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Date 5-15-73

September 17, 1947

HANFORD ENGINEER WORKS

MONTHLY REPORT

AUGUST, 1947

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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 77.4.

Thirty-three batches were started in the Canyon Buildings and forty were delivered from the Isolation Building.

The Plant safety record was terminated during August with three major injuries, one of which was non-tabulatable. The Service Department section of this report includes a detailed description of each of these injuries.

Messrs. Lilienthal, Bacher, Pike and Waymack, Atomic Energy Commission members, together with several members of their staff, visited the Plant during the month of August. During their three-day stay a very thorough tour was made of the Plant and discussions held in regard to the critical plant problems and expansion programs.

Dr. Zay Jeffries and Mr. H. A. Winne, Vice Presidents of the General Electric Company, also visited the Plant during the period of the Commission's visit.

Mr. C. E. Wilson, President of the General Electric Company, and Mr. D. C. Prince, Vice President, were Richland visitors during August. Mr. Wilson arrived August 30 and inspected the plant on August 31.

A contract was awarded to the Hudson Company of Portland, Oregon for the construction of the 450 pre-cut type of houses. It is expected that all 450 housing units will be completed and occupied by December 15, 1947.

Difficulty in general is being encountered in getting the construction program under way. Labor agreements have not as yet all been completed with the building trades. There is a definite scarcity of craftsmen in certain particular trades such as masons and plumbers. It is felt with proper sub-contracting that this probably can be eliminated as a delaying item. Real progress on construction cannot be expected until the Camp program is properly under way. This will probably be at least another thirty days away.

Housing still is the most critical item and at the present writing, over 900 are on the waiting list. There seems to be no immediate relief in sight. Neighboring towns have been solicited in an attempt to find available rooms to take care of the workers under present conditions.

STAFF

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

[redacted]

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FORCE REPORT
AUGUST 1947

	Non-Exempt		Exempt		Total	
	7-31-47	8-29-47	7-31-47	8-29-47	7-31-47	8-29-47
[illegible]gement	4	12	9	13	13	25
[illegible]sign & Construction	67	88	77	95	144	183
[illegible] Department	173	173	49	49	222	222
S[illegible] Department	240	241	54	55	294	296
Technical	184	185	128	141	312	326
Power	358	361	79	81	437	442
Maintenance	739	806	119	119	858	925
Electrical	193	200	41	41	234	241
Instrument	135	137	42	43	177	180
Service	946	1066	164	187	1110	1253
Transportation	783	797	75	76	858	873
Medical	374	406	120	122	494	528
Accounting	442	464	50	53	492	517
TOTAL	4638	4936	1007	1075	5645	6011

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[redacted]

PERSONNEL DISTRIBUTION - AUGUST 1947

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 & 3000 Areas	Total
P DEPARTMENT									
Supervisors	2	12	17	-	-	13	-	5	49
Operators	10	38	37	-	-	85	-	1	171
Clerical	-	-	-	-	-	-	-	2	2
Total	12	50	54	-	-	98	-	8	222
S DEPARTMENT									
Supervisors	-	-	-	20	30	-	1	3	54
Operators	-	-	-	94	131	-	12	2	239
Engineer on Assignment	-	-	-	-	-	-	1	-	1
Clerical	-	-	-	-	-	-	-	2	2
Total	-	-	-	114	161	-	14	7	296
TECHNICAL DEPARTMENT									
Supervisors	-	6	-	5	4	12	-	8	35
Chemists-Engineers-Physicists-Technologists	1	8	7	9	20	74	-	21	140
Clerical	-	-	-	-	-	10	-	4	14
Others	1	12	11	34	15	64	-	-	157
Total	2	26	18	48	39	160	-	33	327
POWER DEPARTMENT									
Supervisors	8	27	22	6	9	-	2	7	81
Operators	40	90	90	24	32	8	-	47	331
Clerical	-	-	-	-	-	-	1	1	2
Others	2	6	7	-	7	4	-	2	28
Total	50	123	119	30	48	12	3	57	442

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100-& 3000 Areas	Total
MAINTENANCE DEPARTMENT									
Supervisors	1	2	12	4	14	8	9	26	76
Engineers	-	-	1	2	2	1	-	83	89
Mechanics	9	25	77	39	81	47	81	236	595
Clerical	-	-	-	-	-	-	2	37	39
Others	1	1	9	12	20	8	40	35	126
Total	11	28	99	57	117	64	132	417	925
ELECTRICAL DEPARTMENT									
Supervisors	1	2	3	2	2	1	13	10	34
Electricians	7	9	14	16	12	8	55	43	164
Clerical	-	-	-	-	-	-	-	3	3
Others	1	1	3	1	3	1	17	13	40
Total	9	12	20	19	17	10	85	69	241
INSTRUMENT DEPARTMENT									
Supervisors	1	3	4	2	4	7	-	5	26
Engineers	-	-	-	1	-	11	-	7	19
Mechanics	3	13	13	12	16	25	-	4	86
Clerical	-	-	-	-	-	-	-	3	3
Others	3	3	2	2	4	23	-	9	[illegible]
Total	7	[illegible]	19	17	24	66	-	28	[illegible]
SERVICE DEPARTMENT									
Supervisors	10	6	7	8	7	15	24	110	[illegible]
Patrolman	46	60	63	114	93	69	8	152	605
Laundry Operators	-	-	-	-	2	-	-	1	3
Inspectors	4	4	4	4	4	-	1	2	23
Janitors	2	3	4	6	10	11	8	46	90
Clerical	-	-	-	-	-	4	29	124	157
Others	13	-	-	-	11	12	41	111	188
Total	75	73	78	132	127	111	111	546	1253

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	700-1100 & 3000 Areas	Total
TRANSPORTATION DEPARTMENT									
Supervisors	8	2	2	3	3	1	7	50	76
Drivers (Based on Areas Served)	15	27	27	34	32	19	23	83	260
Mechanics	9	1	1	2	2	-	1	76	92
Trainmen	1	4	4	4	4	-	-	3	20
Laborers	4	12	5	13	4	4	-	179	221
Clerical	-	-	-	-	-	-	-	33	33
Others	9	6	6	13	12	2	-	123	171
Total	46	52	45	69	57	26	31	547	873
MEDICAL DEPARTMENT									
Physicians	-	-	-	-	-	-	7	11	18
Dentists	-	-	-	-	-	-	-	7	7
Nurses	-	4	-	3	3	1	13	87	111
H. I. Specialists	1	10	18	35	61	72	5	10	212
Technicians	-	2	2	2	2	2	-	13	23
Clerical	-	1	1	1	1	2	-	67	73
Others	-	-	-	-	-	-	-	84	84
Total	1	17	21	41	67	77	25	279	528
ACCOUNTING DEPARTMENT									
Supervisors	-	-	-	-	-	-	-	54	54
Clerks	1	6	7	6	11	6	-	222	259
Telephone & Teletype Operators	-	-	-	1	-	-	-	36	37
Others	-	2	4	4	9	8	-	140	167
Total	1	8	11	11	20	14	-	452	517
DESIGN & CONSTRUCTION DEPARTMENT									
Exempt Employees	-	-	-	-	-	-	-	95	95
Non-Exempt Employees	-	-	-	-	-	-	-	69	69
Clerical	-	-	-	-	-	-	-	19	19
Total	-	-	-	-	-	-	-	183	183
MANAGEMENT									
Clerical	-	-	-	-	-	-	-	13	13
Total	-	-	-	-	-	-	-	12	12
	-	-	-	-	-	-	-	25	25
	214	408	484	568	617	368	431	2651	6011

ARRIVALS AND DEPARTURES OF EXEMPT PERSONNEL

ARRIVALS

Name	Department	Physical Arrival	Orgin
James N. Dupuy	Management	8-28-47	New
Wm. W. Goode	Management	8-18-47	New
Bernard J. Loftus	Management	8-4-47	New
Whitney E. Mathias	Management	8-7-47	Trf.Schenectady
Geo H. Bauer	Design & Construction	8-25-47	New
Raymond R. Beard	Design & Construction	8-7-47	New
Scott W. Camp, Jr.	Design & Construction	8-12-47	New
Ross L. Coonrod	Design & Construction	8-20-47	New
Elmer T. Coppin	Design & Construction	8-25-47	New
Carey A. Evans	Design & Construction	8-20-47	Trf.Schenectady
Richard T. Gardner	Design & Construction	7-29-47	New
B. Norman Hoberg	Design & Construction	8-18-47	New
Reid M. Kenady	Design & Construction	8-15-47	New
James W. Kinports	Design & Construction	8-26-47	New
Leonard C. Koke	Design & Construction	8-27-47	New
Charles P. Lawson	Design & Construction	8-28-47	Re-employ
Donald J. McMillin	Design & Construction	8-21-47	New
Glen A. Newell	Design & Construction	8-12-47	New
Eugene E. Thoman	Design & Construction	8-15-47	New
Gordon C. Winsor	Design & Construction	8-12-47	New
Charles R. Bennett	S Department	8-25-47	New
Elliott L. Burley	Technical	8-29-47	New
Alfred C. Callen, Jr.	Technical	7-31-47	New
Homer G. Dixon	Technical	8-25-47	New
Cornelius (NMN) Groot	Technical	8-4-47	New
Wm. H. Johnston	Technical	8-7-47	New
Geo. P. Kerr, Jr.	Technical	8-1-47	Trf.Cleveland
Edward (NMN) Nather	Technical	8-26-47	New
Vernon L. Redding	Technical	8-25-47	New
Robert B. Richards	Technical	7-14-47	Trf.Schenectady
Cyril M. Slansky	Technical	8-7-47	New
Robert E. Smith	Technical	8-4-47	New
Roscoe (NMN) Teats, Jr.	Technical	8-20-47	New
Earl K. Yost, Jr.	Technical	8-1-47	New
Perry (NMN) Thompson	Power	8-25-47	New
Albert F. Luebke	Maintenance	8-20-47	New
Merril T. Slind	Instrument	8-11-47	Trf.Schenectady

ARRIVALS

Name	Department	Physical Arrival	Orgin
Glenn D. Fuller	Service	8-29-47	New
Wm. O. Goslin, Jr.	Service	8-26-47	New
Gorm (NMN) Raney	Service	8-13-47	New
Halbert H. Smith	Service	8-20-47	New
Joseph B. Grysbeck	Medical	8-28-47	New
Anne Elizabeth Middlemiss	Medical	8-21-47	New
Rolland A. Reiten	Medical	8-19-47	New
Lysle C. Schwendiman	Medical	8-4-47	New
Archie A. Selders	Medical	8-18-47	New

DEPARTURES

Name	Department	Date of Departure	Orgin
Paul F. Bogen	Design & Construction	8-15-47	Vol-Quit
Richard M. Treco	Technical	7-31-47	Vol-Quit to return to school
Clyde F. Haeske	Maintenance	8-15-47	Completion of Assignment.
Wayne E. Houston	Electrical	7-31-47	Discharged
Dr. Robert P. Hall	Medical	8-19-47	Vol-Quit
Dr. Howard A. Schuler	Medical	8-5-47	Vol-Quit
Dr. John Samuel Taylor	Medical	7-31-47	Deceased

I. GENERAL

The D and F Piles operated at a nominal power level of 250 M. W. and 200 M. W., respectively, except for scheduled outages and a total of three scrams, (one at D-Pile and two at F-Pile). One of the scheduled outages at F-Pile was an extended shutdown to allow the Power Department to make repairs to the east clear well in Filter Plant Building No. 183-F and to enable the Technical Department to proceed with Production Test No. 105-113-P. The B-Pile was maintained in standby condition with a water flow of 4100 g.p.m.

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

II. ORGANIZATION AND PERSONNEL

There were no organization changes during the month.

III. AREA ACTIVITIES

PILE SUMMARY	PILE B	PILE D	PILE F
Time Operated (%)	-	87.7	70.9
Operating Efficiency (%)	-	86.5	68.3
*Power Level (MW)	-	250	200
*Inlet Water Temperature	20.7	20.2	20.0
*Outlet Water Temperature (Maximum °C., 10 tubes, .240 zone)	20.7	54.7	50.1
Number of Scrams	-	1	2
Number of Purges	0	0	1
Helium Consumption (cu.ft.)	31,579	101,224**	78,700
Metal Discharged (tons)	0	39.3	18.9
Inhours Gained (this month)	0	(-)12	(-)31
*Inhours Poisoned	-	366	356
*Inhours in Rods	-	39	51

* Month end figures

** Includes losses incident to replacing leaky Tube No. 1385-D.

PILE BUILDING

OUTAGE BREAKDOWN

Date of Outage	Scheduled Outages: Metal Discharges	Scheduled Outages: Maintenance	Unscheduled	Length of Outage (Hours)
8-3-47 to 8-13-47	F	F		172.4
8- 4-47	D			22.6
8-12-47	D			22.6
8-19-47		D		22.8
8-20-47			F	0.2
8-26-47	D			23.7
8-27-47	F			22.5
8-29-47			D	0.2
8-29-47			F	0.2

The unscheduled outages were caused as follows:

8-20-47 (F) - The unit scrammed when the control tube in No. 2 Beckman failed.

8-29-47 (D,F) - A power surge during an electrical storm caused a scram at both piles.

Operating Experience

Details of irradiation of Special Requests processed during the month may be found in the Technical section of this report.

Experience off the plant indicated that pressures as high as 6.7 atmospheres were encountered in pieces of S. R. No. 13, (beryllium nitride) which had been irradiated in the piles. No definite correlation between pressures and accumulated irradiation could be established. As a safety measure all pieces of S. R. No. 13 were discharged from the piles. (160 at D-Pile on August 5; 124 at F-Pile on August 10).

A number of Production Tests, as indicated below, were processed during the month:

105-1-P (Effect of Pile Operation on Properties of Graphite)
Tube No. 2079-F was charged with 6 capsule ("papoose") and 26 regular pieces on August 9, displacing 3 capsule and 29 regular pieces.

105-52-P (Graphite Expansion - Gun Barrel Clearance)
A new tube, coated with Aquadag, was inserted in channel No. 4385-B on August 26. The tube was moved into the gun barrels and graphite without any difficulty.

2

[redacted]

105-80-P (Measurement of Slug Temperatures)
Tube No. 1367-F was charged with regular metal on August 10, replacing one thermocouple slug and sixteen regular pieces. Water flow was cut off Tube No. 2679-F temporarily during the outage of August 27 to determine the slug temperature rise which will be reported by the Technical Department.

105-85-P (Exposure of Expanded Graphite)
Graphite samples were discharged and charged into Tube No. 1562-D during August. Two samples were charged into B Test Hole at D-Pile.

105-90-P (Exposure of TX Metal Slugs)
Twenty-five tubes at F-Pile were charged with TX slugs on August 10.

105-110-P (Van Stone Flange Inspection)
The front and rear Van Stone flanges of 249 tubes at the B-Pile have been examined for corrosion; 81 rear and 65 front flanges were found to have a residual wall thickness of less than .030" and are being repaired by shaping a new flange on the tube. This work will be carried on daily until all tubes in B-Pile have been processed. Tubes at D and F Piles are being inspected and repaired in similar fashion by processing as many as possible on each scheduled outage; this work was begun late in August and no significant date are yet available.

Process Tube No. 2180-B was replaced with a new 2S aluminum tube after the Van Stone flanges of the old tube had been removed for study by the 300 Area Metallurgical group.

105-113-P (Xenon Free Reactivity Coefficient Test)
This test was run at the F-Pile during the period 8-7-47 through 8-9-47 in conjunction with the extended outage scheduled during the early part of August.

105-114-P (Van Stone Corrosion Test)
Equipment installation in the near side riser room at the D-Pile was completed and placed in operation August 26.

During the extended outage at the F-Pile, eight bismuth columns of 57 pieces each were charged. Seven of these had contained 45 bismuth pieces each and one had contained regular metal previously. The F-Pile now has twenty bismuth columns all of which contain 57 pieces.

[redacted]

Nine selected tubes at D-Pile were given special jacking tests on August 19 to determine if gun barrel clearances should be increased by cutting off a part of the gun barrel. The readings obtained were inconclusive; a continuation of this program is scheduled for September and will be reported in greater detail next month.

Mechanical Experience

Horizontal rods Nos. 2, 5, and 6 failed to go in at D-Pile during the scram of August 29. The cause of this failure will be investigated at the next shutdown. All other horizontal rods and all vertical rods at both D and F Piles are in satisfactory operating condition. Work done on rods during August is as indicated below:

Vertical rods No. 28 through 34 at the D Pile were buffed and then coated with a thin layer of rust preventive oil completing a program begun in May. Twelve vertical rods at B and twenty-two at F-Pile have been processed similarly; the work at these areas will be continued next month.

All graphite tracks for horizontal rods have been inspected and shortened to allow approximately 1/4" clearance at the outer end. This program, commenced several months ago, should minimize the possibility of binding of the rods caused by buckling of the graphite track sections. The amount of protrusion of the various tracks prior to shortening was as follows:

Rod No.	Pile B	Pile D	Pile F
A	3/16"	1/8"	3/16"
2	-	-	-
B	1/8"	-	3/32"
4	1/16"	-	-
5	-	-	1/32"
6	-	-	9/32"
7	-	-	-
8	-	-	-
9	-	-	1/16"

On August 4, the Inner Rod room structural supports for horizontal rods Nos. 7, 8, and 9 at F-Pile were modified slightly to allow free outward motion of the pile shield. This completes this work on all horizontal rods at all three piles.

The process tube water leak reported last month in Tube No. 1385-D was located between the ribs of the tube at a position 8" from the rear Van Stone flange. The leak was from a hole of irregular shape of approximately 3/16" and 3/8" maximum diameters. The old tube was removed and replaced by a new tube of 2S aluminum. Boroscopic examination of the graphite revealed no damage.

The "B" Test Hole thimble and facility were replaced at B and F Piles during the month. All three piles now have identical "B" Test Hole installations. (PROJECT C-124).

The top neoprene seal on the near side was replaced at B-Pile thus completing the replacement of the top neoprene seals at all three piles. (ENGINEERING REQUEST A1003). The cork seal and one layer of bricks on the near top side of the pile were removed and replaced with a canvas strip, thus completing this work at all piles.

During the extended outage at F-Pile the rubber lining of the discharge area chutes was removed and stainless steel linings were installed. Eighteen of the twenty mattress plates were replaced with plates of a new design; the remaining two will be installed as soon as materials are available. (For details of chute linings refer to Blueprint No. H-1-516; for mattress plates refer to Blueprint H-1-507, Type B). The rubber linings and old mattress plates had become badly damaged through long usage and were the cause of considerable "hanging up" of metal in the chutes. The new equipment will minimize this trouble and permit easier maintenance work.

GAS PROCESSING BUILDING

Two cars of gas were unloaded and purified, (one each in D and F Areas). A simplified collector pot was installed at the No. 1 Drier at D-Area to collect the condensate. It can be read and drained by remote control from the operating gallery. Both D and F Areas are similarly equipped; it is planned to install collector pots on Driers No. 2 and 3 in the near future.

SPECIAL HAZARDS

Two special hazards were experienced at D Area in connection with returned shipping containers.

a) An irradiated piece of Special Request No. 15 (lithium flouride) was returned from the customer by mistake. It was discovered during routine inspection in the outer box of a shipping cask. A reading of 40 mr/hour was observed at a distance of two inches from the box as it was unloaded from a boxcar.

b) One returned shipping cask, used for handling irradiated bismuth, was received with an alpha contamination of 170,000 d/m on the outside of the wooden container in an area which seemed to correspond with a footprint.

During the course of repairs to the discharge area linings at F Area, the storage basin was pumped dry. A reading of 500 mr/hour at 1" was obtained from metal filings and miscellaneous material on the floor near "B" chute. After removal of the material, the floor reading was reduced to 5 mr/hour.

There was no over-exposure of personnel during the month.

[redacted]

300 AREA - METAL FABRICATION

Extrusion, Outgassing, and Machining

Extrusion, Machining, and Billet Yields were as follows:

	% Yield		
	July	August	To Date 1947
Extrusion	93.2	93.4	93.3
Machining	82.1	81.0	82.1
Billet	76.5	75.7	76.6

Extrusion operated three days in August. The rotary extrusion furnace was shut down August 6 for routine inspection and a complete flushing of the ball race preparatory to the application of graphite as a lubricant on August 18.

In conformance with Production Test No. 313-89-M, "Reduction of Turning Scrap", the six rods extruded through a 1.413" diameter die in July were cut and centerless ground on August 14 to MZ slug dimensions. On August 19 seven rods were extruded through a 1.410" diameter die in further attempt to obtain rods having a minimum diameter equal to, or slightly above, the minimum diameter of an MZ slug (1.351"). The diameters of these rods ranges from 1.351" to 1.361". On August 26 ten rods were extruded through a 1.445" die to determine if it would be feasible to reduce the present die size (1.455") and obtain the necessary clean-up of the rod surface when machined to MZ diameter. Data is not available on the results achieved.

Chip Recovery and Oxide Burning:

The Chip Recovery yield was as follows:

	% Yield		
	July	August	To Date 1947
	92.2	90.1	91.3

Chip Recovery operated four days in August. A special run consisting of two tons of 3½" diameter briquettes, one ton having a thickness of 1" to 1½" and the other 2" to 2½" in thickness, were processed and shipped to Metal Hydrides at their request.

The material burned in the Oxide Burner was as follows:

[redacted]

	Weight Out - Lbs.		
	July	August	To Date 1947
Extrusion Floor Sweepings (D-2)	229	812	11746
Chip Recovery Floor Sweepings (D-2)	249	314	1124
Chip Recovery Oxides (D-6)	575	1097	5525
Extrusion Oxides & Skirts (D-6)	2817	3406	33000

Canning Operation

Metal Slugs - Type canned and yields were as follows:

	% Canned		% Yield	
	August	To Date 1947	August	To Date 1947
New Machined - A's (Stripped Unbonded)	00.0	7.9	00.0	84.1
New Machined - A's - 4"	00.0	3.6	00.0	89.5
New Machined - MZ's	98.7	80.8	92.5	91.3
Recovered - Z's	1.3	5.0	90.3	89.6
Recovered - Z's - 4"	00.0	.1	00.0	84.0
Recovered - X's	00.0	2.6	00.0	93.8
	100.0	100.0	Ave. 92.5	90.7

One hundred forty-seven pieces of Special Request No. 15-14 (lithium fluoride) and 195 pieces of Special Request No. 15-15 (lithium fluoride) were canned. Three additional pieces of Special Request No. 15-14 and five pieces of Special Request No. 15-15 were rejected because of failure to pass the bubble test prior to canning.

Forty-seven pieces of Special Request No. [illegible]-3 (fluoride) were canned. Two additional pieces were rejected because of defective surfaces and were returned to the vendor.

Canning rejects, by cause, were:

	% Of Total Canned (Regular)		
	July	August	To Date 1947
Non-Seating	2.3	1.5	2.3
Wrinkled Cans	0.4	0.2	0.8
Marred Surface	2.9	2.4	2.4
Al Si on Outside of Can	0.7	0.4	0.5
Air Pockets	0.1	0.1	0.1
Frost Test	0.6	0.9	0.9
Warp	1.0	0.4	1.0
Bad Welds	0.5	0.8	0.7
Miscellaneous	0.5	0.8	0.6
	9.0	7.5	9.3

A total of 3045 lead dummy slugs was canned in August.

One thousand ninety-six pounds of BFO_6 were recovered in August. The bronze recovered from the BFO_6 recovery operation has been determined through use to be satisfactory for addition to the bronze canning furnaces. Approximately 85,000 pounds of recovered bronze is available for reuse and will be sufficient to cover plant needs for several months.

Recovery Operation

	% Recovered (Regular)		Ave. Weight - Lbs.	
	August	To Date 1947	August	To Date 1947
Z Slugs	68.1	62.2	7.792	7.800
X Slugs	30.7	35.5	7.742	7.740
Rejects	1.2	1.9	--	--
	100.0	100.0		

Inspection and Testing

Autoclave rejects were as follows:

	July	August	To Date 1947
New Machined - A's (Stripped Unbonded)	0.00/M	0.00/M	0.11/M
New Machined - A's - 4"	0.00	0.00	0.69
New Machined - MZ's	0.17	0.21	0.11
Recovered - Z's	0.00	0.00	0.00
Recovered - Z's - 4"	0.00	0.00	0.00
Recovered - X's	0.00	0.00	0.00
	0.17/M	0.21/M	0.12/M

There were three "MZ" autoclave failures in August; the cap lifted on the first, the can sidewall ruptured approximately one inch below the cap on the second, and the third was completely destroyed.

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

	% Useable (Regular)		
	July	August	To Date 1947
Aluminum Cans	94.0	94.8	85.7
Aluminum Caps	96.0	98.1	93.3
Steel Sleeves	71.4	49.6*	68.6

* 48.7% of a total of 355 sleeves inspected were rejected for warp.

300 Area - Test Pile

This unit was operated nine eight-hour days, completing 96 regular tests on canned slugs, 37 tests on billet eggs, and the following Production Tests:

		No. of Tests
P.T. No. 305-11-P	"Irradiation of Uranium Hydroxide"	1
P.T. No. 305-12-P	"Reactivity Effect of Aquadag"	4
P.T. No. 313-94-M	"Development of Lead Dip Process"	5

[redacted]

HEW-7504-Del

S DEPARTMENT

AUGUST 1947

I. GENERAL

Thirty-three batches were started in the Canyon Buildings during August and forty were processed through the Concentration Buildings. Forty charges were completed in the Isolation Building with an average purity of 98.3%.

The material balances for T and B Plants averaged 99.3% and 101.2%, respectively, for a combined average of 100.3%. Average waste losses for both plants totaled 2.7%.

Canyon and Concentration Building Production Performance Data — (8/1/47 – 8/31/47, inclusive)

	B Plant	T Plant	Combined
Number of charges started	17	16	33
Number of charges completed	20	20	40
For completed charges:			
Percentage of starting product in waste			
This month	2.7(a)	2.8(a)	2.7
Last month	3.0(b)	2.6(b)	2.9
Cumulative to date	5.8(c)	5.8(c)	5.8
Percentage of starting product recovered			
This month	98.6	96.5	97.5
Last month	99.9	95.6	98.0
Cumulative to date	96.3	95.1	95.8
Percentage of starting product accounted for			
This month	101.2	99.3	100.3
Last month	102.9	98.2	100.9
Cumulative to date	102.1	100.9	101.6
G decontamination factor (log.)			
This month	7.62	7.58	7.60
Last month	7.61	6.96	7.23
Cumulative to date	7.29	7.24	7.26

(a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.018%—T Plant; 0.028%—B Plant. (b) 0.035%—T Plant; 0.0015%—B Plant. (c) 0.19%—T Plant; 0.0031%—B Plant.

[redacted]

Isolation Building Performance Data (8/1/47 – 8/31/47, inclusive)

	% of Incoming Product			
	Prepared for Shipment	Recycle	Losses	Material Balance
Average for this month	95.7	3.70	0.009	99.4
Average for last month	94.7	4.58	0.02	99.3
Average to date	96.7	3.87	0.12	100.7

II. ORGANIZATION AND PERSONNEL

During August the following changes in the supervisory organization of the S Department took place:

T Prudich, Assistant Chief Supervisor, and L. I. Brecke, Area Supervisor, were loaned to the Technical Department for work of a special assignment nature. To adjust the organization as a result of these moves, the following changes were made:

F. Moss, formerly Area Supervisor of the T Plant Concentration Building, was promoted to an Assistant Chief Supervisor and transferred to B Plant.

L. F. Hardy, formerly Senior Supervisor at T Plant, was promoted to Area Supervisor and assigned to the Isolation Building.

J. R. Barber, formerly Senior Supervisor at B Plant, was promoted to Area Supervisor and transferred to the T Plant Concentration Building.

J. R. Fine was promoted to a Senior Supervisor and similarly assigned to the B Plant Canyon Building.

C. R. Bennett, a new employe, was placed on the S Department roll as Supervisor-in-Training August 25, 1947.

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants

Section 8 Extraction Waste Losses

Section 8 extraction operations in both Canyon Buildings continued during August under the various phases of Production Test 221-T-12. Although the test has as yet not been completed, the preliminary data indicate that significant waste loss savings can be realized by adhering to phases 1, 4 and 5 (water flush of centrifuge after cake removal, additional nitrite reduction prior to reverse strike, and the variation of those factors such as addition rates and digestion periods affecting the phosphoric acid strike). The test will be continued into September with the final evaluation to be made by the Plant Assistance Group of the Technical Department.

Section 13 Scavenger Reduction

Production Test 221-B-6, providing for the gradual reduction of cerium, zirconium and phosphate scavengers in Section 13 of the Canyon Buildings in an effort to reduce byproduct cake waste losses without reducing canyon decontamination factors below 4.75, was continued throughout August. The first phase of this test, in which 50% of the standard weight of cerium and zirconium scavengers was used in the byproduct precipitation, showed no significant decrease in waste losses at B Plant and an approximate 0.16% reduction (six runs) at T Plant, without any adverse effect upon decontamination factors. At B Plant, the results were not significant due to the interference of reducible material present in the phosphoric acid, a problem discussed later in this report. Since the decontamination factors did not appreciably decrease at B Plant, the evaluation of the use of 25% of the standard weight of scavengers was started with Run B-7-08-F13. Phase 1 at T Plant will be completed early in September and then followed by a similar reduction in scavengers at this plant.

Reducibles in Phosphoric Acid

Tank Car GATX 28851, in which all phosphoric acid containing excessive reducible material was emptied and inspected in order to determine if disintegration of the rubber lining was responsible for the origin of the reducible matter. Inspection, however, revealed the liner to be in good condition. The phosphoric acid received in this shipment was within specifications and was segregated in storage without the normal addition of 1.5-2.0% HNO_3. Through periodic analyses of this material for iron content and reducibles it will be possible to note whether or not nitric acid is a contributing factor. The phosphoric acid used in B Plant during the greater part of August contained approximately three times the maximum specification quantity of reducible matter. In an attempt to counteract these agents the phosphoric acid was treated with sodium dichromate before its use in Sections 13 and 16 for Runs B-7-08-F3 through D8, and Runs F12 through F14. Waste loss results in Section 13 were of no significance due to Production Test 221-B-6, but in Section 16 for the nine runs so treated the byproduct waste loss increased by over .10%. No explanation of this can be offered at this time and the problem will be given further study.

Cake Dissolving Studies in Section 8

Since a reduction in the amount of nitric acid used in dissolving product cakes would make possible a further reduction in the volume of these runs, thereby effecting process savings and reduced cycle times, some preliminary study was made in Section 8 of the T Plant Canyon during August to determine the minimum amount of 60% nitric acid required. The method employed was to use a portion of the standard amount of nitric acid to remove the cake from the centrifuge bowl to the dissolving tank, analyze the product for clarity and product content and then add the remaining quantity of acid by the normal cake removal procedure. Data obtained from the five runs so processed indicated that a significant reduction in the amount of acid used can be made, providing necessary changes in method of cake removal can be developed to insure complete cake removal. Further

investigation will be made during September and based on these findings a production test will be written. All changes made during this preliminary study were within the Plant Operating and Technical Standards.

T Plant Acid Wash

A routine acid wash, T-7-08-AW1, was processed through the T Plant Canyon and Concentration Buildings during August. Pickup of product was normal (17.6%) indicating no abnormal holdups in process equipment.

Section 17 Operation Difficulties

The inadvertent substitution of Bismuth Subnitrate instead of Ammonium Silico Fluoride in Run B-7-08-713 at B Plant resulted in the presence of approximately 82% of the original batch in the product effluent waste solution. Through special reworking of this waste effluent and separate handling of the original product cycle solution as a separate run, the initial 82% loss was reduced to 0.005%.

E Cell Skimming

At the T Plant Concentration Building, the Cell E lanthanum fluoride effluent waste losses increased by approximately .08% following replacement of the skimmers reported upon last month. The skimming heel was increased from 10 to 15 gallons and the losses returned to normal. At B Plant, the heel was increased a like amount with a similar improvement in E Cell effluent waste losses.

Product Holdup in F Cell

Some improvement was noted in the tendency toward product holdup in the F Cell metathesis tank of the T Plant Concentration Building. A special caustic and acid flush of the process equipment was made early in August which recovered 15% of a normal charge. This flush was also instrumental in reducing the amount of foreign material present in the product delivered to the Isolation Building, a characteristic peculiar to T Plant runs and reported upon last month.

Isolation Building

Abnormally High Product Recycles — T Plant

In the August report, mention was made of erratic and abnormally high product recycle solutions arising in the Isolation Building from T Plant runs processed. In an effort to determine the cause the Plant Assistance Group of the Technical Department started a series of absorption spectra tests on P-1 solutions before and after pre-reduction treatment and prior to first cycle precipitation. These tests have not yet been completed although there are preliminary indications that an abnormal shift in the valence state of the product takes place after reduction with ammonium sulfite in those runs which subsequently produced high recycle values. This work will be continued into September.

WASTE DISPOSAL

T and B Plants

Cribbing of Second Cycle Wastes

At T Plant, all was in readiness at monthend to commence cribbing of second cycle wastes on September 2, from the X-111T underground storage tank to the crib and tile field installed on Project C-120. The feasibility of perforating the test well casings for soil sampling purposes was demonstrated early in the month in a 224-T test well. The process waste solution will be disposed of at a rate which will allow absorption to the ground from the crib without spilling over into the underground tile field. The H.I. Group in conjunction with operating supervision will closely follow all phases of the work.

At B Plant, the crib and tile field installation was approximately 65% complete, at monthend. Work was commenced on installation of the H.I. survey shaft which will be required before cribbing of second cycle waste is permitted in the 200 East Area.

Additional Waste Storage Facilities

Project C-112 providing for the installation of an additional Waste Storage Tank Farm, 241-BX, in B Plant was approximately 80% completed by the end of August. Final hydrostatic tests made on each of the five stainless steel pipe lines, however, indicated at monthend that leaks exist in all lines leaving the 154-BX diversion box recently installed behind the B Plant Canyon Building. To date two of the leaks have been located and in each case the failures can be attributed to either electrolysis, inferior steel or [illegible] of the pipe itself and not to failure of field welds. Final determination of the cause must await isolation of the leaks and more detailed inspection of the pipe. This item will be reported upon in September.

Project C-163, providing for additional waste storage facilities in T Plant, was still in its preliminary design stages during August. The installation of the tie-line facilities provided for in this project are expected to commence in September; this work to be undertaken by company personnel. Negotiations were underway at monthend for the construction of the Tank Farm proper by an outside sub-contractor.

Waste Status

The status of the Waste Storage Areas on August 31, 1947, is shown in the following table:

Bldg. 241 Tanks	Waste	Percentage Full B	C	T	U	Reserve Capacity in Batches to Process B	C	T	U	Total
x101,2,3	Metal	100	100	100	100	0	0	0	0)	
x104,5,6	Metal	—	82.8	—	9.3	—	46		244)	364
x201,2,3,4	Metal	0	0	0	0	—	37	—	37)	
x107,8,9	1st Cycle	100	28.3	100	0	0	242	0	338)	
x110,1,2	1st Cycle	—	100	—	57.9	—	0	—	142)	722
x104	1st Cycle	—	—	100	—	—	—	0	—)	
x104,5,6	2nd Cycle	66.4	—	—	—	153	—	—	—)	
x110,1,2	2nd Cycle	100	—	100	—	0	—	0	—)	263
x105,6	2nd Cycle	—	—	63.6	—	—	—	110	—)	

Isolation Building

Product Recovery

During August a study was made in the Isolation Building to determine the most effective method of handling wastes from process filter clean-outs to reduce the amount of product discarded to the ground. As a result of this work a procedure was developed to utilize existing spare process equipment in the accomplishment of this objective at no increase in cost. The method was adopted and has functioned satisfactorily. A slight but significant product saving will be realized.

MECHANICAL PERFORMANCE

T and B Plants

75 Ton Whiting Crane — T Plant

Flanging of the wheels on the cab end of the T Plant 75 Ton Whiting Crane in the Canyon Building resulted in the flanges of the wheels on that end becoming badly worn. It was necessary to replace four wheels, including the drive wheel. The cause of the wear has as yet not been determined and a very careful study is currently being made to determine if there is any tendency for a recurrence.

Section 6 Cell Equipment Changes — B Plant

Because of excessive jacket water leakage (> 20,000 #/hr) of the B Plant Section 6 metal solution lag tank (6-1), the 6-3 batch size adjustment tank was equipped with an agitator and motor assembly in order to permit use of this tank instead of 6-1 for the pre-reduction of metal solution. A specially designed oil catch tank and electrical and lubrication connectors were installed to permit this change. The agitator was run in successfully and the exchange of process vessels will be adopted in September.

[redacted]

Special Hazards

Air Filter Medium Tests

Special tests were commenced in August in the Isolation Building to determine the relative efficiency of a new type Johns-Manville filter medium and a special paper filter media manufactured for the Chemical Warfare Service in comparison with the present type Johns-Manville media now in use. Preliminary data indicate that the new types are equal to, or better than, the present material. Adoption of the paper media in particular would effect a significant improvement in the unit filter design either in the Isolation Building for replacement purposes or in proposed future process building ventilation systems. The filter paper presents a maximum of surface area in a minimum of space and lends itself to ease of replacement and compactness of design.

Radiation at Section 4 Panel Board in B Plant

As reported last month, the presence of contamination behind the Section 4 panel board in the B Plant Canyon operating gallery was noted in a routine survey of this region. The contamination was eliminated during August and detailed checks and surveys made to determine its source. Nothing could be found and the study will be continued.

Meteorological Section

A total of ninety-three forecasts were issued to the T and B Plants during August and an additional forty-five forecasts were furnished other departments.

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

Maximum average hourly wind velocity at 200'	50 mph on 8/29/47
Minimum average hourly wind velocity at 200'	0 mph
Maximum average hourly wind velocity at 50'	50 mph on 8/29/47
Minimum average hourly wind velocity at 50'	0
Prevailing wind direction	WNW
Prevailing wind quadrant	W
Maximum air temperature (4 feet)	98°F on 8/2/47
Minimum air temperature (4 feet)	50°F on 8/20,21/47
Number of days precipitation and/or fog occurred	8
Number of days precipitation occurred	6
Number of days snow occurred	0
Number of days fog occurred	2
Greatest duration of precipitation	3.6 hrs on 8/12/47

[redacted]

GENERAL

L. W. Bass, Director of Chemical Research for the Air Reduction Sales Company, visited H.E.W. August 4 and 5 to discuss general aspects of the 200 Area stack gas disposal problem. He was accompanied by F. R. Balcar, who is manager of the Air Reduction Laboratory at Stamford. Air Reduction has been approached by the A.E.C. in regard to taking over long term research on disposal of radioactive stack gases, and this was the first visit to the Hanford site to obtain more detailed information on the problem. Later in the month, August 26, 27, and 28, L. I. Gilvertson and L. J. Brady of the same company also visited H.E.W. to review the current program on stack gas disposal and obtain a general orientation in the field before starting active research at Stamford.

