HW-11835-DE
~~HW-11835~~

AAN- 20858

727777

#1 - H. A. Winne
#2 - Zay Jeffries, Pittsfield
#3 - C. G. Suits, Schenectady
#4 - G. R. Prout
#5 - J. R. Rue
#6 - C. N. Gross
#7 - A. B. Greninger
#8 - F. R. Creedon
#9 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
#10 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
#11 - Hanford Operations Office
Attention: F. C Schlemmer, Manager
#12 - Hanford Operations Office
Attention: F. C Schlemmer, Manager
#13 - Hanford Operations Office
Attention: F. C. Schlemmer, Manager
#14 - 700 File
#15 - 700 File
#16 - 700 File

December 23, 1948

Classification Cancelled (Change to Declassified with Deletions)
By Authority of RLO-CG-4
[illegible] 1/6/92
By [illegible] 1/27/92
PM ack 1-27-92

HANFORD WORKS

MONTHLY REPORT

NOVEMBER - 1948

CLASSIFICATION REVIEW FOR DECLASSIFICATION BUT LEFT UNCHANGED
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TABLE OF CONTENTS

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HW 11835-DEL

GENERAL SUMMARY

NOVEMBER 1948

A total of 81.4 tons of metal was discharged from the three piles with an average operating efficiency of 81.5 percent. The nominal power level of 275 MW was maintained throughout the month except that the 100-F pile operated at lower levels until November 14, 1948, when the bad effects of the water leak reported last month were overcome.

A highly contaminated railroad express car was returned from the customer at Dayton Ohio, as a result of their return shipment of casks in grossly contaminated boxes. Readings as high as 3,000,000 d/m were detected on the outside of some of the boxes

The 300 Area canning production total was 150 tons of acceptable slugs which is a new production record. The canning yield was 88.6 percent. Production from the Melt Plan amounted to 70 tons of billets.

A total of 49 batches was processed through the Separations Operations. The overall waste losses throughout the Separations activities averaged 2.6 percent for the month.

At both T and B Plants, continued testing of the newly installed sand filters has indicated efficiencies of 99.3 to 99.9% being obtained for activity removal. Pressure drops at flow rates of 25,000 CFM have been maintained at ca. 7 inches of water across the 36-inch sand bed at B Plant and at ca. 4.5 inches of water across the 24 inch sand bed at T Plant. Recontamination of the sand filter exhaust air during discharge through the stacks has still continued, however. Pilot plant studies of I^{131} removal by sand bed filtration and electrostatic precipitation have been initiated again.

A new high in electrical power load on the entire project system of 62.1 MW was recorded for November 29, 1948.

The F Pile has recovered all of the reactivity which was lost during the process tube leak in October. For a few days the pile was shut down and the water flow was interrupted, permitting the residual radioactivity of the pile to heat the graphite and accelerate the vaporization of water in the wet zone. The immediate production losses encountered by this method of drying must be balanced against the more rapid rate of drying; when large amounts of reactivity (on the order of several hundred inhours) have been lost it is preferable to shut the pile down and dry by this method rather than attempt to operate the piles.

Test work with smaller orifices in the B Pile indicate that an outlet temperature of 75°C may be tolerated from a corrosion standpoint.

For new piles it is important to take corrective measures for Van Stone flange corrosion prior to start-up, if possible. It is believed that the reduced production losses after start-up will justify discarding the stainless steel nozzles for DR and H Piles and substituting aluminum nozzles. Less expensive corrective measures are being studied for the existing piles, since any correction to these piles will involve production losses. Work on anodizing the flanges has been discontinued because of unfavorable experimental results.

Graphite made from Whiting coke is of very poor quality and could not be used in the piles, but after purification this material is as high quality as purified graphite made from Cleves coke.

Theoretical studies indicate that the use of 24 control curtains four feet wide would be about as effective as the 60 control and safety rods being provided for the H Pile.

Measurements of the deflection of the No. 27-F Vertical Thimble show that the maximum deflection of 3.0 inches occurs at a point nine feet above the midplane of the graphite. A similar but less pronounced skewness was observed in the corresponding thimble of the D Pile.

Development of the lithium-aluminum alloy process for tritium production is being accelerated as rapidly as possible and no further irradiation of lithium fluoride slugs is contemplated. Construction of facilities in Building 108-B is scheduled for completion early in January, 1949, and initial operation will handle irradiated fluoride slugs now on hand.

Elimination of a recently observed accumulation of precipitate in the first cycle by-product precipitator at B Plant is currently being attempted. Processing of the first increased-product-concentration metal at both T and B Plants has produced increased extraction step waste losses, as previously encountered with similar metal. Sections 7 and 8 at both plants have been rearranged to operate in parallel for the extraction step. The centrifugation rate for the metathesis waste rework has been increased in test, indicating a possible saving of 1-1/2 to 2 hours in time cycle. Production testing of the rate of hydrogen peroxide addition in the first cycle of the isolation process also indicates a potential saving of another 30 minutes in time cycle.

Redox development studies have been continued at an accelerated pace. Spray column measurements of H.E.T.S. in a 3-inch IA Column at relatively low throughput rates have produced encouraging stage efficiencies. Compound column operation with a 3-inch IA Column has indicated a need for better IAF-IAS solution mixing at the IAF feed point. Column IB studies have produced uranium scrub stage heights of ca 2.9 ft. H.E.T.S. vs. throughput measurements have demonstrated less than 0.6% losses to be obtained for the 8-inch IA Column over a range of 1.8 to 4.8 short tons of uranium/day and for the 5-inch IA Column over a range of 0.55 to 1.8 tons of uranium/day. An automatic flow control system, consisting of Fischer & Porter recording-controlling rotameters and Hammel-Dahl control valves, has been installed on all feed streams in the Demonstration Apparatus. The 10-stage full-scale S.O.D. mixer-settler contactor installation was completed during the month. Clarification studies of IAF feed solution by the use of stainless steel filters and filter aid have arrived at what is believed to be an optimum design. Corrosion tests with various types of stainless steels and IAX, IAF, IAS, and IBX Redox process solutions have all demonstrated less than 10^{-4} inches penetration per year. Laboratory equilibrium studies and flash vaporization of hexone measurements have been continued.

Laboratory studies in the Research Section have demonstrated no effect of ruthenium concentration on ruthenium volatilization by either permanganate or ozone oxidation. Deposition of ruthenium tetroxide on stainless steel surfaces has been proved to be greater than that on glass surfaces. The amount of glass wool required to obtain a zirconium decontamination factor of 1000 or greater by adsorption from 8-1-MR solution has been determined. Ceric-dichromate complexes formed in aqueous solutions

are being investigated, as is the oxidation of hexone and plutonium by ozone, the instability of plutonium (IV) systems, and the specific heats of Redox process solutions. An experimental model of a pulse-type extraction column has produced HNO_3 H.E.T.S. values as low as 0.34 ft. Studies of the neutralization of metal waste solution by volume-reducing complexing agents and the decontamination of Redox wastes by ion-exchange have been initiated.

