Government.

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Accounting Department

Superior Air Lines Sub-Contract (continued)

A conference of the interested Accounting personnel was held for the purpose of determining effective means of accumulating the considerable amount of data required, as a result of which it was found necessary to request Superior Air Lines to completely revise all invoices rendered and to submit extensive detail in connection with each flight.

As complete details required by Government have not been supplied by Superior Air Lines, none of these invoices could be presented on Public Voucher for reimbursement under the contract. These invoices covered services rendered by Superior Air Lines from June 15, 1946 (the date of the sub-contract) to October 15, 1946 and aggregated \$68,936.77.

Procedure for handling payroll deductions

During the month a meeting was held with Chief Project Auditor and representatives of General Accounting Office, regarding the proper procedure for handling payroll deductions.

The discussion developed the basic principle that in order to obtain reimbursement for the disbursement of these payroll deductions, payment must be made to a third party. That is, remittance of payroll deductions to General Electric Company will not be considered as eligible for reimbursement unless further evidence is submitted of the eventual disbursement of these funds outside of General Electric Company.

Arrangements are now being made with General Office as to procedures to cover remittances of payroll deductions for Social Security Taxes, Federal Withholding Tax, Group Life Insurance, Group Disability Insurance, Pension Plan and Elfun Trust.

Du Pont Activities

Six employees of the General Accounting Section are still assigned to work on du Pont "Clean-up" activities. This is in addition to work performed by the Section in handling payments for their account and related accounting work.