D. R. Miller of the General Engineering and Consulting Laboratory returned to Schenectady on August 6 after initiating a study of stresses in the piles. C. S. Duckwald, also of the General Engineering and Consulting Laboratory, arrived on August 25 to continue this work.

Professor George W. Watt from the University of Texas spent August 11 and 12 here reviewing current developments in separations process chemistry and the proposed program of the new Chemical Research Division. Professor Watt was able to make a number of helpful suggestions, based on previous experience at the Metallurgical Laboratory in Chicago and also with the du Pont organization here at Hanford.

F. W. Warner and C. E. Reed of the Chemical Department at Pittsfield spent the week of August 11 to 14 at H.E.W. on a general review of the development program. D. E. Garr of the General Engineering and Consulting Laboratory at Schenectady was here during the same period. Mr. Garr is involved in the "hot" pump development for Redox which is being carried on at Schenectady, and attended several conferences with both the Technical and the Design and Construction groups who are following this program.

W. R. Kanne of the Schenectady Nucleonics group, who has been substituting for P. F. Gast, returned to Schenectady on August 24.

On August 25 to 28 the Redox program was reviewed thoroughly with A. L. Marshall and J. Marsden of Schenectady, together with Professor J. C. Elgin of Princeton University, who is being asked to serve as a consultant on this program because of his wide experience in the solvent extraction field. The extent to which Professor Elgin may participate in the work, including the possibility of carrying on certain fundamental studies at Princeton, will be developed in further contacts between him and members of the Research Laboratory at Schenectady.

W. Byerly and J. H. Hudgens, of Clinton Laboratories, spent August 25 through August 29 at Hanford reviewing remote control techniques with the Laboratories Division.

R. F. Schuman of the Research Laboratory spent the week of August 25 to 29 working with the 200 Technical stack gas group on the use of trichlorobenzene as an absorbent for radioiodine. Dr. Schuman had carried out the early laboratory tests with this material at Schenectady.

G. T. Felbeck, a vice-president of Carbide and Carbon Chemical Corp., together with Sylvan Cromer and Frank Hurd, visited H.E.W. August 28 and 29 to discuss metal waste recovery. Carbide and Carbon Chemical Corp. has been asked by the A.E.C. to consider accepting responsibility for the development of a metal waste recovery process which will be applicable to the waste stored here at Hanford.

In addition to the above visits, the various Technical groups concerned were represented in discussions held in connection with the visits of Mr. Lilienthal and three other Commission members, General Groves and his group of army visitors, and the naval group under Captain Rickover.

Business trips of Technical Department personnel during August were as follows:

E. A. Smith and T. S. Jones returned on August 11 from their observation of a special uranium rolling by Joslyn at Ft. Wayne, Ind. E. A. Smith spent August 8 at the Argonne National Laboratory, reviewing metallurgical facilities and problems.

C. V. Larrick left on August 27 for a trip to Oak Ridge and Chicago for consultation on neutron spectrometer design and related problems.

ORGANIZATION AND PERSONNEL

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

	July 31	August 31
Pile Physics	14	18
Pile Engineering	9	9
200 Area Plant Assistance	12	12
Chemical Development	41	45
Chemical Research	4	6
300 Area Plant Assistance	7	8
Metallurgy Laboratory	9	10
Laboratories Division	189	191
Statistics	8	9
Clerical	13	14
Administration	4	4
Total	310	326

Additions to the exempt roll totalled 16, fourteen as new hires or transfers, and two by promotion from the weekly roll (both in Laboratories Division). The 14 additions from outside were assigned as follows: four to Chemical Development, two to Chemical Research, four to Pile Physics, and one each to Statistics, 300 Plant Assistance, Metallurgy Laboratory, and the Laboratories. The Metallurgy Laboratory added a chemical engineer for corrosion work by transfer from the Laboratories Division, but had one metallurgist resign to return to school in the east. Five technically trained chemists were added to the weekly roll, and this roll experienced the usual turnover in non-technical laboratory personnel.

At month-end there were 26 people on the Technical rolls awaiting security clearance for classified work. More than half of them had been on the rolls since July 31, and several dated from late June.

PILE PHYSICS

General

A recently devised procedure for starting up after a long shutdown was put into practice at the D Pile on August 26. This procedure is designed to reduce the reactivity peak due to the decay of xenon poison and consists in the operation of the pile at less than normal power until the reactivity peak is passed. The amount of power reduction depends upon the length of the shutdown. In this first test of the plan, the reactivity behaved in good accord with expectations.

Miscellaneous estimates have been prepared on pile design and operation: (1) The pile size could be reduced to 1550 tubes by sacrifice of all special irradiations except bismuth. However, the removal of the top ten rows of the pile from service would reduce the strength of A Rod to about 20 ih because of its eccentric position in the smaller pile. (2) The best location for the octant monitoring chambers of the new piles is in openings located on the diagonals of the near and far side faces of the piles at a distance of from 5 to 7 feet from the nearest horizontal rod. (3) The use of an aluminum dummy slug in the center of each tube, to facilitate the two-step irradiation of uranium, would cost 350 ih.

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

	D Pile	F Pile
In rods	39 inhours	51 inhours
In Special Requests		
within poison pattern	247	198
outside poison pattern	0	5
In Plant Assistance irradiations	20	3
In lead-cadmium colums	0	39
In bismuth columns	96	102
In dummy columns	3	9
In xenon	482	420
In overall coefficient	-100	-92
Total cold, clean reactivity	787 inhours	735 inhours

The D Pile lost 12 inhours during the month and the F Pile lost 31 inhours. The large loss of the F Pile is attributed to the installation of a new B Test Hole facility whose water volume is eight times that of the old facilities. The loss from this source is calculated to be between 16 and 24 inhours.

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

Measurements on graphite samples after 247 MD/CT exposure in a 90% helium-10% carbon dioxide atmosphere gave the following results:

Samples with no previous exposure showed no dimensional changes during this period.

Samples with a previous exposure of 285 MD/CT recovered 67% of their previous expansion. Definite conclusions on the effectiveness of the helium-carbon dioxide atmosphere cannot be made until samples exposed in dry helium have had comparable exposures.

Weight losses were 0.035% for previously unexposed samples and 0.098% for those with 285 MD/CT previous exposure.

The amount of energy stored in the range up to 450°C is decreasing with increasing exposure in a helium-carbon dioxide atmosphere and the threshold temperature at which the energy begins to be released is rising, being 350°C after an exposure of 223 MD/CT.

Production Test 105-97-P, Reactivity Coefficients

Analysis of data taken at the F Pile on June 20 and July 29 gave the following values for the coefficients:

	June 20	July 29
Graphite coefficient	0.78 ih/MW	0.72 ih/MW
Metal coefficient	-0.22	-0.23
Overall coefficient	0.56	0.49
Graphite period	82 minutes	75 minutes

These values give further evidence for the difference in behavior of the graphite in the D and F Piles. The lower of the two values for the graphite coefficient is 13% greater than the current value for the D Pile which has had about 25% more exposure than the F Pile.

Production Test 105-113-P, Xenon Free Coefficients

This test consisted of two parts, each performed with less than 10 ih of xenon poison remaining in the pile: the first was a coefficient test with normal water flow, the second a similar test with 40% of normal water flow. Analysis of the data is in progress.

Production Test 305-11-P, Xenon Generator

Efforts to separate the krypton fission products from the xenon by the use of charcoal at -80°C and subsequent reheating have been only partially successful. The rate of emission of fission products from the U-Th hydroxide is strongly decreased in samples which have been heated. Samples which have been heated to 200°C have only 1/8 the emissivity of samples held at room temperature.

Production Test 305-12-P - Aquadag Poisoning

As a result of measurements on a sample of Aquadag in the Test Pile, it is concluded that the complete replacement of all pile tubes, using 1/4 pound of lubricant per tube, would cost only one inhour.

Status of Special Irradiations

The status of the Special Request program on August 31 is given below. Those items which were active during the month are marked with an asterisk. Items listed as completed last month will receive no further mention. The number in parentheses under P.T. indicates the Production Test, series 105-P and "Final" indicates that a final report has been issued. The letter suffix after a tube denotes the pile. Under "Quantity" the number of pieces, if given, will indicate that the material has been received and canned. Under "Tube and Pile" the initials BTHD or BTHF mean the piece is charged into the B test hole at the D

or F Pile. The abbreviations CL and ANL refer to Clinton Laboratories and Argonne National Laboratories respectively. The subscript T will denote that this date which is in the future at the time the report is written is tentative.

Req.No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Dis-Charged	Shipped	P.T.	ih absorbed
3-3(CL)	Thorium	41 pcs.		2/25/47	3179-D	4/29/47	6/11/47	49-C	
*3-3(CL)	Thorium	10 pcs.	90 da.	4/29/47	3179-D	8/12/47	8/20/47	49-D	
*		21 pcs.	90 da.	4/29/47	3179-D	8/12/47	—		
		16 pcs.	120 da.	6/3/47	1579-D	10/15/47T	—	49-F	17
		16 pcs.	120 da.	6/3/47	3274-D	10/15/47T	—	49-F	17
		44 pcs.	120 da.	6/17/47	2374-D	11/1/47T	—	49-E	32
		32 pcs.	120 da.	6/17/47	1569-D	11/1/47T	—	49-E	27
		24 pcs.	120 da.	7/2/47	2082-F	—	—	49-F	23
		24 pcs.	120 da.	7/2/47	1579-F	—	—	49-F	23
*		16 pcs.	120 da.	8/5/47	2066-D	—	—	49-F	17
*		20 pcs.	150 da.	8/10/47	3274-F	—	—	49-F	18
*		22 pcs.	120 da.	9/2/47T	2066-D	—	—		
*		27 pcs.	120 da.	9/2/47T	2082-D	—	—		
6- (ANL)	U^{233}	1 slug	15 mo.	4/2/46	3282-F	6/25/47	7/22/47	57	
11-1(ANL)	$RaCl_2$	1 g.	4 mo.	7/29/47	BTHD	—	—	77-A	0
12-A(ANL)	U^{235}	Postponed							
12-B(ANL)	Pu^{239}	540 mg. 1 slug	14 mo.	7/18/46	3378-F	7/16/47	—	39	
13-1(CL)	Be_3N_2	35 pcs.	197 da.	7/24/46	1474-F	10/2/46	10/11/46	70	
*		34 pcs.	60 da.	7/24/46	3274-F	2/12/47	8/20/47	70	
13-2(CL)	Be_3N_2	30 pcs.	6 mo.	8/6/46	3169-D	2/4/47	2/18/47	70A	
*		30 pcs.	6 mo.	8/7/46	2666-F	2/12/47	8/20/47	70A	
13-3(CL)	Be_3N_2	250-	6 mo.					70B	
*		40	6 mo.	2/4/47	1474-D	8/5/47	—		
*		40	6 mo.	2/4/47	2066-D	8/5/47	—		
*		40	6 mo.	2/4/47	2082-D	8/5/47	—		
		40	6 mo.	2/4/47	3169-D	8/5/47	—		
		44	6 mo.	2/12/47	3274-F	8/10/47	—		
		45	6 mo.	2/12/47	2666-F	8/10/47	—		
13-4(CL)	Be_3N_2	35	6 mo.	2/12/47	1474-F	8/10/47	—	70C	
14-(CL)	Al-U Alloy	3 slugs	3 mo.	1/22/47	2074-F	4/23/47	5/14/47	84	
*			6 mo.	1/22/47	2970-F	7/23/47	8/20/47		
			12 mo.	1/22/47	2977-F	—	—		5
15-9(ANL)	LiF	198 slugs	40-50 days	198 slugs shipped				55F	

Req.No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Dis-Charged	Shipped	P.T.	ih absorbed
*15-10(ANL)	LiF	399 pcs.	40-50 days	320 shipped previously 78 shipped 8/20/47 1 pc. damaged and discarded				55F	
15-11(ANL)	LiF	466 pcs.	40-50 days						
		27		2/26/47	2066-F	4/23/47	—		
*		20		3/9/47	1569-F	5/14/47	8/20/47		
*		8 shipped							
		15 still here		3/9/47	1579-F	5/7/47	8/20/47		
*		23		3/9/47	2082-F	5/7/47	8/20/47		
*		29		3/9/47	2666-D	4/29/47	8/20/47		
*		34		3/9/47	2682-D	4/29/47	8/20/47		
*		34		3/9/47	2374-D	4/29/47	8/20/47		
*		27		3/16/47	1569-D	4/29/47	8/20/47		
*		25		3/16/47	3169-F	5/14/47	8/20/47		
*		29		3/16/47	2374-F	5/14/47	8/20/47		
		23		4/23/47	2066-F	6/25/47	—		
*		29		4/29/47	2666-D	5/27/47	8/20/47		
*		34		4/29/47	2682-D	5/27/47	8/20/47		
*		34		4/29/47	2374-D	6/17/47	8/20/47		
		27		4/29/47	1569-D	6/17/47	—		
		23		5/7/47	2082-F	7/2/47	—		
		23		5/7/47	1579-F	7/2/47	—		
15-12(ANL)	LiF	176 pcs.						55F	
		21		5/27/47	2666-D	7/22/47	—		
		25		5/27/47	2682-D	7/22/47	—		
		25		5/14/47	3169-F	7/16/47	—		
		29		5/14/47	2374-F	7/16/47	—		
		20**		5/14/47	1569-F	7/16/47	—		
*		23		6/25/47	3282-F	8/27/47	—		
		19		7/22/47	2666-D	9/2/47T	—		22
		23		7/22/47	2682-D	9/2/47T	—		25
		25		7/16/47	3169-F	9/3/47T	—		26
		29		7/16/47	2374-F	9/3/47T	—		29
		29		7/16/47	1569-F	9/3/47T	—		29
*		18		8/5/47	1474-D	—	—		21
*		9		8/5/47	3169-D	Part			12
*15-13		4		8/5/47	3169-D	—	—	55F	5
*		26		8/12/47	3179-D	—	—		27
*		23		8/5/47	2082-D	—	—		25
*		23		8/10/47	2666-F	—	—		25
*		23		8/10/47	1474-F	—	—		25
16-2(ANL)	99	1 slug (2 mg.)	14 mo.	4/18/46	3378-F	7/15/47	7/16/47	59	
27-(CL)	CaO	1 slug	5-6 mo.	3/9/47	2383-F	—	—	93	0
		1 slug	5-6 mo.	5/7/47	2663-F	—	—		0
		1 slug	5-6 mo.	6/25/47	2066-F	—	—		0

** Plus 4 pcs. of 15-12

Req.No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
28A&B (CL)	Iron	2 slugs							
		A	4 wks.	2/4/47	3266-D	3/16/47	4/8/47	87	
		B	5-6 mo.	2/12/47	1772-F	9/3/47T	—		0
*28-1(CL)	Iron	1 casing	4 wks.	8/27/47	BTHF	—	—	87	
29-1(CL)	P_2O_5	1 slug	4 wks.	3/16/47	3266-D	4/15/47	4/16/47	96	
29-2(CL)	P_2O_5	1 slug	60 days	5/6/47	2073-D	7/22/47	7/23/47	96A	
29-3(CL)	P_2O_5	1 casing	60 days	7/8/47	***BTHD	9/9/47T	—	96A	
*29-4(CL)	P_2O_5	1 casing	60 days	8/27/47	BTHF				
31-(ANL)	Boron	3 slugs	60 days	3/9/47	1569-F	5/14/47	6/11/47	94	
32A(ANL)	Np^{237}Ox.	50 mg.	6 mo.	7/29/47	BTHD	—	—	112	0
B	Cb met.	2 g.							
C	Pu^{238}Ox.	2 µgm.							
*33A(ANL)	Th^{230}Ox.	10 mg.	6 wks.	7/8/47	BTHD	8/26/47	9/10/47T	106	
* C	Cb met.	2 g.							
33B(ANL)	Pa		6 wks.						
34A&B(ANL)		1 slug	3 mo.	4/6/47	3677-D	7/22/47	7/23/47	98	
35(ANL)		1 slug	3 mo.	4/6/47	3677-D	7/22/47	7/23/47	98	
36ABC(ANL)		1 slug	3 mo.	4/6/47	3677-D	7/22/47	7/23/47	98	
37(ANL)		1 slug	3 mo.	4/6/47	3677-D	7/22/47	7/23/47	98	
38(ANL)		1 slug	3 mo.	4/6/47	3677-D	7/22/47	7/23/47	98	
39 (CL)	Al-U^{235} Alloy	15.4g.U^{235}	6mo.	4/15/47	3266-D	9/16/47T	—	100	0
*41(CL)	Cu-Au Alloy		4 wks.	4/23/47	4074-F	6/4/47	8/13/47	101	
*42(ANL)	ThO_2	10 g.	3 wks.	7/8/47	BTHD	7/29/47	8/13/47	107	
43(CL)	SS&Monel	1 caps. sample	5-6 mo.	7/29/47	2684-D	1/48-T	—	111	0
		1 caps. sample	3 mo.						

*** This was quoted erroneously as 7/29/47 in last months' report.

PILE ENGINEERING

Corrosion and Blistering of Slugs

Slug examinations during the month included the contents of three tubes of extruded slugs at normal product concentration, three tubes of extruded slugs of borderline quality at 180% of normal product concentration, and one tube containing capsule samples at 175% of normal product concentration. Five moderately blistered slugs were found in the first group of three tubes listed above, and two moderately blistered slugs were found in the second group of three tubes. Corrosion rates obtained from two of these tubes were normal, not exceeding 0.06 mils/mo.

Forty-one tubes have been charged into the F Pile under Production Test 105-90-P, "Exposure of TX Metal Slugs".

Borescopic Examination

After the leak in Tube 1385-D had been traced to the downstream portion of the tube, the borescope was used to determine the exact location. The leak came from an elliptical hole located between the tube ribs at a point about eight inches from the outlet Van Stone flange. The major and minor diameters of the hole were about 0.3 x 0.1 inch. The hole was sharp and distinct and was presumably formed by corrosion of an occlusion in the tube wall.

Examination following removal of Tube 1385-D showed that the gun barrel was badly rusted on the inside and that the graphite was wet for several feet from the end of the gun barrel. No physical damage to the graphite was observed other than the formation of a thin white surface deposit.

The graphite surrounding the B Test Hole in the F Pile is no more severely cracked than was the graphite adjacent to the B Test Hole of the D Pile a year ago.

Corrosion of Van Stone Flanges

Installation of the Van Stone test units in the riser room at the rear of the D Pile was completed after several delays to repair leaks in the stainless steel threaded joints. At the end of the month a brief run had been started but was interrupted because of a leak in the steam line inside the barricade.

The Van Stone flanges at both ends of 54 process tubes distributed in the B Pile were measured with a special micrometer to determine the amount of metal remaining. The measurements were repeated in the F Pile. The data which are being analyzed by the Statistics Group, indicate that the front flanges are about as badly corroded as the rear flanges, contrary to earlier conclusions, and that the corrosion in the F Pile is comparable to the corrosion in the B Pile.

Graphite Expansion

Preliminary measurements of the strain in the top shield of D Pile near No. 27 vertical rod indicated tensile stresses of 30,000 psi in the outer surface of the 1/2-inch web plates. Measurements of strain in the welds between the 1-7/8 inch top plates and the 1/2-inch web plates at the same location indicated a weld stress of 13,500 psi in one weld and 42,000 psi in the other.

Jacking tests at D Pile indicate a more rapid reduction in gun barrel sum-clearance at the top of the pile than in the center of the pile. Some of these top tubes will be placed under tension during pile shut down in the next few months when the inlet water temperature is low.

The coating of replacement aluminum process tubes with "Aquadag" has been recommended for reducing galling of a new tube as it is pushed into the unit if the old tube was badly galled during removal. This recommendation is based on favorable reactivity tests and anticipates favorable results of corrosion tests.

Operating Slug Temperatures - Production Test 105-80-P

The temperature of the special slug in Tube 2679-F was 117°C on August 26. The thermocouple slug assembly in Tube 1367-F was discharged on August 10 after the active metal in the tube had attained normal product concentration.

Interruption of Water Supply to Tubes during Pile Shut Down

Calculations indicate that the water supply to any single tube in the pile may be interrupted five hours after pile shut-down without exceeding slug temperature of 80°C with a water-filled annulus or 170°C with an air-filled annulus. These temperatures are believed to be permissible. A rough confirmation of these results was obtained by interrupting the water supply to Tube 2679-F, which contains the thermocouple slug; the equilibrium temperature elevation (32°C) obtained for the end slug of half a column of slugs was lower than the predicted temperature elevation (51°C) for the central slug of a full column of slugs five hours after shut-down, but the initial rate of rise (3° to 4°C/min.) was in reasonable agreement with theory.

Underwater Laboratory

Installation of steel work in the Metal Storage Basin, Bldg. 212-N, is scheduled to start on September 9. Fabrication of the bending and tensile machine is about 90% complete, excluding components being ordered from the General Engineering and Consulting Laboratory. Fabrication of the hardness testing machine is about 40% complete; the Universal Testing Unit has not been delivered. Little progress was made on design of the slug profilometer.

Can Opener Facility for Receptacle Slugs

Design of this facility is 85% complete. The design has been modified to permit the opening of several varieties of special slugs which are being proposed.

Facilities for Two-Step Irradiation

The objective of two-step exposure of metal is to increase the average product concentration of discharged metal without increasing the maximum product concentration. The system being studied at present involves (a) loading fresh uranium slugs into the front end of process tubes and using uranium slugs in place of dummy slugs in the biological shield section of the pile (b) discharging irradiated dummy slugs and some irradiated uranium slugs out of the rear end of the tubes, and (c) re-charging fresh dummy slugs into the rear end of the tube by remote control. Study drawings for this rear face charging equipment are being prepared.

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DECLASSIFIED

200 AREA PLANT ASSISTANCE

Canyon Buildings

Production Test 221-T-12, reduction of extraction waste losses, was continued throughout the past month. The fifth phase of this test, which involved a study of variations in extraction precipitation conditions, was divided into two portions. At B Plant Part A of this phase showed that a phosphoric acid addition rate of 6 lbs./min. gave waste losses lower than the standard 9 lbs./min. addition rate by about 0.2% on an 8-1-MR basis. Part B, at T Plant, tested the value of digesting the extraction precipitate for an hour after the addition of the phosphoric acid; this also indicated a saving of about 0.2%. Before combining these two parts of phase 5 to select the optimum conditions the previously discussed results of phases 2 and 3 of the production test were re-evaluated. The first of these consisted of flushing the 8-1 Tank with water after cake removal while the second provided for omission of the standard recycling of a portion of the 8-2 Centrifuge effluent as a precipitator wash. This recheck has shown no significant improvement in extraction losses at either B or T Plants at the present loss level, although these procedure changes may have been significant at the higher levels current when the test was first started.

Production Test 221-B-5, by-product cake washing, was started at T Plant during the month. The objective of this test was to revise the procedure for washing the first cycle by-product cake in 13-1 Tank to reduce the use of the centrifuge without sacrificing yield. At both B and T Plants this washing procedure has resulted in a marked improvement in decontamination factors through the Canyon Buildings. The log decontamination factor at both plants increased from less than 5.0 to the neighborhood of 5.4. A slightly deleterious effect upon the by-product waste loss (13-4-BP) was noted. This has been counterbalanced, however, by Production Test 221-B-6 described below.

With the increased decontamination factor provided by the 13-1 Tank by-product cake washing procedure it became possible to consider a reduction in the amount of cerium and zirconium scavengers used in Section 13. It was assumed that such a reduction in quantities of scavengers would decrease the waste losses since the only difference between Section 13 and Section 16 procedure was the use of scavengers and since the yield loss in the former section has been 3 to 4 times as high as that in the latter section. In the first part of this production test, therefore, the weight of cerium and zirconium used was decreased by 50%. In 20 test runs with reduced weight of scavengers the 13-4-BP losses, however, were not appreciably lower than those losses on the immediately preceding runs. Since decontamination had apparently not suffered it was decided to proceed to the next item of the test which involved reductions of the weight of scavengers to 25% of the previous standard amount. These conditions will be adhered to for an extended series of runs to ascertain that no harmful effect upon decontamination results.

Concentration Buildings

Since a discrepancy had arisen between B and T Plants as to the desirable volume of E-2 Centrifuge skim heel, investigations were made during the month to attempt to standardize this skim heel. It was found that decreasing the volume of heel from 15 to 10 gallons at B Plant caused an increase in the Cell E waste losses. The 10 gallon heel was satisfactory at T Plant until it became

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necessary to replace the skimmer due to mechanical damage. After this change the E-3-WS losses rose. Adoption of the 15 gallon skim heel subsequently restored the waste loss to the previous range, and the latter volume is now standard at both plants.

REDOX DEVELOPMENT

Demonstration Apparatus

A major part of the past month has been spent in overhauling the Demonstration Apparatus to remove operating difficulties uncovered in the preliminary break-in runs. Most of these difficulties were concerned with obtaining a completely leak-proof system, with the many different types of joints, closures, and connections presenting a wide range of problems. Extensive replacement of screwed fittings with welded construction, changes of valve types and gasketing methods, close examination of tubing flares, etc., were applied to bring the equipment to a point where individual leaks can now be identified readily and corrected.

Exploratory runs have been continued with all columns except the 1/2-inch IA Column. A total of 13 runs with the 2-inch IA Column, 4 for the 1-inch IA, and 2 for the 3-inch IC Column have been carried out with the NH_4NO_3-HNO_3 - hexone break-in system. Primary attention has been devoted to mechanical rather than chemical performance. H.E.T.S. measurements for HNO_3 transfer in the extraction section of the 2-inch IA Column are averaging 2.3 - 2.4 ft. for the 3/16-inch Fenske helices packing at flowsheet flow rates. H.E.T.S. calculations for the other two columns being operated have not yet been carried out.

Previously reported difficulties in obtaining satisfactory material balances have been gradually eliminated. The accuracies of tank volume readings, flow measurement, laboratory determination of specific gravities and HNO_3 assay, etc., have been improved to the point where material balances of the order of 100% $\pm$ 1% are being obtained.

Test runs have been carried out on the 2-inch IA Column to measure solvent phase hold-up time and limiting (or flooding) velocities by adding dyes to the solvent phase. At twice the flowsheet rate of flow for the hexone IAX stream, near flooding occurs at the intermediate packing support points. Throughput rate measurements show nearly a ten-fold variation in rate of travel of solvent phase through packed sections as compared to open or unpacked sections.

The first hexone recovery run was carried out with 110 gallons of HNO_3 - stripped hexone from the IC Column. With the quality measurements presently available, no difference between the recovered hexone and freshly pretreated hexone could be detected. Solvent pretreatment has continued without incident and with closely reproducible quality. The dissolver was carried through its first complete cycle of decanning and metal dissolution. A total of 1280 lbs. of 55% uranyl nitrate hexahydrate solution (0.7N HNO_3) was obtained. This solution is to be centrifuged and used as IA Column feed, as soon as the break-in runs are completed.

Although there are still various adjustments, revisions, and additions to be made in the Demonstration Apparatus, its mechanical performance has been smoothed out to the point where it is believed that the break-in runs can proceed at an accelerated pace. It is anticipated that the uranium runs will be started during the month of September.

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Equipment Development

The study of the single-stage, continuous, horizontal extractor has been extended widely during the past month. A total of 45 runs has now been carried out, all preliminary to the operation of a multi-stage unit. The effects of throughput rate, phase flow ratio, and agitator speed on stage efficiency and phase separation have been studied. Although stage efficiencies of the order of 100% appear to be easily obtained, the following conclusions may be drawn from the data thus far accumulated: (a) higher stage efficiencies are obtained at agitator speeds of 2400 RPM than at 1700 RPM; (b) efficiency begins to fall off at an as yet undetermined throughput rate below the flooding point (ca. 500 cc/min. for the 24-mm. tube being used); (c) stage efficiency decreases with increasing aqueous/hexone flow ratios; (d) interface position at agitator sections has little effect on stage efficiency; and (e) phase separation zone length extends to a maximum of only 14 inches under conditions of highest throughput and agitator speed tested. Plans are being made for multi-stage (up to 4) runs with the 24-mm model now available and the design of a 3-inch, 20-stage semi-works unit is being prepared.

Tests carried out on Hills-McKenna check valves have demonstrated that surge chamber volumes of approximately 10% of the volume flow per minute will produce constant flow rates in the bellows pump-check valve feed system. Performance studies of a large Tabor stainless steel submerged centrifugal pump over a range of 0-50 GPM show discharge head pressures of 8.75 - 3.75 PSIG, approximately one-half of the manufacturer's rating. Protective coating tests with a large number of sample materials have been continued, with a Goodrich synthetic coating having passed two weeks of acid-solvent immersion with satisfactory resistance thus far.

Conferences were held with D. E. Garr, of the General Engineering and Consulting Laboratory, during the period August 11-15, on the design of a "hot" service pump. Amplification of design specifications was provided and the pump development program is to get underway immediately at Schenectady.

Pilot Plant Design

The preliminary architectural plans for the Pilot Plant have been refined by joint conferences between the Division and the Design and Construction Department. The project has been readied for detailed mechanical design and, until an engineering contractor is obtained for the design and construction, little further progress will be made with the limited manpower available at this site for this work. General process specifications have been prepared for all equipment groups and layout arrangements drawn up for mechanical design consideration.

Scale-Up Studies

The specifications for the design of the equipment groups for the large-column scale-up studies have been prepared in rough draft and will be issued early in September. Operating techniques have been agreed upon and flowsheet arrangement of equipment designed. The single 16-inch L4 Column, with a 20 ft. packed section, will be used to measure H.E.T.S. at terminal points of the extraction and scrub sections of a simulated full-length L4-Column. A battery of seven continuous, counter-current, agitator-settler contactors will be used for uranium stripping and concentration adjustment. Materials and equipment problems have been discussed verbally with the Design and Construction Department.

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Laboratory Studies

Laboratory studies were suspended for a major part of the month because of the conflict between limited manpower and vacation schedules. Much additional equilibrium data have been obtained, however, for the system NH_4NO_3-HNO_3 -hexone, both with and without uranium. For the uranium-free system, satisfactory correlation has been obtained. For the uranium system, an intensive theoretical study of the data is being carried out, in an attempt to develop fundamental correlations on the basis of activities that will obviate the necessity of carrying out a large number of experimental equilibrium tests. Thus far, the methods being applied are of definite promise, as checked against available equilibrium data, but they must be extended further before definite conclusions may be quoted.

Batch tests carried out with a series of four oil-soluble dyes obtained from M. R. Fenske have proved that all are satisfactory, in the absence of dichromate, for use in column studies of solvent hold-up time and flooding. Viscosity measurements of all Redox process solutions are being carried out. Laboratory tests show that 2% NaOH will precipitate uranium from 1% waste solutions to a clean-up level of less than 0.1 gm./liter.

Redox Meetings

In addition to meetings on Redox development held with members of the Atomic Energy Commission and the Military Liaison Committees, several other meetings with Hanford visitors were held during the month. D. E. Garr, of the General Engineering and Consulting Laboratory at Schenectady, and C. E. Reed, of the Chemical Department at Pittsfield, were visitors during the period August 11 - 15. The discussions of the pump development problems carried out at this time have been summarized previously.

J. C. Elgin, of Princeton University, and A. L. Marshall and J. Marsden, of the Schenectady Research Laboratory, visited this Division during the period August 25 - 28. Discussions of problems and program were carried out to acquaint Dr. Elgin with Redox development. Recommendations that investigations of the use of spray columns be carried out were accepted. Recent progress at Schenectady on hexone purity and Redox reducing system studies was discussed.

S. L. Cromer, of Carbide and Carbon, was a visitor at H.E.W. during August 28 - 29, primarily for discussion of metal recovery problems. A meeting on "hot" pump and valve development, however, revealed that serious consideration by Carbide and Carbon may possibly be given to a proposal of accepting projects for these development problems.

STACK GAS DISPOSAL

The increase in storage time of irradiated metal before dissolution in the separation plants was started several months ago with the objective of reducing the amount of radioactive iodine evolved from the separation plant stacks and hence deposited upon the surrounding terrain. This increase in cooling time had proceeded to the point where the stack gas scrubbing program was handicapped by the low concentration of iodine in the stack gas as sampled. The plans to sample the dissolver off-gas directly from the fume vent line were therefore accelerated. For this work it was necessary to make extensive modifications

of the equipment in use in the East Area Stack Gas Monitoring (292) Building. These changes included: installing a solvent flushing system for the adsorption canister bank, locating permanent ionization chambers adjacent to each of the four chambers, shielding these chambers and connecting them to the micromax recorder, connecting lines from the dissolver off-gas lines to the 292 Building including extension handles for remote operation of the valves near the base of the stack, relocation of the No. 1 Scrubber, and provision for "hot" waste disposal by means of a shallow dry well.

Before the above modifications were completed, two pilot runs were made scrubbing samples of the stack gas with trichlorobenzene, the solvent recommended by the Schenectady Research Laboratory. As was anticipated from the Schenectady data iodine removal by two scrubbers containing trichlorobenzene was not complete. This emphasized the fact that the partial pressure of iodine in the low concentrations of stack gas was very low compared to the partial pressure of iodine in even very dilute solutions of trichlorobenzene.

After the equipment modifications were completed two runs were made to test direct trichlorobenzene scrubbing of the dissolver off-gas and to gain experience in working with the attendant higher radiation levels. Considerable caution was required in these experiments to avoid overexposure. Steps have been taken to permit safe operation on the additional runs which will be necessary.

300 AREA PLANT ASSISTANCE

Metal Fabrication

In connection with Production Test 313-89-M, "Reduction of Turnings Scrap," all attempts to use a sizing die to reduce the diameter of slugs cut from slightly oversize rod have been unsuccessful. Even with the 75-ton Maintenance shop press, it was not possible to apply sufficient pressure with fast enough motion to achieve the necessary reduction without seizing in the die. Attention then was directed to centerless grinding, and sixty slug-length pieces cut from rods extruded through a 1.413" die, ranging in diameter from 1.355" to 1.370", were passed one or more times as necessary through the centerless grinder. This gave reduction to 1.352" to 1.358". No attempt was made to can these slugs, inasmuch as past experience has indicated that no trouble is to be expected during their canning.

On the basis that a slightly smaller rod might permit a larger percentage of slugs to be used in the as-extruded condition, a 1.410" die was used to extrude seven rods which produced 94 slugs ranging in diameter from 1.351" to 1.363", and having an average weight of 7.813 pounds before sizing. Eighty-three per cent of these slugs were of a diameter suitable for canning prior to sizing, and the remaining 17% were suitable for reduction to useable diameter by one pass through the centerless grinder.

As a straightforward check on the possibility that extruded rod diameter might be reduced 0.010" and still give complete clean-up of slugs upon machining, a die of 1.445" diameter (1.455" is present standard) was used to extrude ten rods averaging about 1.393" in diameter. These rods are to be machined to standard MZ diameter.

One hundred and six extra-length billets of UM and G material, which had been cast especially for the purpose by Metal Hydrides, were rolled into 1.5" diameter rods by Joslyn at Ft. Wayne, Ind., on August 5 and 6. This special rolling was observed by E. A. Smith and T. S. Jones, of the 300 Area Plant Assistance group, and is being detailed in a separate report. These rolled rods were received with the August billet shipment, and are to be used in slug fabrication and pile exposure tests designed to compare the blistering tendencies of rolled and extruded uranium. In order that the structural characteristics will not be disturbed by the high temperature of the bronze bath in the standard triple-dip canning process, part of this comparison will be made on slugs canned by the lead-dip process. (see below).

In an effort to segregate some high hydrogen content metal for use in Production Test 313-95-M, "Canning Unoutgassed Uranium," thirty rods (12 of P material and 18 of UM material) have been analyzed for hydrogen. Only eleven were found to contain more than 2 ppm, and the highest was only 4.6 ppm. Canning of this metal is being delayed in the hope that material with significantly higher hydrogen content can be located for use in this pile check on the necessity for outgassing.

Canning

Consistent with the top priority being given to fabrication studies bearing on the slug blistering problem, emphasis was kept on Production Test 313-94-M, "Lead-Dip Process." Forty-seven scrap slugs first were canned for practice purposes, following which 595 MZ slugs of extruded metal were processed for the combined purpose of developing the lead-dip techniques and procedures, and of preparing the 500 acceptable lead-dipped extruded slugs which are included in the test for comparison with rolled metal.

The canning of these slugs proceeded very smoothly, after a special dipping fixture had been devised for use in the lead bath, and the cycle was reduced stepwise to an overall 85 seconds (20-30 seconds shorter than for triple-dip canning). An 83.5% yield of good slugs was realized, which is considered satisfactory at this stage of the process development. All data obtained to date, which include checks on bath composition, canned slug quality, and lead bath safety have been very favorable. Other desirable features of this process now apparent include reduced overhead and maintenance costs, as well as increased life of bath metals and crucibles.

The equipment prepared for pursuit of Production Test 313-93-M, "Reclamation of Tin Scrap in 300 Area," was given its first trial in a plant tin bath. A mass of copper-rich crystals, assaying approximately 25% Cu, was precipitated in a submerged perforated basket by lowering of the bath temperature to about 280°C. The basket then was raised from the furnace into a surrounding insulated hood for drainage of the adherent tin. This procedure reduced the copper content of the bath from 4.5% to 2.5%. However, the crystal mass solidified during the drainage period, thus preventing complete tin separation and making it necessary to remove the residues from the basket by melting. Means for more effective removal of the crystals are under consideration.

Miscellaneous

In connection with the oven test being conducted under Production Test 314-45-M, "Dimensional Stability of Slugs at Pile Temperature," three of the unbonded slugs were stripped and measured for warp and/or other distortion after five months exposure at 300°C. No observable changes were detected.