Production rolling of uranium rods for Hanford continued at Lockport, N.Y. and Aliquippa, Pa., under technical supervision by the 300 Area Plant Assistance Group. The 5-ton experimental lot of rods forged to 2" squares and then rolled to size, at Aliquippa in October, showed structural and machining characteristics very similar to those of regular rolled material.

Statistical quality control charts applied to non-seat rejects in the triple-dip canning of rolled uranium led to the discovery that slugs machined from this metal undergo an appreciable dismater increase, and length decrease, during canning by this process. Experiments in progress with rolled metal slugs deliberately machine to allow for this dismensional change in canning indicate that both yield and quality can be improved greatly thereby.

Using equipment available at Schenectady, induction heating was tried with uranium rods and slugs as a means for effecting the structural transformation now being achieved in the bronze bath of the triple-dip canning process. Results were very encouraging; heating was fact, oxidation in air was negligible, and after quenching the uranium showed fracture characteristics like those obtained with the bronze dip

In the Control and Development Division of H.I., analytical results on samples of water, air and vegetation followed the normal pattern. The yield in plutonium analysis of urines showed some improvement over past months but was still not up to the desired standard. No positive results were obtained. The maximum uranium content found in the urine of the 300 Area workers was 85 ug/liter. A special sample from a 100 Area worker showed positive results for Ca^{45} and Fe^{59}.

Biological monitoring proceeded without unusual incident. A program of off-site monitoring of predators has been initiated and local coyote control is in progress. Studies on the possibility of a sputum survey for active particles in workers is nearing completion.

A survey was taken to determine steel requirements for the first quarter of 1949 to be obtained under the Voluntary Steel Association Plan.

A total of forty Excess Lists was transmitted to the Atomic Energy Commission during the month, representing material valued at $1,251,446.

There was one major injury during the month of November, making a total of 16 for the year to date and an accumulative frequency rate of 1.02.

Laundry volume for the 700 Area Laundry increased from 117,547 lbs. in October to 134,107 lbs. in November. The 200 Area Laundry increased from 134,267 in October to 150,463 in November.

Open requisitions for additional personnel increased from 439 at the beginning of the month to 456 at the end of November. Total plant roll increased during November by 95 employees. Recruitment activities were conducted by a technical recruiter at the University of Washington; fifty prospective candidates were interviewed.

General Summary
November, 1948

There were 1,544 contacts made by Employee Service Councelors during November. Three employees retired. Two hundred eight-seven suggestion awards, totaling $330, were granted during November. Settlement for one claim in the North Richland Barracks fire was approved for $7,500.

Seven news releases were made to newspapers and radio stations in the immediate vicinity of Richland. Nine informative news releases were made to 41 of the leading daily newspapers and 130 weekly newspapers in the Pacific Northwest during November. Arrangements for four speakers, one in Portland, two in Yakima, and one in Seattle, were made during November. Recruiting advertisements for sub-station operators were prepared and submitted to three Midwest newspapers, one in Des Moine Iowa; one in Omaha, Nebraska; and one in Minneapolis, Minnesota.

Several meetings were held with the Chief Field Examiner of the Regional National Labor Relations Board in regard to the organizing activities of the Atomic Metal Trades Council (A.F. of L.). A plant study was made of a number of employees whose jobs would fall within the jurisdiction of the bargaining unit. A number of meetings have been held with various Division supervisors concerning the Company's policies regarding job evaluation and wage rate control. Reclassification of all Technical Graduates "A" and "B" to the new classification of Technical Graduate was placed into effect November 1, 1948. Preliminary studies for new classifications of those jobs previously classified tentatively were started during November.

A request for type A work authority was issued covering the design and construction of three hundred two-bedroom multiple housing units.

During the month of November petitions for nomination of councilmen for the Richland Community Council were received, checked and certified by the City Clerk's Office.

Thirty-eight fire alarms were answered during the month, 25 in Richland and 13 in North Richland. These fires resulted in losses of $1,477.73 to the project, and $2,959.90 in personal property. (The figure shown as suffered by the project does not include the yet undetermined loss in the Lewis & Clark Grade School fire.)

Invitations to Bid were mailed on the following prospective facilities: Shoe Store, Bakery, Service Station, Sporting Goods Store, Men's Wear Store and Women's Apparel.

One hundred seventeen individuals were arrested and processed through the Richland Jail during the month of November, 1948.

Absenteeism due to sickness increased from 1.07% to 1.41% due to an increase in upper respiratory infections and to the state-wide high incidence of a virus intestinal infection.

The average daily hospital census was 96, a 10% increase over October. This increase resulted in considerable crowding and will be relieved by opening one in-patient wing of the North Richland Hospital on December 13, 1948.

Clinic visits were constant at 339 per day as compared with 152 per day a year ago, a 125% increase.

Public Health nurses' house visits were up 20%. This was primarily due to the state-wide epidemic of virus disease; namely, respiratory and gastro-intestinal illness.

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Budget estimates and narrative explanation of the budgets for the fiscal year endin June 30, 1949 were prepared by the General Divisions. Assistance by the General Accounting Division was rendered divisions in the preparation of the budget estimat and in the narrative preparation. Assembling of data was nearing completion at the month end in order that budgets in final form could be presented to the Appropriations and Budget Committee for review early in December.

Financial Statements for September covering Hanford Works operat ons and Consolidated Departmental Operations were issued on November 8 and those for October on November 30. Cost Reports for Hanford Works operations were also issued for the months of September and October on November 4 and November 24, respectively.

Representatives of the Regional Office (Seattle) of the National Labor Relations Board visited Hanford Works during November for the purpose of examining payroll records in connection with recent application by the Hanford Metal Trades Council for bargaining rights for all production and maintenance employees of Hanford Works

STAFF

General Manager	R. C. Muir
Assistant General Manager	G. R. Prout
Assistant General Manager	R. S. Neblett
Assistant to the General Manager (Technical and Educational Matters)	W. I. Patnode
Assistant to the General Manager (Budgets and Expense Control)	J. R. Rue
Assistant to the General Manager and Manager of Service Divisions	G. G. Lail
Department Comptroller	F. E. Baker
Counsel	L. F. Huck
Community Manager	E. L. Richmond
Manager, Design and Construction Divisions	F. R. Creedon
Manager, Manufacturing Divisions	C. N. Gross
Manager, Technical Division	A. B. Greninger
Manager, Health Instrument Division	H. M. Parker
Manager, Medical Division	W. D. Norwood, M. D.
Manager, Employee and Community Relations Division	H. E. Callahan