METALLURGY LABORATORY

Comparison of Rolled and Extruded Uranium

A comparison was made of the experimental rolled rod obtained from the Argonne National Laboratory and a single rod obtained from the ton-ton lot rolled by Joslyn, both with respect to structure and behavior in processing through canning. The microstructure of the two lots of uranium, except for a variation in grain size, is similar; likewise, microstructure is similar after the rods have been subjected to similar outgassing and canning processes. Grain diameter measurements of the as-received commercially rolled (Joslyn) rod show a larger grain size in these rods than the smaller diameter experimental rod. In both materials, however, the grains are equiaxed and have very regular boundaries. No evidence of directional structure due to rolling is observed. Hardness measurements made longitudinally on flats ground on slug length pieces show the average hardness of the as-rolled material to be about the same as that of extruded metal, but much less variable from point to point.

The availability of unoutgassed rolled rod made possible a study of the effect of processes that involve temperatures in the neighborhood of the alpha-beta transformation (662°C). Near the end of the month, examination of the structure of a small sample of rolled rod outgassed in a position so that it was near the container wall in the plant outgassing furnace showed that the temperature of the sample had passed into the beta range; however, the control chart which recorded the temperature at the center of the container charge did not indicate a temperature above 650°C. It was concluded, therefore, that the method of control of the plant outgassing furnace is such that there is a variation of temperature from the highest recorded temperature taken at the center of the rod container to some higher temperature taken at the surface of the container. Variations of this nature during processing could explain variations in warping during canning, and similarity of rolled and extruded metal blistering tendencies in pile exposure. This difficulty with plant outgassing temperature control is to be investigated by the 300 Plant Assistance group.

Warping tests made with rolled material indicate that the greatest change is in the longitudinal dimension. Samples approximately 2" long, heated to 600°C and to 710°C, increased in length 0.002". The permanent set obtained falls in line with previous dilatometric work. To study the effect of straightening on warp, a rod 1/2" in diameter and 8" long was bent at 620°C to a deflection of 1/2" in the 8" length. The sample was then straightened at room temperature, machined, heated at temperature for two minutes, quenched, and then measured for warp. Samples treated in this manner by heating to temperatures of 600°C and 710°C showed much greater warp than is permissible for successful canning.

Because uranium exposed to pile irradiation undergoes thermal fluctuations due to pile operation procedure, several experiments were designed to determine if and to what extent deformation does occur due to anisotropic expansion. Samples of rolled rod heated to 710°C to produce a large grain structure were polished and sealed in Pyrex glass in an argon atmoshpere, and then were cycled between 150°C and tap water temperature. No visual roughening of the surface occurred with these treatments, nor did any roughening occur when samples were cycled between 300°C and tap water temperature. Four MZ slugs which had been processed normally were carefully gauged circumferentially and then cycled between 17oC and 150°C. No evident differences of surface contour appeared

after this treatment, nor after cycling between 17°C and 300°C. Since these tests employed a much faster cycle than occurs under pile conditions, an experiment to duplicate pile temperatures and cycle times more closely is being planned.

Lead-Dip Canning Process

A study is being made of the compound layers on slugs dipped in lead for 30, 40, and 60 seconds and then canned with an Al-Si bond. Investigations indicate that a 30-second lead dip yields the best results; the 40-second dip appears to be the maximum allowable time in the lead bath. The best structure is defined as one having an even and well-defined compound layer, with little or no cracking in the layer itself.

The width of the compound layer, as measured with a Filar micrometer eyepiece, showed that the slug dipped for 30 seconds had a compound layer 0.00144" thick and the slug dipped for 40 seconds, 0.00175" thick. The compound layer of the slug dipped for 60 seconds was very vague, was much wider than the other two, and appeared to be made up of several distinct layers.

Corrosion Testing

Measurements of the corrosion occurring on stainless steel samples in solutions used in the Redox process indicate that corrosion is occurring, but at a rate too small to evaluate with any accuracy. Carboloy is offering little resistance to these same solutions.

Several methods for dynamic corrosion tests and necessary apparatus for their conductance were investigated from the standpoint of (a) duplication of plant process, (b) availability of material, and (c) cost. Test models of three dynamic corrosion testing systems have been completed and given preliminary trials. A preliminary set-up of the system that appears most satisfactory is now under construction.

Preliminary work has been started to determine the feasibility of substituting commercially available stainless steels for the du Pont specification alloys heretofore used in the 200 Area equipment.

Miscellaneous

A laboratory rolling mill is being designed as a temporary replacement for the small one previously in use in the Metallurgy Laboratory. The new mill is being designed for 4" diameter rolls and to withstand approximately 35,000 pounds pressure.

The welded sections of five stainless steel tube sections submitted by the S Department were macro-etched and examined. The following observations were noted: (1) Some porosity was noted in the welded areas of all macro-etched samples; (2) The welded section from the vent pipe showed a marked increase in porosity as compared to the non-stressed sections of the pipe; and (3) The surface of the metal adjoining the weld was generally good. However, the etching slightly attacked the surface of the metal adjacent to the weld on the two vent tubes.

The preparation of Al-Si-Sn standard alloys for the analytical laboratories was completed.

Consideration is being given to the feasibility of examining the uranium structure of a blistered slug which has had long cooling since removal from a 100 Area pile.

LABORATORIES DIVISION

Work Volume Statistics

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

	July		August	
	Samples	Determinations	Samples	Determinations
Routine Control, 200 Areas	1720	2630	1614	2589
Routine Control, 300 Areas	733	3369	624	2882
Water Control, 100-700 Areas	10162	19078	10549	16643
Process Reagents, 200 Areas	809	1126	768	1172
Essential Materials	193	1010	138	774
Special Samples	881	1985	684	1791
Totals	14538	29198	14377	26151

The standard iron solution which is used as a means of checking the accuracy of the chemical titration method for plutonium assay in the Isolation Building was analyzed a total of 132 times. The average precision for the duplicate determinations was ± 2.13%. Of these determinations 74, 40 and 18 were within ±1%, ± 2%, and outside 2%, respectively. The following tabulation summarizes the results obtained from each of the four iron solutions which were used:

Assay Value	Group Ave.	% Diff.	No. Dets.	Precision (±%) Single	Duplicate
14.84	14.79	-0.03	34	3.89	2.75
15.93	16.12	+1.19	38	3.01	2.13
10.18	10.13	-0.50	32	2.54	1.80
12.68	12.57	-0.90	28	2.59	1.84

The Isolation Building Laboratory conducted some tests in an effort to determine the valence state of plutonium in the P-1 solution. A small aliquot was diluted and read on the Beckman Spectrophotometer. A definite pattern was obtained on all samples but two. Three maximum points of +3, +4, and +6 valence states were noted. A recording spectrophotometer has been ordered, which should be of value in these investigations.

300 Area and Essential Material Control

The routine analytical work in these categories proceeded without incident.

Graphite Analysis

Analyses for boron and vanadium were completed on the three samples each of coke and pitch received from the National Carbon Co.. The results of these analyses indicated slightly higher impurities than found in normal graphite.

A 2-pound powdered sample was prepared from a ten pound graphite bar furnished by the Pile Physics group. This sample was evenly divided and one half forwarded to the National Carbon Company as a basis for comparison of analytical results. Results obtained on the portion retained here indicate the material to be of high purity.

Special Samples

The corrosion products on the Van Stone flange and aluminum slug submitted by the Metallurgy Laboratory indicated the presence of sulfates, chromates and phosphates.

Physical testing of various construction materials is continuing.

Spectrochemical Analyses

A dust-free box was set up to attempt further improvement in the preparation of pure $BeSO_4.4H_2O$ by recrystallization. This procedure did not materially aid in eliminating the impurities. Since the beryllia is to be used for standards, purification may have to be achieved by distillation of the basic acetate.

Redox Analytical Development

The major activity of this group was the routine analysis of samples from the Redox semi-works unit. During the month 680 samples involving 1145 determinations were received and analyzed.

Determination of Hexone in Aqueous Phase

Morasco's Method for the determination of hexone, using hydroxylamine hydrochloride to react with the ketone, was investigated. This procedure gave good results with aqueous solutions of hexone, but it has several disadvantages. Further development is being continued.

Tests for Determination of Suitability of Hexone

A method for the determination of alcohols suggested in the literature, using 0.2N dichromate in 1:1 sulfuric acid, was tried but abandoned when it was found that the hexone reacted with the reagent. Parri's reagent, reported as being specific for alcohols, also gave a reaction with hexone.

The use of $KMnO_4$ as a reagent for the determination of hexone quality was further investigated. Preliminary results using this reagent without an additional solvent have indicated that pure hexone, prepared by bisulfite, can be readily distinguished from both raw and pretreated hexone. However, pretreated hexone cannot be distinguished from raw hexone. In these tests 50 lambda of several concentrations of $KMnO_4$ was added to 5 ml. of hexone.

Previous attempts to determine the suitability of various hexones for use in the columns by determination of their distribution coefficients with UNH have been unsuccessful. Since zirconium is believed to be extracted into the hexone to a greater extent when the hexone contains impurities, the distribution coefficient was determined using radio-active zirconium. From these preliminary experiments it is concluded that the zirconium distribution between hexone and the IAF solution which was used favors the aqueous phase to the exclusion of the hexone phase. Increasing the concentration of zirconium has no significant effect on the distribution coefficient. Raw and pretreated hexone show no difference in respect to the distribution coefficient determined with zirconium.

Determination of Specific Gravity

A special pycnometer was designed, using as a basis the Sprenzel Tube discussed in the literature. This pycnometer is adaptable for use with UNH solutions, and has shown a satisfactory degree of precision in preliminary studies.

Iodine from Stack Gases

A procedure has been developed for the determination of radio-active iodine in activated carbon. This procedure, a modification of Fission Product Manual Method FI-2a, has been found to give reproducible results.

A method has been developed for the analysis of radio-active iodine in trichlorobenzene solution. This procedure, a modification of the present Iodine Fission Product Analysis, is being evaluated.

A satisfactory method has been developed for the determination of plutonium in 0.5 M Na_2CO_3 scrubber solutions. A pure plutonium solution was analyzed according to the standard LaF_3 precipitation method, and the results compared with direct evaporation of the solution in the presence of the same amount of LaF_3. A yield of 98% based on direct evaporation was obtained. The solution was accurately diluted in the presence of Na_2CO_3 to a final concentration of 0.5M Na_2CO_3. This standard solution in 0.5M Na_2CO_3 was then analyzed for plutonium content according to the Acetic Acid Method described in Chicago Report CN-2043. A yield of 95% was obtained.

STATISTICAL STUDIES

Metal Quality

The first two routine monthly Metal Quality Reports have been issued (documents HEW-7269 and HEW-7395). These reports cover the monthly average T.D.S. (reactivity), density, nitrogen, and iron for the previous 12-month period for virgin and reclaimed uranium metal billets. The monthly standard deviations (measure of uniformity) are plotted also. The charts are arranged to indicate the relative quality of the different types of metal, and to show the quality trends and variations of individual types of metal billets.

From the T.D.S. charts, the virgin metal is seen to be of higher quality than the reclaimed metals, although there is a slight downward trend in virgin metal reactivity during the past 12 months. The reclaimed UM metal billets are somewhat lower in reactivity and are considerably less uniform than the virgin metal. The reclaimed TX and BT metals are poorest in reactivity.

The UM and BT billets have the highest average density, the virgin metal being somewhat lower in average density but considerably more uniform. The average density of TX metal is considerably lower than all other types, and is less uniform on the average.

Virgin metal has the highest average nitrogen content, and its uniformity indicates that the process is so conducted as to cause a high uniform nitrogen content. The UM metal is lowest in nitrogen, although there has been an upward trend during the past 12 months. The TX and BT metals are midway between virgin and UM in nitrogen content. The nitrogen in TX metal billets shows the least uniformity.

The virgin metal is lowest in iron content, and TX metal the highest and least uniform. UM and BT billets are midway between virgin and TX metal in iron content.

Correlation of Billet T.D.S. and Canned Slug dih

From data submitted by the 300 Area Plant Assistance group, a correlation was run between the reactivity of billet eggs (T.D.S.) and the reactivity of canned slugs sampled for the Test Pile (dih). A correlation coefficient of 0.5398 was obtained, which is statistically significant for 153 sets of results. The coefficient of determination was 0.29 which means that, in these data, 29% of the variation in the dih of production slug samples can be traced to variations in the average T.D.S. of billet lots.

Relationship Between dih and Average Slug Weight

A correlation was run between the dih and average slug weight for each production lot. The correlation coefficient was 0.3303, which is statistically significant for 85 paired observations. The coefficient of determination was 0.0920, indicating that approximately 9% of the variation in dih is associated with variations in slug weight. A more precise relationship could be obtained if the weights of the actual slugs tested in the pile were known.

Slug Blistering

A memorandum (document HEW-7279) was issued outlining some statistical considerations in the design of slug blistering experiments that would permit a more rigorous treatment of the ensuing data than would be possible otherwise. The suggestions included methods for (a) avoiding bias from known or unknown sources of variation that might disturb the data, (b) improving the precision of experiments, and (c) studying the effects of several variables simultaneously. Other memoranda (documents HEW-7284 and HEW-7312) were specific designs for particular blistering experiments, developed jointly by the Pile Engineering, 300 Area Plant Assistance, and Statistics groups.

Redox Studies

From data submitted by the Chemical Development Division, correlation coefficients and regression equations were determined for the relationship between density and nitric acid concentration for both the aqueous and hexone phases of Redox solutions. The correlation coefficients were 0.9978 and 0.9987 (1.0000 being perfect). From the equations derived, the correlation coefficient and regression equation for the equilibrium of nitric acid between the hexone and aqueous phases were obtained. This equilibrium equation is to be used by the Chemical Development Division in future work. The correlation coefficient for the equation was 0.9980. (For further details, see document HEW-7322: Statistical Analysis of Nitric Acid Equilibrium Data).

Using the density and equilibrium equations above, the number of HNO_3 extraction stages were recalculated for 20 previous experimental runs made in the Redox Semi-Works Building.

Using the new HNO_3 equilibrium equation, a considerable amount of calculating was done for the Chemical Development Division preparatory to a complete review of the present UNH equilibrium curve.

In document HEW-7278, "Effect of Source of Hexone on UNH Distribution Between Hexone and Aqueous Phases", an analysis of variance indicates that hexone from different sources resulted in significantly different ratios of UNH between the hexone and aqueous phases. Data were submitted by the Laboratories Division.

Medical Data

A rather extensive statistical study of blood analysis data is being undertaken for the Medical Department. A considerable amount of data relative to this problem already has been received.

POWER DEPARTMENT

AUGUST 1947

GENERAL

Analysis of samples of Washington coal has indicated a heat content considerably below that claimed by two of the vendors. Parties concerned have been contacted and agree to remedy this condition.

ORGANIZATION AND PERSONNEL

On August 4, the Chief Supervisor of 200, 300, 700, and 1100 Areas was transferred to the 100 Areas, replacing the 100 Areas Chief Supervisor, who assumed likewise duties in the 200, 300, 700, and 1100 Areas.

Terminations included two supervisors and four operators. Two operators were transferred to other departments.

One supervisor and four operators were hired during the month.

100 AREAS

During a scheduled shutdown starting August 4, the 100-F Area east clearwell was drained and holes drilled in concrete floor slabs and sloping sides where previous tests indicated voids. Approximately 16 cubic yards of a lean mixture of soil-cement was pumped under the floor and sloping wall. Repairs were made to all visible cracks and construction joints where there was evidence of leaking. The clearwell was returned to service on August 6. During the outage an inspection was made on all other equipment in connection with east filters and sedimentation basins, inaccessible during normal operation. Satisfactory conditions were noted with the exception of the filter influent flume, which was partially filled with sludge, and required flushing.

On August 25 and 26, 110,000 pounds of anthrafilt was added to the "D" Area filters to raise levels to approximate standard. Anthrafilt has been added to nine filters in the "B" Area (104,000 pounds used). Completion of this program will restore all filters to standard operating level.

On the scheduled area shutdown day, August 29, the "F" Area west clearwell was drained. Two holes were drilled through the clearwell floor for inspection. No indications of voids were noted.

200 AREAS

On August 29, at 6:40 p.m. an electrical outage occurred which affected all motor driven power equipment. Normal power was restored at 7:15 p.m. in the East Area, 10:40 p.m. in the West Area and 10:20 p.m. in the North Area. During the power outage emergency equipment was operated without difficulty in the East and West Areas.

300 AREA

The boiler house was out of service from 2:00 p.m. on August 26, until 4:00 a.m. on August 27, when bad leaks developed at a hand hole gasket and in the water column of the No. 2 boiler. The No. 1. boiler was not available for replacement service because extensive maintenance work was in progress.

The sanitary sewage system study is still in progress. Numerous cooling water drains have been diverted from the system and data is being collected for use in designing a sewage disposal system of adequate capacity.

There was an interruption of power from 6:10 p.m. on August 29 until 7:15 a.m. on August 30, during which time emergency equipment was operated.

700 AREA

The emergency generator was operated from 6:10 p.m. until 7:10 p.m. during a power outage in the 700 and 1100 Areas, August 29.

1100 AREA

Three hundred feet of new ten inch pipe has been installed on the well header south of No.4 well to replace badly norroded sections of spiral welded pipe.

MISCELLANEOUS ACTIVITIES

Nothing of an unusual nature occurred in the operation of the White Bluffs Cold Storage Plant, farm irrigation of the Pasco Storage Depot.

POWER DEPARTMENT STATISTICS

From: August 1, 1947
Thru: August 31, 1947

			100-B	100-D	100-F
RIVER PUMP HOUSE (Building 181)					
River stage	Feet above sea level	(max)	395.3	338.9	332.3
		(min)	389.4	380.7	367.3
		(avg)	391.7	383.1	369.5
River temperature	avg. ° F.		66.2	64.9	66.3
Water pumped to Reservoir	gpm avg. rate		6449	41145	36819
Water pumped to Refg. Condensers	gpm avg. rate			0	0
RESERVIOR (Building 182)					
Water pumped to Filter Plant	gpm avg. rate		6193	34641	30604
Water pumped to Condenser System	gpm avg. rate		199	4011	4000
Water pumped to Export System	gpm avg. rate		44	2493	2215
	gpm normal rate		4762	34752	4762
Chlorine added at #1 inlet	pounds		2963	21661	6940
FILTER PLANT (Building 183)					
Filtered water to Power House	gpm avg. rate		42	279	230
Filtered water to Process	gpm avg. rate		4335	30745	28855
Filtered water to Fire & Sanitary	gpm avg. rate		79	95	165
Chlorine used in Water Treatment	pounds		1747	4134	9800
	ppm avg.		2.0	1.73	1.37
Lime used in Water Treatment	pounds		8706	45525	50100
	ppm avg.		2.9	3.5	4.4
Coagulant used in Water Treatment	pounds		24363	210640	175320
	ppm avg.		10.6	16.3	15.4
Raw Water pH	pH avg.		7.62	8.03	8.20
Finished Water pH	pH avg.		No Anal.	7.42	7.40
Alkalinity, M. O. - Raw	ppm avg.		56	59	58
Finished	ppm avg.		57	53	52
Residual Chlorine - Settled	ppm avg.		.39	.25	.44
Finished	ppm avg.		.05	.09	.15
Iron - Raw	ppm avg.		.06	.06	.05
North Clearwell	ppm avg.		No Anal.	.02	.02
South Clearwell	ppm avg.		No Anal.	.02	.02
Hardness - Finished	ppm avg.		68	71	70
Turbidity - Raw	ppn avg.		3.0	2.7	6.0
Filtered	ppm avg.		No Anal.	0	0
REFRIGERATION (Building 189)					
Refrigeration produced	Tons per day			0	0
Temperature, Process Water In	avg. ° F			-	-
Temperature, Process Water Out	avg. ° F			-	-

Power Department

DECLASSIFIED

POWER HOUSE (Building 184)

Steam generated - Total	M pounds	13901	95541	83343
Average rate	lbs./hr.	18684	128415	112020
225 psi Steam to plant (est.)	M pounds	12233	83786	73221
15 psi Steam to plant (est.)	M pounds	0	290	121
Coal consumed	Tons	12702	34730	44950
Coal in storage (est.)	Tons	16197	58347	49730

DEAERATOR PLANT (Building 185)

Water flow	gpm avg. rate	4085	30495	28605
Chemicals consumed:				
Dichromate	pounds	3200	20700	24500
Sodium Silicate	pounds	27408	225000	210920
Chemical Analysis:				
pH	pH avg.	7.67	7.66	7.65
Dichromate	ppm avg.	No Anal.	1.9	2.0
Silica	ppm avg.	No.Anal.	5.9	5.8
Dissolved Iron	ppm avg.	.02	.01	.02
Free Chlorine	ppm avg.	.05	.08	.10

PROCESS PUMP ROOM (Building 190)

Total water pumped	gpm avg. rate	4050	30320	28430
	gpm normal rate	4050	32133-	31185
Water temperature	avg. ° F.	68.4	67.8	67.6

VALVE PIT (Building 105)

Chemicals consumed:					
Solids	pounds		0	0	1900
Chemical analysis:					
A, B, C, & D Headers					
Standard limits					
pH 7.5 - 7.8	pH	(max)	7.70	7.75	7.70
		(min)	7.60	7.55-	7.60
		(avg)	7.65	7.64	7.65
SiO_2	ppm	(max)	7.0	7.0	7.0
		(min)	5.0	5.0	5.0
		(avg)	5.7	5.9	6.0
$Na_2Cr_2O_7$ 1.8 - 2.2	ppm	(max)	2.0	2.0	2.1
		(min)	1.8	1.8	1.9
		(avg)	1.9	1.9	2.0
Iron	ppm	(max)	.04	.02	.02
		(min)	.00	.005	.005
		(avg)	.02	.01-	.01
Chlorides	ppm avg.		2.0	1.4	1.3

[redacted]

Power Department

		200-E	200-W
RESERVOIR (Building 282)			
Raw Water Pumped	gpm avg. rate	2457	2295
FILTER PLANT (Building 283)			
Filtered water pumped	gpm avg. rate	484	437
Chlorine Consumed	lb.	451	2270
Alum Consumed	lb.	1800	2500
Chlorine Residual - Sanitary Water	ppm	.75	.50
POWER HOUSE (Building 284)			
Steam generated - Total	M lb.	15052	17518
Steam generated - Avg. Rate	lbs./hr.	20231	23546
Coal consumed (est.)	Tons	1168	1294
Coal in storage (est.)	Tons	12500	14088

		300	700	1100
POWER HOUSE (Buildings 384 and 784)				
Steam generated - Total	M lb.	5347	9095	
Steam generated - Avg. Rate	lb/hr.	7325	12244	
Coal consumed - Total (ost.)	Tons	358	592	
Coal in storage - (est.)	Tons	1691	9678	
SANITARY AND FIRE SYSTEM (1100)				
Well water pumped - Total	gals.			187,948,000
Well water per day	gal/day			6,063,000
Well water	gpm avg. rate			4,210
Chlorine residual	ppm			0.2
SEWAGE TREATMENT PLANT (1100 AREA)				
Total sewage treated	gals.			67,900,000
Sewage treated per day	gal/day			2,190,000
Sewage flow	gpm avg. rate			1.521

[redacted]

GENERAL:

There were no major or sub-major injuries in the Maintenance Department during August. Last month's report stated also that there were no major or sub-major injuries, but it later developed that a sub-major injury occurred on July 11th, when a Minor Construction worker fractured a finger while stacking lumber.

The largest job still under construction by Maintenance forces is the new Engineering Building #760. The south half of the West wing was completed August 15th and is now in use by Security, and A.E.C. Personnel. The south half of the East wing was completed September 1st but is not yet occupied. The north half of the middle wing was completed and has been occupied since August 1st.

As a result of most of the Minor Construction force being occupied with the Engineering Building, it was decided to subcontract some of the work originally planned for Minor Construction. Construction work in connection with Buildings 720, W-4, and 92-X was turned over to the Design and Construction Department for execution by sub-contractor's force. These three jobs are being engineered by D. and C.

Construction work started on August 18th on an additional wing for the Employment Building, #705. At the end of the month, a section of women's barracks from Hanford was in position adjacent to Building 705 but no alterations had been started because of the pressure of work on Building #760. Work started on the erection of three hutments adjacent to Building 321 in the 300 Area, to be used by the Technical Department Development Group. One of these three hutments will be ready for occupancy on September 11th. Ground was broken on August 25th for the new Technical Department Library and Office Building #3702 which will be located adjacent to Building 321 in the 300 Area. Foundations are going in to accomodate three of the Hanford Administration Building sections.

Progress was made on the relocation of the five hutments from the high school to the grade schools. These five hutments must be removed from the high school in order to make way for the new addition to this building. Three of the hutments will be moved to the Lewis and Clark Grade School and two of the hutments to the Marcus Whitman Grade School. As of the month end the hutments had been moved but considerable work remains to be done on connecting up the various utilities.

A contract has been let to the Lone Pine Roofing and Paving Company of Yakima for the recoating of the roofs on all 1330 prefabs. Work should be underway on this job within the next two weeks.

A serious situation developed in connection with the placing in operation of the new stainless steel waste lines serving the new BX Tank Farm in the 200 East Area. The lines were tested hydrostatically and found satisfactory previous to backfilling but after backfilling a number of leaks were found. The first lead which was uncovered and inspected, proved to be a faulty factory weld. It was impossible to procure seamless piping and

the welded piping appears to have defects in the welds made in the factory. This matter is under serious study at the present time.

ORGANIZATION AND PERSONNEL:

The total personnel of the Maintenance Department increased from 858 to 925. Seventy-four were added to the rolls as follows:

8 Painters	2 Office Helpers
21 Carpenters	1 Laborer
5 Pipefitters	1 Engineer Assignment
10 Millwrights	3 Draftsmen
2 Machinists	1 Jr. Draftsman
1 Rigger	1 Typist
13 Helpers	4 Office Machine Operators
1 Tool Room Att'd't.	

Four of the above transferred in from other departments. One man transferred out to another department. Six men terminated. Six men were upgraded to foremen.

WORK ORDER SUMMARY:

FIELD FORCES

Area	Work on Hand 7/31 No. of Orders	Work on Hand 7/31 Estimated Man Days	Work Completed in Aug. No. of Orders	Work Completed in Aug. Estimated Man Days	Work on Hand 8/31 No. of Orders	Work on Hand 8/31 Estimated Man Days
100-B	69	199	108	198	77	591
100-D	74	312	236	453	129	372
100-F	58	304	162	246	133	517
Overhaul	198	1853	211	992	276	2039
200-E	312	1721	414	923	304	1908
200-W	627	2081	628	1468	694	2315
300	345	1545	260	981	287	1408
700/1100	989	8600	811	4378	1523	8615
Minor Const.	71	3225	66	2076	101	6382
Total	2741	19842	2896	11719	3524	24151

ENGINEERING SECTION

	Work on Hand 7/31 Est. Mandays	Work Completed in Aug. Est. Mandays	Work on Hand 8/31 Est. Mandays
Studies	340	123	291
Projects	4183	1190	5516
Total	4523	1314	3807

100 AREAS:

Repairs were made to the rubber seal on the near side of the 105-B unit. These repairs were necessary because expansion of the unit had taken up all of the slack in the original rubber seal. A new thimble was inserted in the "B" test hole in the 105-B unit. Work was started on the shortening of the gun barrels and re-vanstoning of the process tubes. This work is being done on all tubes which show corrosion to such an extent that only 0.030" thickness of metal remains at any one point. At the end of the month the four bottom rows of the 105-B unit were completed.

Serious water hammer occurred in the 16" steam line between Building 184-B and 182-B resulting in considerable repair work to restore the line to service.

The buffing of all vertical safety rods in the 105-D unit was completed. This was done to assure free movement of the rods under all conditions.

Both exterior and interior painting work on Building 182-D was completed.

Replacement was made of the thimble in the "B" test hole of the 105-F unit, similar to the job done on the 105-B unit.

All mattress plates and chute liners in the 105-F unit were replaced with new ones of an improved design. Several process tubes on the 105-F unit were cut back and re-vanstoned in the same manner as on the 105-B unit.

During a scheduled Area shutdown, the east clearwell of Building 183-F was drained and repairs made to it. A mixture of soil, cement, and water was pumped through holes in the floor to fill up cavities which have caused leakage and settling of the floors. On August 27th repairs were made to the e expansion joint in the east clearwell of Building 183-F.

Improvements were made to the concrete floor and drainage system at the 185-F coal unloading station.

Facilities were constructed near the Columbia River in the vicinity of Building 146-F for the E.I. Section to conduct experiments on ducks.

200 AREAS:

Considerable repair work was necessary on the 75 ton and 10 ton cranes in the 221-T Building. The four main track wheels had to be replaced on the cab end of the crane due to excess wear on the wheel flange.

A fume stack was installed on the 401-T tank of the chemical mix room in 221-T.

A three horsepower motor was installed in place of a two horsepower on the HF acid transfer pump in 221-[redacted] Building to avoid difficulties from overloading.

An extension from the nitric acid header to the pipe gallery was put through the gallery wall to the decontamination station in section #3.

A new liquid sperger was installed in B-1 tank of 224-T Building.

A second W-R-1 process tank was fabricated in the shops for installation in the Isolation Building.

At the request of the A.E.C. the school building at Priest Rapids was renovated in preparation for the opening of the school term. A new floor was installed, desks reconditioned, roof insulated, and both the interior and exterior of the building was painted.

A waste disposal dry well was completed at the stack gas experimental laboratory. Further work is in progress at this location in connection with the Technical Department.

In the metal storage area a 20" extension to the bridge platform was installed on the cranes.

Five diversion box connectors were fabricated in the shop to be used to permit diversion of certain waste material to the "C" storage area.

A 40" centrifuge was built and tested in the shop for installation in the 221-T Building.

A permanent platform was installed at the PHV station outside of the 224-B Building.

A special ramp was built at the 221-B Canyon Building dock to permit safe loading of pickup trucks.

300 AREA:

The change in process methods in the 313 Building has necessitated the making of numerous special pieces of canning equipment and the revision to 1,000 tote boxes.

The old lubricant in the ball race of the Rotary Hearth Furnace was removed by washing and flake graphite introduced instead. The hearth has been operating for several weeks with this lubricant and to date has performed satisfactorily.

One of the extrusion press containers, which had become oversized, was built up by welding and machined back to correct size.

The maintenance work in the 321 Building in connection with the trial runs now being made, consists of back-welding of numerous treated pipe joints, the revision of various parts which have proven unsatisfactory, and minor equipment changes.

The installation of duct work in the laboratories in 3706 Building addition is seventy-five percent complete, and the duct work for the 313 Building exhaust fans has been installed. The remainder of the sheet metal work in the 313 Building air-conditioning should be completed within two weeks.

Due to the failure of the area septic tank to handle the water now being wasted into the sanitary sewers, many of the area drains have had to be diverted. The drainage from the 3706 Building air-conditioning and stills, the cooling water from the 301 Building, and all hutment and shop air-conditioners has been diverted to date. There are still several small sources of water to be diverted. This will be accomplished in the normal course of maintenance work.

Two sets of metal fence gates were made and one set installed at the north area railroad entrance.

700-1100 AREAS:

Permanent repairs have been made to the 784 Boiler house roof in the section over the boilers. The necessary cinder cast sections to repair the roof over the coal bunkers have been ordered. The damage to this roof was caused by the high winds of July 10th that ripped off several of the cinder cast sections over the coal bunkers and dropped them on the low roof over the boilers.

Pressure reducing valves have been installed on the steam supply lines to the Municipal Building and the Commercial Garage in preparation for the removal of the main steam line pressure reducing stations in the 700 Area.

The First Aid Station at the Pasco Reconsignment Depot has been completed. Repairs to the fire doors and other miscellaneous items requested by the Fire and Protection Division are in progress.

Three hutments were moved from the Stores Area south of 729 Building to the Labor Yard for use by the Accounting Department.

The exterior painting program is on schedule. Division III is complete and in Division I, the spray painting is completed but there are a few houses yet to receive a second coat of trim. Both groups are spraying in Division II. There were 111 houses completed this month. This makes a total of 307 houses completed so far this season.

Anchoring of prefab roofs is complete.

The conversion of Dormitory W-16 into a regular dormitory is eighty-five percent complete. This involves the replacement of partitions and closets and necessary painting.

The summer overhaul of the school heating systems is complete.

The installation of the two evaporative coolers at the cafeteria is complete.

The last three recording thermometers were received and installed. This completes the total of seventeen thermometers installed in the facilities refrigerators for the better control of perishable foods.

Three hundred feet of ten inch schedule thirty pipe was installed on Wallsian Way, replacing the spiral thin wall pipe that was leaking in numerous places.

The overhaul of the two boilers in 1131 Boiler House is complete, and they are ready for immediate use.

The painting of the rest rooms, shower rooms, and the blacking out of gym windows in the schools is complete.

There were 399 window lights replaced in the Village during the month.

A third group of exterior painters has been set up to start the second coat spraying of prefabs on September 2nd. It is hoped that the major portion of these can be completed by winter.

Tract Houses L-932 and J-685 were connected to the Village sewerage system.

The re-shingling of the five dormitories has been started. W-15 is complete with the exception of stapling, and W-16 is in progress.

The foundations for the two prefabs from Pasco are complete. The prefabs will be moved on site early in September.

The Village furnace overhaul is eighty-five percent complete. As work progresses, it is gradually getting more difficult to gain access to the houses as the majority of those left are the ones where both tenants work on the day shift.

The alterations to Tract House L-928 are ninety-five percent complete. The fencing material is on hand and its installation will complete the job.

The diffusers for the Hospital Nurses Station were fabricated and installed. This completes the additional air-conditioning installation.