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FORCE REPORT
NOVEMBER-1948

	Non-Exempt		Exempt		Total	
	10-29-48	11-30-48	10-29-48	11-30-48	10-29-48	11-30-48
GENERAL	17	14	6	11	23	25
LAW DIVISION	3	4	4	4	7	8
DESIGN & CONST. DIV'S.						
Administrative	30	28	6	6	36	34
Construction	246	265	196	190	442	455
Const. Accounting	64	67	3	7	67	74
Design	143	141	111	110	254	251
Procurement	33	32	59	54	92	86
No. Richland Realty	271	272	23	23	294	295
MANUFACTURING DIVISIONS						
General	2	2	7	6	9	8
Project Engineering	74	71	52	51	126	122
Mf'g. Accounting	37	38	5	5	42	43
OPERATIONS DIVISION						
"P" Division	306	311	61	61	367	372
"S" Division	243	245	58	60	301	305
Power	341	346	81	81	422	427
MECHANICAL DIVISIONS						
Maintenance	528	525	72	72	600	597
Electrical	228	235	46	46	274	281
Instrument	164	168	45	44	209	212
Transportation	672	686	67	67	739	753
TECHNICAL DIVISIONS						
Technical General	2	2	5	4	7	6
Pile Technology	10	12	50	52	60	64
Separations Technology	82	83	87	86	169	169
Metallurgy & Control	392	402	107	112	499	514
MEDICAL DIVISION	432	428	100	97	532	525
H. I. DIVISION	215	222	85	91	300	313
ACCOUNTING DIVISION	163	164	31	23	194	187
EMPLOYEE & COMM. REL.	73	70	23	23	96	93
SERVICE DIVISIONS						
Plant Sec. & Service	1034	1061	123	126	1157	1187
Purchasing & Stores	159	164	23	25	182	189
COMMUNITY DIVISIONS	827	826	159	160	986	986
GRAND TOTAL	6791	6884	1695	1697	8486	8581

PERSONNEL DISTRIBUTION - NOVEMBER 1948

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
GENERAL	-	-	-	-	-	-	-	-	11	11
Clerical	-	-	-	-	-	-	-	-	14	14
Total	-	-	-	-	-	-	-	-	25	25
LAW DIVISION	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	8	8
DESIGN & CONSTRUCTION DIVISIONS										
ADMINISTRATIVE										
Supervisors	-	-	-	-	-	-	-	-	5	5
Engineers	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	23	23
Others	-	-	-	-	-	-	-	-	5	5
Total	-	-	-	-	-	-	-	-	34	34
CONSTRUCTION										
Supervisors	-	-	-	-	-	-	-	28	16	44
Engineers	13	-	-	9	-	1	11	28	17	79
Clerical	17	-	-	1	-	-	19	101	9	147
Others	56	-	-	2	-	-	95	12	20	185
Total	86	-	-	12	-	1	125	169	62	455

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
DESIGN & CONSTRUCTION DIVISIONS										
CONSTRUCTION ACCOUNTING										
Supervisors	-	-	-	-	-	-	-	7	-	7
Clerical	-	-	-	-	-	-	-	67	-	67
Total	-	-	-	-	-	-	-	74	-	74
DESIGN										
Supervisors	-	-	-	-	-	-	-	-	14	14
Engineers	-	-	-	-	-	-	-	-	109	109
Clerical	-	-	-	-	-	-	-	-	69	69
Others	-	-	-	-	-	-	-	-	59	59
Total	-	-	-	-	-	-	-	-	251	251
PROCUREMENT										
Supervisors	-	-	-	-	-	-	-	-	14	14
Clerical	-	-	-	-	-	-	-	-	31	31
Others	-	-	-	-	-	-	26	-	15	41
Total	-	-	-	-	-	-	26	-	60	86
NORTH RICHLAND REALTY										
Supervisors	-	-	-	-	-	-	-	24	-	24
Engineers	-	-	-	-	-	-	-	4	-	4
Clerical	-	-	-	-	-	-	-	32	-	32
Others	-	-	-	-	-	-	-	235	-	235
Total	-	-	-	-	-	-	-	295	-	295

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MANUFACTURING DIVISIONS										
GENERAL										
Supervisors	-	-	-	-	-	-	-	-	6	6
Clerical	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	8	8
PROJECT ENGINEERING										
Supervisors	-	-	-	-	1	-	-	-	13	14
Engineers	-	-	-	-	3	1	-	-	33	37
Drafting Personnel	-	-	2	-	5	3	-	-	29	39
Clerical	-	-	-	-	-	-	-	-	16	17
Others	-	-	1	-	2	-	-	-	12	15
Total	-	-	4	-	11	4	-	-	103	122
MANUFACTURING ACCOUNTING										
Supervisors	-	-	-	-	-	-	-	-	5	5
Clerical	-	-	-	-	-	-	-	-	38	38
Total	-	-	-	-	-	-	-	-	43	43
OPERATIONS DIVISIONS										
"P" DIVISION										
Supervisors	9	11	15	-	-	16	-	-	10	61
Operators	38	47	35	-	-	177	-	-	-	297
Clerical	2	2	2	-	-	5	-	-	3	14
Total	49	60	52	-	-	198	-	-	13	372

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
OPERATIONS DIVISIONS										
"S" DIVISION										
Supervisors	-	-	-	23	30	-	-	0	6	59
Operators	-	-	-	104	128	-	-	-	1	233
Clerical	-	-	-	4	7	-	-	-	2	13
Total	-	-	-	131	165	-	-	-	9	305
POWER										
Supervisors	18	18	17	5	8	1	2	-	-	69
Engineers	4	1	1	-	-	-	6	-	-	12
Operators	84	81	77	2	28	10	-	-	-	304
Clerical	1	1	1	-	1	-	3	-	-	7
Others	8	6	7	4	5	5	-	-	-	35
Total	115	107	103	33	42	16	11	-	-	427
MECHANICAL DIVISIONS										
MAINTENANCE										
Supervisors	2	8	7	5	16	7	17	-	2	64
Engineers	1	-	1	1	1	1	6	-	5	16
Mechanics	30	27	59	43	92	54	125	-	-	430
Clerical	1	-	2	1	2	1	4	-	2	13
Others	3	1	9	4	15	11	31	-	-	74
Total	37	36	78	54	126	74	183	-	9	597
ELECTRICAL										
Supervisors	2	3	3	2	3	2	2	-	24	41
Electricians	12	12	12	11	11	12	-	-	100	170
Clerical	1	-	1	1	1	1	2	-	4	11
Others	2	2	3	2	3	4	1	-	42	59
Total	17	17	19	16	18	19	5	-	170	281

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MECHANICAL DIVISIONS										
INSTRUMENT										
Supervisors	3	4	2	2	4	6	-	-	5	26
Engineers	3	-	-	-	1	7	-	-	7	18
Mechanics	7	5	10	4	12	22	-	-	7	67
Clerical	1	1	1	1	2	4	-	-	4	14
Others	10	12	6	11	8	32	-	-	8	87
Total	24	22	19	18	27	71	-	-	31	212
TRANSPORTATION										
Supervisors	7	2	2	4	4	2	10	-	36	67
Drivers (Based on Areas served)	28	27	35	35	40	12	8	-	73	258
Mechanics	12	3	1	4	2	-	-	-	78	100
Trainmen	8	4	4	4	4	3	5	-	4	36
Laborers	9	15	11	32	8	7	-	-	36	118
Clerical	-	-	-	1	-	1	-	-	20	22
Others	9	9	12	16	23	6	1	-	76	152
Total	73	60	65	96	81	31	24	-	323	753
TECHNICAL DIVISIONS										
TECHNICAL GENERAL										
Supervisors	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	6	6
PILE TECHNOLOGY										
Supervisors	-	1	-	-	-	7	-	-	2	10
Chemists-Engineers & Physicists	3	16	2	-	-	29	-	-	3	43
Laboratory Assistants	1	2	1	-	-	3	-	-	-	7
Clerical	-	-	-	-	-	3	-	-	1	4
Total	4	9	3	-	-	42	-	-	6	64

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
TECHNICAL DIVISIONS										
SEPARATIONS TECHNOLOGY										
Supervisors	-	-	-	1	4	12	-	-	1	18
Chemists-Engineers & Tech. Grad.	-	12	-	11	17	55	-	-	4	99
Laboratory Assistants	-	-	-	-	-	7	-	-	-	7
Clerical	-	-	-	-	1	7	-	-	2	10
Others	-	-	-	-	1	31	-	-	3	35
Total	-	12	-	12	23	112	-	-	10	169
METALLURGY & CONTROL										
Supervisors	-	6	-	6	11	31	-	-	5	59
Chemists-Engineers-Metallurgist Technologists & Technical Graduates	1	7	3	9	19	90	-	-	1	130
Laboratory Assistants	9	13	24	42	61	96	-	-	-	245
Clerical	-	1	-	1	2	31	-	-	36	71
Others	-	-	-	-	-	9	-	-	-	9
Total	10	27	27	58	93	257	-	-	42	514
MEDICAL DIVISION										
Physicians	-	-	-	-	-	-	7	11	25	43
Dentists	-	-	-	-	-	-	-	2	11	13
Technicians	-	-	2	-	-	-	-	10	27	39
Clerical	2	-	-	2	-	1	-	29	91	125
Others	15	2	3	3	3	2	16	30	231	305
Total	17	2	5	5	3	3	23	82	385	525
H. I. DIVISION										
Supervisors	1	1	3	4	8	17	-	-	5	39
Engineers	4	5	8	14	14	7	-	-	2	54
Clerical	-	-	1	-	1	4	-	-	3	9
Others	9	16	16	35	59	56	6	-	14	211
Total	14	22	28	53	82	84	6	-	24	313

	100-B Area	100-D Area	100-F Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
ACCOUNTING DIVISION										
Supervisors	-	-	-	-	-	-	-	-	20	20
Clerical	-	-	-	-	-	-	-	-	167	167
Total	-	-	-	-	-	-	-	-	187	187
EMPLOYEE & COMM. RELATIONS DIV.										
Supervisors	-	-	-	-	-	-	-	-	19	19
Employee Relations Counselors	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	62	62
Others	-	-	-	-	-	-	-	-	8	8
Total	-	-	-	-	-	-	-	-	93	93
SERVICE DIVISIONS										
PLANT SECURITY & SERVICE										
Supervisors	16	9	7	10	15	12	27	-	32	128
Office Machine Operators	-	-	-	-	-	-	-	-	52	52
Inspectors	4	3	3	3	3	3	4	-	1	24
Patrolmen	43	129	88	70	119	80	27	-	44	600
Firemen	71	-	-	-	14	14	-	-	22	121
Laundry Operators	-	-	-	-	8	-	-	-	2	10
Clerical	-	-	-	-	-	-	20	-	36	56
Others	6	7	6	9	43	16	3	-	106	196
Total	140	148	104	92	202	125	81	-	295	1187
PURCHASING & STORES										
Supervisors	-	-	-	-	-	-	-	-	25	25
Clerical	-	1	-	1	-	-	-	-	162	164
Total	-	1	-	1	-	-	-	-	187	189
COMMUNITY DIVISIONS										
Supervisors	-	-	-	-	-	-	-	-	160	160
Others	-	-	-	-	-	-	-	-	826	826
Total	-	-	-	-	-	-	-	-	986	986
GRAND TOTAL	586	523	507	581	873	1037	484	620	3370	8581

HQ-11835-DEL

HW-11835-DEL

MANUFACTURING DIVISIONS

NOVEMBER 1948

SUMMARY

Operational

A total of 81.4 tons of metal was discharged from the three piles with an average operating efficiency of 81.5 percent. The nominal power level of 275 M.W. was maintained throughout the month except that the 100-F pile operated at a lower level until November 14, 1948 when the bad effects of the water leak reported last month were overcome.

A highly contaminated railroad express car was returned from the customer at Dayton, Ohio, as a result of their return shipment of casks in grossly contaminated boxes. Readings as high as 3,000,000 d/m were detected on the outside of some of the boxes.

The 300 Area canning production total was 150 tons of acceptable slugs which is a new production record. The canning yield was 88.6 percent. Production from the Melt Plant amounted to 70 tons of billets.

A total of 49 batches were processed through the Separations Operations. The over-all waste losses throughout the Separations activities averaged 2.6 percent for the month.

The operation of the sand filters continued very satisfactorily with indicated efficiencies greater than 99.5 per cent. However, considerable recontamination of the filtered air during passage through the outlet stacks is occurring. This is the subject of current study.

Mechanical

A new high in electrical power load on the entire project system of 62.1 M.W. was recorded for November 29, 1948.

C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

MANUFACTURING DIVISIONS

PATENT REPORT SUMMARY
FOR
MONTH OF NOVEMBER, 1948

All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

INVENTOR	TITLE
W. A. Richards	"TYPTEMP RECORDER"
(Instrument Division)	"For recording temperature monitor readings on tube pattern forms at the same speed that present Brown recorder operates."
A. F. Luebke	"STACK GAS SAMPLING DEVICE"
(Project Engineering Division)	"A device for taking gas samples at top of a tall stack and drawing that down to ground level for testing purposes."
C. H. Row	"CORING TOOL"
(Transportation Division)	"A device to take core samples with well drilling apparatus in conjunction with the drilling operation."

C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

P DIVISION

NOVEMBER, 1948

I. GENERAL

All piles operated at 275 M.W. throughout the month except for outages listed under Area Activities in this report and except that F Pile operated at a reduced level during the first half of the month. This operation at reduced level was incident to the leaking process tube reported last month.