ENGINEERING SECTION

PROJECT GROUP

Projects, Suspense Codes Authorized and Under Construction

100 AREAS

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-116	Lightning Protection for Communication Circuits 100-B-D-F	20	12-19-46	$ 4,600
C-124	"B" Test Hole Facility	90	1-30-47	7,900
C-172	Dismantling of Equipment in Demineralization and Deaerating Plants	0	8-19-47	486,000
Susp.C.	One Tube Mock-Up 100-B Area Flow Lab.	60	-	10,000
Susp.C.	Van Stone Test Mock-Up for Technical Department	60	-	5,000
	TOTAL Estimated Cost 100 Areas Projects			$513,500

200 AREAS

C-100	Portable Fan Shielding and Replacement Equipment 291-T-U-B. Part II Authorized for Additional $5,400.	65	10-22-46	15,000
C-112	Additional Underground Waste Tank Facilities (% Comp. G. E. Portion Only - Does not include Subcontract) (Part II has been authorized and total for entire job is now $2,575.400).	73	11-25-46	287,790
C-120	Divert Second Cycle Waste From X-110 (Now Awaiting Results of H.I. Studies on Soil Sampling).	54	1-15-47	134,200
C-126	Install Central Lint Catcher for 2723-W Laundry.	5	1-9-47	2,525
C-133	Specail Test Wells 200-E-W. (Additional Wells have Been Authorized).	57	1-30-47	135,000
C-155	Caustic Storage for 211-T and B	68	6-4-47	14,650
C-160	H. I. Shaft at 241-B	5	7-14-47	19,000
C-163	Additional Waste Storage & Tie Lines 200-W (G. E. Portion Only - Sub-Contract not Included)	0	7-25-47	500,000
C-166	Additional Nitric Acid Storage Facilities.	6	7-2-47	57,000
C-171	Alterations to Six Periscope Assemblies.	17	8-6-47	7,200
Susp.C.	Physical Testing Equipment	22	-	
	TOTAL Estimated Cost 200 Areas Projects			$1,177,765

[redacted]

DECLASSIFIED

Project Number		% Phys. Complete	Date Auth.	Est. Cost
	300 AREAS			
C-122	Additional H. I. Instruments	40	1-15-47	$105,200
C-131	Addition to 3706 Laboratory Building. Part II in Preparation.	90	2-18-47	98,000
C-132	Nine Hutments for Temporary Office Space. Part I and II	100	2-13-47	24,500
C-141	Addition to 3717 Instrument Shop	41	3-24-47	90,000
C-142	Metal Casting Facilities	12	4-7-47	140,000
C-161	313 Building Ventilation	13	6-25-47	7,500
C-169	Fire Line Extension - 3722-A Building.	0	6-25-47	3,200
C-176	Three Hutments for Office Space and Drafting Room.	13	8-6-47	12,000
Susp.C.	Technical Library and Office Building 3702.	1	-	----------
	TOTAL Estimated Cost 300 Areas Projects			$480,400
	200-1100 AREAS			
C-105	Build 20 Zouto Instruments (Experimental Instruments Still Being Tested).	85	9-11-46	$ 1,900
C-108	Village Walk-In Refrigerators - Thermometers Received 7-3-47	90	11-5-46	4,350
C-111	Sewage Lift Station - Revise Pumps (Pumps Promised Sept. 1947)	0	11-4-46	2,200
C-115	Dorms - Install Fire Alarms	37	12-19-46	11,100
C-127	300 Area - Increased Capacity of Telephone Exchange (Electrical Department Will Procure and Install Equipment).	0	5-12-47	30,000
C-134	Richland Village Dust Control and Landscape Program 1947 to June 1948	27	12-19-47	250,000
C-138	Building 702 - Automatic Dial Exchange (Electrical Department Will Procure and Install Equipment).	0	5-12-47	470,500
C-140	Village "Shot and Cover" Paving	72	3-21-47	22,700
C-144	Additional Telephone Cables - Richland (Material Partly Received, but no Installation Work Started).	0	5-12-47	45,000
C-146	Irrigation Extensions - Village	79	3-28-47	90,000
C-147	Engineering Building No. 760 (Field Work).	57	5-13-47	113,900
C-148	Combined Maintenance Shops - 700 Area	18	6-25-47	170,700
C-149	Expansion of Printing Shop - Building 717	0	7-23-47	16,000
C-154	Replacement of 440 V Switchgear - 351 Substation	0	6-5-47	20,100

[redacted]

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-157	Revision to Kitchens - All "E" Type Houses	7	6-12-47	$ 15,960
C-158	Air Conditioning All Dormitories Except W-4 and W-13	0	7-28-47	136,800
C-159	Re-Coating Prefab Roofs (Out for Bids).	0	6-17-47	69,200
C-164	Construction and Expansion of Parking Compounds - Village	0	6-27-47	50,900
C-167	Commercial Laundry Additions to Equipment Room	1	7-1-47	8,000
C-174	Revision to Railroad Line West of 100-B Area	0	8-5-47	57,700
C-175	Building 703 - Freight Elevator	0	7-29-47	9,400
C-177	115 KV Power Line Through Richland	0	8-14-47	913,000
C-180	Addition to Building 705	10	8-15-47	15,400
C-182	Install Sidewalks, Curb and Gutter, West Side George Washington Way, Gillespie to Abbot Streets	0		26,800
C-183	No Parking Signs for Village Streets	0		3,400
C-186	Overhead Doors - 1131 Garage	0		5,500
Susp.C.	Moving of High School Hutments to Marcus Whitman and Lewis and Clarke Schools.	2		5,150
	TOTAL Estimated Cost 700-1100 Areas Projects			$2,565,660
	TOTAL Estimated Cost for Active Approved Projects - All Areas			$4,737,325

Projects Being Routed for Authorization

E. R. No.			Estimated Cost
941	(C-184)	Experimental Animal Farm	$286,000
978	(C)	Moving of High School Hutments to Marcus Whitman and Lewis and Clarke Schools	5,150
A-3030		Technical Library and Office Building No. 3702	66,000
A-3019	(C-189)	Building 3745-A X-Ray Facilities	22,000

Project Group Area Reports

100 AREAS

E. R. No.		% Engineering Complete
A-1004	Downcomer Design 105-F	20
A-1006	Dry Air Supply to Test Holes	25
A-1011	Transfer Car Stop	95

E. R. No.		% Engineering Complete
A-1012	Physical Bend and Tension Testing Machine	65
A-1013	Physical Hardness Testing Machine	90
A-1017	Horizontal Rod Aluminum Tube Replacement	100
A-1025	One Tube Mock-Up 100-B Area Flow Lab.	80
A-1029	Locomotive House Sprinklor - Riverland	50
A-1030	Design Tool for Gun Barrels	20
A-1033	Van Stone Test Mock-Up for Technical Department	60
A-1035	Can Opening Facilities 200-N	75
A-1036	Revisions to Discharge Area 105 Building 100-F (Neoprene on Order)	100
A-1038	Purchase of Vertical Rod Sections	40
A-1039	Design & Fabricate Gun Barrel Extension Sleeve	30
A-1040	Handling Device - Discharge Tube Trough	20
A-1041	Steel Catwalk - High Tanks	85
A-1042	Spectrometer Mount Design	15
A-1043	"B" Cover Bracing	50
A-1044	Outlet Charging Device	5

200 AREAS

2279	Prepare Project for Regasketing Facilities 221-T-B	70
2281	Study Brake Shaft Failure 221-B 75 Ton Crane	100
2287	Study Rail Alignment of 200-N Cranes	70
2295	Make Composite Maps of Water, Sewer and Steam Lines 200-W	90
2296	Study and Recommend Repairs to 291-T Stack Drain and Acid Proof Lining	100
2299	Stack Alignment Survey 291-T-B (Long Term)	82
2303	Design Air Intake and Filter for Furnace Blower	0
2305	Study and Recommend Facilities and Procedure for Working Diversion Boxes	60
2308	Design Additions to Experimental Facilities Building 292	60
2309	Recommend Water Supply System - Building 622	80
2319	Design Dry Waste Disposal Vault Near 22-B	80
2325	Procure and Install Railroad Car Bumper Posts at 212 R. P. N.	90
2326	Mark Grade on Steam Line Supports 200-W	0
2327	Study Possibility and Redesigning Connector Head to Simplify Gasket Changing	70
2329	Study Air Cooling Conditions and Make Recommendations 221-T-B Operating Gallery	50
2331	Study and Recommend Air Cooler for 622 Building	15
2332	Transfer Jumper No. 42 and 72	100
2333	Study and Recommend Outer Roller Bearing for 30 Ton Crane	70
2337	Design Tank Agitator Shaft Water Seal - 224-T Tanks	90
2338	Design Paper Filter for 231	70
2339	Design Bracing for Stand Pipes - High Water Tanks	60

E. R. No.		% Engineering Complete
2340	Design Exhaust Fan & Duct 222-U	50
2341	Design Brake - Dry Well Sealer	100
2342	Design and Estimate Cost of Air Filter Re-arrangement 221-T Cranes	60
2343	Design Equipment Decontamination Station for small Items 221-B	20
2344	Design Equipmat Decontamination Station for S Small Items 221-T	20
2345	Specify Measuring Rod and Funnel for Tanks 221-T	100
2346	Design Chemical Inlet Nozzles on Scale Tanks 221-T	100
2347	Mould for Sampler Riser Cap Lining - 221-T-B	100
2348	Sampling Equipment Transport Box 271-T	100
2349	Sampler Box Drain Standpipe	100
2350	Heating Facilities - Priest Rapids School	100
2351	Dip Tube Hoist - 211-T Car Spot	100
2352	Test Well Instrument Hoist	100
2353	Crane Alignment and Rail Elevation 221-T	60
2354	Design Sampler to Simplify Sampling 221	10
2355	Additional Process Waste Storage Facilities 241-TX	0

300 AREAS

A-3003	Stump Shear	41
A-3008	Alarm System on Existing 3706 Building, Sprinkler System	90
A-3010	Rotary Hearth Furnace Lubrication Study	60
A-3012	Alarm System on Existing 3717 Building, Sprinkler System	90
A-3013	Oxide Burning	30
A-3019	Housing for X-Ray Machine	18
A-3022	Additional Project Instruments	15
A-3027	Water Softeners - 3706 Building	80
A-3028	Technical Assistance to Instrument Department	75
A-3029	Canning Area Study	70
A-3030	Technical Library and Office Building	23
A-3031	Study Chip Recovery Press Die Table Operation	50
A-3032	Metal Punch Press Design	10

700-1100 AREAS

Study Group

714	Richland Theater - Air Conditioning	100
785	Cafeteria - Air Conditioning	10
822	Pop Up Sprinkler System - Village Public Grounds	35
842	Replace Switchgear - 351 Substation	80
861	Stores Warehouse Hanger	2
892	Water Supply - By Telephone Exchange	90
895	Expansion of Printing Shop - Building 717	80

E. R. No.		% Engineering Complete
896	Construction & Expansion of Parking Compounds - Village	15
912	Acid Handling Facilities - Building 706	90
920	Air Conditioning all Dorms Except W-4 and W-13	75
923	Improvement to Air Conditioning System Building 703	30
925	Combined Maintenance Shops - 700 Areas	90
939	Radio Communication for Railroad Dispatching	90
941	Experimental Animal Farm	10
944	Renovation and Moving into Village of Tract Houses	30
953	Plans for Addition to 137-X Lutheran Church	100
954	Design Cylinder Rack for Truck	100
955	Plans for Repair of Fire Damage - Castle Club	100
956	Addition to Building 705	70
957	Install Sidewalk, Curb and Gutter W. Side George Washington Way, Gillespie to Abbot Street	70
958	Design for 5 Ton Overhead Crane - 1131 Garage	0
960	Enlarged Payday Parking Lot - 1131 Garage	100
962	115 KV Power Line Through Richland	7
963	Biology Laboratory	5
967	Design Air Conditioning Installation - Fire Station No. 2	100
969	Design Roof Anchors - 784 Building	100
970	Electrical Designs for Sprinkler Systems Buildings 3717 and 3706	100
971	Sprinkler System for Riverland Locomotive Shop	0
972	Survey River Bottom - 100-B and D Areas	0
973 Convo	Elect. Dist. Hdqts. Building Substation 251 and Conversion of Building 2713-E to Garage	7
974	Electrical Plans for Building 3745-A	2
975	Electrical Plans for Building 3702	2
976	Electrical Plans for Buildings 321-A and B, C	100
977	Cement Foundation for 3 Bedroom Prefabs	100
978	Moving of High Scool Hutments to Marcus Whitman and Lewis and Clarke Schools	100
980	Drawings of Aerosal Foy Generator	20
981	Special Danger Zone Fences	0
985	Dust Collecting System Building 3713	0
986	Gate House - 700 Area at Stevens Drive	0
987	Electrical Drawings for Richland Airport	0
989	Two Story Addition to 703 Building	0

ENGINEERING STUDIES GROUP REPORT

Studies Completed This Month		Date
4277	Bathroom Shower Wall Study	8-5-47
4297	Tract House Survey - Part II	8-22-47
4302	Safe Attic Entrances to Schools	8-18-47
4311	Building 313 Driers (Cancelled)	8-5-47
4312	Rear Entrance Revision - Building 703	8-26-47
4313	Oil Separator - Building 1123 (No Report)	8-21-47
932	Prepare Invitations for Roof Coating	8-21-47

E. R. No.		Date
944	Prepare Invitations for Moving Tract Houses	8-29-47
954	Provide Gas Cylinder Rack for Stores Truck	8-29-47

Studies Added This Month

4315	Revise Ladder Inspection - J. I. 1717-1

ACTIVE STUDIES

958	Provide Heavy Duty Hoist - 1131 Building
2311	Examination of 75 Ton Crane - 200-E, "C" Excess
2323	Spare Parts - Whiting & Northern Cranes
4233	Review Maintenance Spare Parts
4261	Transient Quarters Cooling - Entire Building
4294	Prefab Roof Repairs, Specifications & Tests
4295	Pressure Relief Valve Standardization
4296	Oil Reclamation Survey
4300	Selection and Use of Wood and Wood Preservatives
4303	Additional Basement Entrances - All Schools
4305	Additional Work Space Under Floors - Dorms and Facilities
4306	Maintenance Standard Practices - Concrete
4308	Precut Teflon Gaskets
4310	J. I. Use of Abrasive Equipment
4314	Heating of Schools
4315	J. I. Visual Ladder Inspection

Blueprint Control Group

	This Month	Last Month
Drawings and Sketches Completed	311	341
B & W. Blue Prints Produced	7,298	6,592
Photostats Produces	61,589	67,196
Portagraphs	130	280
Other Prints Handled	10,422	9,535

ELECTRICAL DEPARTMENT

AUGUST, 1947

GENERAL

Work Order Summary:

Area	Work on Hand July 31 No. of Orders	Work on Hand July 31 Estimated Man Days	Work Completed in Aug. No. of Orders	Work Completed in Aug. Estimated Man Days	Work on Hand Aug. 31 No. of Orders	Work on Hand Aug. 31 Estimated Man Days
100-B	34	112.5	34	138.4	30	64.8
100-D	32	151.0	40	174.1	19	73.5
100-F	41	198.3	59	259.7	53	171.0
200-E	79	164.2	81	274.3	75	178.8
200-W	132	252.0	62	212.4	102	158.7
300	51	102.3	56	190.5	56	126.3
700-1100	82	221.4	61	385.7	59	124.2
Distribution	131	1121.2	116	945.1	142	1311.3
Telephone	22	2051.1	21	258.0	18	1997.4
Minor Const.	36	641.3	20	378.4	29	780.7
Hanford	10	79.7	11	86.0	17	113.9
Total	650	5095.0	561	3302.6	600	5110.6

There has been a general tendency towards increase in work order backlog, especially in Minor Construction and Distribution Divisions. If this trend continues (as is anticipated), it may become necessary to request permission to schedule some work on a six day per week basis, depending upon urgency of required completion.

The attached load chart for the peak day of the month, August 15, shows a total demand of 37.0 MWH per hour for the entire Project, the same as the previous month and generally representative of peak demand during the low power consumption period of the year under present load conditions.

Various studies have been made throughout the month relative to electrical requirements for the new 100 G and H Areas as requested by the Design and Construction Department, or as originating from this department and recommended to Design and Construction. Work has been started towards erection of 5000 KVA, 66 KV substation to provide power to the 3000 Area, barracks and trailer camp site.

In continuation of last month's difficulties, during high wind velocities of August 29, simultaneous loss of both 66 KV feeders to the 300 Area was experienced. The outage in the 300 Area was of twelve hours duration and in Richland - one hour. Three poles were broken off south of the 300 Area (Pasco feeder) and four poles north of the area (Hanford feeder). One pole on the south side was broken above the stub and two others at the ground line, all fractures showing only a slight amount of rot, but extremely dry wood. Strengthening of the line started last month is approximately 50 percent complete but, with high wind velocities, we cannot now consider the 66 KV line as reliable because of age and extreme dryness. It is now apparent that the new 115 KV line must be placed in service at the earliest possible date, now indicated for late 1948.

The project for the new 115 KV system has been approved. Transformers and outdoor structures complete for the two Richland stations have been placed on order. A final right of way is being surveyed. All other requirements are under detailed study for early ordering.

The final preparation of project for new Distribution Headquarters (Building 254) is nearing completion.

An order for automatic telephone equipment for Richland has now been placed. Specifications for automatic equipment for satellite stations, now 100 G and H Areas, have been prepared and have been sent to the Purchasing Department for bids.

Continuing previous comments relative to butt treating poles in the ground, a study of complete requirements has been completed. Work orders on a monthly basis have been issued to start this work on the 220 KV line and in the 100-B, 100-D, and 700-1100 Areas. It is expected that this work will extend over a period of 18 months to two years dependent upon availability of labor as related to the urgency of other work.

An Electrician has been sent to Sand Point, Idaho for the purpose of assisting in disconnecting and packing electrical supplies as purchased by Housing from War Assets Administration, Farragut Naval Station, and to ascertain what materials are available and suitable for purchase by the Electrical Department for current and construction requirements.

Actual ordering of transformers for replacement of 15,000 KVA in A-8 substation, feeding 200 Areas, has been deferred several months pending further studies into the future power requirements of 200 and associate areas.

From a safety viewpoint, study has been made relative to changing cords of prefab heaters to rubber covered asbestos type, and to cleaning all such heaters of accumulations of dust and lint. Spot survey indicates generally poor condition of all heaters and cords, one of which has been regarded as responsible for starting a prefab fire.

This work will be done on monthly work order basis hoping to complete before the start of the heating season. Also, all remaining conventional houses and prefabs will be fitted with fusestats. At the time of construction, sufficient fusestats were not available to complete all housing on a uniform basis. We consider that this action will reduce fire hazard.

During the month, the Electrical Department completed one year without lost time injury.

ORGANIZATION AND PERSONNEL

To meet a gradual increase of work backlog, five Electricians, two Electrician's Helpers, and one Groundman were added to the payroll during the month, and one Electrician's Helper was added by transfer from another department.

AREA ACTIVITIES

1. 100 Areas

On August 29 a severe wind storm caused unscheduled shut downs in the 100 Areas as follows:

(a) The 105-D Pile Building scrammed at 6:50 PM and again at 6:55 PM due to heavy voltage disturbances on the 230 KV system. No motors or other equipment were affected. The unit was back to normal at 7:13 PM.

(b) The 105-F Pile Building scrammed at 6:55 PM due to voltage surges. No motors were affected. The unit was back to normal at 7:25 PM.

(c) The transformer feeding the Vernita Cold Storage plant was hit by lightning. Service was restored by Electrical Distribution.

(d) Lightning burned off a wire and blew fuses on the service to irrigation pump J.J. 631 in the Vernita district.

B. 100 B Area

Installation of speed indicators on Diesel locomotives at Riverland Shops is now 100% complete.

Continuing last month's report, all electrical equipment in Vernita is now in accordance with H.E.W. standards, and all rewiring is complete.

The Priest Rapids school house was wired for lighting on August 22. The Electrical Distribution Section installed a 3-KVA transformer on the 6900 volt Beverly line to supply service to the building.

The amplifier communication system between "C" and "D" elevators, 30 foot level, monitor room and control room in 105 Pile Building was installed and is operating satisfactorily.

All vertical rod clutches in the 105 Pile Building were inspected and adjusted and a voltage drop out test made.

C. 100 D Area

A bad inboard bearing was found on No. 2 accumulator pump motor in the 105 Pile Building during a visual inspection of this equipment. A new bearing was installed and the equipment was returned to service.

New coils were installed on fan damper solenoids No. 5 and No. 7 in 105 Pile Building. Mechanical parts were adjusted to allow solenoid plungers to seat properly.

On August 26, preparatory to start-up, winch motors No's. 29, 33, and 35 in 105 Pile Building would not raise the rods from the unit. It was found that the clutches were slipping on No. 29 and No. 33 and this condition was corrected by adjustment. A broken wire was found on the collector ring of No. 35 winch motor clutch. This was repaired and the unit operated satisfactorily.

Rewinding of process pump motor No. 9 of 190 Process Water Building (failure reported last month) has been completed.

D. 100 F Area

Flocculator motors No's. 3, 6, and 7 from Filter Plant Building 183 were over-

hauled. Several bearings were replaced and gears were carefully cleaned and lubricated.

Low insulation resistance tests on the circuits to the Brine Pit led to the replacement of this wiring with flamenol wire.

Three new timers, type TSA-10, were installed in the 185 Water Treatment Building to replace worn units.

New oil rings were installed in No. 10 and No. 7 process pump motors in Building 190. The old rings were not carrying sufficient oil.

Parts were received for the tube cutter motor which was broken over a year ago in the 105-D Pile Building. The motor has been repaired and re-assembled.

Nineteen underwater lights were repaired during the month.

Flood lights were installed at White Bluffs well No. 1 and at high tank.

E. Status of Major Work Orders

Project	Location	Item	Comments
C-116	100 Areas	Lightning protection, signal and instrument circuits	70% complete in 100 B 60% complete in 100 D 65% complete in 100 F
Desigh Ch. 54	100 Areas	Separate disconnect to lighting transformer	100% complete in all areas.
	Bldg. 149-F (Fish Hatchery)	Electrical heat	50% complete

2. 200 Areas

A. General

On August 29, the severe wind storm accompanied by lightning and rain caused several outages in the 200 Areas as noted below:

(a) 200 West Area

At 6:30 PM, a primary fuse to the power transformer bank at Building 272 was blown due to the secondaries whipping together.

At 6:48 PM, power was interrupted to the entire 200-W Area by the tripping of O.C.B's. C8-X1 and C8-X2 at substation 251. Power was restored in approximately 1/2 minute.

At 6:55 PM, O.C.B's. C8-X1 and C8-X2 again tripped off and were reclosed at 6:56 PM. The exact cause of these trip-offs has not been determined but were probably due to line surges originating outside the H.E.W. loop.

(b) 200 East Area

At 6:40 PM, the Power House feeder breaker E8-X59 in substation 252 tripped off causing the emergency generator in Building 284 to start and pick up the Power House bus load.

When attempts were made to reclose breaker E8-X59, it was found that the latching mechanism was broken. A spare breaker was installed and normal service was restored at 10:30 PM. Power for the 284 Building and area fence lights was supplied by the emergency generator during the period the normal breaker was out of service.

Fence lights in the 212-R Area were reported out at 9:08 PM. Breaker E-8-X43 in 212-P Area was found tripped. The breaker was reclosed and service restored at 10:30 PM.

B. 200 W Area

A new 110 volt service was installed to a temporary animal pen located east of Building 222-U.

While testing relays at 252 substation, Oil Circuit Breaker E8-X4 was accidentally tripped open. The breaker was reclosed in approximately ten seconds. Power interruption was to the 231 Area, the "T" Area, and 272 shops. Procedures for testing relays have been revised to minimize the possibility of this happening again.

The 5 HP water cooler motor in Building 2704 failed due to being flooded with water. The motor was rewound and returned to service.

On August 30, the fence lights over the west fence failed to come on at the prescribed time due to a defective clock. Lights were turned on manually and the clock was removed for repairs.

C. 200 E Area

A new Revatrol Control Unit was built to serve as a spare for the unit installed in Building 224-B. Several cases of trouble have developed lately on the original Revatrol Unit in Building 224-B and this spare will speed up our service on this item.

Seven fluorescent lights were installed in the H.I. Test Well Sample Building 2707-EX.

A 440 volt Cutler Hammer switch in Building 224-B broke down to ground and burned off the "A" and "C" phase wires. The equipment was not in use. The switch has been repaired and will be returned to service at the first opportunity.

Seventeen motors were rewound and four 250 HP traction motors were reconditioned in the Motor Shop during the month.

D. Status of Major Work Orders

Project	Location	Item	Comments
Design Ch. G3	271 B & T	600 HP compressor control revision	80% complete in 271-T 95% complete in 271-B
Design Ch. G7	283 B & T	Installation of switches on Rowan OCB interlock circuits	30% complete - awaiting materials
C-155	200 Areas	Additional storage for Sodium Hydroxide	95% complete in 200 E 0% complete in 200 W
C-166	200 Areas	Nitric Acid storage	5% complete in 200 E 0% complete in 200 W
C-126	200 W	Installation of filters in laundry dryers	Not yet ready for electrical work
10155	212-N	Physical testing equipment	Not yet started
C-160	241 B	H.I. shaft in second cycle waste crib	Not yet ready for electrical work
W.O.	221-B	Installation of new agitator in Section 6	Completed

3. 300 Area

A. X-Ray equipment in Building 3745 used by the H. I. group, which had failed on July 23, 1947, was repaired on receipt of parts from the manufacturer and was back in service on August 27, 1947.

B. A complete power outage at the 300 and 3000 Areas occurred on August 29 at 6:00 PM which lasted until 7:10 PM on August 30. The outage was caused by a heavy wind storm blowing down poles on both sides of the 300 Area on the 66 KV system, making it impossible to supply power from either Pasco or Hanford.

The metal was dipped from most of the furnaces in the 313 Building. Furnaces 1C and 2C have failed since due to leakage probably caused by the power outage.

C. Status of Major Work Orders

Project	Location	Item	Comments
C 131-E	300 Area	Additions to Bldg. 3706	85% complete (Completion is pending installation of lab. equipment.)
C 141	300 Area	Add. to 3717 Bldg.	35% complete

Project	Location	Item	Comments
C 142	300 Area	Addition to Bldg. 314	5% complete (Electrical work is proceeding as the addition is constructed.)
C 161	313 Bldg.	Air conditioning	80% complete
C 176	300 Area	Erect 3 hutments	25% complete

4. 700-1100 Areas

A. The Minor Construction crew has been working six days per week in order to expedite the completion of the 760 Building. However, the material situation continues critical.

B. Status of Major Work Orders

Project	Item	Comments
C 111-E	Equipment change at sewage lift station	0% complete (Awaiting materials)
C 115	Extension of fire alarm system in all dormitories	25% complete - Held up because of diversion of labor to 760 Bldg.
C 143	Alterations to Municipal Bldg.	100% complete
C 147	Design & Construction Bldg. No. 760	50% complete
C 148	Combined Maintenance Shop	0% complete (Prints have been received, material take-off has been made, and all materials except Store Stock items, placed on order.)
C 152	Alterations to old Red Cross Building	Cancelled - work to be given to outside contractors.
C 167	Alterations to Commercial Laundry water softener equipment.	0% complete
C 175	Install freight elevator in Bldg. 703	0% complete
Sus. 10194	Bldg. 3702 Tech. Library and Office space	0% complete
Sus. 10194	Addition to 705 Bldg.	0% complete

5. Telephone Group

A. The order for dial telephone equipment for the Richland Exchange was placed with the North Electric Co. on August 25, Project C-138.

B. The toll circuits from the Richland Exchange to Pasco were raised from twelve to fifteen.

C. Toll circuits to Kennewick were raised from nine to twelve.

D. One additional teletypewriter circuit (Western Union, TWX) was connected.

E. Specifications were prepared for accepting bids for installation of automatic dial exchanges for two 100 Areas.

F. A PBX switchboard was installed to provide service to the 3000 Area. Fifty-five (55) telephones have been installed in this area to date. The present board is inadequate. The Design and Construction Department is planning a building to house the Exchange. The building should be completed as soon as possible to permit installation of a larger board. This would make the necessary additional facilities available without interruption of the present service.

G. The possibilities of installing an automatic dial exchange in the 3000 Area was reviewed. An exchange is available which may meet the requirements with certain modifications. Prints are being mailed to us for further consideration.

H. During the month, 193 telephone instruments were installed and 196 removed in the 700-1100 Areas. In the process areas, 16 instruments were installed and 15 were removed.

I. Status of Major Work Orders

Project	Item	Comments
C 138	Convert Richland Exchange to dial operation	0% complete
C 144	Purchase and installation of additional telephone cable to provide increased telephone facilities.	Held for information from Design and Construction.
C 127	Expansion of 300 Area Exchange	Equipment promised for delivery December 1947.

6. Power Supply Interruptions

Date	Area	Circuit Affected	Duration	Remarks
		230 KV		
Aug. 29	200-W	C8-L1 and C8-L2	1/2 min.	Lightning storm

8

Electrical Department

[redacted]

[redacted]

230 KV

Date	Area	Circuit Affected	Duration	Remarks
Aug. 29	200-W	C8-L1 and C8-L2	1 minute	Lightning storm
Aug. 29	200 E	Fence Light Circuit	7 hrs. 42 min.	Bad clock
Aug. 29	Rivernita	C2-S61 Trans. Bank	3 hrs. 4 min.	Primary fuse blown
Aug. 29	200-R	L8-L43 from E8-X43	3 hrs. 20 min.	Lightning storm
Aug. 30	100-F	Fence Light Circuit	2 hrs. 4 min.	Replace 24 lamps
Aug. 30	300	Fence and Street Light Circuits	40 min.	Clock trouble
Aug. 30	200-W	Fence Light Circuit	1 hr. 27 min.	Clock trouble

66 KV

Aug. 29	300	Pasco B-289	12 hrs. 58 min.	Poles down due to wind and lightning storm
Aug. 29	Richland	Pasco B-280	52 min.	" " "
Aug. 29	Richland	D1-L1 from D1-X1 to end line	1 hr. 29 min.	Poles down due to storm
Aug. 29	Richland	D1-L1 from D1-X14 to end line	12 hrs. 58 min.	" " "
Aug. 29	Hanford	66 KV between Hanford and B-280	24 hrs. 53 min.	Poles down

[redacted]

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POWER STATISTICS - ELECTRICAL DEPARTMENT

FOR MONTH ENDING AUGUST 31, 1947

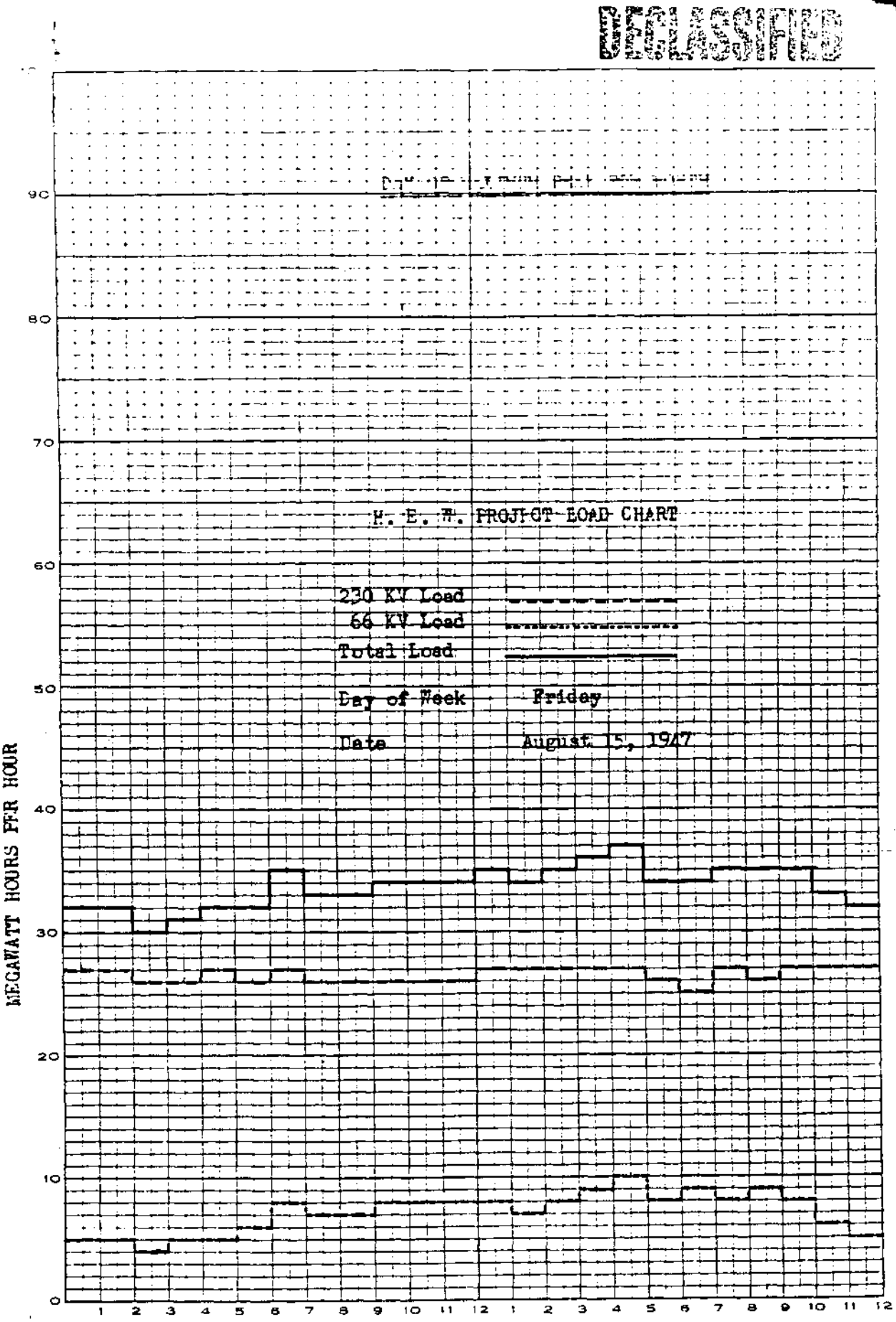
ITEM	ENERGY - MWHRS July	ENERGY - MWHRS August	MAX. DEMAND - KW July	MAX. DEMAND - KW August	LOAD FACTOR - % July	LOAD FACTOR - % August
230 KV SYSTEM						
151 B Out	1,730	1,690	3,000	3,100	77.5	73.3
151 D Out	7,530	7,560	12,200	12,400	83.0	81.9
151 F Out	7,290	6,450	11,900	11,500	82.3	75.4
251 Out	1,840	1,860	3,000	3,000	82.4	83.3
TOTAL OUT	18,390	17,560	30,100**	30,000**	-	-
MIDWAY IN	18,614	17,716	28,000*	28,400*	89.4	83.8
Transm. Loss	224	156	-	-	-	-
Per Cent Loss	1.2	0.9	-	-	-	-
66 KV SYSTEM						
1151 A Out	1,182	1,207	2,400	2,800	66.2	57.9
1151 B Out	1,130	1,190	3,000	3,000	50.6	53.3
751 A Out	1,800	1,910	3,584	3,468	67.5	74.0
351 A Out	292	286	588	576	66.7	66.7
351 B Out	256	228	840	920	41.0	33.3
Hanford Out	260	246	500	500	69.9	66.1
TOTAL OUT	4,920	5,067	10,912**	11,264**	-	-
Hanford In	334	364	500*	500*	89.8	97.8
Pasco In	4,611	4,768	9,100*	9,900*	68.1	64.7
TOTAL IN	4,945	5,132	9,600**	10,400**	69.2	66.3
Transm. Loss	25	65	-	-	-	-
Per Cent Loss	0.5	1.3	-	-	-	-
PROJECT TOTAL						
230 KV (Item 5)	18,390	17,560	30,100**	30,000**	-	-
66 KV (Item 15)	4,920	5,067	10,912**	11,264**	-	-
TOTAL OUT	23,310	22,627	41,012**	41,264**	-	-
230 KV (Item 6)	18,614	17,716	28,000*	28,400*	89.4	83.8
66 KV (Item 18)	4,945	5,132	9,600**	10,400**	69.2	66.3
TOTAL IN	23,559	22,848	36,800*	38,400*	86.0	80.0
Transm. Loss	249	221	-	-	-	-
Per Cent Loss	1.1	1.0	-	-	-	-

* Coincidental Demand
** Non-Coincidental Demand

Average Power Factor - 230 KV System---99.8
Average Power Factor - 66 KV System---89.8

78

1200029


M. E. M. PROJECT LOAD CHART
230 KV Load
66 KV Load
Total Load
Day of Week Friday
Date August 15, 1947
MEGAWATT HOURS PER HOUR
0
10
20
30
40
50
60
70
80
90
1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12

INSTRUMENT DEPARTMENT

AUGUST 1947

GENERAL

Dr. G. S. Brown, Director of the Servo-Mechanisms Laboratory, spent several days discussing pile instrumentation. Dr. Brown is directly responsible for the pile instrumentation at Brookhaven.

D. E. Garr, of the General Engineering and Consulting Laboratory, spent several days discussing possible pile control applications. He is responsible for the Knolls pile control engineering.

At the request of the Design and Construction Department, one man will be assigned to work exclusively on the 400 Area Instrumentation engineering.

Work Order Summary:

	Work on Hand Aug. 1		Work Completed in Aug.		Work on Hand Aug. 31	
Area	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days	No. of Orders	Estimated Man Days
100-B	47	43.5	36	105.1	31	20.2
100-D	53	118.2	84	224.0	48	54.8
100-F	56	154.6	72	200.4	53	112.5
200-E	61	111.9	176	207.2	48	70.1
200-W	73	124.3	316	275.4	70	81.2
300	121	4381.4	84	727.2	95	4456.3
700	64	179.6	132	191.3	46	111.8
Totals	475	5113.5	900	1930.6	391	4906.9

100 AREA CONSTRUCTION

This program is progressing in a very satisfactory manner. The new schedule of construction has resulted in redirecting our entire efforts for the immediate future on the 105 Building details.

100 AREAS

Eight new Safety Circuit Controllers have been delivered, four each to 100D and 100F Areas. This duplex electronic circuit is believed to be a highly satisfactory solution to the faulty operation of the Beckman Controller. With this controller scrams resulting from 885 tube failures are eliminated.

Revision was made to the Filter Plant Level Control System at the "D" Area. A single element scheme was tried on the south half of the building, and a revised 3 element scheme suggested by Bailey on the north half. The single element control did not perform satisfactorily due to the length of time between inlet valve movement and indication of level change at the filters. The 3 element scheme worked very well, and a report recommending its adoption for all areas is being written.

The Combustion Control System on No. 1 Boiler at the "D" Area Power House has been revised so that the demand for air as called for by both the Master Steam Pressure Controller and the Boiler Meter is applied to both the fan speed controller and damper controller rather than separately as at present. Results are not as yet conclusive enough to report. Indications are that when properly adjusted, a smoother control will result producing a faster boiler load pickup.

A very comprehensive report on the method used and a method recommended for detection and location of leaky tubes was prepared by E. S. Day, Jr. All interested parties were provided with a copy.

200 AREAS

Revision of the instrumentation in the 292-B Stack Monitoring House has included the following preparation:

1. Small ionization chambers (approximately 1-3/8 inches in diameter and 5 inches long) were assembled according to specifications of the Technical group.

2. These chambers were installed to monitor four canisters located in the gas sample line. Necessary shielding was provided and revamped according to requirements of preliminary tests.

3. A selector switch was fabricated and installed to give a choice of record for the Micromax activity recorder. Simple changes are required if the pre-selected combinations are to be changed.

4. A gas flow orifice was designed and installed to give a range of readable indications from 0.1 cubic feet per minute to 1.0 cubic feet per minute. Differential pressure was limited to 2 inches of water in order to keep over-all pressure drop to a minimum. A draft gage scale was furnished to give direct flow readings, and a correction chart was made to compensate for variations encountered in actual operation.

All equipment was shop tested prior to assembly in the 292 Building. The ionization chambers with accompanying amplifiers and recorder were tested after installation to insure standardization of response. A 7 milliroentgen source at 3-1/2 inches from the chamber gives a Beckman reading of $.03 \times 10^{-12}$ amperes.

300 AREA

Projects

C-141 - Addition to 3717 Instrument Shop

Some machines were set this month, and power has been supplied to the bus duct system. It is expected that the rearrangement of the machine tools and setting of all the available equipment will be complete next month.

Facilities such as: air, water, sprinkling system, and electrical outlets remain to be installed, and the office cannot be put in until the machines are set in place.

C-122 - Additional Health Instruments

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

Five-fold Beta Hand Counters - The prototype continues to perform satisfactorily, and one unit has been delivered to the Atomic Energy Commission. Two others are 95% complete and will be delivered next week.

Prints and photographs of this unit were delivered to the Atomic Energy Commission.

Four-Fold Alpha Hand Counters - The prototype was delivered to the Atomic Energy Commission this month. Two other units will be complete and available during the coming week.

C-105 - Twenty Modified Zeuto (Juno) Instruments

The experimental Juno using the Cutie Pie circuit has been on field tests. No official report has been received, but comments indicate that the unit is satisfactory in most respects. Some changes are indicated necessary to the shield slides.

The altered micrometer was used successfully to measure the remaining metal of the pitted sections of the Van Stone flanges in the 100 Areas. Three more micrometers have been altered for this purpose.

Eight new type dual channel Beckman controllers were completed and delivered to the 100 Areas. Four more units are under construction. Very effective expediting of the relays used in these units enabled us to make delivery this month.

700 AREA

Application Division

Redox - Orifice metering and control studies have been made in range from 10 cc/min. to 80 cc/min. The results are good. Twenty four hour runs with automatic cyclical head pressure variation by a factor of 2 showed that the flow was held to within 1% of the set value during head pressure variations. There were no readable departures from the control point with time. Below 40 cc/min. the performance appeared as good but the scale could not be read close enough to reliably report the performance.

The equipment involved is a 0.025" orifice, a 0 to 50 differential pressure transmitter, a booster pilot valve, a recorder controller having adjustable sensitivity and reset rate, a valve positioner, and packless valve.

100 Area - Specifications have been written for the following:

1. High Tank Level
2. Pressure Monitor
3. Rod Water System
4. Gas flow, pressure, and temperature system
5. Gas analysis unit (105 Building)
6. B.G.S.T. System (Biological shield, Graphite and Steel Temperature)

Specifications are being written for the following:

1. Water sampling and monitoring system
2. 115 Building gas circulating and drying system
3. Gas sampling lines from plenum chambers
4. Health Instrument monitoring

Tube Division

Out of the routine production for the month the following tubes have been tested and accepted:

31 Thin Wall Glass Tubes
11 Mica Window Tubes

Leak Detectors - Two units are in operating condition, a third is ready for test, and two more are yet to be repaired. Two additional units are still to be delivered.