A total of 81.4 tons of metal was discharged from the piles during the month.

The 300 Area canned a total of 150 tons of acceptable slugs during the month to establish a new production record.

On November 29 the operating schedule for the Melt Plant was changed from a three-shift to a two-shift, six-day week schedule. The backlog of material largely had been worked off and the new schedule is adequate for processing the current accumulation of scrap.

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - November

Beginning of Month	367
End of Month	372
Net Increase	5

Nine operators were hired and one was terminated. Eight operators were transferred from the 300 Area to the 100 Areas for training in anticipation of the startup of H Pile. Three operators were transferred to the S Division.

The following changes in monthly personnel took place during the month:

E. A. Wegener, Shift Supervisor, was transferred from 100-B Area to the Design-Construction liaison group.

W. K. Wright was promoted to Shift Supervisor on November 1 and assigned to the Canning and Dipping process in the 300 Area.

J. A. Cowan was promoted to Senior Supervisor of Melt Plant operations in the 300 Area on November 1.

III. AREA ACTIVITIES

PILE SUMMARY	PILE B	PILE D	PILE F
Time Operated (%)	89.1	90.3	85.1
Operating Efficiency (%)	88.2	88.1	68.1
*Power Level (M.W.)	275	275	275
*Inlet Water Temperature (°C)	9.1	9.0	9.2
*Outlet Water Temperature (Maximum °C., 10 tubes, 0.240" Zone)	56.6	48.2	52.4
Number of Scrams	1	1	1
Number of Purges	1	1	0
Helium Consumption (cu. ft.)	65,032	67,325	145,179
Metal Discharged (tons)	46.12	29.26	6.02
Inhours Gained (this month)	(-)15	19**	1
*Inhours Poisoned	290	462	302
*Inhours in Rods	39	47	95

* Month end figures.
** Not including increased reactivity due to CO_2 in gas system.

PILE BUILDING

Outage Breakdown

Date of Outage	Scheduled Metal Discharged	Scheduled Maintenance	Unscheduled	Length of Outage (Hours)
11-1-48*		F		81.5
11-2-48	D			19.8
11-5-48	B			19.6
11-5-48**	F			3.5
11-9-48***			F	0.1
11-12-48	B			18.8
11-16-48	D			25.0
11-19-48	B			19.5
11-23-48	D			24.5
11-24-48	F			22.9
11-24-48****			B	0.1
11-26-48***			D	0.2
11-30-48	B			20.6

* Unit down to remove water from graphite.
** Shut down to push temporary poison.
*** Unit scrammed due to Beckman failures.
**** Unit scrammed as a result of an error in by-passing Beckman for routine calibration.

OPERATING EXPERIENCE

Production tests having operational significance are reported below:

105-81-P (Probe Tests of Top Central Tubes)
During the month, the following tubes successfully passed the probes indicated:

1.480"	1.485"		1.490"
4680-D	4560-D	4587-D	4667-D
	4569-D	3959-B	
	4578-D	3988-B	

105-114-P (Van Stone Flange Corrosion Studies)
An inspection of Mg dummies in the rear of Tubes No. 3277-F and 3287-F showed noticeable corrosion. The special dummies were replaced with regular ones.

105-168-P (Replacement of Pile Helium Atmosphere with CO_2)
The percentage of CO_2 in the D Pile atmosphere remained at 40 percent throughout the month with no significant change in operating conditions.

105-208-P Special Irradiation Request 52)
Four (4) tubes containing U-235 and exposed in accordance with this production test were discharged from the D Pile on November 15. The material was handled and is now stored in the basin as outlined in Document No. HW-9797, "Safety and Security Measures with Regard to Hanford Request No. 52", J. E. Maider to the Atomic Energy Commission, dated May 17, 1948.

105-214-P (Silica Feed Reduction)
Under provisions of this test, silica feed was reduced from 3.5 to 2.5 ppm nominal on November 16 at the B Pile. No further decrease is contemplated, and this rate will be maintained for approximately six months in order to permit final evaluation of this change. The previously reported acceleration of pressure drop rate at the 3.5 ppm feed was apparently caused by some change in river water chemical content.

105-225-P (Vertical Rod Guide Radiation Leakage)
A special mock-up of a new vertical rod guide was inserted in the "A" Experimental Hole of the F Pile on November 24 in order to study the shielding effects of this type rod guide.

The F Pile was operating at a maximum level of 65 M.W. at the beginning of the month because of the loss of reactivity occasioned by water which had leaked into the graphite from Tube No. 1569-F on October 20. The pile was shut down on November 1 and the flow of water to the process tubes was stopped in order to allow the fission product energy to heat the graphite in the wetted zone. As a safety precaution, thermocouples were placed under the metal of four tubes, Nos. 1586-F, 1987-F, 2670-F, and 2966-F, to monitor the tube temperatures in both the wet and dry zones; a water flow of 2,000 gpm for approximately one minute was introduced periodically through the unit in order to limit the maximum temperature in the tubes in the dry zone to 90°C. This method of operation was discontinued on November 4 at 12:35 a.m. as it became doubtful that sufficient monitoring

points were available to assume absolute safety of the pile while operating in this manner. During the 43 hours of operation under these conditions, 106 gallons of water were removed by the Building 115-F dryers. Operation of the pile was resumed at 100 M.W. and the operating level was gradually increased as the water was removed until the nominal level of 275 M.W. was reached on November 14.

As of month end, 1050 gallons of water had been removed from the F pile and the rate of removal had fallen to approximately 8 gallons per 24 hours. A total of 457 ih. of reactivity had been regained as of month end, and this appears to be the total reactivity lost due to the water leak. A complete write-up of this incident may be found in Document No. HW-11715, (J. T. Baker to file).

The daily water recovery rate at 100-B Pile had dropped from a high of 45 pints at the beginning of the month to a normal of 20 pints by November 6.

On November 25, the effluent water monitoring equipment at the B Pile showed an increase in activity on the near side of cross header 4½. Laboratory analysis of the water from this header confirmed the higher activity readings but failed to indicate any alpha or fission product contamination. Surveillance of this condition, however, was continued until November 30, the next regularly scheduled outage. At this time a survey of the pigtails and nozzles on this header revealed higher than normal readings on Tube No. 0569-B. Contamination smear samples of the rear Van Stone flange of this tube read 1200 mrep, including 5 mr/hr; this is about 10 times the normal reading and indicated that the metal of a slug had in some manner become exposed to the water. Analysis of the water from this tube showed low level alpha contamination. On the basis of this information the tube was discharged into a specially prepared chute and container to avoid spread of contamination. This tube had been charged since October 11 with 4" completely transformed, alpha rolled, triple dipped metal; it was recharged with aluminum dummies pending examination of the discharged pieces.