Standards Section

Two standard cells from 100B have been checked and found to be unstable. It is suspected that this may be attributed to their manner of use. This is being investigated.

The following items were requisitioned during the month:

1 Dead Weight Tester (500 pound range)
1 Set of 81 Johanson Blocks and Accessories
1 Electro Limit Gage Block Comparator
1 Light Wave Unit (for flatness testing)
4 Thermometer-reading Telescopes and other auxiliary temperature equipment
2000 Instrument Delivery Tags for Standards Section

DEVELOPMENT DIVISION

The Development Division is currently engaged on the following assignments:

1. Underwater Photographic Periscope.
2. Canned Slug Cap Thickness Measuring Device.
3. Canned Slug Fault Detector.

4. Xenon Computer.
5. Profilometer Design.
6. Hot Laboratory.
7. Improved Counting Rate Meter.
8. Gun Barrel Vertical Slope Gage.
9. Neutron Spectrometer.

Xenon Computer Design

The detailed functional design of the Xenon Computer, including all changes required to solve for the two new input variables, has been completed. The functional design has been delivered to the Technical Department for final approval before detailing all individual elements for the Machine Shop. A minor modification has been made in the gear train, with the rearrangement of one of the differential gears to a position wherein the speed of rotation of the differential is considerably reduced. This change will permit the Xenon Computer to operate faster, if necessary.

Neutron Spectrometer

Discussions and conferences have been attended relating to the proposed design and construction of a Neutron Spectrometer. The device will be designed as a precision mechanical instrument to facilitate reproducibility of measurements. The unit is planned to be supported on two pintles extending from the top and bottom of an open frame.

The complete device mounted on this frame will permit integral calibration in the shop. The frame is then to be permanently mounted and leveled on the far side of the pile around one of the test holes. The spectrometer may then be easily mounted or removed from the pintles on the frame with certainty that its goniometric scale remains in true calibration. The design is not completed and no fabrication work has been done on the instrument.

Optical Section

Construction Report

Underwater Periscope Camera
Master Flatness Tester
Two Borescope cross arms repaired
Twelve transits and two surveyors levels repaired
Fly's Eye 100F cleaned and lens replaced
Canyon periscope lens tightened
Offset viewer for tube bowing problem

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SERVICE DEPARTMENT

AUGUST 1947

PERSONNEL

ORGANIZATION AND PERSONNEL

Employment and Investigations

Effective August 18, one additional interviewer was employed for the Procurement Group.

During the past month two typists were added to the Procurement Group, one being assigned to the Investigations Section.

Two additional office helpers were added to the Procurement Group and one messenger was assigned to the Files Group during August.

One stenographer, temporarily assigned to the Procurement Group, was transferred to the Realty Division of the Service Department during August.

Industrial Relations

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

Public Relations

One clerk was added to the Public Relations Division during the past month and assigned the responsibility of publicizing all activities of the Village Organization.

Education and Training

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

ACTIVITIES

Employment and Investigations

Effective August 1 Norman E. Thompson, chemical engineer in the Technical Department, was loaned to the Personnel Division for the purpose of conducting recruiting of technical personnel at various colleges in conjunction with Mr. M. M. Boring's recruiting group in Schenectady. Mr. Thompson is presently in the Personnel Division on a loan basis, and in the very near future it is hoped that it will be possible to transfer him permanently to this group. During the first two weeks in August he visited Illinois Tech. and Northwestern University at Chicago, and University of Illinois at Urbana, Illinois, along with the recruiting group from Schenectady. Further trips to other universities will be made during the fall and spring.

The recent publicity given the expansion program here at the Hanford Engineer Works has resulted in a large increase in prospective employees seeking employment on this

project. This increase has been so great that it has been necessary to establish a temporary reception room in Building 720. These quarters were made available on August 25. A receptionist, interviewer and one investigator were assigned to these quarters to handle the people seeking employment. As an indication of the number of people calling at the Employment Office, slightly over two hundred were interviewed on August 26.

On August 11 and 12 two representatives of the Personnel Division interviewed personnel of the Bonneville Power Administration, Portland, Oregon, which organization is reducing its force because of curtailment of funds. A total of 141 persons were interviewed and tentative commitments were made to 49.

Due to the lack of space for the accommodation of new employees, the requesting of new people to report for employment was discontinued during the period of August 4 to August 15. In spite of this period of inactivity, a total of 483 people were added to our rolls during the month.

Employment interviews and the volume of new cases received by the Investigations Group continued to increase. A total of 2534 applicants were interviewed, as compared with a total of 2098 during the month of July. New cases received by the Investigations Group increased from 739 in July to 979 in August. At the beginning of the month there were 809 open requisitions, 560 of which were covered by interim commitments. At the end of August there were 913 open requisitions, 724 of which were covered by interim commitments. The acute housing shortage on this project, as well as in nearby communities, continues to be a serious handicap in the procurement of personnel required.

During the past month 26 requests for inter-departmental transfers were received by

Service Department

Four-hundred-eighty-three new employees were given orientation during August. Of these employees, 76% elected to participate in the Group Life Insurance Plan; 79% elected to participate in the Group Disability Insurance Plan; 88% elected to participate in the Pension Plan.

A total of 136 exit interviews were given during the month. This total includes the temporary employees who were hired for seasonal work and were terminating to return to school.

Seven notifications of cancellation of Group Life Insurance were received and these employees were contacted by the Industrial Relations Counselors, and as a result, two of these persons elected to retain their Insurance.

An Instructions Letter for the Weekly Salaried Employees' Rating Plan has been completed and submitted to Management for approval.

Industrial Relations Counselors in the 100 Areas attended 20 employees' group meetings during August. Two meetings were held by the Counselors in the 300 Area, one with Maintenance Shops employees and the other with the Minor Construction employees of the Maintenance Group, for the purpose of discussing various Employee Benefit Plans.

Assistance was rendered to the families of Harry A. Jones and Christian T. Jensen, two employees who died during the month of August. Both of these employees possessed policies under the Group Life Insurance Plan. On August 26 a death message was received at the home of George H. Davis, 1604 Hunt, and was referred to this division, inasmuch as the Davises were on vacation in Canada. Efforts were made to locate Mr. Davis, without success. The sender of the message was notified of this fact.

A list of employees who will be retired during 1948 has been received from the Accounting Department. Arrangements are being made to ascertain the status of the Social Security benefits of these employees through the Social Security District Office, Yakima, Washington.

As of the end of August, the following information reflects the status of the suggestions being processed by the Secretary of the Suggestions System:

Suggestions received and acknowledged		502
Investigation Reports to Department Heads		337
Investigation Reports completed		226
Suggestions granted awards:		
	A. J. Clements	$25.00
	Arnold H. Thress	15.00
	F. M. Gladfelder	5.00
	Wendell I. Rose	5.00
	Mary L. Wheatley	5.00
	A. M. Weir	5.00
	Carl W. Johnson	5.00

Developments during the first two months of the operation of the Suggestion System have substantiated a need for an adequate cross-indexing system of Suggestion numbers, Suggesters' names and Subject matter.

Efforts are being made to provide material of an educational nature concerning the Suggestion System through letters of rejection to the suggesters, as well as through the Works News.

Public Relations

The personnel of this division was increased during the month by the addition of William A. Watts, a recent graduate of University of Illinois. Mr. Watts has been assigned the responsibility of publicizing all Village Organization activities. In addition, he will assist in preparing general news releases for Pacific Northwest papers.

Assistance was rendered to the Works Manager in the preparation of his address to the Washington State Junior Chamber of Commerce meeting on August 9 at Walla Walla. News releases based on this address were prepared by this division in advance for distribution to the members of the press attending this meeting. Immediately following this address a fifteen-minute radio broadcast was made over the Walla Walla radio station. A transcript of this broadcast was flown to Pasco for later broadcast the same evening.

This division handled the arrangements for the luncheon on August 22 and the dinner on August 23 for members of the Atomic Energy Commission who were here visiting this project at that time.

The appearance of Mr. Charles E. Wilson, President of the Company, at Richland Day activities resulted in the preparation of his biography for distribution to all local newspapers. The distribution of copies of Mr. Wilson's address to newspapers in the Pacific Northwest was handled by F. Lowell Garrison, Public Relations Representative of the San Francisco office. Arrangements were also made for the broadcast of the entire Richland Day program by the Yakima radio station and by the Washington State College radio station, located in Pullman, Washington.

A release to all newspapers in the area was made during the month relative to the awarding of the contract for the operation of the cafeteria in North Richland to the Canteen Food Service Company, Inc. A general news release was also sent to all press associates and Northwest newspapers concerning the appointment of DeWitt C. Griffith and Associates for the designing of new facilities for water storage, treatment and distribution in Richland.

This division, in cooperation with the Public Relations offices of University of Washington and Washington State College prepared a general news release announcing the arrangement between these two colleges and the General Electric Company for the granting of college credit for certain courses to be given under the General Electric Educational program, to be held on this project.

Arrangements were made during the month of August to provide the various schools in Richland with General Electric Photo News Service. This service includes the distribution of monthly posters to each school for posting on bulletin boards. The Richland school system has also been informed of the various services available from the General Electric Company. A considerable interest was expressed in the films and the various publications that are available as teaching aids.

The following news releases were made to the Richland Villager during the month of August:

1. Courses still open for education program
2. Hazards of new construction
3. Hazards of parking compounds
4. Hazards of Richland Day
5. Hazards of Grass Fires - cigarette disposal
6. Hazards of amateur electricians
7. Hazards of improperly mooring boats
8. Request not to plant sagebrush
9. Capt. Pigg made Fire Marshal
10. Patrol promotions
11. Food left on stoves (Home Safety Series)
12. Request to Villagers to rent spare rooms
13. Announcement of power shutdown
14. Changing W-4 to offices of Protection Division

A display of the illustrations and architects' sketches of the type of houses to be constructed in Richland was made on the large bulletin directly in front of the Municipal Building on August 29.

Five issues of the Works News were published during the month, the Candid Camera section being inserted in the August 29 issue.

Effective August 15 the Hanford Engineer Works News was increased from four to eight pages. In addition, because of the increase in requests for additional copies, H.E.W. News has increased its circulation.

A series of eight supervisory training films, as well as a sound-slide film issued in connection with the orienting of new employees, were received during the month and reviewed.

Education and Training

To date, total registrations for the educational program number 885. Five-hundred-three of these persons are enrolled in non-college credit service courses. In addition, there are 58 candidates for graduate degrees. As a result of this registration, instruction will be given in 34 subjects, which will require 42 classes. Final approval has been received from both University of Washington and Washington State College providing for our undergraduate classes to be extension classes of both institutions, jointly, and students may secure credit at either the University or the College, as they may choose.

Further conferences during the month at Corvallis and University of Oregon have been successful in clearing the way for cooperation by the University of Oregon and Oregon State College on a graduate level. Approval by the Oregon State College Board at their September meeting has been promised.

The following Supervisory Conferences were held by the Second Management Staff Group:

Date	Subject
August 7	Confidence
August 14	Maintaining Discipline
August 21	Supervisors' Problems
August 28	Cooperation

Summary reports were received from co-chairmen of these meetings, copies of which have been submitted.

Complete arrangements for fifteen additional Supervisory Conferences have been made, and it is planned to start these conferences on September 8.

Compensation and Insurance

1. Insurance Coverage

Acceptance of Notice No. 11 of an increase of the number of positions to the Deputy Sheriff Bond was returned to the Hartford Accident and Indemnity Company.

Statements from the Travelers Insurance Company regarding the charge of $500.00 allocated claim expense in connection with the X-Ray Products Corporation, Property Damage case, has been returned for correction, inasmuch as such allocated claim expense is not covered by the policy.

The National Surety Corporation (Theft Policy) has been renewed on a three-year basis, effective September 1, 1947.

Liberty Mutual Insurance Company has been authorized to continue the Primary Commercial Blanket Bond (Deputy Sheriff Bond) and the Depositor's Forgery Policy for another year, effective September 1, 1947.

A classification of the A, B and C employees has been forwarded to the Liberty Mutual so that the renewal premium may be computed.

Four applications for Class "A" employees have been forwarded to the Liberty Mutual Insurance Company.

2. Life Insurance

Code information used in connection with the insuring of employees on this project was furnished to 25 insurance companies during the month.

3. Compensation

As a result of the meeting held in the office of the Director of the Department of Labor and Industries relative to the termination of our present agreement with the Department, it has been decided that this special agreement will be continued, inasmuch as the Department of Labor and Industries has indicated that it could be continued for an indefinite period. This information was furnished to the Supervisor of Industrial Insurance at Olympia by telephone.

4. Liability

During the past month 11 cases were reported to the Travelers Insurance Company involving paint spray on private automobiles. This spray resulted from the Village residence painting program. The Realty Division is being notified of all such complaints when received.

Seven liability cases were settled by the Claim Adjuster of the Travelers Insurance Company during the month.

5. Claims

	Reported in August 1947	Reported in July 1947	Total Since Sept. 1, 1946
Workmen's Compensation	12	10	79
Liability	20	5	48
Handled for duPont	0	0	

6. Compensation Payments Approved - Department of Labor and Industries

	August 1947		July 1947		Total Since Sept. 1, 1946
	No. of Claims	Amount	No. of Claims	Amount	
Medical Aid	5	$ 448.72	5	$ 253.82	$ 5,771.36
Accident Fund	10	3,352.44	8	1,908.85	42,155.85
Pension Fund	25	1,124.57	24	1,124.57	16,058.94

7. Liability Payments Approved - Travelers - None

STATISTICS

Employment and Investigation

Number of Employees on Rolls	7-31-47	8-31-47
Exempt	1007	1075
Non-Exempt	4638	4936
TOTAL	5645	6011

ADDITIONS

	Exempt	Non-Exempt	Total
New Hires	42	433	475
Reemploys	1	-	1
Reinstates	-	3	3
Transfers from Other Plants	4	-	4
Net Additions	47	436	483
Payroll Exchanges	29*	1**	30
Gross Additions	76	437	513

TERMINATIONS

	Exempt	Non-Exempt	Total
Actual Terminations	7	110	117
Payroll Exchanges	1***	29****	30
Gross Terminations	8	139	147

* Transferred from Weekly Salary Roll
** Transferred from Monthly Salary Roll
*** Transferred to Weekly Salary Roll
**** Transferred to Monthly Salary Roll

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of the 117 actual terminations 55 were junior laborers and temporary laborers who had been employed only for seasonal work on a temporary basis. Approximately 85% of the remaining terminations were on a voluntary basis and most of these were for the following reasons: (a) another job, (b) to return home or needed at home, and (c) pregnancy or did not return from leave.

GENERAL

	July, 1947	August, 1947
Applicants Interviewed	2098	2534
Photographs Processed	3429	3686
Fingerprint Impressions Taken (In Duplicate)	706	917
Procurement Letters Written	1444	2317
Absenteeism Statistics (Weekly Salary Roll)*		
Male	1.14%	1.33%
Female	2.14%	2.00%
Total Plant Average	1.33%	1.46%

* Figures furnished by Weekly Payroll Division

Investigation Statistics

	July, 1947	August, 1947
Cases Pending at beginning of Month	1564	1766
Cases Received During the Month	739	979
Cases Closed	537	319
Cases Pending at End of Month	1766	2326
Number Found Satisfactory for Employment	549	778
Number Found Unsatisfactory for Employment	61	39
Special Investigations Conducted	35	72

PROTECTION

SAFETY & FIRE PROTECTION

Safety

Plant Safety Record - 16 days

Injury Statistics

	July	August	Year to Date
Major Injuries	0	2	6
Non-Tabulatable Major Injuries	0	1	2
Sub-Major Injuries	3	5	16
Minor Injuries	370	380	2,694

Major Injury No. 38 (Non-Tabulatable)

July 28, 1947 - , an employee of the Medical Department, was on duty at the First Aid Station in the 200-West Area. She noticed a stinging pain on her right thigh and on examination found she had been bitten by a small brown spider. She gave herself first aid treatment and stayed on duty until the end of her shift. She also worked the following day, which was the last day on her 'swing' shift, and was off duty on Wednesday and Thursday. Friday, when she reported for day shift, she went to Richland First Aid Station for examination, where it was found the bite had become infected to such an extent that the injured was hospitalized.

Major Injury No. 39

Sub-Major Injury No. 88, which involved an employee of the Service Department, has been classified as a Major Injury because of new developments in the case. The injury date is retroactive to August 4, 1947, when the injury occurred.

August 4, 1947 - , an employee of the Service Department, was emptying waste paper baskets into G.I. cans on the loading platform of the 703 Building. Due to a slight breeze, papers blew from the platform to the ground. The employee walked down the steps to pick up the papers. As she stepped to the landing and was in the act of turning, she stepped on a small rolling stone approximately 1 inch in diameter by 2 inches in length with her right foot. All of her weight was thrown to the left leg, causing the knee to wrench. The employee grabbed and held on to the lower handrail post to prevent falling; however, a left knee sprain resulted. With the aid of another employee, the injured walked to the reception desk where her supervisor was called for aid.

Major Injury No. 40

August 15, 1947 - , an employee of the Medical Department in the Kadlec Hospital kitchen, had the end of the right little finger amputated, received a fracture with lacerations to the right ring

finger and lacerations to right middle finger. The injured was cleaning a power food chopper in the kitchen; with the machine running, when the towel she was using caught in the blades and pulled her right hand into the chopper, causing the injury.

Sub-Major Injury No. 87

August 4, 1947 - , an employee of the Medical Department in the 300 Area, slipped and fell on a wet waxed floor in the hallway between workrooms in the 300 Area badge house. The injured and another employee were working in the east room of the badge house while a sanitation division employee was applying wax to the floor in the hallway. The bell for the badge elevator rang in the west room, and the injured started to answer it. Another employee offered to go instead because the floor was slippery in the hall. The member of the sanitation division who was applying the wax to the hall floor at the time had cautioned the injured three times not to walk across the wet wax. However, the warning was not heeded, and as the injured stepped on the wet wax both feet flew out from under her. She fell backward to the floor and attempted to break the fall with her hands, throwing almost her entire weight on the wrists, which resulted in a fracture of the left radius bone.

Sub-Major Injury No. 89

August 8, 1947 - , an employee of the Transportation Department, assigned to the Accounting Department in the 700 Area, in stepping from the cab of his truck slipped on a rock and fell, striking a sharp blow to his elbow on the edge of the cab floor. Employee stated that he experienced a sensation similar to that of merely striking the 'crazy' bone and did not report to First Aid until August 12. This action was prompted by his experiencing a slight pain when resting his arm on any flat object. After X-raying, the hospital officials detected a small crack or split in the humerus or the lower part of the upper arm.

Sub-Major Injury No. 90

August 12, 1947 - , an employee of the Transportation Department in the 100 Area, was assigned to the Village coaling crew. In attempting to open a chute door of a semi-truck, the lever stuck. He gave it a hard push upward; it released suddenly, striking lever stop and causing a sprain of the right wrist. He was taken to First Aid, arriving there at 3:00 P.M. He was checked by a First Aid attendant and released for work at 4:00 P.M. The First Aid card showed the information - "Sprain - right wrist" - and did not indicate a return date. The man was placed on his regular assignment Wednesday morning, August 13. Later, the First Aid Supervisor called and asked that the man report to First Aid at 1:30 P.M.

Sub-Major Injury No. 91

August 22, 1947 - , an employee of the Transportation Department in the 1100 Area and another employee (light truck driver) were delivering a garbage can partially filled with sand and gravel to the parking lot between Kimball and Farrell Lane (1300 block). After parking the truck, a laborer moved the can from the front of the truck bed to the end for the

purpose of unloading material. The injured and helper proceeded to unload the material by edging the can off the truck bed. When they had eased the can about half-way to the ground, the injured lost his hold on the bottom of the can, permitting it to fall against his leg and, as it went down, the bottom edge of the can struck his left foot above the instep, causing a fracture.

Sub-Major Injury No. 92

August 26, 1947 - , an employee of the Transportation Department at Riverland, was installing a bearing cap and motor bearing (pinion end) of traction motor in frame of Baldwin Diesel locomotive 3721. He was being assisted by two other mechanics, one of whom was operating a pinch bar on the casting. The bearing cap and motor bearing brass was in the six-inch square saddle of a 10-ton floor roller jack and was being pushed up into place. The injured thought the two top bolts of the cap screws (which had been screwed in) were in far enough to fasten, and he went underneath to put in the lower cap screws. The alignment of the casting was not perfect, and the injured shoved the unit sideways with his right hand while steadying it with his left hand. The unit slipped and dropped off the jack, and, in falling, caught the injured's left thumb between the casting and the floor. The casting, which weighed approximately 170 pounds, dropped about 8 inches, fracturing the bone between the joints of the left thumb.

Activities and Experiences

General

During the month, 513 safety meetings were held, with a total attendance of 6,674.

Orders were placed for 59 pair of prescription safety spectacles; 65 pair were received, checked and fitted; and 118 adjustments and repairs were made to all types of safety spectacles.

There were 955,858 exposure hours from July 31, 1947, to and including August 31, 1947.

The Safety Engineer in the three 100 Areas has been transferred to Division Supervisor of Safety for Construction. The Safety Engineer in the 300 Area has been transferred to the 100 Areas. The 300 Area is temporarily being taken care of by supervision out of the Richland office.

A survey of safety conditions was made of the Pasco Storage Depot, and safety regulations for various departments concerned were drawn up.

A Safety Slogan Contest was promoted during the month, ending August 29, and 840 slogans were submitted from the various plant areas for consideration by the contest judges. They were turned over to the chairman of the Program Committee.

Arrangements are being made to promote a School Safety Program similar to the program conducted last year.

The minutes of all safety meetings held during the month of July were compiled and analyzed. This analysis shows the following discussion data for the separate departments:

(a) Scheduled Safety Meetings
(b) Safety Topic of the Month
(c) General Safety Topic
(d) Topic of the Month - Health and Security
(e) Health and Security
(f) Safety Film shown
(g) Films other than Safety
(h) Subjects other than Security, Health or Safety
(i) No. of meetings scheduled
(j) No. of meetings held

There were four investigations held for near-serious injuries in addition to those held for three major injuries and five sub-major injuries during the month.

Construction Safety Division

The Construction Safety Division was organized on August 18, 1947. At present, the organization consists of two Safety Engineers.

At the inset, conferences were held with the General Electric Design and Construction Engineer, the Field Engineer, Atkinson-Jones Project Manager, Personnel Director, and the General Electric Chief Supervisor of the Safety and Fire Protection Division and a Construction Safety Engineer. An outline of the suggested safety program and sub-contractor safety organization was presented and discussed. An agreement was reached in which Atkinson-Jones would set up a safety contact man through whom the General Electric Construction Safety Organization will work with the sub-contractors' safety organization.

3000 Area Inspection

Inspections have been made at the 3000 Area Construction site. Items of general housekeeping and safety were discussed with the sub-contractor craft supervisors, and requests were made to correct these conditions. Cooperation in making these corrections was gratifying.

Morrison-Knudsen - 241 BX Area

Inspections have been made at the 241-BX Area. Conditions safety-wise at the site are not satisfactory. General housekeeping is very poor. The ladders in use were not all properly tied off or supported. The men hooking on the concrete buckets from the flatbed trucks did not have proper working platforms. The scaffolds in use show evidence of continued renailing. There are many unprotecte holes and projecting pipes. There are no safety posters to solicito the cooperation of the workmen.

The conditions enumerated have been discussed with Morrison-Knudsen's safety man. He indicated great difficulty has been experienced in getting compliance with any request, having a tendency to slow down the job. However, he acknowledged willingness to strive for compliance with our requests on the items outlined.

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SAFETY DIVISION - INJURY AND ACTIVITY STATISTICS

	300 Area	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	700-1100 Areas	Hanford Area	3000 Area	Pasco Area	241-BX Area	A & J Const
Minor Injuries	67	4	18	29	50	59	141	8	2	1	61	16
Sub-Major Injuries	1	0	0	0	0	0	4	0	0	0	1	0
Major Injuries	0	0	0	0	0	1 (N.T.)	2	0	0	0	1	0
Days since last Tabulatable Major Injury	281	1059	383	858	320	597	16	153	31	31	-	-
Days since last Sub-Major Injury	27	596	213	73	37	263	9	153	31	31	8	-
Days without a Minor Injury	8	28	20	16	10	5	3	28	29	30	7	19
Safety Meetings Conducted	65	22	27	31	68	94	184	9	5	8	-	-
Number in Attendance	345	162	303	396	808	890	3631	54	21	64	-	-
Safety Spectacles Delivered	8	0	5	2	12	6	32	-	-	-	-	-
Safety Spectacles Serviced	12	0	4	7	40	30	20	5	-	-	-	-

[redacted] 5

MONTHLY INJURY ANALYSIS

Period - August 1 through August 31, 1947

Minor Injuries

	Misc. Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Blisters	Unclassified	TOTAL	
											AUGUST	LAST MONTH
Production P	4	3	3	1	0	2	3	0	0	1	17	17
Production S	2	4	1	3	0	1	1	0	0	1	13	23
Technical	5	7	0	7	1	0	0	0	0	0	20	16
Power	0	1	2	7	0	0	0	3	0	2	15	12
Maintenance	12	20	17	29	10	14	6	15	4	8	135	140
Electrical	3	5	2	4	2	3	2	3	0	0	24	16
Instrument	1	11	2	3	2	1	0	0	0	1	21	17
Service	0	6	3	9	0	4	1	3	1	3	30	33
Transportation	1	13	6	16	2	2	3	6	10	5	64	54
Medical	3	3	2	10	1	3	1	0	1	1	25	25
Accounting	0	3	0	4	1	0	4	0	0	3	15	14
Design & Construction	-	1	-	-	-	-	-	-	-	-	-	1
TOTAL	31	77	38	93	19	30	21	30	16	25	380	
LAST MONTH	46	80	40	83	17	39	12	24	19	10		370

Fire Protection

Fires	Number of Fires		Estimated Damage	
	July	August	July	August
Village	13	16	$3,596.50	$89.25
Plant Area	4	7		
Miscellaneous	12	2		
Total	29	25	$3,596.50	$89.25

Village

August 12, 1947 - A towel hanging on kitchen wall directly above range was ignited by a hot plate on the range at 1217 Perkins. Smoke damage to walls of kitchen estimated at $35.

August 17, 1947 - A burning cigarette carelessly dropped on bed ignited and burned mattress and spots on floor in the home occupied by [redacted]. Estimated damage - $44.25.

August 28, 1947 - Burning cigarette ignited mattress in home of [redacted]. Estimated damage $10.

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

The total loss from fires during 1947 is $8,439.75. The loss during the same period in 1946 was $12,804.45.

Inspection was made of 43 homes and 203 buildings in the Village during the month.

A suitable program is being prepared for National Fire Prevention Week, October 5 to 11.

Two firemen were assigned to home inspection during this period.

The Inspection Section conducted extensive inspection of the Pasco warehouses and the construction activities in 3000 Area, and placed additional first aid fire appliances where needed.

Routine Duties

Fire Extinguishers

Inspected	3,152
Installed & Relocated	98
Refilled	296
Repaired	1

Fire Drills and Lectures

Outside	149
Inside (House Drills)	224
Auxiliary Brigade	42
Safety Meetings	59

Gas Masks

Inspected - 86
Serviced - 15

All fire alarm boxes in the Village and Plant areas were tested.

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

GENERAL DIVISION

Laundering volumes were as follows:

Plant Laundry (Bldg. 2723)	July	August
Coveralls - Pieces	16,530	15,410
Towels - "	6,076	5,312
Miscellaneous "	33,423	32,829
Total Pieces	56,029	53,551
Total Dry Weight - Lbs.	77,045	72,623
Richland Laundry (Bldg. 723)		
Flatwork - Pieces	34,697	34,368
Rough Dry- "	20,736	17,320
Finished - "	2,514	2,870
Total Pieces	57,947	54,558
Total Dry Weight - Lbs.	33,030	31,098

CLASSIFIED FILE

An inventory of all secret and confidential documents controlled by the Central File was begun. This inventory is being made in an effort to determine whether there are any documents of a critical nature that cannot be accounted for either by the Central File or the individuals to whom they are charged.

Following is a breakdown of the volume of work handled during August as compared with July:

	July	August
Classified Documents Received (In Mail)	392	599
Unclassified Documents Received (Total)	4,208	3,658
Classified Documents Issued	2.981	2,858
Inter-Area Transfer (Classified)	7,613	7,809
Documents Routed (Classified)	5,675	6,135
Requests for File Documents (Classified)	3,298	3,007
Requests - Technical Library	552	331
Books Routed - Library	346	782
New Books Received	148	(Will be recorded in Sept.)
Documents transmitted to A.E.C. for transmission offsite	149	5
	25,362	25,184

The staff of the Central File was decreased with the termination of an office helper who had been on leave of absence for the past nine months.

Technical Library

Adequate centralized records have been set up on all periodicals. Back numbers of currently received periodicals have been sent out for binding.

Cataloging of the present library continues. Library of Congress cards have been ordered for all books on hand as well as those on order but not received.

PATROL AND SECURITY

General

A Construction Security Office was established in the northeast wing of the 3005 Building, 3000 Area, on August 11, 1947. In the establishment of this office, new procedures went into effect concerning badges, passes and Material and Package Passes for all personnel of sub-contractors and venders.

Audit of Classified Files was begun on August 18, 1947, to determine our exact position with regard to technical and scientific documents.

The 213 Building in 200-West Area is now being used for storage of certain restricted data consigned for E. I. du Pont de Nemours & Company.

Effective August 8, 1947, the protection and policing of the 3000 Area (North Richland) was assumed by the Patrol Division. A shift commander was assigned to each of four companies, and a Captain was placed in charge as Area Commander. A Patrol headquarters was established in what was formerly the Army Supply Officers Hutment.

Effective August 25, 1947, the 1-A, 1-B and 1-C barricades were discontinued.

An additional fence patrol was placed in effect August 25 in the 100-B, 100-D, 100-F, 200-E and 200-W Areas to be manned twenty-four hours daily.

An additional Outer Area patrol car was placed in service August 25; one car covering roads in the vicinity of the 100 Areas and the other in the vicinity of the 200 Areas.

Eight Ford Sedans and one Chevrolet Carryall were obtained during the month to supplement our present equipment in handling new Patrol posts. Eight Patrol vehicles were excessed during the month.

Four new two-way radio units were obtained and installed during the month.

The security offices and personnel, formerly located in the 720 Building, were moved to new quarters in the 760 Building.

Organization

One Section Supervisor, G. Roney, was added to the personnel of the Construction Security Office, 3000 Area.

The following promotions in the Patrol Division were announced, effective August 1, 1947:

Promotion to Division Supervisors:

S. F. Campbell	In charge 200 Areas
L. D. Wright	In charge Training
A. L. Funk	In charge Administration
A. A. Layman	In charge Richland Area

Promotions to Captains:

C. Uhrenholdt	Area Commander - 100-F Area
D. J. Hensley	Area Commander - 200-East Area
H. Norris	Area Commander - 200-West Area
C. H. Overdahl	Area Commander - North Richland Area
C. F. Klepper	Administration
J. Johnson	Crime Prevention
A. E. Barron	Traffic Accident and Investigation

In addition, twenty-one Sergeants were promoted to rank of Lieutenant, and ten Patrolmen received promotions to rank of Sergeant.

PATROL

Nine special duty escorts were handled.

The 200-East and 200-West Areas handled 372 special escorts within the 200 Areas.

Requests handled totalled 977, mainly consisting of opening doors and gates for employees of other departments.

A total of 137 unusual incident reports was received, which consisted mainly of traffic violations, accidents, and lost or misplaced area badges and pencils.

Escorts of personnel into classified areas for first aid treatment totalled 294 for the month.

Practice evacuations were held in the 200-East Area on August 5, in the 100-D Area on August 7, in the 100-F Area on August 21, and in the 100-B Area on August 27.

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

Training

Basic training for new patrolmen and M-8 light armored car training for members of the 100 Areas is being continued.

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

	June		July	
	No.	Percent	No.	Percent
Unqualified	21	7	10	3
Marksman	73	25	87	26
Sharpshooter	57	20	68	21
Expert	145	48	167	50
Totals	296	100	332	100

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

High team average	269	100-F
High Area Average	255-29/51	Richland
High Individual Score	291	100-B & 300 (Tie)

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

	June		July	
	No.	Percent	No.	Percent
Unqualified	3	1	2	1
Marksman	13	4	7	3
Sharpshooter	41	15	53	17
Expert	224	80	235	79
Totals	281	100	297	100

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

Health talks were given on "Summer Do's and Summer Dont's".

	June	July	August
Classified escorts	9	12	13
Check on absentees	2	8	9
*Persons assisted	223	317	295
Doors and windows found open in commercial fac.	83	87	95
Lost children found	4	6	8
Ambulance runs	36	28	40
Lost dogs reported	1	4	8
Dog and cat complaints	28	42	45
Persons injured by dogs	15	9	11
Totals	401	513	524

11 *Includes: Escorts from Cashier office and bus terminal to bank; persons

admitted to residence; transportation for nurses and technicians to hospital on special night calls; delivery of messages to residents who have no telephone; and opening trailer parking lot for individuals.

SECURITY

Security Education

New Security Handbooks were printed and issued to all new employees as of August 11, 1947.

G. E. Security Bulletin No. 12, entitled "Supply and Demand" was issued as of August 26, 1947.

G. E. Security Bulletin No. 13, entitled "Procedures for Processing Classified Matter", was issued under the date of August 29, 1947.

A total of 330 security meetings was held and attended by 5,393 employees throughout the entire plant and administration areas during the period of August 1, 1947, to August 31, 1947, inclusive.

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

	July	August
Number of authorisation cards issued	24	26
Investigation cases forwarded to AEC	1301	205
"Q" clearances received on old employees	81	20

Protection of Plant Facilities

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

July				
Area	A	B	C	Total
100-B	427	866	557	1850
100-D	640	785	601	2026
100-F	643	703	587	1933
200-E	801	892	536	2229*
200-W	871	955	533	2359
200-N	44	604	176	824
300	954	743	293	1990
241-BX	361	209	-	570

*Includes 25 "A" badges at Riverland

August				
Area	A	B	C	Total
100-B	415	917	592	1924
100-D	660	812	639	2111
100-F	661	740	621	2022
200-E	808	921	580	2309*
200-W	878	993	573	2444
200-N	49	614	175	838
300	992	766	319	2077
241-BX	373	224	-	597

*Includes 22 "A" badges at Riverland

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DECLASSIFIED

Service Department

Visitors or Temporary Badges

Area	July	August
100-B	20	23
100-D	46	90
100-F	26	39
200-E	27	33
200-W	31	92
200-N	52	1
300	3	100
241-BX	24	50
Totals	229	428

Plant Visitors

Name - Organization	Purpose of Visit	Access to Areas: Classified	Access to Areas: Unclassified
Schenectady Office Personnel			
W. E. Cass	Consultation	X	
C. S. Duckwald	Inspection and Consultation	X	
D. E. Garr	Consultation	X	
M. D. Hall	Consultation		X
D. A. Hoover	Inspection and Consultation	X	
L. F. Huck	Consultation		X
Z. Jeffries	Inspection and Consultation	X	
W. R. Kanne	Replace and Insp.	X	
D. Marquis	Inspection	X	
J. Marsden	Inspection and Consultation	X	
A. L. Marshall	Inspection and Consultation	X	
D. R. Miller	Inspection	X	
C. E. Reed	Inspection	X	
R. P. Schuman	Inspection	X	
D. C. Prince	Consultation	X	
F. W. Warner	Inspection	X	

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Service Department

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Schenectady Office Personnel (Cont'd)	Purpose of Visit	Access to Areas: Classified	Access to Areas: Unclassified
C. E. Weber	Inspection and Consultation	X	
C. E. Wilson	Inspection and Consultation	X	
E. A. Winne	Inspection and Consultation	X	
Other General Electric Personnel			
W. M. Clifton Seattle, Washington	Consultation		X
H. G. Lehl Portland, Oregon	GE Supply		X
D. E. Thorpe Portland, Oregon	Company Business		X
Allied Project Personnel			
R. J. Anicetti Atomic Energy Commission New York, New York	Consultation	X	
W. M. Byerly Clinton Laboratories Oak Ridge, Tennessee	Inspection	X	
L. J. Brady Air Reduction Sales Corp. Stamford, Connecticut	Inspection and Consultation	X	
F. P. Coman Brookhaven National Lab. Brookhaven, New York	Inspection and Consultation	X	
S. J. Cromer Carbide & Carbon Chemical Corp. Oak Ridge, Tennessee	Inspection and Consultation	X	
R. L. Dobson Irradiation Laboratory Berkeley, California	Consultation	X	
J. C. Elgin Princeton University Princeton, New Jersey	Inspection and Consultation	X	
G. T. Felbeck Carbide & Carbon Chemical Corp. Oak Ridge, Tennessee	Inspection and Consultation	X	

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Service Department

Allied Project Personnel (Cont'd)	Purpose of Visit	Access to Areas: Classified	Access to Areas: Unclassified
L. R. Gilbertson Air Reduction Sales Co. Stamford, Connecticut	Inspection and Consultation	X	
J. E. Hudgens Clinton Laboratories Oak Ridge, Tennessee	Inspection	X	
[illegible]. Hurd Carbide & Carbon Chemical Corp. Oak Ridge, Tennessee	Inspection and Consultation	X	
W. H. Ray Monsanto Chemical Laboratory Oak Ridge, Tennessee	Consultation	X	
F. W. Sunderman Brookhaven National Laboratory Brookhaven, New York	Consultation	X	
W. R. Williams Atomic Energy Commission New York, New York	Inspect tele phone installations		X
Outside Service Personnel			
R. S. Apple E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation	X	
F. W. Balcer Air Reduction Sales Corp. Stamford, Connecticut	Inspection	X	
L. W. Base Air Reduction Sales Corp. New York City, New York	Inspection	X	
M. E. Bennett Baldwin Locomotive Works San Francisco, California	Inspect RR equipment at Riverland Yards		X
C. R. Binner H. K. Ferguson Company New York, New York	Consultation	X	
J. E. Binns Brookhaven National Lab. Brookhaven, New York	Consultation	X	

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Outside Service Personnel (Cont'd)	Purpose of Visit	Access to Areas: Classified	Access to Areas: Unclassified
G. S. Brown Massachusetts Institute Tech. Cambridge, Massachusetts	Consultation	X	
P. E. Church University of Washington Seattle, Washington	Consultation		X
D. H. Gurinsky Brookhaven National Laboratory Brookhaven, New York	Consultation	X	
F. W. McCloska H. K. Ferguson Company New York, New York	Consultation	X	
W. M. Pease Massachusetts Institute Tech. Cambridge, Massachusetts	Consultation	X	
R. Powell Massachusetts Institute Tech. Cambridge, Massachusetts	Consultation	X	
H. T. Sawyer Bailey Meter Company Seattle, Washington	Inspection and Consultation	X	
T. V. Sheehan H. K. Ferguson Company New York, New York	Consultation	X	
A. Sise Massachusetts Institute Tech. Cambridge, Massachusetts	Consultation	X	
G. W. Watt University of Texas Austin, Texas	Consultation	X	
L. D. Wilson E. I. du Pont de Nemours & Co. San Francisco, California	Auditing Work		X
General Service Personnel			
L. F. Busse Crosse Hinds Company Seattle, Washington	Company Business		X

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DECLASSIFIED

Service Department

General Service Personnel (Cont'd)	Purpose of Visit	Access to Areas	
		Classified	Unclassified
D. D. Davis University of Texas Austin, Texas	Interview		X
D. F. Devine Brown Instrument Company Portland, Oregon	Company Business		X
C. S. Hicks Wesix Heater Company Portland, Oregon	Company Business		X
G. W. LaRue Wesix Heater Company Portland, Oregon	Company Business		X
C. A. Martin Graybar Electric Company Seattle, Washington	Company Business		X
H. Schmidt University of Texas Austin, Texas	Interview		X
L. B. Scott Shell Development Company Emeryville, California	Interview		X
F. A. Waker Crosse Hinds Company Portland, Oregon	Company Business		X
W. H. Wannamaker Brown Instrument Company Philadelphia, Pennsylvania	Company Business		X

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PATROL DIVISION - TRAFFIC CONTROL STATISTICS

Motor Vehicle Accidents

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	July	August	July	Aug.	July	August	July	August
Plant	2	2	0	0	0	0	1	0
Richland	10	21	0	0	1	0	1	5
Totals	12	23	0	0	1	0	2	5

Accident Causes

	Negligent Driving		Failure to Yield Right-of-Way		Reckless & Drunken Driving		Miscellaneous Causes	
	July	Aug.	July	August	July	August	July	August
Plant	2	1	0	0	0	0	0	1
Richland	6	8	2	9	1	0	3	4
Totals	8	9	2	9	1	0	3	5

Plant Warning Traffic Tickets Issued

	Speeding		"Stop" Sign		Parking		Improper License		Defective Equipment		Totals	
	July	Aug.	July	August	July	Aug.	July	Aug.	July	Aug.	July	Aug.
Plant	0	0	0	0	0	0	0	0	0	0	0	0
Richland	13	24	5	14	111	132	5	29	43	51	177	250
Totals	13	24	5	14	111	132	5	29	43	51	177	250

Court Citation Traffic Tickets Issued

	Speeding		"Stop" Sign		Drunken Driving		Reckless Driving		Negligent Driving		Other Violations		Totals	
	July	Aug.	July	August	July	Aug.	July	Aug.	July	Aug.	July	Aug.	July	Aug.
Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Richland	5	11	5	8	0	0	0	0	5	5	8	9	23	33
Totals	5	11	5	8	0	0	0	0	5	5	8	9	23	33

Traffic Volume

Richland - Downtown Stre + (Average car count - 24 hour period) 11,0 7 No count obtained - machines at factory

PATROL DIVISION - RICHLAND OFFENSES

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Offenses July	Actual Offenses August	Offenses Cleared By Arrest	Offenses Cleared By Other Action	Perpetrators Involved
Assault	0	0	2	0	0	0	0
Attempted Suicide	0	0	0	0	0	0	0
Burglary-Breaking and/or Entering	4	1	4	3 (a)	0	1	4
Larceny-Theft (except auto & bike):							
(a) - $50.00 and over value	4	1	1	3 (b)	1	0	2
(b) - Under $50.00 value	13	2	8	11 (c)	0	3	6
Auto Theft	2	0	2	2	0	0	(u)
Bicycle Theft	1	1	1	0	0	0	0
Destruction of Government Property	4	0	1	4 (d)	0	1	2
Destruction of Personal Property	3	1	4	2	0	0	(u)
Disorderly Conduct	3	1	0	2	0	1	2
Drunkenness	3	0	3	3	3	0	3
Embezzelment and Fraud	0	0	0	0	0	0	0
Forgery	0	0	0	0	0	0	0
Gambling	2	0	0	2	0	2	14
Missing Persons	2	0	0	2 (e)	0	2	2
Offense against family & children	0	0	1	0	0	0	0
Prowlers	3	0	0	3 (f)	0	2	10
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	0	0	0	0	0	0	0
Miscellaneous	2	0	0	2	0	0	(u)
Juveniles (other than reported above)							
Disorderly Conduct	4	0	2	4 (g)	0	4	14
	50	7	29	43	4	16	59

(a) - One of the offenses was perpetrated by four juveniles, of ages 9, 11 and 12 years.
(b) - One of the offenses was perpetrated by two juveniles, ages 16 and 17 years.
(c) - Three of the offenses were perpetrated by six juveniles, ages 8, 9, 15 and 16 years.
(d) - One of the offenses was perpetrated by two juveniles, age 9 years.
(e) - One of the offenses was perpetrated by a juvenile, age 16 years.
(f) - Two of the offenses were perpetrated by ten juveniles, ages 9, [illegible] years.
(g) - Four offenses were perpetrated by fourteen juveniles, ages 4, 6, 7, [illegible] years.

PATROL DIVISION - COMPARISON CHART OF RICHLAND OFFENSES

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

Classification	Wash., Oregon & Calif. Six Months (July-Dec 1946)	Wash., Oregon & Calif. One Month Average	Richland Six Months (July-Dec 1946)	Richland July 1947	Richland August 1947
Murder	.813	.135	0	0	0
Robbery	21.51	3.585	0	0	0
Aggravated Assault	9.74	1.623	.33	1.33	0
Burglary	112.13	18.687	1.66	2.66	2.0
Larceny	292.17	48.695	10.22	6.66	9.33
Auto Theft	80.32	13.386	.44	0.66	1.33

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

Classification	State of Washington Six Months (July-Dec 1946)	State of Washington One Month Average	Richland Six Months (July-Dec 1946)	Richland July 1947	Richland August 1947
Murder	.269	.045	0	0	0
Robbery	5.98	.996	0	0	0
Aggravated Assault	1.58	.263	.33	1.33	0
Burglary	37.47	6.245	1.66	2.66	2.0
Larceny	95.15	15.858	10.22	6.66	9.33
Auto Theft	31.03	5.171	.44	0.66	1.33

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

	National Average (July-Dec. 1946)	Richland Six Months (July-Dec 1946)	Richland July 1947	Richland August 1947
Robbery	27.2%	0	0	0
Burglary	30.2%	16%	25%	33%
Larceny	43.0%	2.19%	20%	28%
Auto Theft	37.3%	16%	50%	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.

MUNICIPAL ADMINISTRATION

VILLAGE EXPANSION AND IMPROVEMENTS

Street layouts in the new housing areas in Richland were reviewed and certain changes were recommended to Design and Construction Department.

Review of the needs of North Richland for such public facilities as churches, schools, Post Office and Municipal Administrative office space was made and forwarded to the Design and Construction Department.

In order to alleviate the increasingly difficult parking situation in the 700 Area, work orders were issued for the installation of increased parking facilities in the triangular intersection of Swift and Stevens Drive.

Recommendations were made to Design and Construction Department following the approval in principal by the Village Expansion Committee relative to the construction of a bypass road to the west of Stevens Drive, extended, which is planned to relieve the heavy volume of traffic between the village limits and North Richland. Study upon the exact location and type of this bypass road is now under way.

A display sign was erected in front of the Municipal Building to provide Richland residents with information and plans relative to the Village Expansion Program.

Work upon the extension of irrigation outlets throughout the village was completed with the exception of the area south of Marcus Whitman School and the shelter belt scheduled for planting this fall west of Wright Avenue between Lee Boulevard and Thompson Street

DUST CONTROL AND LANDSCAPING

Work on the seeding of inner block areas progressed through the month with seven additional areas along the perifery being completed and five blocks on which work had been solicited by interested residents of the neighborhoods. It is contemplated that by the end of the current planting season four additional blocks will have been finished as well as the open area immediately south of Marcus Whitman School.

VILLAGE REGULATIONS

The revision of village regulations so as to make them applicable to North Richland has been completed for review by Management.

VILLAGE INFORMATION

An article was published in "The Richland Villager" as recommended by the Public Health Section, and by the Dust and Pollen Committee, relative to the planting of sage brush in the village as decorative shrubbery. The article urged residents of the village not to plant sage brush due to the allergic effects of it's pollen and requested the removal of the bushes that have already been planted on residential premises.

ORGANIZATIONAL CHANGES

Administrative functions relative to the Washington State Employment Service, Veterans Administration and Post Office were transferred from the Realty Division to the Municipal Administration.

The Community Activities Division of the Municipal Administration moved its location from the Municipal Building to the south end of the 720 building in order to have adequate space for its increased personnel.

CEREMONIES

G. C. Houston represented the Village of Richland in a ceremony sponsored by the Northwest Conservation Tourway commemorating the Lewis and Clark Expedition and in connection with their program for development of the Pacific Northwest.

VILLAGE SAFETY COMMITTEE

Action taken by the Village Safety Committee during the month of August may be listed as follows:

Traffic Control

(a) Recommended the prohibition of U-turns in the business section of Richland.

(b) Established a 25-mile-per-hour speed limit within the limits of the 3000 Area.

(c) Recommended the procurement of a professional traffic engineer to study village traffic problems.

(d) Recommended the immediate installation of two manually operated traffic lights at the intersections of Goethals and Manfield and Goethals and Knight streets and the procurement of four automatic traffic lights to be installed in the downtown areas as the need arises.

(e) Installation of a sign to better protect pedestrian traffic at the cross walk immediately west of the Recreation Hall.

(f) Prohibited parking in the northern portion of the triangular intersection of Goethals and Stevens Drives and initiated the preparation of a temporary parking compound in the southern portion of the intersection.

Accident Prevention

(a) Recommended safety measures relative to filling stations.

(b) Recommended measures to increase safety consciousness, particularly for the protection of children, as a result of the new construction program in the village.

(c) Recommended publicity, uring that residents take proper steps for the home installation of electrical appliances and wiring.

(d) Adopted recommendations of Realty Division relative to changes in certain bathroom light switches and the handling of fuses in village dwellings.

Fire Prevention

(a) Recommended the use of a specific type of upholstering material to be used for the reupholstering of furniture used in public buildings.

(b) Recommended measures to be taken relative to the flame-proofing and selling of Christmas trees.

Publicity

Newspaper articles were prepared for publication on the following subjects:

(a) The safety hazards involved in the dobking of boats on the river.

(b) Warning residents of the potential danger of operating light switches when hands are wet.

(c) On the hazards of installation and alteration of electrical outlets in private homes.

(d) On the fire hazards resulting from careless disposal of cigarettes.

(e) On the danger existing at locations where new construction will take place.

(f) The hazards involved to children from automobiles entering and leaving residential parking compounds.

(g) The safety precautions set up for Richland Day activities.

[redacted]

COMMUNITY ACTIVITIES

Due to project housing requirements, it was necessary to move the Youth Council from Dormitory W-16, and arrangements were partially completed for moving the Hi-Spot Club from Dormitory W-17. Administrative offices of the Youth Council, as well as the offices of the Girl Scouts, Camp Fire Girls, and Boy Scouts, are now located in the West Social room of the Recreation Building. Recreational activities are ceneted in the ballroom of the Recreational Building, and the Youth Center Craft program was transferred to the basement of the old Red Cross Building, 92-X. The Hi-Spot Club program will also be conducted in the ballroom of the Recreation Building. Junior Chamber of Commerce offices (Richland Office and State Office) will be moved to the north half of the hutment east of Villager's, Inc.

The Community Activities Division assisted various groups and committees in arrangements for Richland Day, including Safety clearance for activities, patrol protection, and general expediting work done by the General Electric Company on a backcharge basis.

On August 12, 1947, the minutes of the July 31, 1947, meeting of the Recreation Advisory Committee were approved by the Area Manager. This included the recommendation that the Richland Health Council, which was organized to secure the interest and support of women of the community in the health and safety programs, be approved as a Richland organization. On August 27, the minutes of the August 19 meeting were approved by the Area Manager, including the committee's recommendation that approval be granted for the organization of the "Richland D. J. Samuel Taylor Guild of Children's Orthopedic Hospital" and the "Woman's Benefit Association".

The daily average attendance at the Richland Park Swimming Pool was 550, with a peak attendance of 759 on Sunday, August 17, and the low attendance of 70 on Friday, August 20. On 10 of the operating days there were 30 to 90 persons waiting to enter the pool after the capacity number had been admitted on the hours between 2:45 and 4:45 p.m.

The "Learn to Swim" classes, sponsored by the American Red Cross with assistance from the Junior Chamber of Commerce, were concluded on Thursday, August 21. The total enrollment for the classes during the four weeks of operation was 169. The total number qualifying for the American Red Cross Beginners' Certificate was 23.

The softball league completed scheduled games during the month with the tournament scheduled for Richland Day. The State District Softball Tournament was held at the George Washington Way lighted field.

The Richland Tennis Club sponsored a tournament during August in all grades of competition, finals to be played on Richland Day.

Service Department

The Camp Fire Girls and Girl Scouts sponsored a Day Camp for Girls of Richland, ages 7 to 14, in the Village Park from August 18 through August 22. Attendance at the camp included 192 girls with a total of 45 adult and junior assistants. On Friday, August 22, 1947, 60 girls from grades 1 to 4 camped over night in the park, and 59 girls camped over night at the permanent Boy Scout Camp on the Yakima River. The above groups were chaperoned by adult leaders and mothers. Activities of the camp included daily flag-raising ceremonies, instruction in fire building, first aid, knot tying, signaling, outdoor cooking, folk dancing and singing, blanket rolls and handicraft work.

Schools

Preschool enrollment in Richland as of August 29, 1947, was tabulated as follows:

Sacajawea Grade School	1,003	
Marcus Whitman Grade School	662	
Lewis & Clark Grade School	826	
Jefferson Grade School	360	
Total, Grade Schools		2,851
Columbia High School		768
TOTAL, ALL SCHOOLS		3,619

This represents an increase of 357 pupils over the total enrollment as of May 29, 1947. Additional increases are anticipated during the first week of school due to incomplete preschool enrollment.

As of August 31, 1947, contracts effective September 1, for one school year, had been issued to 202 school employees. This includes all paid personnel of School District No. 400.

The Health Round-up, sponsored by the Public Health Section, ended Friday, August 22. The Round-up is conducted for the kindergarten children and new pupils moving into the School District, who have never attended the Richland Schools. These pupils are given a complete physical, along with dental examination and shots for Diphtheria, Whooping Cough and Smallpox.

The Administrative offices of School District No. 400 were moved from the Columbia High School to the Marcus Whitman Grade School on August 21, to permit the required office space assignment to high school personnel.

An additional storage hutment has been installed at the Columbia High School. The five classroom hutments were moved from the High School with three being relocated at Lewis and Clark Grade School and two at the Marcus Whitman Grade School. Utility connections will be completed in time for these additional classrooms to be used by the second week of school.

Service Department

All required school building maintenance work was completed prior to the opening of the six schools. The patch seeding, plaster repairs and sanitary painting were completed August 25.

On August 31, 1947, there were 33 children enrolled in the Richland Nursery School with an average attendance of 21. This is a decrease in enrollment of 13 children during the month. On this day there were 19 children enrolled in the Extended Day Care program of the Nursery with an average attendance for the month of 12, representing an increase in enrollment of 2 children during the month.

COMMUNITY FACILITIES PERSONNEL

The number of full time paid personnel employed by village schools, churches and organizations as of August 31, 1947, is listed as follows:

Schools	30
Churches	16
Community Organizations	64
Total	110

Major Activities during the month included:

August 4	U.P. Church Picnic	Richland Park
August 11	Treble Clef Picnic	Richland Park
August 14	"S" Department Picnic	Richland Park
August 14	Richland Laundry Picnic	Richland Park
August 17	Redeemers Lutheran Church Picnic	Richland Park
August 18-22	School Health Round-up	Grade Schools
August 18-22	Girls Day Camp	Richland Park
August 22-24	Dormitory Club "Rough It" Trip	Blue Mountains
August 31	Pre-Richland Day Program	Stadium

[redacted]

Service Department

REALTY DIVISION

GENERAL

The Realty Division has as its general responsibility the landlord relationships involving assignment and leasing of houses, procurement and performance of commercial facilities and village engineering in connection with the expansion program in the Village. Also, the responsibility for the operation of the camp at North Richland has been assigned to this Division and plans have been made for the procurement of an adequate force to administer the camp. Meetings have been held with Design and Construction relative to the requirements at North Richland and a list of all facilities required at that site has been forwarded to them.

Meetings are held from day to day with representatives of Design and Construction with a view toward setting up the necessary requirements of both housing and commercial facilities, checking the preliminary plans to be sure that they are functionally adequate. Also, meetings are held jointly with members of that organization to determine locations for new housing groups and orientation of the houses themselves.

PERSONNEL

Additional personnel acquired during the month of July, 1947, is as follows:

3 Section Supervisors
3 Clerks
4 Junior Clerks
1 Stenographer
1 Typist
4 Laborers

The total personnel as of September 2, 1947, is as follows:

17 Exempt Personnel
46 Weekly Personnel

The following report is broken into four parts: Housing, commercial facilities, Village Engineering and North Richland activities.

[redacted]

[redacted]

Service Department

Housing

Housing Utilization as of Month End

	Conventional	Prefab	Apts.	Tract	Total
Houses Occupied by Family Groups					
Operations	2244	1176	8	31	3459
Facilities	112	92	-	5	209
Government	112	53	2	24	191
Total Occupied Houses	2468	1321	10	*60	3859
Houses utilized for special purposes	2	-	-	1	3
Houses assigned - (leases written)	-	1	-	-	1
Houses assigned - awaiting tenants	30	8	-	-	40
Government houses - unassigned	-	-	-	**47	47
TOTAL HOUSES	2500	1330	10	108	3948

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

** This includes tract houses boarded up for salvage.

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2472	27	31	2468	Minus 4
Prefabricated	1316	25	20	1321	Plus 5
Apartments	7	3	-	10	Plus 3
Tract	62	1	3	60	Minus 2
TOTALS	3857	56	54	3859	Plus 2

Dormitory Statistics

Dormitories		Occupants	Vacancies	Total Beds
Men - Occupied	8	292	*20	312
Men - Unoccupied	-	-	-	-
Women - Occupied	10	385	**31	416
Women - Unoccupied	-	-	-	-

[redacted]

Community Organizations	1
Medical Department	1
Government Offices	1
G. E. Offices	2
Education	1
Apartments	1
	***25

* This includes 18 beds in downstairs of M-8 not in use. Space being used for office purposes.

** This includes 6 beds in W-9 not in use. Space being used for Supply rooms and dormitory offices. Also 22 beds downstairs in W-16 not being used at present writing.

*** Potential Occupancy 21 Dormitories: (Including 1 assigned to Community Organizations) 8 Men's; 13 Women's.

Census Survey Tabulation

Following is a recap of our census information as of August, 1947. This information is taken from our housing applications and includes only people who were listed as occupants of the house at that time. Births and deaths have not been added or subtracted since the inception of the project:

Total Interviews			3804
Females -	Over 18	4312	
	Under 5	994	
	Between 5 and 6	211	
	Between 6 and 14	1076	
	Between 14 and 18	327	
		6920	
Males -	Over 18	4072	
	Under 5	1012	
	Between 5 and 6	196	
	Between 6 and 14	1125	
	Between 14 and 18	351	
		6756	
Total			13,676
Dormitories:			
	Men	292	
	Women	373	
	Men in T.Q.	114	
		779	
TOTAL POPULATION			14,455

Family size group:	
Family of 2	930
Family of 3	1026
Family of 4	975
Family of 5	532
Family of 6	221
Family of 7	64
Family of 8	25
Family of 9	14
Family of 10	7

Privately owned automobiles located here 4,066

Changes in Housing Procedure

Effective August 1, 1947, the following changes were made in housing procedure:

1. Change in house allocation procedure. Under this new procedure a master list of people now waiting for houses was compiled from the various type house lists. When a house is ready for allocation, regardless of the type house, the first person on the master list, whose family size is comparable to the size house, is called in and offered the house in question.

2. Change in house application procedure. Under this procedure new applicants for houses are routed to this office with an introductory slip from Employment. Applications are then filled out by the applicant with assistance from Realty Division Personnel and approved by the Housing Supervisor.

Rental of Rooms in Private Homes

A canvass of the entire Village was made by Patrol for the purpose of determining how many families would consent to the renting of spare rooms in their homes to incoming personnel. The following results were obtained:

Number of homes contacted	3621
Number will rent rooms	115
Number will possibly rent rooms in near future	101

A good amount of furniture, stolen from unoccupied houses in the Village in the past, was recovered by Patrol during the month.

Commercial Facilities

The following figures indicate trends in commercial activities as related to various basic items.

	July	August
Cafeteria Meal Customers	43,921	54,993
Percent of room-day occupancy Tran.Qts.	94.35%	95.33%
Gallons of ice cream sold	8,145	7,527
Gallons of milk & cream sold (Carnation)	34,990	40,592
Theater Customer Count	38,222	46,291
Cases of soft drinks sold	9,992	8,677
Gallons of gasoline sold	114,368	132,260
Darigold milk deliveries	13,418	11,530

Total number of Commercial Facility Employees, full and part time, as of August 31, 1947, - 650.

Garmo's Food Store was given permission to construct an addition to existing building and to establish a retail bakery department. Work is to be done at expense of operator, and building addition is to become Government property.

Authorization was given to Campbell's Food Market to construct an addition to existing building and to install a frozen food locker department. This addition is to be constructed at the operator's expense and is to become Government property.

Authorization was given to Diamond 5¢ to $1.00 Store to relocate front entrance doors to provide for an enlarged candy department and improvement in service. Expense involved in making this alteration to building is to be borne by the operator.

Authorization was received from the Atomic Energy Commission to remodel the Style Center building, to reduce the space occupied by the present Women's Wear Facility and to provide space for a new Infants' and Children's Wear store. This work is scheduled for completion before December 31, 1947.

Work order was issued to install a night depository at the Bank.

Work order was issued to cover modernization of east dish washing room in the Cafeteria.

Four additional chairs were supplied to the Barber Shop on a rental basis to provide for increased business, until such time as additional shops are constructed.

Heavy duty industrial type vacuum cleaner was supplied to Transient Quarters to provide better room service.

Metal kennel enclosures are being installed in the Dog Pound, for improvement in sanitary conditions.

Visits were made to Walla Walla and Spokane during the month by R. J. Pederson and W. C. Poe for the purpose of contacting prospective facility operators.

Contracts and Negotiations

On the basis of competitive bidding, the feeding operation at the North Richland construction camp was awarded to Canteen Food Service Incorporated. The formal operating contract is in process of preparation. It is anticipated that the first cafeteria unit will be in operation on September 9, 1947.

A lease dated August 8, 1947, covering use and occupancy of building known as W-17, was entered into by and between this Company and the Junior Chamber of Commerce. This lease was prepared at the request of the former Lessee, Villagers, Inc., and provides for the assignment of building from Villagers, Inc., to the Junior Chamber of Commerce and supersedes the previous lease with Villagers, Inc., dated August 24, 1945.

A Supplemental Agreement, dated August 1, 1947, was entered into by and between this Company and Richland Electric to provide for a method of accounting and the payment of rental on Employee Sales Items sold from the facility.

The lease, dated April 20, 1945, covering use of building known as "137-X" by the Redeemer Lutheran Church (Missouri Synod) was amended to provide for the payment of $1.00 per annum for use of Project equipment and furniture.

The lease, dated December 30, 1944, covering use of building known as "The United Protestant Church" by the Council of Churches and Christian Education for Washington and Northern Idaho, was amended to provide for the payment of $1.00 per annum for use of Project equipment and furniture.

The lease, dated July 18, 1945, covering use of building known as "19-X" by the Richland Luthern Church of the National Lutheran Council, was amended to provide for the payment of $1.00 per annum for use of Project equipment and furniture.

Arrangements were made with the Recreation Building Operator for temporary use by the Youth Council of the main lounge and one social room.

Inventory and Property

A "check-out inventory of W-16 and W-17 was completed during the month since the occupants of the building are moving to a new location.

Service Department

Requests for Establishment of Businesses in Village

A number of individuals expressed a desire during the month to establish and operate businesses in the Village. The interest manifested in this connection was increased over last month. The types of establishments desired are shown in the following list:

Ice Cream Parlor
Beauty & Facial Shop
Ice House
General Insurance Agency
Barber Shop
Jewelry Store
Furniture Store
Legal Office
Milk Outlet
Fountain Lunch & PX
Firestone Store
Grocery Store
Music Store
Roller Skating Rink
Greenhouses
Beer Tavern
Bakery Shop
Shoe Store
Cafe
Corset Shop
Restaurant & Recreation
Launderette
Drug Store
Garbage Removal
Automotive Parts Store
Theater
Drive-In-Theater
Taxi Service
Cold Storage Lockers
Radio Repairs & Parts
Grocery Store
Variety Store
Gift Shop
Western Auto Store
Automobile Agency & Service Garage
Watch Repair Shop
Retail Business
Portrait Studio
Men's Store
Studebaker Agency
Florist Shop
Infant's & Children's Store
Shoe Repair Shop
Baby Laundry Service
Industrial Feeding Establish.
Ice Cream & Confectionery
Department Store
Plymouth & Dodge Agency
Chrysler & Plymouth Agency
Doughnut Shop
Produce Stand
Paint & Body Shop
Meat Market
Women's Apparel Shop
Ice Cream & Sandwich Bar
Riding Academy
Women's Specialty Shop
Leather Good's Store
Diaper Service

Written permission was granted to thirteen (13) Village tenants to conduct the following part-time businesses in their homes:

"Carpet-Mechanic Work"
Sewing Services & Sale of stocking darners
Sale of Engagement Calendars
Sale of plastic picture-frames
Sale of Christmas Cards
Public Stenographic Work
Sale of Stanley Home Products
Service of "JIMMIE WOOD & his ORCHESTRA"
Sale of Kirby Vacuum Cleaners
Custom-made Millinery & Alteration Services
"CHILD-CRAFT" books
Sale of Ex-Cel-Cis Cosmetics
Sale of Encyclopedia Brittannica

Written permission was granted ten (10) individuals, living outside of Richland to contact Village tenants on an appointment basis, in line with existing Village regulations, on the following business matters:

Sale of Wear-Ever Aluminum Wear (2)
Sale of Kirby Vacuum Cleaners
Sale of Insurance (2)
Sale of LaSalle University Correspondence Material
Sale and Service of Westmorland Sterling Silverware (3)
Sale of Rexair Vacuum Cleaners

VILLAGE ENGINEERING

General

The normal duties of inspection, scheduling and follow-up were performed during the month. Priority schedules were set up with Maintenance, Transportation and Electrical Departments outlining the work to be performed in the order most advantageous to the Realty Division. Contacts with members of Design and Construction Group were continued relative to village expansion problems.

Activities

Renovation and remodeling of Tract House L-928 was completed during the month. This unit is now occupied.

Installation of two evaporative coolers at the Cafeteria was completed. These coolers are now in operation.

Six estimates for back charge purposes made during the month.

The securing of pre-fabricated roofs is now complete.

Adequate supports have been installed for the evaporative coolers at Richland Laundry.

Work is progressing on foundations for two prefabs to be moved from Pasco. Foundation plans had been approved before work commenced.

A leaking cooler on Klopfenstein's roof corroded a portion of the roof and covered it with green growth. Cleaning up and repair have been completed prior to the roof being recoated.

Advised Community Activities Group on the location of 5 school hutments - 3 at Lewis and Clark and 2 at Marcus Whitman.

Installation of a sewer connection for Tract House L-932 was completed during the month.

Work was finished on a turn-about compound for the use of trucks serving the M & S Warehouse.

8

Remodeling of W-16 (formerly Youth Center) as a dormitory is ninety per cent complete as of this writing; completion is scheduled for September 5, 1947.

Oil burner now being installed in boiler of Tract House K-781 and the coal stoker removed.

Construction commenced on the addition to Richland Laundry, made necessary by the relocation of water softeners.

The tract house program affecting the moving and renovation of 14 units has been curtailed. It is probable that some 4 units will be renovated at present location.

The rough draft of Tract House Study #2 was given a tentative approval. This Study is concerned with the renovation and remodeling of houses now occupied.

Prepared informational cost estimates for the following items:

Cost of cyclone fencing and necessary gates enclosing the High School Track.

Installation of additional stadium parking lot lighting.

Approved drawings covering a new cooling and heating system for Richland Theater.

Assisted the Maintenance Engineering Section in the location of George Washington Way sidewalk and storm drains.

Rendered aid to the Engineering Section in the preparation of the study concerning the school heating system. Controls were checked and uni-vent discharges measured with and without the addition of baffles. The master control board will be simplified and other changes will be recommended.

Assisted in coordinating work at Farragut, Idaho, with reference to procurement of materials for North Richland.

The routine work orders were reviewed. The order authorizing accumulation of kindling supply was revised to call for maintaining a supply at the Transportation yard entrance and making three deliveries to all Village houses during coming heating season. Two additional routine orders were issued, one to cover movement of furniture in North Richland and one to cover electrical maintenance in North Richland.

Claims of damages, made by Village tenants due to the spray painting program, are now being reviewed by this office before they are referred to the Insurance Unit for settlement.

A new procedure has been established whereby no ash or garbage cans will be furnished to Village tenants.

9

Tenant Service and Village Maintenance Work Order and Progress Report is as follows:

	Incomplete Aug. 1	Issued During August	Incomplete Sept. 1
Patrol Orders, Maint. & Elec.	1481	3127	1556
Work Orders	783	450	1061
Patrol Orders (Trans.)	173	315	227
Back Charge Orders	42	123	45

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

Tract	A	B	D	E	F	G	H	L	Prefab	Total
0	3	7	0	2	0	0	2	1	11	26

During the month, Project forces painted 100 Conventional type houses, 1 tract house and Richland Lutheran Church.

Special Note

Paint Distribution (Kemtone) 263 gallons. Enamel distribution was 8 gallons and 25 quarts varnish, - 500 gallons of enamel were received during the month and are now being distributed. Additional Kemotone colors were received during the month which now amounts to 13 different colors for distribution.

Furniture repair and exchange is moving along very slowly and a heavier backlog is increasing daily, - 409 KD rockers are especially needed for repair and exchange.

Window replacements and linoleum repair on sinks are still very far behind and should carry a high priority. To date 558 linoleum around sinks are in need of repair. Window replacements necessary amount to 333 and bath room painting open orders amount to 86.

50 Alteration Permits were issued during month of August for the following:

Basement excavations	14
Resurfacing of floors	10
Installation of rear door - 3 bedroom prefabs	1
Air conditioner installations	6
Sheet Rock relining of prefab side and rear walls	1
Installation of front door bells	1
Reverse positions of hot water heater	1
Installation of thermostatic damper control	1

10

Installation of Agate cutting machine	1
Installation of Bendix, Thor and Laundercall washing machines	10
Installation of electrical outlets in basement.	1
Installation of electrical outlets in kitchen	1
Installation of extra room in basement	3

NORTH RICHLAND ACTIVITIES

During the month this Division assumed operation of the housing functions in the North Richland construction camp. Existing buildings have been utilized for housing of single men and offices for sub-contractor personnel and General Electric personnel. One entire barrack has been converted into office space, three wings of which are occupied by Atkinson-Jones, and the fourth wing by General Electric Security.

Patrol and North Richland Branch of Realty Division are in hutments, the warehouse adjacent to the existing Mess Hall has been partitioned to accommodate both the Cafeteria Operator and the Realty Division bedroll and furniture requirements. The garage and adjoining hutment are used by Atkinson-Jones as a Receiving Department and for storage.

Work necessary to make these barracks habitable was commenced on the most northerly barracks and has proceeded generally to the south. The barracks have been partitioned, closets added, and a few doors hung. Employees who resided in open barracks have been moved over into the barracks which have been partitioned. Sub-contractor key personnel are assigned to t e former B.O.Q.

On August 4, 1947, the first seven sub-contractor employees were registered into the barracks and the number of occupants has gradually increased to a total of 129 as of August 30, 1947. At the end of the month barracks were furnished to accommodate approximately 100 additional men. The John L. Hudson Company submitted a request on August 29, 1947, for the following housing needs for that sub-contractor and sub-subcontractors:

Week of		Total
9/1/47	50 men	50
9/8/47	100 men	150
9/15/47	150 men	300
9/22/47	150 men	450
9/29/47	200 men	650
10/ 5/47	250 men	900
10/12/47	200 men	1100

11 Atkinson-Jones has not presented a forecast of barrack needs.

Capacity of existing barracks will be a total of approximately 852 beds when renovation is completed. Furniture, sheets and blankets necessary to furnish these rooms are available on the Project.

The North Richland branch of the Realty Division moved its offices to the construction camp on August 26, 1947. Personnel at the beginning of the month numbered three and at the end of the month, nine.

An estimate of barrack furnishing requirements has been prepared and assistance given to the Government Property Section in regard to locating and procuring the needed items. Future office and warehouse requirements have been studied and discussed with Design and Construction. Close cooperating has been extended to sub-contractors, Fire, Patrol, and other departments who have an
12 interest in the construction camp.

TRANSPORTATION DEPARTMENT

MONTHLY REPORT

August 1947

GENERAL

Absenteeism in the Department for the month of August was .95%. This was an increase of .24% over the month of July.

The work order system continued with no change. Work on hand as of August 31, 1947, amounted to 1,132 work orders, estimated at 16,538.8 man days.

ORGANIZATION AND PERSONNEL

Mechanical and Labor Division - W. W. Freeman and C. A. Russell were upgraded to Labor Foreman effective August 1, 1947. H. M. Emmons, Labor Foreman, was reclassified to Shuttle Driver effective August 1, 1947.

Railway and Automotive Division - H. L. Wiltrout, Yardmaster, was retired by the Pension Board effective August 27, 1947.

Because of an increase in volume of work, requisitions for weekly salaried personnel were issued during the month to increase the force of employees by 1 Auto Mechanic, 1 Clerk, 27 Laborers, 1 Oiler, and 1 Shuttle Driver. Total force as of August 31, 1947, was 797.

Force of Morrison-Knudsen, Sub-Contractors, was decreased by 1 and the total force as of August 31, 1947, was 102.

OPERATIONAL ACTIVITIES

Railway Operations, Repairs, and Track Maintenance

1. Railway Operations - Railway operations continued on a normal basis and train movements were effected as scheduled. There were 1,440 cars handled during the month.

2. Repairs - Overhaul of Baldwin Locomotive No. 39-3721 is now 50% complete.

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

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

      1) Installed 6,500 ties.

      2) Installed switch ties for temporary track turn-out at North Richland.

      3) Unloaded twelve cars of treated ties.

AUTOMOTIVE OPERATIONS AND REPAIRS

1. Automotive Operations

   a. This Department received 110,775 gallons of gasoline, 17,457 gallons of Diesel fuel and 2,140 gallons of kerosene during August for Project use.

   b. The extent of automotive equipment usage for the period is indicated by the total monthly mileage of 929,542 for all types of equipment.

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

      Effective August 19, 1947, bus service was inaugurated between Richland and North Richland on No.2 Shift, seven days a week. In addition the last outbound and inbound 300 Area buses on No.1 and No.3 Shifts began making stops at this point for plant personnel.

   d. The extent of Area bus traffic is indicated by the total monthly passenger count of 81,690 and the extent of Village Local traffic is indicated by the total monthly passenger count of 55,196.

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

   f. Off-the-plant special automobile trips (Company business and official visitors) totaled 162.

2. Repairs - Automotive maintenance and repairs functioned in a routine manner. The following items are of interest:

   a. Twenty-four units of automotive equipment were repainted during the month.

   b. The gasoline service station and garage at Pasco General Depot, Pasco, Washington, are now in operation.

LABOR ACTIVITIES

1. Areas

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

   b. 100-F - Repair of floor in 190-F Building continued and is now approximately 75% complete.

   c. 200-W - Installation of shield at 291-U stack - Project C-100 - is now complete.

      Excavation and backfill work has been completed on Project C-155.

Work continued on Project C-120 - 221-T Well Site. Wells 6, 7, 9, 10, 11, 12, and 13 have been completed. Footage on all wells drilled to date totals 1,821.

Work continued on Project C-133 - Special Test Wells. Wells 224-T-4 and 6 have been completed and drilling of wells 231-10 and 361-T-10 is in progress. Footage on all wells drilled on this project to date totals 4,049.

d. 200-E - Approximately 12,250 cubic yards of earth were excavated and 3,500 cubic yards of earth backfilled at Second Cycle Project C-120 which is now 40% complete.

Drilling of Special Dry Well 292-E - Project C-133 - was started. The present depth is 50 feet.

Approximately 9,000 cubic yards of earth were backfilled on Project C-112. This work is approximately 85% complete.

Work was started on Project C-150 and 650 cubic yards of earth were excavated.

e. 300 - Work continued on Project C-141 - Addition to 3717 Building. Concrete pouring is now complete.

Work continued on Project C-142 - Addition to 314 Building. Approximately 99% of the excavation, 65% of backfilling, and 41% of concrete pouring has been completed.

Excavation of temporary drainage of Tile Field toward the river is 65% complete and 1,500 cubic yards of earth were removed.

f. 700-1100 - Work continued on Project C-147 - Engineering Building 760. Excavation and backfilling of sewer lines is 95% complete. Excavation and backfilling of water main is 70% complete. Excavation, backfilling, and concrete pouring on vault foundation is 30% complete.

Work continued on Project C-148 - Combined Maintenance Shops for 700 Area. Excavation of interior footings is 60% complete and pouring of concrete is 10% complete.

Excavation and pouring of concrete is complete on Project C-170 - W-4 Dormitory Addition.

g. North Richland - Road signs were installed restricting speed of main highway traffic through the Area to 25 miles per hour.