During the metal discharge of November 16, twelve tubes were discharged with difficulty at the D Pile. These tubes contained 4" alpha rolled, lead dipped pieces. Ten of the tubes were normally discharged after extensive oiling. The remaining two, 1467-D and 1480-D, were back-seated after oiling and then discharged with reasonably low forces. Both of these tubes were loaded with dummies pending replacement. Tube No. 1480-D was replaced and charged with regular metal on November 23.

MECHANICAL EXPERIENCE

All vertical and horizontal safety rods were in satisfactory operating condition at month end. Vertical safety rod No. 27 at the F Pile was out of operation part of the month due to binding between the rod guide and thimble. This defect was temporarily corrected by installing a new rod guide two feet shorter in length. The rod operated satisfactorily after this correction and was placed back in service. The pneumatic

testing of all vertical safety rod thimbles at the D Pile was completed during the month with no leakage indicated in any of the thimbles.

The testing in normal operation of the trial electric drive on No. 4 horizontal rod at B Pile was continued throughout the month. In one instance, the rod reversed when an attempt was made to insert it. This condition was temporarily corrected by adjusting the relays. Meanwhile, a study is being made to determine what revisions of equipment are necessary to guarantee that the rod will not move in the reverse direction to that indicated by the control switch. Some galling was noted on the underside of No. 4 rod at B Pile and was caused by the rod rubbing on the liner plate of the sandwich wall between the inner and outer rod rooms. This condition was corrected by filing down the liner plate.

Six process tubes were replaced during the month as follows:

(a) Tube 1480-D was replaced on November 23 after being discharged with difficulty on November 16.

(b) Tubes 1586-F, 1987-F, 2670-F, and 2966-F, which had been used for monitoring tube temperatures (see Operating Experiences), were replaced November 4.

(c) Tubes 3179-B and 2374-B, which had previously contained SR-15 pieces, were replaced during the month. This is in continuance of the program to replace all tubes which have recently contained SR-15 pieces.

The program of inspection of Van Stone flanges was completed at D pile during the month. The results of this inspection will be used for a statistical analysis of the present status of the Van Stone flanges on the pile.

Special unit motion indication equipment was installed on the front and rear faces of the B and F Piles during the month, preparatory to the introduction of CO_2 into the pile atmosphere. The equipment for the CO_2 addition was also installed at both 115 Buildings during the month.

One cable of the transfer area crane at the D Pile partially pulled out of its clamp at the fixed end on November 23 while lifting a 6,000 pound cask. The slippage was not serious enough to drop the load, and repairs were made on November 26.

The tie-in for the emergency raw water line for the DR pile was made during the D Pile outage of November 2.

All areas continued the control of algae growth in the 107 Retention Basin. The following steps were taken during the month:

(a) Algae and sediment were removed from the south half of the 107-B basin and were buried. This completes the removal from both sides.

(b) A very heavy dosage of calcium hypochlorite was added to the water held in the north side of the 107-D basin with good results in killing the algae.

(c) The effluent water was diverted to the east side of the 107-F basin during the month and at month end the west basin is in process of being emptied.

PILE DEVELOPMENT

Standard procedures have been revised to reduce the requirements for use of steam driven ventilating equipment during planned critical power conditions. The new procedure is the result of efforts to reduce steam costs and was inaugurated when investigation gave assurance that an adequate steam supply would always be available to run these fans in case of an emergency.

A new procedure for manipulating the heavy (6,000# class) casks was developed and instituted during the month. The use of chain hoists on yoke dollies eliminates the necessity for personnel to work on scaffolding over the water in the storage basins.

A flexible, jointed, vertical safety rod was designed and constructed during the month. This rod is being evaluated for use in the piles where the present rods bind in the rod guides or thimbles. An eccentric rod guide and stop plug are also being designed and will be evaluated for the same purpose.

GAS PROCESSING BUILDING

The dryer rooms at the F Pile were operated manually throughout most of the month in an effort to increase capacity and efficiency in the drying towers. Gas flow, which is normally 2,100 CFM, was increased to 4,100 CFM by using all five blowers at maximum speed. The 115-F Building was returned to normal operation when the water removal rate of the dryers dropped to approximately 8 gallons per day.

Work was continued on the dismantling of #2 purification and #2 Purge Blower room at 115-B. This equipment is to be used at 100-H Area.

SPECIAL HAZARDS

Conditions in the 115-F dryers during water removal were such that Chemox masks were required for protection. The water was removed from the dryers and placed in drums with no over-exposure to personnel although contamination to the extent of 3 rep/hr was encountered. The water, which contained S^{35} to the extent of 0.9 millicurie per liter, was buried. A total of 900 gallons of contaminated water was buried.

A consignment of B-material shipping containers was returned from the customer in a steel express car during the month. Pre-unloading surveys showed the boxes and car to be contaminated, which was not unexpected, but complete surveys of the car were not feasible because of the very dirty and disordered condition. The car contained about one inch sand, cinders, broken glass, and sawdust littered over the floor.

More complete surveys, made after the boxes had been unloaded to a truck by fork lift, indicated that the boxes were grossly contaminated. It was further observed that the contamination had been spread to the fork lift, the truck, and the area where the work was performed. SWP clothing worn by personnel during the unloading operation was found to be contaminated beyond expectations based on past experience.

Alpha contamination readings greater than 3,000,000 d/m were detected on the outside of some of the boxes.

Surveys of the car (after vacuum cleaning and sanding) showed readings greater than 48,000 d/m on the floor, with the entire floor being contaminated, and readings up to 22,000 d/m on the wooden wall linings as high as three feet.

At month end, the boxes have been painted to fix the contamination and will be buried. The casks, less highly contaminated, will be painted and returned to service. The fork lift has been decontaminated and released. The truck will be decontaminated and released as soon as it is available. Handling of the express car has been held up pending a decision on means of rehabilitation. The ground area where the unloading was done has been cleaned, checked, and released except for a small area awaiting final surveys. In two small areas holes were dug in black top and new black top was applied to fix any contamination that might not be removed.

In all these operations there was no evidence of contamination of personnel or personal clothing.

300 AREA - METAL FABRICATION

Production Statistics

Production for the month of November was as follows:

Billets Produced	70 Tons
Rods Machined	203 Tons
Acceptable Pieces Canned	150 Tons

Melt Plant

The casting yields were as follows:

	October	November	To Date 1948
Billet	65.2	66.7	67.9
Solid Material	83.0	84.3	85.9

The Melt Plant was operated on a three-shift, six-day week schedule until November 29. At that time the backlog of UM and TXB had been consumed and operation was reduced to a two-shift, six-day week schedule.

After starting to process a Plant inventory consisting of 5000 pounds of TXB containing magnesium, by adding one briquette per crucible charge, it was noted that an increase in solid yield was realized. To evaluate the gain in yield a number (25-30) of crucible charges were melted using TXB free of magnesium, adding one briquette containing magnesium per charge, and adding two briquettes containing magnesium per crucible charge. The resultant yields indicated that approximately eight pounds of additional solid metal could be poured from each charge which contained magnesium. This represents a gain of about 1.5 percent in solid yield. The matter is subject to further evaluation.