Clean-up of barracks was started and is now approximately 30% complete.

h. Pasco - Moving of hospital equipment and supplies from the Pasco Naval Base to Pasco General Depot is approximately 10% complete.

2. Village Services

Project C-134 - Richland Village Dust Control and Landscaping Program - is approximately 25% complete.

Project C-140 - Village "Shot and Cover" Paving - is approximately 75% complete.

EQUIPMENT CONTROL

Ten sedans were transferred from the Administration "A" Motor Pool to Design and Construction Department. Cars remaining in this pool are no longer designated for individuals but are assigned on the "first come first served" basis to personnel formerly on the designated list.

A total of 934 units were requisitioned, and on August 31, 1947, there were 1,062 units on order. Six units were received on orders placed before August 1, 1947, and 8 units were received on orders placed during the month. One unit, a lift truck, was received by Government transfer on a requisition which had been filled last month.

Ten units were permanently assigned to Departments from the Reserve Pool and 11 units were received into the pool.

TRAFFIC DIVISION

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

1. On August 21, 1947, a meeting was held in Richland to discuss further a southern railway connection to the Project over which the Northern Pacific Railway and Union Pacific Railroad would have joint operating rights. Hanford Engineer Works was represented by the following:

   J. L. Dickson
   Roger Harris
   J. E. Travis
   R. T. Cooke

   The railroads were represented by the following:

   Northern Pacific Railway

   R. S. MacFarlane, Vice President

   Union Pacific Railroad Company

   J. C. Albright, Executive Assistant to the President
   R. F. Shields, General Solicitor

   The purpose of the meeting was to discuss and formulate an operating agreement which will be presented to the Interstate Commerce Commission by the interested carriers in order to obtain a certificate of public convenience and necessity permitting them to operate over the proposed Government-owned Project Railroad.

2. On August 11, 1947, a proposal was submitted to the Milwaukee Railroad requesting that Hanford, Washington, be shown as an open station without restriction for the handling of less than carload shipments. This change is necessary in order that less than carload shipments may be received at Hanford for Sub-Contractors and will become effective September 15, 1947, in Leland's Official List of Open and Prepay Stations No. 62.

3. On August 18, 1947, an emergency proposal was submitted to the Pacific Inland Tariff Bureau requesting that carriers take immediate action to publish rates to all Areas of Hanford Engineer Works on the same basis as rates now in effect to Richland, Washington. At the present time an arbitrary rate of 21¢ per cwt. applies on all shipments moving to Areas beyond Richland. This request was deemed necessary due to the fact that on August 25, 1947, all inner barricades were removed and trucks of common carriers were permitted to enter the plant controlled Areas of Hanford Engineer Works on authority of waybills or freight bills without prior United States Atomic Energy Commission clearance for truck drivers and helpers. As a result, the mileage from all shipping points into plant Areas will be greatly reduced and it will no longer be reasonable or just for truck lines to assess an arbitrary on shipments into the Areas.

4. On August 8, 1947, a proposal was submitted to North Coast-California Lines to establish joint through rail class rates between San Francisco and Port Chicago, California, on the one hand, and Hanford on the other, on the same basis as rates now applicable to and from Bowlston, Washington.

5. As a result of rate reductions secured from the carriers, there was a total saving in freight charges for the month of August amounting to $593.88. This makes a total saving to date of $249,981.92.

MEDICAL DEPARTMENT

AUGUST 1947

GENERAL

There was no evidence of sickness to any employee due to radiation exposure.

Annual medical examinations were temporarily discontinued as of August 18th so as to use all available personnel and facilities for the examination of new applicants including subcontractor construction workers.

Dr. F. W. Sunderman, Brookhaven Laboratories, visited the site earlier in the month to study the general medical and health protection program. The end of the month Dr. F. P. Cowan, Brookhaven Laboratories, was here for a somewhat detailed study of the Health Instrument organization and functions.

Total absenteeism for weekly employees dropped from 1.48% to 1.28%. Total absenteeism for weekly employees due to sickness only was 0.28%.

The health topic for the month was on the subject of "Feet".

There was a slight increase in the number of hospital admissions over the previous month. There were 124 operative procedures done during the month as compared to 90 during July. Clinic visits increased approximately 15%.

Medical Department

HEALTH INSTRUMENT SECTION

Organization

The composition and Distribution of the force as of 8/31/47 was as follows:

	100-B	100-D	100-F	200-W	200-E	300	700	P.G.	Total
Supervisors	0	1	3	7	4	12	3	0	30
Engineers	1	4	5	11	10	8	0	0	39
Others	0	5	10	43	21	52	7	5	143
Clerical	0	0	0	0	0	2	3	0	5
Total	1	10	18	61	35	74	13	5	217

General

Dr. F. W. Sunderman, Brookhaven Laboratories, visited the site earlier in the month to study the general Medical and Health Protection program. The end of the month saw Dr. F. P. Cowan, Brookhaven Laboratories, here for somewhat detailed study of the Health Instruments organization and functions.

No general body over-exposure was recorded in the report period.

OPERATIONAL DIVISION

100 Areas

Work Permit Summary

	July	August	1947 To Date
100-B	116	144	952
100-D	1090	672	5175
100-F	595	726	4644
Total	1801	1542	10771

Medical Department

Retention Basin Effluent

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

	100-D	100-F
Power level	250	200
Average beta dosage-rate (mrep/hr)	0.4	0.5
Average gamma dosage-rate (mr/hr)	1.1	1.1
Average total dosage-rate (mrep/hr)	1.5	1.6
Average integrated dose in 24 hrs. (mrep)	36	38
Maximum integrated dose in 24 hrs. (mrep)	41	48
Maximum integrated dose in 24 hrs. (mrep) 1947	53	55

100-B Area

Considerable maintenance work including the removal of the "B" experimental hole thimble was completed. Exposure rates were moderate.

100-D Area

During hydrostatic tests of process tube 1385, two employees were sprayed with active water from the tube. Personal clothing of both men was contaminated and confiscated. Showers were taken immediately but failed to remove all of the contamination which appeared to be localized on the arms and legs and about the face. Repeated soap and water washings reduced all readings to satisfactory levels.

Three other men received contamination on their forearms while taking micrometer readings on the bottom row Van Stone flanges in the discharge area. The contamination was easily removed with soap and water.

Technical personnel opened a hole into the pile by means of the special mechanism at the "B" experimental hole, and exposed a cadmium tube loaded with phosphorus discs. A survey of the beam showed 3.6 rem per hour due to fast neutrons and about 5 roentgens per hour due to gamma flux. The slow neutron flux was only 27 mrem/hr. Personnel were never exposed to the beam and received only slight exposure.

One tube in the pile was emptied and shielded on each end with six grooved steel slugs. With the pile operating, a crescent shaped beam was found at the end of the tube by means of film surveys. A total dosage-rate of 635 mrem/hr was recorded which included 500 mrem/hr due to neutrons. The beam

was shielded with paraffin, cadmium, and lead.

A survey of returned crates disclosed that one contained a "Special Request" sample reading 40 mr/hr through the wall of the box. The sample was removed from the box and placed in a small lead shield. Other crates returned via Hanford depot showed considerable alpha contamination which was spread to clothing and the truck bed.

Fast neutron surveys on the far side of the pile have shown no appreciable increase. However, surveys following pile start-ups show readings about 25% higher than at other times. A fixed neutron monitor was installed to give a continuous record of the flux.

Technical personnel inserted a radium sample into the "B" experimental hole and removed a sample of thorium. Beam readings due to the radium were as high as 32 roentgens per hour; and from the thorium, 54 roentgens per hour. Some difficulty in the transfer of the thorium from the mechanism to the cask resulted in personnel exposure. However, total exposures were not above the accepted tolerance level in any case.

100-F Area

The "B" experimental hole thimble was replaced with some difficulty encountered. After the old thimble was pulled part way out, it could not be removed further until the retaining flange at the face of the pile was taken off. Moderate exposure-rates were obtained at the place of work during this operation and later during the transfer of the thimble to a lead shield outside the building. A maximum dosage-rate of 4 roentgens per hour, in the beam from the open hole, was shielded with lead plugs to allow borescoping in an average dosage-rate of 25 mr/hr.

A special sample loading device, similar to the one at 100-D, was installed at the "B" hole. Surveys around the mechanism, with the pile operating at 35 MW, showed a total neutron flux of about 40 mrem/hr, due possibly to scatter from the open water lines into the hole. During normal operation at 200 MW, and with water flowing through the lines, this total flux was only 10 mrem/hr.

The water level in the storage area basin was lowered in order to replace mattress plates. Irradiated metal was stored in the transfer area pit and sections of the storage area roped off so that the point of nearest approach was only 4 mr/hr. Mattress plates were contaminated but personnel exposure rates were kept at a nominal level. Metal filings from the "B" chute were quite radioactive and showed readings as high as 500 mr/hr.

Vertical rod buffing progressed safely with no undue exposure of personnel to radiation or air contamination. The new buffing equipment appeared to be a considerable improvement over the old, and greatly reduced the amount of active dust in the air. However, respiratory protection is still required during the actual buffing.

Unusual readings were obtained at the top far neoprene seal with a maximum dosage-rate of 140 mrep/hr recorded at the third "T" section from the rear. Readings decreased towards the front and rear of the pile to a minimum of 10 mrep/hr at the front corner. The readings were first detected after the extended shut down but still persisted at month end. The high gas impurity of the helium was thought to be the cause of the readings. Unusual readings at the front face of the pile, up to 10 mr/hr at the shield, were also attributed to impure helium.

200 Areas, T and B Plants

General Statistics

	July			August			
	T	B	Total	T	B	Total	To Date
Special Work Permits	367	286	653	344	263	607	5994
Routine and special surveys	392	425	817	350	422	772	6339
Air monitoring samples	284	432	716	319	438	757	5593
Thyroid checks	229	168	397	170	174	344	3251

Canyon Building

Low level ground contamination was detected at several locations within the T and B plant areas. It was thought to be due to rain water washing the contamination from the building roof as it was first found along the building edge. However, further surveys located isolated spots of contamination at some distance from buildings. Removal of a thin, top-layer of dirt reduced the readings in all cases.

Low level contamination was detected at several locations in the operating galleries and on the exhaust fans in the pipe galleries.

Constant monitoring was required at the 13-4 sample port in the B and T plants and the 6-1 port in the B plant. A maximum dosage-rate of 3 rep per hour was encountered during maintenance work on the T plant 13-4 port; and the maximum exposure rate during sampling was 1.5 rep per hour.

During maintenance work on an impact wrench, protective clothing contamination up to a surface dosage-rate of 175 mrep/hr occurred. No skin contamination was found.

A routine hand check disclosed skin contamination on one employee's arm near the elbow. The previous hand check was taken the preceeding work day and showed no evidence of contamination. No cause for such an occurrence was found.

Significant air contamination occurred in the B Plant canyon along with the opening of cell 6-R and removal of a manhole cover from the 6-3 tank. A maximum air sample result of 6.5×10^{-6} μc/liter was obtained at section 5. Concurrent samples from other canyon locations showed lesser degrees of air contamination. A maximum of 3×10^{-6} μc/liter was recorded on the crane cab C.I. unit, which if compared time-wire with deck samples indicated air contamination at the deck in the order of 10^{-4} μc/liter for a short time near the end of the sample period.

Control Laboratory

A total of 357 non-regulated items was found contaminated on surveys by Technical and H.I. personnel. About 10.5 μg Pu was involved of which approximately 2 μg was found on a drying lamp stored unwrapped in a cupboard. Small waste cartons temporarily stored in the room 1 sample shelves continued to be a problem. Surface dosage-rates as high as 30 rep per hour, and exposure-rates in handling the cartons of 400 mrep/hr, were reported.

An air sample result of 4.6×10^{-10} μg Pu/cc was obtained near a hood in room 7. Product recovery from a grossly contaminated piece of paper was in progress in the hood and accounted for the high result.

Concentration Building

Dust on the inside of the pipe gutter from the T Plant F cell balcony to the F-10 enclosure showed product contamination of about 2,000 d/m/100 cm^2. Only slight coverall contamination was experienced by the employees working in the trench. Considerable protective clothing contamination occurred during work in E cell in the T Plant, but no evidence of personnel contamination was found.

Two instances of foot contamination occurred during removal of spray lines from E cell in the B plant. Some contamination was found on shoes and socks, and was apparently due to dripping or splashing. Skin decontamination

was successful. In another instance a personal shoe was contaminated when the protective rubber came off without the knowledge of the wearer. A spot of fission product contamination reading 75 mrep/hr at the surface was reported on the floor of the F-10 room. The source of such unusual contamination was not determined. No other similar spots were found in the room, or entrance ways to the room.

Waste Disposal Area

Hand contamination occurred during removal of protective clothing after work on an impact wrench at 241U diversion box. The contamination was confined to the hands and was readily removed. In another instance hand contamination occurred during sampling of supernatant liquid from waste tanks. Most likely it was transferred from gloves; it was successfully reduced by means of Lan-o-Kleen soap and water.

An air sample taken near the open 154 B diversion box showed a result of 4×10^{-6} µc/liter. Assault masks were worn. Dosage-rates at the edge of the open box were as high as 6 rep per hour.

The Isolation Building

Air Monitoring

There were 288 spot samples taken of which 264 were below 10-11 ug Pu/cc. The high result of 8×10^{-10} µg Pu/cc was obtained in cell 4 over a steam trap. Repeated sampling in and around this area failed to duplicate such results. Evidently the water seal in the drain line to the sump tank was temporarily broken. Such drain lines are now routinely filled with water each day.

Checks of air currents associated with the hoods in cell 6-B, following the high air results reported last month, showed that with hand manipulations occurring in the hood, it is possible to upset the air stream such that the exhaust system is not sufficient to keep hood air from escaping into the room.

Fifty-seven Little Sucker air samples, run continuously by shifts, had as the high result 8×10^{-11} µg Pu/cc in cell 4.

A total of 256 Big Sucker samples of the exhaust system was taken. Most of these were run in connection with filter media tests.

Surface Contamination

A total of 285 non-regulated items was found contaminated on Technical, H. I., and "S" Department surveys. Seven items were above 20,000 d/m and one item was above 80,000 d/m. Only small areas of floor contamination were reported during the month. No significant skin contamination was recorded.

Gamma Radiation

P.R. Container	11 mr/hr	(maximum)
Process Hood	2.5 mr/hr	"
S.C.	5 mr/hr	"

The 300 Area

General Statistics

	July	August	1947 To Date
Special Work Permits	86	89	730
Routine and special surveys	136	106	840
Smear samples	176	108	1624
Air monitoring samples	148	103	922

Metal Fabrication Plant

Thirty-three air samples were taken in the Extruder Building and 5 results were above 1.5×10^{-4} µg U/cc. The maximum result of 6.1×10^{-4} µg U/cc was obtained at the outgas panel. Nine of 22 air samples taken in Chip Recovery were above tolerance with the high result of 1.2 x 10-3 µg U/cc obtained at the press. Five of the 9 high samples were taken at the sorting table. No high samples results were obtained in the lathe area.

Contamination was found in the septic tank and on the adjacent ground. An analysis of sludge and water from the tank showed alpha activity with concentrations as follows:

Sludge	5.9×10^{-3} µc/g
Water	1.4×10^{-5} µc/l

A process line from the Metal Fabrication Plant is connected to the sanitary sewer and could account for the contamination. Analysis for plutonium was negative.

Medical Department

Several operators were quite extensively covered with film packets in an attempt to measure exposures received. Most results showed little or no exposure but one case, (inspection) showed results as follows:

Operator inspected 1062 slugs in 5 hours work period

	Left	Center	Right
Film placed around belt line	140 mrep	125 mrep	110 mrep
Film placed on arm 5 inches above wrist	110 mrep		85 mrep

Finger film measurements showed no overexposures.

Retention Pond

The maximum results reported on samples taken by Site Survey were as follows:

Location	alpha	beta
Water, inlet	540 ± 20 d/m/liter	1.6×10^{-3} μc/liter
Water, N.W. corner	192 ± 12 d/m/liter	3.5×10^{-4} μc/liter
Mud, inlet	980 ± 18 d/m/g	6.9 μc/kg
Mud, N.W. corner	214 ± 10 d/m/g	1.4 μc/kg

Technical Building

No air sample result from 40 samples taken was above 2×10^{-11} μg Pu/cc.

Uranium contamination was reported in 8 rooms, and product contamination in one room. Plans were formulated wherein product analysis will be confined to room 57 and the spectroscopy laboratory, and fission product work to room 66.

One-hundred forty-five pairs of shoes were checked and two found contaminated. One contaminated pair belonged to an employe transferred from another area. Both were cleaned.

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Laundry, Decontamination and Hand Counting

There was a total of 113,377 items monitored in the Plant laundry, of which 34,073 were checked for alpha radiation. Included were 19,985 coveralls, 41,159 gloves, 30,934 overshoes, and 4464 slacks and jackets.

There were 33 spot and 19 Big Sucker air samples taken, with the high result of 5 x 10^{-11} ug Pu/cc obtained during sorting of 200 West area clothes.

There were 24,098 alpha hand checks, and 31,595 beta hand checks recorded. About 0.1% of the alpha, and about 0.09% of the beta scores were above the warning limits. There was no high score, where no attempt at decontamination was recorded, and all high scores were reduced.

Medical Department

PERSONNEL METERS

Pencils	100-B 100-D	100-F	E & N 200	200-W	300	Total	1947 To Date
Total pencils read:	10,300	11,995	27,197	28,887	23,164	101,543	778,912
No. of single readings: (100 to 280 mr)	36	47	88	76	63	310	2,842
No. of paired readings: (100 to 280 mr)	0	1	2	0	0	3	68
No. of single readings: (Over 280 mr)	105	146	188	113	188	740	5,551
No. of paired readings: (Over 280 mr)	0	1	0	0	1	2	61
Paired readings lost:	1	4	5	0	0	10	40

No significant pencil result of over 100 mr was confirmed by the badge result. All lost readings were investigated where required, and no possibility of overexposure was found.

Badge Resume, 241 BX Area

	August	1947 To Date
Badges processed	1730	8721
No. of readings (100-500 mrep)	0	106
No. of readings (Over 500 mrep)	0	25
Lost readings	5	9

Lost readings occurred as follows:

Badge lost in area	1
Exposed to X-ray	3
Badge dropped in water	1

Badges

	100-B	100-D	100-F	200E	RRT 200N	200W	300	Total	1947 To Date
Badges Processed:	2085	3030	3502	3961	496	4321	5541	22,936	175,307
No.of readings: (100-500 mrep)	0	0	0	9	0	0	85	94	824
No.of readings: (Over 500 mrep)	0	0	0	0	0	0	0	0	18
Lost Readings:	34	4	2	4	9	4	2	59	1020

Forty-six of the lost readings were ascribed to defective film and the remainder were accounted for as follows:

Badge dropped in water	3
Exposed to X-ray	3
Badge lost in area	4
Lost in processing	2
Open-window damaged	1

In no case requiring investigation was a possibility of an overexposure found.

In addition, 1,400 items of non-routine nature were processed.

CONTROL AND DEVELOPMENT DIVISION

Water Monitoring

One hundred eighty eight samples of drinking water were taken during the month. The highest results for alpha contamination were again found in the 300 Area samples which averaged about 13 d/m/liter. The maximum value was 49 d/m/liter for a sample from the #2 well. Other positive readings for alphas were: Pistol Range 12 d/m/liter, Benton City 5 d/m/liter maximum from three samples, 3000 area 6 d/m/liter, Richland #13 well 3 d/m/liter, Columbia Camp 3 d/m/liter and White Bluffs 4 d/m/liter. There was no beta contamination above 5×10^{-5} μc/liter in any of these samples.

Ten test well samples were taken and the samples from Spring 13, Ranch 13, McGee Well and Ford Well all had positive alpha contamination, the maximum being 17 d/m/liter in the sample from McGee Well. Although resamples have not yet been taken it is believed that these high results were caused by contamination introduced in the laboratory by use of contaminated tweezers.

Forty-three Columbia River samples were taken. Positive alpha contamination was found at 181-D, 181-F and at a location above 100-B the maximum being 5 d/m/liter at 181-F. The maximum beta contamination was 1.1×10^{-3} μc/liter in a sample taken from 181-F. The maximum at Hanford was 7.7×10^{-4} μc/liter.

Seventeen samples were taken from the Yakima and two of these had positive alpha contamination which also is thought to be due to contamination during preparation. The positive results were 7 d/m/liter and 3 d/m/liter. There was no positive result for beta activity.

Atmospheric Monitoring

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

	Integrons (mrep/24 hours)		C Chambers (mrep/24 hours)	
Location	July	August	July	August
100-B	0.6	0.6	0.2	0.2
100-D	1.4	1.4	0.3	0.3
100-F	0.5	0.9	0.3	0.3
200-W	1.3	0.7	0.6	0.3
200-E	0.8	2.2	0.4	0.4
Riverland	3.0	2.5	--	--
Hanford	0.5	0.6	--	--
300 Area	2.0	2.4	0.4	0.3
700 Area	0.1	0.2	--	--
Kennewick	0.5	0.1	--	--
Pasco	0.8	0.5	--	--
Benton City	0.1	0.2	--	--

The average dosage-rate in the BX Construction Area was 0.03 mrep/hr which is the lowest observed since the chambers were placed in operation. The value last month was 0.04 mrep/hr.

There were four constant iodine monitors in operation and the maximum reading observed for any 8 hour period was 4×10^{-7} μc/liter at Tower #11 in the 200-E area. Other positive values of about 3×10^{-7} μc/liter were observed at the Southeast corner of the 200 area and on Gable Mountain. The Richland station which was out of service for the last two weeks of the month did not have any readings above 10^{-7} μc/liter.

Forty-four rain samples were collected the maximum being 1.6×10^{-2} μc/liter in a sample taken inside the 200 East area. One Richland sample had 7.8×10^{-3} μc/liter.

Land and Vegetation Contamination

The values for vegetation contamination continued to drop this month. The only locations with more than 0.20 μc/kg were near the 200 areas. The results were:

μc I^{131} per kg

Location	July Average	August Maximum	August Average
North of 200 Areas	0.05	0.17	0.04
Near the 200 Areas	0.42	2.45	0.24
South of 200 Areas	0.13	0.22	0.05
Richland	0.04	< 0.04	< 0.04
Pasco	0.04	0.07	< 0.04
Kennewick	< 0.04	0.09	< 0.04
Benton City	< 0.04	0.06	< 0.04
Richland "Y"	< 0.04	< 0.04	< 0.04
Hanford	0.09	0.12	0.06

Well Drilling

Seven wells were completed during the month and three others are still being drilled. Drilling was resumed on the #6 well at the 361 T area which had been stopped at a depth of 22 feet because of high level contamination (more than 100 μg Pu/kg). The maximum plutonium contamination found below the 22 foot level was 46 μg Pu/kg in the 25 foot sample. The maximum beta contamination was 14 μc/kg at 27 feet. Plutonium contamination persisted to the 40 foot level and fission products to the 75 foot level. One well near 361 T had beta contamination extending down to the 120 foot level. Six experimental perforations were made in the casing of one of the wells as a test of the method for collecting samples from completed wells. Samples from the perforations contained about 75 grams of dirt which is sufficiently large for analysis.

Bio-Assay Laboratory

Three hundred fifty nine urine samples were collected and 339 were counted. A total of 11 resamples are necessary from this group. Only two of these were caused by high results on the samples, the others were caused by low recovery of spike samples run at the same time. Three of the eight resamples from last month have been finished and are satisfactory, the others are still in process. Fifty six samples were run on the fluorophotometer to check for uranium and five of these had between 10 and 20 μg U/liter and one had about 55 μg U/liter. All the others had less than 10 μg U/liter.

Biological Monitoring

Sixty silver salmon fingerlings were exposed to active effluent water for 96 hours and were then removed to fresh water. They were then removed in groups of five at various times in an attempt to measure the biological

elimination of the active sodium. Results indicated that there was very little reduction in activity which was not accounted for by the natural decay of the radioactive sodium. Activity levels in river fish were not appreciably different from previous results although the water flow in the river has dropped considerably and the contamination of the river water is higher than last month.

Twenty four young pekin ducks have been put in the pen at the 100-F area. It is planned to sacrifice one duck each month to study the accumulation of radioactivity. To date the ducks are not tame enough to be allowed complete freedom in access to the river.

Cages and equipment to take care of 80 rats have been installed in Building 149-F and the rats have been requisitioned. The rats are to be used to study deposition of P^{32} in the bone and other tissues.

Fish Laboratory

The silver salmon exposed to undiluted effluent water, the 1:5 and 1:10 dilutions and the 190 process water all show a higher rate of mortality than do the control lots in river water. These fish plus those in the 1:25 dilution show retarded rates of growth. Food chain studies are in progress where crayfish which have lived in active water are being fed to large rainbow trout held in river water. Radioactive snails are being fed to silver salmon fingerlings also being held in river water.

Methods Development

Because of the continuous lowering of the efficiency of recovery of plutonium by the Bioassay group, some work was done on the effect of temperature on the TTA extraction process. The first results indicate a lower yield with increased temperatures. Very promising yields have been obtained on removing actinium products from the lanthanum used in the Pu analyses by use of Dow X-30 resin in a sorption column.

Samples of the elements cesium, strantium, iron, telleurium and cerium have been purified, converted into oxides and placed in special pure aluminum containers and are nearly ready for exposure in one of the piles. The radioactive materials produced from these samples will be used for developing improved calibration and detection techniques.

Some chemical separation carried out and contaminated vegetation indicate some radioactive cerium to be present as well as iodine. More work will be done to isolate other radioactive contaminants.

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Medical Department

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Instrument Development

Construction of circuit components for six portable scaling units was started by trainees and new employees as part of a training program. The boxes and registers for these instruments are being made by the Instrument Department.

One model of a printing register for use with monitor instruments using scalers has been assembled and works satisfactorily. Some mechanism for moving the paper must be incorporated before it can be used. This recorder is intended primarily for use with the constant iodine monitors which are now operated on counting rate meter circuits.

Calibrations

The 200 KV X-ray machine was returned to service after replacement of the defective transformer. All of the recently received CP meters received from the Instrument Department have been put into service.

The routine calibrations were:

	Number of Calibrations		
RADIUM CALIBRATIONS:	July	August	1947 to Date
Fixed Instruments			
Gamma	546	485	4,668
Portable Instruments:			
Alpha	29	57	421
Beta	46	75	358
Gamma	472	441	3,357
X-ray	4	2	28
Neutron	--	5	23
Total	551	580	4,187
Personnel Meters:			
Beta	812	574	4,832
Gamma	10,317	8,330	64,249
X-ray	6,470	5,698	57,910
Neutron	60	0	84
Total	17,659	14,602	127,075
GRAND TOTAL	18,756	15,667	135,930

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Plant Medical Division	July	August	Year to Date
Physical Examinations			
Pre-employment	579	632	3214
Annual	291	149	2539
Sub-contractor (food handlers, etc.)	299	692	1814
Rechecks	218	281	1634
Interval Rechecks (Area)	965	790	7602
Terminations & Transfers	37	139	441
Army & Government	31	32	294
Assist to clinic, A & H Ins., etc	5	0	12
Total	2425	2915	17550
Laboratory Examinations			
Clinical Laboratory			
Pre-employment, terminations, transfers.	5242	8205	30160
Annual	1394	534	16910
Rechecks (Area)	4780	3880	38714
First Aid	18	15	154
Plant Visitors	128	292	1361
Clinic	1687	2038	17322
Hospital	1347	1505	13218
Public Health (Inc. food handlers)	250	365	1961
Military	0	0	106
Total	14846	16834	119906
X-Ray			
Pre-employment, terminations, transfers.	933	1570	5500
Annual	294	159	2699
First Aid	48	56	332
Clinic	177	218	1743
Hospital	75	63	807
Public Health (Inc. food handlers)	54	57	287
Military	0	0	40
Total	1581	2123	11408
Electrocardiographs			
Industrial	29	31	311
Clinic	6	6	55
Hospital	2	4	74
Military	0	0	2
Total	37	41	442
Allergy			
Skin Tests	22	18	202

Medical Department

First Aid Treatments	July	August	Year to Date
Occupational Treatments.....	420	452	3296
Occupational Retreatments.....	1357	1404	9164
Non-occupational (welfare) Treatments.....	3297	3328	26104
	5074	5184	38564

Absenteeism Investigation Report

Total No. calls requested	15	16	205
Total No. calls made	15	16	205
No. absent due to illness in family	0	2	9
No. not at home when call was made	0	0	8

General

The health topic for the month was on the subject of "Feet". Material for discussion on the care and common diseases of the feet was distributed throughout the plant.

The overall absenteeism remained at a low percentage and was as follows:

Total absenteeism weekly employees all causes.....	1.28%
Total absenteeism weekly employees sickness only.....	0.88%
Total number days lost by male employees due to sickness....	702
Total number days lost by female employees due to sickness..	288
Total number days lost due to sickness.....	990

The lowest absenteeism was in the Design & Construction Department with 0.44% and in the Transportation Department with 0.76%. The highest absenteeism was in the Instrument Department with 2.22% and Medical Department with 2.0%.

One new First Aid Station was equipped and began part time operation at the Pasco Warehouses.

Annual examinations for General Electric employees were temporarily discontinued on August 18th. This was necessary when the decision to examine all new construction workers was made before additional facilities were available. Present facilities are at the present time at about capacity processing new General Electric and sub-contractor applicants.

Three major injuries to General Electric employees and five sub-major injuries occurred during the month. Of these, one case resulted in partial permanent disability. (Loss of part of a finger).

There was no evidence of occupational disease occurring during the month.

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Medical Department

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Village Medical Division

Clinic Section	Men	Women	Children	July	August	Year to Date
First Visits	227	272	213	505	732	4757
Retreatments	990	1755	745	3187	3470	29044
				3692	4202	33801

Clinic Visits

Medical	595	656	5077
Pediatrics	451	478	3678
Surgical	632	571	5221
Gynecological	230	383	2516
Obstetric (new)	51	63	419
Obstetric (recheck)	483	486	3859
Venereal Disease	16	40	360
Ear, Nose & Throat	84	228	1770
Eye	220	133	1712
Visits handled by nurses (Hypo, dressings)	448	677	4972
Night clinic visits	482	487	4217
Total	3692	4202	33801
Total clinic visits per day	119	134	
Seen in Well-Baby Clinic	217	212	3115

Home Visits

Doctors	65	75	1061
Nurses	69	12	603
Total	134	87	1664

Kadlec Hospital Section

Census

Admissions	273	284	2503
Discharges:			
Surgical	56	69	545
Medical	23	41	301
Obstetric & Gynecologic	87	69	576
Eye, Ear, Nose & Throat	16	64	471
Pediatrics:			
Children	18	12	276
Newborn	54	43	343
Total Discharges	254	298	2512
Patient Days	1714	1736	15366
Average Stay	6.2	6.1	6.1
Average Daily Census	55.2	56	63.1
Discharged Against Advice	0	0	5
One-day Cases	32	58	460

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Medical Department

Operations	July	August	Year to Date
Transfusions	7	25	155
Eye, Ear, Nose & Throat	12	39	361
Dental	0	5	8
Casts	5	3	66
Minors	36	34	339
Majors	30	18	258
Vital Statistics			
Deaths	1	5	14
Deliveries	59	44	353
Stillborn	1	0	2
Physiotherapy Treatments			
Clinic	110	75	793
Hospital	45	32	342
Army	0	0	12
Industrial:			
Plant	125	140	865
Personal	25	20	249
Total	305	267	2261
Pharmacy			
Number of prescriptions filled	1485	1615	12748
Patient Meals			
Regulars	2171	2383	19430
Lights	28	6	560
Softs	866	899	8136
Surgical Liquids	56	47	409
Tonsils & Adenoids	39	119	1187
Specials	283	263	2882
Liquids	140	197	2030
Total	3583	3914	34634
Cafeteria Meals			
Noon	1538	1759	10853
Light	245	224	1440
Total	1783	1983	12293
Nursing Personnel			
First Aid Nurses	23	28	
Clinic Nurses	11	14	
Public Health Nurses	5	5	
Hospital General Nurses	61	64	
Aides & Orderlies	39	45	
Total	139	156	

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Medical Department

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General

There was a slight increase in the number of hospital admissions over the previous month. There were 124 operative procedures done during the month, as compared to 90 during July. Clinic visits increased approximately 15%.

Public Health Section

Communicable Diseases	July	August	Year to Date
Amoebic Dysentery	0	0	0
Chickenpox	9	2	330
Diptheria	0	0	0
German Measles	11	11	94
Gonorrhea	1	1	6
Impetigo	0	0	9
Influenza	0	0	115
Measles	0	0	4
Meningococcic Meningitis	0	0	0
Mumps	11	12	39
Paratyphoid "B"	0	0	1
Pediculosis	0	0	1
Pinkeye	0	5	16
Poliomyelitis	0	0	0
Rheumatic Fever	0	0	0
Ringworm	0	1	7
Scabies	2	0	39
Scarlet Fever	6	3	38
Syphilis	0	0	12
Thrush	0	0	1
Tuberculosis	0	0	6
Vincent's Infection	0	0	0
Whooping Cough	0	16	243
Total	40	53	961
Total Number Field Nursing Visits	625	544	5593

Immunizations

Rocky Mountain Spotted Fever	15	6	53
Smallpox	18	97	292
Diphtheria	30	226	557
Whooping Cough	38	177	600
Schick Test	1	2	27
Tetanus	4	9	61
Influenza	0	0	1
Typhoid	15	11	31
Total	121	528	1622

Social Service

Twenty-one cases were carried over from July, and twelve new cases were referred to the Social Service Worker during August. Five cases were closed during the month. Forty-five field visits were

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made, and sixty-six office interviews, conferences and meetings attended.

Administration	July	August	Year to Date
Newspaper Articles	12	15	116
Committee Meetings	7	5	52
Attendance	30	25	592
Staff Meetings	2	2	24
Lectures & Talks	4	2	72
Attendance	167	22	5680
Conferences	25	35	162
Attendance	58	100	392
Sanitation Inspections	161	127	1217
Bacteriological Laboratory			
G. C. Smear	11	20	158
G. C. Culture	11	18	121
Fungus Culture	12	18	134
Vincent's Examinations	4	6	22
Trichomonas' Examinations	11	14	121
Sputum for T. B. Organisms	1	15	81
Bacterial Cultures	41	50	916
Examinations for Parasites	11	5	170
Throat Smear & Cultures	45	84	291
Blood Cultures	6	1	38
Stool Cultures	11	9	104
Eye Smears	4	3	24
Examinations for spermatozoa	1	0	5
Quantitative determination of blood alcohol.	1	0	8
Type for pneumococcus	0	0	1
Treated water samples	103	109	763
Untreated (raw water) samples	0	0	36
Milk samples (inc. milk, cream, ice cream)	127	93	793
Sewage samples	8	8	67
Examinations for eosinophiles	4	1	31
Dark field examinations	0	0	0
Virulence tests	0	0	9
Total	412	454	3893

General

Announcement is being made that hereafter the Public Health Section of the Medical Department will be known as the Public Health and Welfare Section. This was necessitated by the addition to our staff of a Social Service Counselor who will handle various welfare problems of employees not directly related to their job. This includes such services as family welfare, state aid and relief
22 benefits, child welfare, including adoptions, foster-home place-

ment, etc. Funds from the Richland Community Chest can be made available through investigation for emergency needs, or to supplement state benefits.

A rise in communicable diseases in the community is indicated by the increase in whooping cough and mumps. It is anticipated that there will be a decided increase in morbidity due to the influx of new people on the project. Former control techniques will be enforced, as well as the recruitment of additional staff members.

Pre-school round-ups, at which time a screening physical examination and immunizations were offered to all school children who were entering school for the first time, were completed. In addition, the school health program was outlined and agreed upon by the school administrators.

A permanent Health Council was established to coordinate community health activities. The purpose of this health council is to coordinate, as far as possible, the health thinking and planning of all organizations, both official and non-official concerned with public health. This council will attempt to stimulate public interest in public health problems.

A brochure on the publicity material used for our recent Community-Wide X-ray Survey has been forwarded, upon request, to the National Publicity Council to be exhibited at the American Public Health Association Convention in Atlantic City in October.

The North Richland construction camp mess hall is being prepared for the first part of September. Deterioration of this building required major repairs and renovation before operation could be considered. Several meetings with representatives of the Canteen Service Company, sub-contractor for the mess hall operation, have been held in which food handling practices and techniques were discussed.

A meeting with representatives of the Village Organization was held in which sanitation and pest control measures of the barracks at North Richland were discussed.

The increase in the volume of business in the existing eating establishments in Richland has not materially jeopardized the basic sanitary operation of the facilities. With the exception of one facility kitchen being enameled, the physical renovation needed in the various facilities mentioned last month has not changed.

The swimming pool is scheduled to operate until September 7th. The demand on this installation has exceeded the capacity all season. With the frequent change of water augmented by chlorination, the bacteriological quality of the swimming pool water has been maintained satisfactorily.

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Plans for the expansion of the present Mosquito Control Program, which includes additional equipment as well as an extension of the present area boundry limits, are being formulated. Control measures, consisting of adult control spraying and larviciding, has been continued throughout the month of August. Irrigation breaks have contributed the major problem at this time.

Requests have been received from two milk companies for permission to sell their products in the village. Their representatives have been instructed as to the requirements of this section and until their companies comply, their products will not be permitted within the village.

Three milk producers supplying the present contractor were eliminated for failure to comply with the sanitary milk code. As of this date, four new producer dairies are under construction. Bacteriological tests of the pasteurized milk sold in Richland have been satisfactory. Tests of the producers indicated a decrease in the number having high counts. Those which have an excessive count on three consecutive tests are eliminated.

Dental Division	July	August	Year to Date
Patients treated.....	1078	1369	10712

MEDICAL DEPARTMENT

PERSONNEL SUMMARY AUGUST, 1947

	Physicians	Dentists	Nurses	Aides & Orderlies	H. I. Specialists	Technicians	Office Workers	Others
100-B			)		1			
100-D			4)		10	2*	1	
100-F			)		18	2*	1	
200-E			3		35	2**	1	
200-W			3		61	2**	1	
300			1		72	2**	2	
700-1100	11	7	87	45	10	19	67	38
Plant General	7		13		5			
Total	18	7	111	45	212	23	73	38

Grand Total - 527

* One day per week.
** Two days per week.

DESIGN AND CONSTRUCTION DEPARTMENT

AUGUST, 1947

GENERAL

Two project proposals were formally approved during the month of August. Funds were authorized in the amount of $4,900,000 for the construction of 450 replacement houses for the Village of Richland and $15,000,000 for a construction camp located north of Richland. One project proposal is awaiting approval of the Atomic Energy Commission and several others are being prepared.

The Design Division was reorganized into the Process Design Division and the Facilities Design Division. The former is made up of three Assignment Sections, which will do process design work, and the Drafting Section. The Facilities Design Division consists of the Structural and Architectural, Power and Water, Electrical, and Civil Sections.

Architect-Engineer services are to be used wherever possible to expedite design work and some of the large engineering firms which have sufficient available personnel have been contacted. Data such as the general scope of the work, manpower estimates and design and construction schedules have been assembled preparatory to opening negotiations with these firms.

PERSONNEL

During the month, six draftsmen, two junior engineers and four senior engineers were added to the staff of the Design Division.

Two field helpers, seven junior engineers and eight senior engineers were added to the staff of the Construction Division.

Two typists and three stenographers also became members of the Design and Construction Department.

pending completion of the 100-C Area.

The Electrical Section has completed the arrangements of power circuits from the main substation through the system to the 115 volt panelboards in all major buildings. All necessary data concerning types and sizes of major equipment have been forwarded to Schenectady for quotations. Quotations were received on main transformers, 230 KV substation structures and equipment, tap structures, large motors and switchgear. Requisitions have been issued on all the above with the exception of switchgear.

The Electrical Section submitted two suggestions relative to the control of the pile in the 105 building. The first suggestion was to place a small motor-generator set in the circuit supplying the Beckman instrument which indicates activity in the pile. This motor-generator set with regulated output voltage and containing the necessary inertia to carry over short time interruptions which cause false action in the Beckman instrument would eliminate unnecessary scramming and would keep lost production time to a minimum. The second suggestion was the installation of a seismograph which would act on the scram circuit as an added protective measure in shutting down the pile during a severe earthquake.

The Power and Water Section completed the design of the piping and headers for the 181 building but some changes in the heating and ventilating remain. Purchase specifications are being written for equipment in both the 131 and 182 buildings. Representatives of the Fish and Wildlife Service are cooperating on the design of the river intake structure.

Conferences were held with members of the Power Department to incorporate in the 183 filter building recent improvements in filter equipment designed by the Roberts Filter Manufacturing Company.

200 AREA

Redox

The project proposal for the entire Redox program has been sent to the Atomic Energy Commission for approval. Information has been assembled in brochure form suitable for study by Architect-Engineer firms interested in submitting bids.

Specifications for scale-up equipment have not been received and work has been limited to assembling a contemplated material and equipment list to be used later in writing purchase requisitions. Preliminary drawings of the general arrangement of the canyon and operating gallery equipment for the pilot plant are being prepared. Because of the nature of the solutions and metal preparation equipment, all "hot" waste facilities and part of the contacting equipment must be handled by fully remote methods. The balance of the equipment may be maintained by semi-remote means, not yet practiced at this plant and for which special pipe fittings and tools must be developed.

Pump development effort is being concentrated on a constant head pump which will operate with an instrumented metering valve arrangement worked out by the Instrument Department. This pump will also be useful in transfer service. Two pump

manufacturers have expressed an interest in undertaking pump development work but further information must be supplied to them to enable them to understand the problem better before their willingness to cooperate can be determined.

Experience in the cold works with standard pipe connecting methods on lines less than one inch in diameter indicates that a leakless pipe connector which can be removed by semi-remote methods must be developed.

Additional Waste Storage Facilities - 200 West 78%

Preliminary drawings outlining construction work under Part II were issued to the Construction Division for estimating purposes and contract negotiations. Plot plans showing location of fences, railroads, patrol roads and other facilities to be furnished by General Electric Company were approved by all departments concerned.

Tank drawings, except for miscellaneous pipe connection details, will be ready for approval in approximately a week. Diversion box drawings and piping layouts are also nearing completion.

300 AREA

Additional Steam and Water Facilities 5%

Studies and recommendations for additional boiler plant equipment and an increased water supply were completed and project proposal prepared. This proposal is now being reviewed before issuance to the Atomic Energy Commission. In order to expedite the construction work, an order for a 25,000 lb. per hour boiler was placed.

A study of the overloaded sewage disposal facilities in the 300 Area was completed and a project proposal for an enlarged sewage disposal system, adequate for expected future demands, is being prepared.

400 AREA

400 Area Design

In July, the plan was to have the 400 Area separate from other areas and self-contained. As a result of subsequent study of this problem by the Atomic Energy Commission and the Plant Construction Steering Committee the 400 Area became a single building in the 200 West Area. This building will be within the same building fence as the 231 Building and both buildings will be under the same supervision. The new building for the production of plutonium will be known as the 234 Building. Final decisions have not yet been made on building location and 200 West Area layout.

In order to accommodate the additional services load due to the 234 Building, facilities in the 200 West Area will have to be expanded. These include boiler capacity, water filtration plant, electric substation, telephone lines, warehouses,

[redacted]

guard houses, etc. The expansion of these facilities for the 234 Building will be included in the project proposal. The extent of this expansion has been fairly well worked out.

The Technical Department has requested some dry boxes for use in the experimental laboratory in the new 234 Building. A tentative design of these boxes has been completed and is being reviewed for procurement.

It was proposed to eliminate the final concentration in the 231 Building and the initial cutting in the 234 Building, and to do the wet chemistry of the DP West process in the 231 Building. After study of the problem, the Technical Departme decided that this consolidation of processes should not be attempted.

A tentative schedule has been prepared for the design and construction work of the new 234 Building and associated projects. The building structure is to be complete by April 1, 1949 and one of each piece of process equipment is to be complete by July 1, 1949. All production process equipment is to be completed by December 1, 1949. No schedule date is given for the recovery processes, as these cannot be predicted until the recovery processes are established.

The classification and issuing procedures for drawing and sketch prints have been established and a procedure for registering 400 Area documents has been worked out in the Design and Construction Department, thus facilitating the work of issuing data on the project.

3000 AREA

Construction Camp 5%

Work on this project was resolved into four main parts:

A. Rehabilitation of existing facilities such as barracks and mess halls and providing temporary office space for the subcontractor as well as General Electric Company employees.

B. Moving and rehabilitating 27 barracks from Hanford and 46 two-story barracks and a hospital from the Pasco Navy Depot.

C. General new construction of immediate requirements such as streets, water and sanitary facilities, additional mess hall, office buildings, material storage and fabrication yard and a trailer camp for 500 trailers.

D. Additional construction of facilities such as stores, churches, schools, etc.

Drawings covering the work under part A have been issued and drawings and specifications for part B are nearly complete. Most of the design work for part C has been started but few drawings have been issued and no work under part D has been started.

The design of the main electrical substation was completed and the drawings issued. Arrangements were made for meeting immediate telephone requirements and design data were released for the necessary movement of the main telephone trunk line running through the area and for location of a telephone building.

Design work on the proposed central heating plant is in progress.

700 AREA

Enlarged Patrol Headquarters 84%

Architectural drawings for the two main wings are complete and are partially complete for the jail and arsenal. Electrical drawings are finished and electrical specifications approximately 90% complete. Provisions were made for special services required in a building of this type, such as burglar alarms, special F.B.I. circuits, patrol reporting communication circuits and special flood lighting. Heating and ventilating plans are also complete and work has begun on the 700 Area improvements such as changing the main gate and burying overhead steam lines which were included in the project.

1100 AREA

500 Permanent Houses 97%

Plans and specifications for the streets, sidewalks, water, sewers and electricity have been issued for all areas. Orientation maps for the A and B areas were issued and are nearly complete for areas C and E. The Atomic Energy Commission has approved the architectural drawings and specifications for the apartment units and are reviewing the single type units. A small amount of design work remains to be done on steam lines from the central heating plant to the apartment units and on the fuel oil facilities for the single units.

450 Replacement Houses 32%

A letter of intent for the construction of 110 two-bedroom and 340 three-bedroom single units was issued to John L. Hudson Company of Portland, Oregon and construction will start immediately. Field crews have located approximately 40% of the existing service connections. The heating design for these units is being done by a subcontractor and specific requirements have been forwarded so that plans and specifications will conform with project and federal housing requirements.

New Junior High School 30%

The Architect-Engineer engaged on this project is approximately 30% finished with final structural drawings and specifications. The Design and Construction Department is doing the electrical, plumbing, heating and ventilating design. Decisions were reached on the vault locations and on the type of electrical transformers to be used. A visit to the Portland office of the General Electric Supply Company was made to obtain the latest information on lighting of classrooms and other public buildings.

[redacted]

Additions to Columbia and Jefferson Schools 75%

Final plans and specifications for the Jefferson Grade School are 95% complete and are due September 5, 1947. Final drawings for the Columbia High School are 56% complete.

Additional Hospital Facilities 4%

Preliminary plans for additions to the Kadlec Hospital and Medical Dental Clini have been approved by the medical staff. The work has been held in abeyance pending the arrival of Dr. Smith, a hospital design expert, from the East. He will assist the medical staff and the Design and Construction Department with further design and the ordering of necessary equipment.

Water Supply and Sewage Treatment Facilities 35%

Preliminary plans are progressing and will be submitted for approval early in September. The river pumping plant and water filtration plant are approximately 65% complete. The sewage treatment plant has been placed secondary and little design work has been done except to determine sizes of equipment to be used.

Seven Commercial Buildings 30%

The status of design work on seven commercial buildings being done by outside Architect-Engineer firms is as follows: Final plans for the bakery are 50% complete, and will be ready to submit for approval on or before September 12, 1947. Final plans for the auto sales and service building are 95% complete and will be ready for approval September 5, 1947. The designs for the grocery, general merchandise and furniture stores are 20% complete. The fire station is 25% complete and no work has been done on the tavern.

CONSTRUCTION DIVISION

Percentage of construction completion

Project C-112, Tank Farm 241-BX 80%

The following work is complete on all tanks: waterproofing and guniting of tank shell, wall reinforcing steel, and dome forms. Concrete placement of tank walls is complete on 11 tanks, and placement of concrete is complete on 10 domes. Application of Lapidolith is complete on 3 domes and sandblasting and painting of steel linings complete on 4 tanks. Waterproofing of domes has been started and will progress along with backfill operation. Construction of hatchways forms is in progress. Excavation of south pipe trench to tank is complete. Approximately 75% of the tank pilasters and pipe bridge columns are completed. Precast concrete beams are being poured at the rate required by the backfill schedule. Placing of backfill is now estimated to be 15% complete.

[redacted]

Project C-147, Building for Additional Office Space 65%

Thirteen sections of the Hanford Administration Building have been moved to Richland and placed on new foundations in the 700 Area. One wing of this building has been occupied by the Design Division and one wing occupied by the Security Section and the Atomic Energy Commission. One additional wing is now ready for occupancy and another will be ready for occupancy September 15. Work on remodeling exterior and interior of the remaining sections is in progress. Vault foundation has been poured and backfilled to floor elevation.

Project C-152, Redesign of Red Cross Building 92-X 1%

No work performed on this project. Work is being rescheduled.

Project C-153, Lighted Softball Park 0%

No field work performed. Work is being rescheduled.

Project C-170, New Patrol Headquarters 40%

Foundation work is complete and two building sections have been moved and set on foundations by Catlow Transport Company. Water, telephone, and sewage facilities for the building have been completed. The work involved in rehabilitation of the building sections will be performed by Atkinson-Jones and is now being rescheduled.

Project C-136, Additional Housing, Village of Richland 1%

Excavation of basements and pouring of walls has been started in B housing area. Construction of material storage area is progressing and procurement of construction equipment and material is being expedited. Negotiations by Atkinson-Jones for entering into subcontracts with specialized contractors are in progress. Organization of the subcontractor is being increased and progressing satisfactorily. Inadequate quantity of construction equipment is retarding progress on this project.

Project C-178, Construction Camp, 3000 Area 1%

Atkinson-Jones has been directed to perform the construction work in this area. Catlow Transport Company's Order HNC-3 has been altered to include the moving of 7 sections of the Hanford Administration Building to the area for use as subcontractor's offices. A subcontract has been awarded to (1) Catlow Transport Company for moving barracks buildings from Hanford, and (2) Northwest Hauling Company for moving barracks buildings from Pasco Naval Base. A subcontract for the operation of the mess hall was awarded by the Housing Department to the Canteen Company of Chicago. Rehabilitation of 4 barracks buildings is complete and the mess hall will be in operation September 8. Grading of sites for barracks, buildings, shop area, and streets is under way. Roads and work area are being stabilized from a gravel pit opened in the area. Grading for temporary railroad spur is under way.

Design and Construction Department

Project C-181, Replacement Housing

0%

A subcontract has been awarded to the John L. Hudson Company of Portland, Oregon for the design and construction of 110 two-bedroom precut houses and 340 three-bedroom houses. The subcontractor's key personnel have arrived on the job and sites for warehouse, mill, and material yard have been selected. No actual construction work has been started by the subcontractor. Construction of the necessary railroad spurs by Atkinson-Jones forces has been started.

ACCOUNTING DEPARTMENT

AUGUST 1947

GENERAL

Considerable time was spent on preparation of subcontracts and procedures under which subcontractors will operate and be reimbursed for work on the Construction program.

In addition to subcontracts for construction work at Hanford Engineer Works, considerable preliminary work, including letter of intent and draft of contract, was prepared for rehabilitation, equipping, and operating a graphite electrode plant, located at Morganton, North Carolina by the National Carbon Company, Inc.

Statistics

General	August	Total To Date
H.E.W. Instructions Letters issued	1	49
Office Letters issued	1	19
Organization Announcements issued	3	45
Supplements & Revisions issued	0	12

Employees and Payrolls	Total	Monthly Payroll	Weekly Payroll
Employees on payroll at beginning of month	5588	1001	4587
Additions and transfers in	499	37	462
Removals and transfers out	(165)	(8)	(157)
Transfers from Weekly to Monthly Payroll	--	27	(27)
Employees on payroll at month end	5922	1057	4865
Gross amount of payroll	$ 1,724,285	$ 445,158	$1,279,127
Average salary rate per hour	$1.838	$2.442	$1.697
Average salary rate previous month	$1.848	$2.451	$1.703

Employee Plans	July	August
Pension Plan		
Number participating at beginning of month	24	24
New participants and transfers in	0	12
Cancellations	0	0
Removals and transfers out	0	(1)
Number participating at month end	24	35
% of eligible employees participating	88.9%	89.5%
Group Life Insurance		
Number participating at beginning of month	3610	3705
New participants and transfers in	141	123
Cancellations	(21)	(22)
Removals and transfers out	(25)	(20)
Number participating at month end	3705	3786
% of eligible employees participating	76.7%	77.0%

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Accounting Department

	July	August
Group Disability Insurance - Personal		
Number participating at beginning of month	4456	4598
New participants and transfers in	173	143
Cancellations	(2)	(2)
Removals and transfers out	(29)	(36)
Number participating at month end	4598	4703
% of eligible employees participating	95.2%	95.7%
Group Disability Insurance - Dependents		
Number participating at beginning of month	2996	3061
Additions and transfers in	82	73
Cancellations	(3)	(4)
Removals and transfers out	(14)	(17)
Number participating at month end	3061	3113
Group Disability Insurance - Claims		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	101	39
Daily Hospital Expense Benefits	78	49
Special Hospital Services	75	45
Surgical Operations Benefits	48	32
Dependent Benefits Paid		
Daily Hospital Expense Benefits	121	47
Special Hospital Services	118	45
Amount of claims paid by insurance company:		
Employee Benefits	$ 8,426	$5,249
Dependent Benefits	3,969	2,525
Total	$12,395	$7,774
Group Disability Insurance - Premiums		
Personal - Employee Portion	$ 7,664	$ 7,960
- Company Portion	4,649	4,835
- Total	$12.313	$12 795
Dependent - Employee Portion	$ 2,728	$ 2,807
- Company Portion	300	299
- Total	$ 3.028	$ 3,106
Grand Total	$15,341	$15,901
U. S. Savings Bonds		
Number participating at beginning of month	1975	2320
New authorizations	374	122
Voluntary cancellations	(19)	(26)
Removals and transfers out	(10)	(15)
Number participating at month end	2320	2401
% participating	41.5%	40.5%
Bonds issued - maturity value	$132,700	$153,975
- number	3514	4057
Refunds issued	25	27
Revisions in authorizations	61	36

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Accounting Department

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	July	August
Suggestion Award		
Number of Awards	--	8
Total amount of awards	--	$75

Employee Sales Plan

	Total	August Major Appliances	Traffic Appliances
Applications for appliances received	529	326	203
Notices of Availability of appliances sent to employees	173	97	76
Certificates Issued	106	59	47
Certificates redeemed by Richland Electric Company	65	33	32
Certificates voided	31	10	21

General Accounting

	July	August
Number of Accounts Payable Vouchers Entered		
G. E.	3324	3285
du Pont	26	24
Total	3350	3309
Amount of Cash Disbursements (Accounts Payable)		
G. E.	$1,489,117.25	$1,729,433.25
du Pont	36,310.74	3,239.17
Total	$1,525,427.99	$1,732,672.42
Number of Checks issued		
G. E.	2364	2300
du Pont	16	14
Total	2380	2314

Public Vouchers submitted to Area Manager-G.E.		
Amount of 1034 Public Vouchers not reimbursed at beginning of month	-0-	$ 1,446,873.03
Amount of 1034 Public Vouchers submitted during month	$ 3,259,631.03	2,607,195.70
Total	$ 3,259,631.03	$ 4,054,068.73
Amount of 1034 Public Vouchers reimbursed during month	1,812,758.00	2,120,265.54
Amount of 1034 Public Vouchers not reimbursed at month end	$ 1,446,873.03	$ 1,933,803.19
Number not reimbursed at beginning of month	-0-	50
Number submitted during month	177	159
Total	177	209
Number reimbursed during month	127	119
Number not reimbursed at month end	50	90
Amounts for which 1034 Public Vouchers have not been submitted to Area Manager - G.E.		
1035 Pre-Audit Vouchers issued and outstanding	$ 689,450.28	$ 529,344.72
1035 Pre-Audit Vouchers not issued	1,538,498.67	1,822,627.23
Total (unbilled items)	$ 2,227,948.95	$ 2,351,971.95
Number of Pre-Audit Vouchers issued and outstanding	56	36

1200122

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Accounting Department

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[redacted]

General Accounting (continued)	July	August
Public Vouchers submitted to Area Manager-du Pont		
Amount of 1034 Public Vouchers not reimbursed at beginning of month	$ 1.35	$ 13,192.02
Amount of 1034 Public Vouchers submitted during month	18,276.93	8,204.02
Total	$ 18,278.28	$ 21,396.04
Amount of 1034 Public Vouchers reimbursed during month	5,086.26	21,396.04
Amount of 1034 Public Vouchers not reimbursed at month end	$ 13,192.02	$ .00
Number not reimbursed at beginning of month	1	6
Number submitted during month	11	2
Total	12	8
Number reimbursed during month	6	8
Number not reimbursed at month end	6	0
Amounts for which 1034 Public Vouchers have not been submitted to Area Manager - du Pont		
1035 Pre-Audit Vouchers issued and outstanding	$ 5,466.19	$ 61.46
1035 Pre-Audit Vouchers not issued	21,840.31CR	22,633.73CR
Total (unbilled items)	$ 16,374.12CR	$ 22,572.27CR
Number of Pre-Audit Vouchers issued and outstanding	1	2

Cash Receipts - General Electric		
Accounts Receivable		
U. S. Government	$ 1,812.758.00	$ 2,120,265.54
Rent	43,389.35	43,697.78
Hospital	26,276.59	28,643.14
Telephone	2,477.40	2,874.99
Miscellaneous	1,885.54	1,089.41
Employee Sales	1,433.56	2,274.59
Bus Fares	7,066.90	6,341.90
All Others	4,661.40	3,105.88
Scrap Sales	12,761.12	4,096.94
Total	$ 1,912,709.95	$ 2,212,390.17

Cash Receipts - du Pont		
Accounts Receivable		
U. S. Government	$ 5,086.26	$ 21,396.04
Hospital	107.50	129.41
Miscellaneous	160.73	3.15
All Others	748.19	258.53

	July	August
Inventories		
Essential Materials	$ 2,284,915.24	$ 2,378,971.73
Excess Materials	325,527.02	(1)
Memo Employee Sales	7,962.39	8,841.28
Precious Metals	40,689.84	40,689.84
Returnable Containers	14,589.48	16,454.13
Spare Parts	1,515,408.87	1,516,162.10
Special Process Material	458,932.03	458,932.03
Stores for Cash Sales to Employees	28,301.49	23,530.94
Stores - General	1,324,235.44	1,389,263.64
Stores - Material held for future use	182,384.04	402,865.59
Stores - Material held from demolition of Hanford	46,093.52	(2)

(1) $325,527.02 - This amount transferred from "excess materials" to "material held for future use".

(2) $46,093.52 - This amount transferred from "material held from demolition of Hanford" to "material held for future use".

Inventory Disbursements		
Essential Materials	$ 288,282.59	$ 246,276.69
Excess Materials	32,779.46	-0-
Memo Employee Sales	1,339.68	876.07
Precious Metals	-0-	-0-
Returnable Containers	815.75	1,575.80
Spare Parts	10,081.44	11,191.91
Special Process Material	2,219.88	915.74
Stores for Cash Sales to Employees	3,473.51	5,508.86
Stores - General	134,601.68	164,287.50
Stores - Material held for future use	3,183.23	5,684.31
Stores - Material held from demolition of Hanford	1,760.78	1,192.72

Stores		
Number of items added to Stores Stock	293	728
Number of items deleted from Stores Stock	228	23
Items in Stores Stock at month end	43,893	44,598
Receiving Reports issued	3,747	3,526
Shipments on hand not checked	17	14
Material Exception Reports issued	138	110
Material Exception Reports cleared	132	108
Material Exception Reports open at month end	19	21
Certificates of Inspection issued	15	21
Certificates of Inspection cleared	11	10
Certificates of Inspection open at month end	20	31
Store Orders filled	16,871	17,490
Emergency Store Orders filled	4	2
Returnable Containers received	583	961
Returnable Containers shipped	325	540
Returnable Containers on hand at month end	4,471	4,892
Returnable Containers on hand over 6 months	1,621	1,550

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	July	August
Stores (continued)		
Returnable Container Return Orders received	12	7
Returnable Container Return Orders closed	13	46
Returnable Container Return Orders on hand at month end	220	181
Shipping Orders received	57	49
Shipping Orders closed	63	51
Shipping Orders on hand at month end	16	14
Purchasing		
Operations Requisitions received	2,701	2,587
Operations Requisitions placed	2,466	2,578
Operations Requisitions on hand at month end	787	796
HW Orders placed	1,588	1,676
Alterations issued to HW Orders	250	148
Construction Requisitions received	164	43
Construction Requisitions placed	35	47
Construction Requisitions on hand at month end	228	0*
HWC Orders placed	13	12
Alterations issued to HWC Orders	3	5
OHEW Orders placed	177	187
MO Orders placed	10	15
OR Orders placed	0	5
Requests to Expedite received	191	249
Scrap Sales Completed	4	3
Value of scrap sold	$3,651.00	$5,183.85

*224 transferred to Construction Purchasing Department on August 13.

Miscellaneous Clerical		
Office Machines repaired in shop	146	170
Office Machines service calls	116	128
Lines working as Class A Telephones	185	205
Lines working as Class C Telephones	265	257
Total Official Telephones	450	462
Lines working as Class B 1 Telephones	1,315	1,319
Lines working as Class B-2 Telephones	78	77
Total Non-official Telephones	1,393	1,396
Vacant lines	157	142
Items of First Class Mail received	22,424	25,047
Items of Parcel Post received	824	910
Items of Registered Mail received	79	136
Items of Insured Mail received	117	123
Items of Special Delivery Mail received	79	137
Amount of money used on postage meter machine	$727.96	$951.87
Stamps used	$9.36	$ -0-
Multilith orders received	223	176
Multilith orders completed	203	175
Balance of multilith orders on hand at month end	31	32
Mimeograph Orders received and completed	2213	2400
Ditto Orders received and completed	3211	3140
Telegrams sent	6217	6961
Telegrams received	6023	6149

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	July	August
Accounting Department		
Number of employees on roll at month end	488	511
Terminations and Transfers	15	17
New Hires	44	40
% of termination	3.27	3.48
% of absenteeism	1.72	2.68
Major injuries	0	0
Minor injuries	5	12

PERSONNEL AND ORGANIZATION

On August 18, Jack Christensen was transferred from Field Clerical Division, 300 Area, to the Cost Division as Assistant Supervisor in charge of Records and Reports.

On August 22, J. E. Mattingly was transferred from Special Assignment to the Cost Division as Assistant Supervisor in charge of Cost Distribution and Control.

Open employment requests for non-exempt employees are as follows:

Clerks	7
Junior Clerks	50
Stenographers	6
Telephone Operators	12
Typists	10
Office Helpers	12
Office Machine Operators	13
Messengers	7
Total	117

SECTIONAL ACTIVITIES

Cost

A Construction cost code book was compiled and issued during the month. Several discussions relative to administration of Construction cost activities were held with representatives from the Design and Construction Department, Atkinson and Jones Company, and the Atomic Energy Commission.

As a result of these discussions, it was agreed that the Cost Division would maintain the Construction cost ledger and would be responsible only for recording data on this ledger in accordance with details furnished by Design and Construction through the subcontractor or subcontractors. Design and Construction is responsible for the correct application of all Construction codes (including A.E.C. Budget Project codes where applicable) assigned to purchase requisitions, store orders and time cards originating within their department or originated by any subcontractor.

A revised Operations cost code book to go into effect on September 1, 1947 was completed and issued during the month. A Cost Division representative met with groups of supervisors in all areas to discuss with them the application of the new codes.

Cost (continued)

At the request of the A.E.C., arrangements were completed during the month to assign a Budget Project Code to all purchase requisitions in addition to regular Works cost codes. These codes are designed to assist the Government in accumulating financial data which is required in connection with Budget control. The Cost Division reviewed all 1035 vouchers submitted to the A.E.C. since June 30, 1947 and assigned the appropriate Budget Project Code to each voucher in order to pick up the back-log on this work from June 30, 1947. It will be necessary to continue to make this review of the 1035 vouchers until all requisitions in process at the time the coding procedure started are completed.

General Accounting

Accounts Payable

The volume of vendors' invoices received increased from 3324 in July to 3758 in August. There were 818 invoices, both paid and unpaid, on hand in Accounts Payable on August 31. Coal vouchers during the month were held pending an alteration of the Purchase Orders to cover the price increase as set forth in the Miners' Wage Agreement. These vouchers increased in various amounts from 50 cents to $1.00 per ton. All of these vouchers have now been cleared and submitted for Government reimbursement.

Cash Advances - Cash Change Funds

A total of 71 Travel Orders were issued during August as compared with 66 in July. There was $5,421.36 advanced during the month and the employees accounted for $4,098.49 which left a balance of $6,816.85 in the Cash Advance account. All but one of the individual accounts are considered current.

The balance of the Cash Change Funds account as of August 31, 1947 amounted to $3,260.00. One fund of $500.00 was liquidated since no additional funds were granted, this reduced the July 31 balance by $500.00.

Educational Program

It was recommended to the Area Manager, by letter of August 22, 1947 that the Educational Program, supervised by F. Ellis Johnson, be handled through project funds. Heretofore, expenditures for instructors' fees and books were made from a non-project bank account established from deposit of tuition fees and sale of books.

An audit was made of the financial records maintained for previous courses. The following statistics concerning the Spring Program were verified:

179 Students Attended 10 Courses

Total Revenue Received From Tuition Fees Amounted to	$3,222.00
Total Instructors' Fees Amounted to	2,850.00
Profit Accruing from Spring Courses	$ 372.00

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General Accounts

There was a decrease in the amount of Billings to the Government of $652,435.33 during August as compared with July. The July figure was inflated due to the holdover of June vouchers as requested by the Government when they closed their fiscal year in June.

A second Burroughs Statement Machine, used in posting the Receivable Statements, has been ordered. Both the rent and telephone units are expected to expand in direct proportion to the growth of the Village. A procedure for handling the rental accounts of subcontractors' employees was prepared and distributed to the interested parties.

Kadlec Hospital Accounting

The hospital accounts receivable balance as of August 31, 1947 amounted to $43,833.28, which represents an increase of $1,344.15 above the balance of July 31, 1947.

This balance is expected to be materially reduced in both the amount and the number of accounts within the next two months, after certain recommended changes in procedure are placed in effect.

Property

During the month 27,000 property items were affixed with metal tags. Of this number 25,000 items were additions to the record and 2,000 items represented replacement tags. Property is now being received at the three locations (Pasco, Richland, and North Richland). The Property Record as of January 1, 1947 consisted of 43,000 items and as of August 31, 1947 there were 95,535 items on the record. During the past month 25,000 items were added to this record which reflects a great expansion in the operation of this unit.

There are eleven employees engaged in checking, inventorying and tagging Class B Property. It is anticipated that an additional twelve men will be needed to complete the requirements with respect to desired field personnel.

Stenographic Pool

A total of 160 hours was devoted by employees to special work performed outside of the pool. Accounting Department correspondence, Personnel Security Questionnaires, Property Records, Cost Records, and special reports were the greatest contributors to the pool.

Subcontracts

The status of open subcontracts as of August 31, 1947 was as follows:

1.	Morrison-Knudsen (Track Maintenance)		
	Costs 9/1/46 to 8/31/47		$449,830.25
	Fixed Fee 9/1/46 to 8/31/47		
	12 Months @ $1,650.00	$19,800.00	
	10 Per Cent Retained	1,980.00	17,820.00
	Total		$467,650.25

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Subcontracts (continued)

2. Morrison-Knudsen (Lump Sum - Tank Farm, G-110)

Total amount of Contract (2/1/47)	$1,779,258.0(
Per Cent completed to 8/31/47 (81.7%)	1,442,978.2(
10 Per Cent Retained	144,297.8(
Net Payment	$1,298,680.4(

3. X-Ray Products Company (Unit Price - X-Ray of Welds on Tank Farm, G-115)

Work Completed July 23, 1947	$ 59,238.4(
10 Per Cent retained as of July 23, 1947*	5,923.8(
Net Payment	$ 53,314.5(

*Retainer check drawn August 26, 1947 but held in abeyance until outstanding X-Ray Products hospital indebtedness is paid.

4. No payments have been made to date to Atkinson-Jones Company, although they have been operating on the project under a letter of intent dated July 25, 1947. This subcontract (G-133) has not yet been signed.

5. An advance of $500,000 was forwarded to National Carbon Company on August 12, 1947.

Transfer Agreement Settlement

The checks disbursing funds to individual employees in settlement of open du Pont Transfer Agreements which were assigned to General Electric Company were prepared and given to Superintendents for distribution on September 2, 1947.

There were 814 checks prepared as follows:

Total computed allowance	$ 657,889.70
75% of gross allowance	$ 493,317.03
Income tax withheld	92,610.60
Net disbursement	$ 400,706.43

Two employees who are not actively at work due to illness, will not be paid the cash settlement until their status has been definitely clarified.

Approval that these costs were reimbursable by the Government was received from the Area Manager on August 18, 1947.

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Miscellaneous Clerical

Telephone traffic continued to increase during the month. Outgoing official long distance calls totaled 3,008 for the month, an increase of approximately 44% over July. Incoming long distance calls increased proportionately.

On August 26 a sub-switchboard was placed in operation at North Richland with 10 trunk lines into Richland. Three additional toll lines to Pasco and three additional trunk lines to Kennewick were installed during the month due to the heavy increase in traffic.

It is expected that two additional toll lines to Pasco, a leased line to Portland, and an additional leased line to Seattle will be installed in September.

Scheduled mail deliveries and pick-ups were increased during the month to provide four daily stops for Design and Construction Department and North Richland.

Payrolls

In accordance with the announcement by W. W. Trench, Secretary, employee contributions under the Additional Group Life Insurance have been waived for the months of September, October, November, and December for employees who have been continuously insured since December 31, 1946. This suspension of contributions applies only to the amount of insurance coverage in force at December 31, 1946.

Accordingly, Insurance records of all employees were reviewed to determine those eligible for the full or partial suspension of contributions. Payroll records were marked so that no deduction will be made from salaries or a partial deduction will be made according to eligibility. Regular contributions by employees will be resumed effective January 1, 1948.

In connection with Transfer Agreement Settlements, payroll lists and checks were prepared after amount of withholding tax was calculated and deducted from the payments.

The canvass of employees eligible to participate in the Pension Plan as of September 1, 1947 was completed in August. There were 3756 employees who became eligible to participate as of September 1 and 3643 elected to participate, or 97% participation.

Typing of "Employment Record Card - Weekly Payroll", which will be used in Record Section of Payroll to replace the du Pont "Employment Record" card (G-149-RG), has been completed. Checking of these cards has been completed with the exception of a small portion of the Service Department. Copies of the cards which have been completely checked have been furnished to the Assistant to Works Manager.

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Payrolls (continued)

As of August 31, 430 weekly paid employees had authorized deposit of their salary checks in the Richland Office - Seattle First National Bank, an increase of 112 over the previous month. As a result of distribution of check deposit authorizations to monthly paid employees who had not previously filed a deposit authorization, there was an increase of 89 monthly checks deposited in August or a total of 5[illegible]. The total number of employees having salary checks deposited is 9[illegible].

Atkinson-Jones, subcontractors, have been permitted to use our equipment to prepare their payrolls and write checks prior to our furnishing them with necessary equipment. In this connection, we have assisted them in training their personnel in the use of payroll posting machines, addressograph equipment, check writers, etc.

Preliminary arrangements have been made to complete the change over from du Pont payroll forms to General Electric forms. A proposed routine covering the use of forms for addition and removal from payroll, changes in job classifications, and salary changes has been written, and a Hanford Engineer Works Instructions letter on the subject will be issued in the near future.

The Salary Approval Control Sheet has been revised and a new form is being printed. This form is used in the Monthly Payroll Section to insure that additions to payroll and increases in salary are in accordance with project regulations as to number of employees in each classification which may be above the mid-point of the range and within percentage limitations for increased rates.

Billing was received from Connecticut General Life Insurance Company covering fifteen annuities for employees with vesting dates from September 1, 1947 to August 31, 1948. Billing was audited and transmitted to General Office for payment from the annuity fund.

List of employees reaching retirement age in 1948 was prepared and forwarded to Personnel Division in order that Superintendents may be notified and make plans accordingly.

Absentee report prepared by Weekly Payroll Division for all non-exempt employees shows that absenteeism during the first eight months of 1947 was 1.73% as compared to 2.15% for comparable period in 1946.

Subcontractors' Payrolls

Considerable time was spent in aiding the subcontractor in the mechanical functions of payroll preparation, procurement of equipment, and discussion of procedures to be followed.

The subcontractor has been furnished adequate payroll machinery for the present and orders based on estimated need have been placed for additional machinery. Every effort possible will be made to expedite delivery of this additional machinery.

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Subcontractors' Payrolls (continued)

A system for controlling and deducting from the payroll amounts chargeable to subcontractor employees for housing has been established through the combined efforts of the Accounting, Housing, and Subcontractor Payroll Divisions.

The subcontractor has been furnished with job codes which are to appear on the personnel records and payrolls. These codes which will identify each job classification will be most helpful in auditing the payroll from the standpoint of accuracy of rates.

Applications for Salary Approval, Form AEC-37, required for all non-manual employees, are nearing completion by the subcontractor and are to be submitted for audit and approval in September.

Completed payrolls disbursed by the subcontractor during August are to be delivered for audit as soon as job codes are recorded.

Purchasing

The volume of work continued to increase throughout the month, reaching an all-time high for Operations of 1,676 purchase orders placed. At one time during the month the backlog of unplaced purchase requisitions totaled 1,070; however, at month end this figure was reduced to 796.

Mr. Hotaling and the personnel comprising the Construction Purchasing Division moved into their new quarters in W-4 on August 13, and all unprocessed construction purchase requisitions were transferred to them at that time. The Purchasing Division continued to act in an advisory capacity on procedures and methods.

Numerous materials were still difficult to obtain on short notice; i.e. wall board, steel pipe, cast iron pipe, steel sheets, conduit, electrical supplies, and hand tools. The Stores Division was requested to anticipate requirements for these hard-to-obtain items well in advance of need.

The contract proposal submitted by Hooker Electrochemical Company, covering the Works entire requirements of Caustic Soda, was approved by the Area Manager.

Coal price increases based on the new miners' contracts were submitted to the Area Manager and approved during the month. The Schenectady Purchasing Department will complete satisfactory supplements to the existing contracts, incorporating these increases.

To date none of the coal supplied by the Penn Bucoda Coal Company has met contract specifications. This situation was discussed with Penn Bucoda, and they were attempting to improve the quality of coal. The Schenectady Purchasing Department was advised of this situation.

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Stores

Consolidation of the excess material inventory, material available from demolition operation at Hanford, material acquired in connection with the acquisition of the Pasco General Depot, Stores salvage yard material, and material currently acquired from Government surplus stocks into one inventory account 903-30 (material held for the Construction Program) was started during the month.

Shipments received at Pasco Warehouse were increasing at month end. Over 150 truck loads of miscellaneous construction camp material together with 7 van loads of office equipment and furniture and 17 pieces of heavy equipment were handled during the month. Only 14 shipments of material were received against construction orders as of August 31 and for report purposes were considered as operations material.

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PROJECT AND RELATED PERSONNEL

	7-31-47		8-29-47	
GOVERNMENT EMPLOYEES				
Civilian Personnel - Atomic Energy Commission	247		237	
Civilian Personnel - G. A. O.	5		5	
Commissioned Officers (Exec. of MP's and MI)	5		3	
Total		257		245
PRISON INDUSTRIES		256		215
RICHLAND VILLAGE PERSONNEL				
Facilities & Organizations	676		714	
Schools & Churches	62		46	
Total		738		760
MORRISON-KNUDSEN PERSONNEL (Benton City)		103		102
MORRISON-KNUDSEN & OTHER SUB-CONTRACTORS		228		241
GENERAL ELECTRIC PERSONNEL		5645		6011
GRAND TOTAL		7227		7574