Machining:

Machining yields were as follows:

% Yield (4" A's)		
October	November	To Date 1948
68.6	69.1	68.6

A total of 50 slugs was machined to a diameter of 1.351 $\pm$ $^{.001}_{.002}$" and a length of 4.036 $\pm$ .010" in conformance with Production Test No. 313-107-M, Supplement A, (Effect of Canning Conditions on Slug Yield and Quality) on November 22. The machining of an additional 5842 slugs to a diameter of 1.352 $\pm$ $^{.002}_{.001}$" and a length of 4.040 $\pm$ .010" under the same test was completed on November 29. This test is intended to indicate the ideal machined slug dimensions to produce a canned slug of the standard dimensions.

Chip Recovery

The Chip Recovery yield was as follows:

% Yield		
October	November	To Date 1948
90.6	92.0	91.2

The entire Chip Recovery Process was operated 14 eight-hour shifts and the press was operated an additional 23 eight-hour shifts. A total of 89,712 pounds of TXB was produced.

The press was shut down on November 3 to repair the center post of the die holder. Operation was resumed on November 4.

It was necessary to shut down the Chip Recovery Operation again on November 24 when excessive vibration developed in the centrifuge. The necessary repairs are scheduled for completion on December 1.

The material burned in the oxide burner was as follows:

Weight Out - Lbs.		
October	November	To Date 1948
22,153	20,309	115,523

The burner was operated on a three-shift, six-day week schedule until November 29; at that time operation was reduced to a two-shift, six-day week schedule to coincide with the Melt Plant which provides the operating personnel for the burner.

Canning Operation

The canning yield was as follows:

% Yield (4" A's)		
October	November	To Date 1948
88.8	88.6	88.7

Canning rejects, by cause were:

	% Total Canned (4" A's)		
	October	November	To Date 1948
Non-Seating	4.3	2.8	4.1
Marred Surface	2.1	2.7	1.7
AlSi on Outside of Can	0.4	0.5	0.9
Frost Test	1.2	1.9	1.3
Bad Welds	1.7	0.9	1.6
Miscellaneous	1.5	2.6	1.7
	11.2	11.4	11.3

A quality control program was started on November 9 in an effort to reduce non-seating and bad weld rejects. Three operators, one from each crew, were assigned to collect data on possible causes for these rejects. The Statistical Group is assisting in the analysis of data and the preparation of control charts. Thus far a significant reduction in non-seating rejects has been achieved. The reduction in bad welds has resulted mostly from the use of the alternate (½") caps, which are of a better quality than the stock previously used.

Frost test rejects were higher this month and were largely caused by the increased torque applied on the thick alternate cap during facing. The increased torque broke the bond between the can and slug near the cap on a number of pieces, which later were rejected at frost test.

During the course of checking various suspected causes for non-seating, it was found that recovered slugs gauged as much as 0.004" larger in diameter than regular machined "A" slugs. Further investigation confirmed that slugs were increasing in diameter and becoming shorter in length during transformation from the alpha to the beta phase in the bronze bath. Fifty slugs that were machined to a diameter of 1.351 $\pm \frac{.001"}{.002}$ and a length of 4.036 ± .010" were canned on November 22 under Production Test 313-107-M, Supplement A, (Effect of Canning Conditions on Slug Yield and Quality). Following canning and inspection, these pieces were recovered and average dimensions of the slugs were: Diameter 1.3578", Length 3.998".

A process change, reducing slug pickle time followed by a repickle to a was put into effect on November 24. The authorization for this change is contained in Document No. HW-11498.

The following special canning was done during the month:

Request Number	Contents	Number of Pieces
SR 65-2	Lithium Aluminum Alloy	127
SR 65-3	Lithium Aluminum Alloy	271

In addition, 2887 bismuth slugs and 1050 special lead slugs for segmented discharging in the 100 Areas were canned.

Recovery Operation

	% Recovered		Average Wt. - Lbs.	
	November	To Date 1948	November	To Date 1948
Z slugs	76.4	70.5	3.906	3.904
X Slugs	18.2	22.4	3.856	3.854
Rejects	5.4	7.1	—	—
	100.0	100.0		

Inspection and Testing

Autoclave rejects were as follows:

October	November	To Date 1948
0.11/M	0.32/M	0.26/M

Twenty-three autoclave failures occurred in November. The chief cause for these failures was insufficient bonding around the cap.

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

	% Usable — (4")		
	October	November	To Date 1948
Aluminum Cans	94.3	93.6	92.2
Aluminum Caps*	86.6	96.5	96.6
Steel Sleeves	90.9	51.5	83.9

* An alternate thick cap (½") was inspected and used during November as a result of the poor quality of the standard 4" caps reported last month.

Material Handling

Eighty tons of billets were shipped to Vulcan Crucible Steel Company and 7½ tons of solid scrap (UM) were shipped to Los Alamos. Seventy-eight tons of rods were received from Vulcan Crucible Steel Company and 141 tons from Simonds Saw and Steel Company (Lockport).

305 Area Test Pile

This unit was operated 21 eight-hour days in November. One hundred thirty-two tests were run on canned slugs, 114 on billet eggs, 334 on graphite bars, and the following on special work requests:

Request No.		No. of Tests
39	To irradiate an indium foil for cross-section of counters.	1
40	To determine the absorption cross-section of "PM-90" descaler for use in DR construction.	2
41	To obtain absorption cross-section of SR-65 slugs.	7
42	To obtain absorption cross-section of "Zarball" cleaning fluid for use in 101 Building.	4
43	To obtain absorption cross-section for a piece of magnesium-aluminum alloy for possible use in 105 Areas.	4

Special Hazards

A resurvey of radiation exposures to personnel in the Melt Plant made during the month showed that hand exposures average about 500 mrep, with a maximum of 850 mrep. This is below the allowable hand tolerance of 1000 mrep/week. However, since these readings are higher than the photo-badge readings, which have been consistently less than 300 mrep during the past several weeks, it is planned to repeat this survey at

regular intervals. In addition, it is expected that radiation exposures will be reduced appreciably when the Melt Plant operating schedule is reduced from a six to a five-day week on December 20.

It is now apparent that the reduction of air contamination in the Melt Plant is partially dependent on the filtering of air from the cyclone separators. Sand filters are being designed for this purpose. Work is progressing on the design and preliminary preparations for the installation of exhaust systems for furnaces, and the various rooms in the Melt Plant.

The dike on the old retention pond was reinforced early this month and process water was diverted to the new pond on November 14.

Development

A number of trial runs was made during the month to determine the feasibility of burning out crucibles in the Melt Plant by induction heating. Crucibles were heated both upright and inverted, under vacuum and at atmospheric pressure, inside the furnaces. It was found that vacuum retarded burnout and crucibles heated under atmospheric pressure with an energy input of 50 KW for fifteen minutes could be satisfactorily burned out in an inverted position. Burnout in an upright position could not readily be accomplished if large amounts of oxide and free metal were held up in the crucible after pouring.

A cast iron mold having an inside diameter of 4 1/8" was fabricated and tried in the Melt Plant to determine if materials other than graphite could be used for molds. The original billet poured in this mold on November 5 was satisfactory and it was easily removed since there was about 1/16" clearance between the billet and mold after cooling. The Zirconite coating inside the mold remained intact, which indicated a negligible amount of iron contamination. When the mold was tried a second time on November 15, a strip of cast iron from the lower end of the mold was found brazed to the billet upon removal. It is planned to make other tests on Meehanite and seamless steel molds as soon as they can be fabricated.

The operating time for bronze furnaces between shutdowns for overhaul was extended approximately 50 percent over last month through the following changes in the assembly and operation:

a. The steel ring on the outside of the crucible was made deeper to permit the use of additional packing and improve the seal around the top of the crucible.

b. A 4" steel ring was welded to the top furnace ring, extending down inside the crucible. This tends to prevent flux from being splashed over the top of the crucible by the mechanical agitator.

c. The temperature of the furnace elements is reduced as much as is practicable when bronze furnaces are not in use.

1211009

S DIVISION

NOVEMBER, 1948

OPERATING SECTION

I. GENERAL

Fifty-one batches were started in the Canyon Buildings and forty-nine batches were processed through the Concentration Buildings and the Isolation Building. The average purity for the completed batches was 98.8 percent.

The over-all material balance for the T and B Plants (including the Isolation Plant) averaged 99.7 and 103.7 percent, respectively, for a combined average of 101.3 percent. Waste losses for the two plants averaged 2.6 percent.

Canyon and Concentration Building Production Performance Data - (11-1-48 - 11-30-48, inclusive)

	B Plant	T Plant	Combined
Number of charges started	24	27	51
Number of charges completed	20	29	49
For completed charges:			
Percentage of starting product in waste			
This month	2.7(a)	2.6(a)	2.6
Last month	2.5(b)	2.7(b)	2.6
Cumulative to date	4.8(c)	4.7(c)	4.8
Percentage of starting product recovered:			
This month	100.0	95.0	97.0
Last month	97.1	97.0	97.1
Cumulative to date	97.3	95.5	96.4
Percentage of starting product accounted for:			
This month	102.7	97.6	99.6
Last month	99.6	99.7	99.7
Cumulative to date	102.1	100.2	101.2
Gamma decontamination factor (log.)			
This month	7.70	7.90	7.82
Last month	7.70	7.89	7.78
Cumulative to date	7.33	7.31	7.32

(a), (b), (c): Include waste from processing recycle. The recycle

wastes are estimated as: (a) 0.019%-T Plant; 0.013%-B Plant. (b) 0.038%-T Plant; 0.023%-B Plant. (c) 0.132%-T Plant; 0.008%-B Plant.

Isolation Building Performance Data (11-1-48 - 11-30-48, inclusive)

	% of Incoming Product			
	Prepared for Shipment	Recycle	Losses	Material Balance
Average for this month	94.9	6.70	-0.03	101.6
Average for last month	94.0	6.83	0.08	100.9
Average to date	96.0	4.50	0.10	100.6

II. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	303
End of month	306
Net increase	3

Remarks: The changes which occurred in the S Division are listed below:

4 transfers from other divisions (all Weekly Roll)
1 termination (Weekly Roll)
1 temporary removal from payroll (Weekly Roll)
1 transfer to another division (Weekly Roll)
2 new hires (Monthly Roll)

Changes in supervisory organization:

D. R. Gustavson and J. C. Glover, both new hires, joined the organization during the month as Supervisors-in-Training.

J. E. Lentz, formerly Clerical Leader, was assigned to the position of Clerical Supervisor.

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants

Volume Reduction - Production Test 221-T-13

Evaluation of Production Test 221-T-13, involving the reduction of process volume at the end of the extraction step was continued at both plants with all runs being processed at 30 percent volume reduction. Waste losses and decontamination factors were satisfactory.

Extraction Waste Losses

Coincident with the processing of the first material from the 100-B

reactor, abnormally high extraction waste losses occurred in both T and B Canyons. To date approximately thirteen tons of this material have been processed. Original waste losses have been approximately 0.6 percent higher than normal and rework of the material has not been as efficient as is generally experienced. The possibility of the existence of an alpha emitter other than normal plutonium which was formed during the extended shutdown of the 100-B reactor is being investigated.

Acid Washes

An acid wash was made of the process equipment in both T and B Plants. Although the over-all product pick-up at B Plant was somewhat higher than usual (37.2 percent), no product hold-up of concern was indicated at either plant.

WASTE DISPOSAL

241-TX Tank Farm - Project C-163

The sub-contractor's phase of the work is complete with the exception of the installation of the permanent fence. Acceptance of this phase of the project has been made on this basis.

The General Electric phase of the work is estimated to be approximately 84 percent complete. The portion of the work which will permit the 221-T Canyon Building wastes to be diverted to the 241-TX tank farm is essentially complete.

Cribbing of Second Cycle Wastes - B Plant

Due to the restricted drainage, reported last month, of the second cycle waste crib, the crib was permitted to overflow into the tile field on November 12, 1948 following the installation of four test wells in the tile field. These wells are perforated at the bottom and terminate at the level of the tiles to permit the drainage from the tile field to be checked. At month end a total of 418,300 gallons of waste supernate from the X-105-B tank had been satisfactorily disposed of via the crib system.

Metal Waste Samples

With the approval of the Atomic Energy Commission, ten 200 ml sludge samples were taken from the X-101-T series of metal waste storage tanks and a twenty eight gallon sample of metal waste supernate was taken from the X-103-T tank. Special equipment fabricated at site K-25 by the Carbide and Carbon Chemical Corporation was used in taking the samples which were shipped to site K-25 on November 26, 1948.

Waste Status

The status of the Waste Storage Areas as of November 30, 1948, is shown in the following table:

B Plant

Bldg. 241 Tanks	Waste	Percentage Full B	C	BX	* Reserve Capacity In Batches to Process B	C	BX	Total
x101,2,3	Metal	100	100	84.4	0	0	42	42
x104,5,6	Metal	-	100	0	-	0	269	269
x201,2,3,4	Metal	0	100	-	-	0	-	0
x107,8,9	Metal	-	-	-	-	-	-	-
x107,8,9	1st Cycle	100	100	12.9	0	0	385	385
x110,11,12	1st Cycle	-	100	-	-	0	-	-
x104,5,6	1st Cycle	-	-	-	-	-	-	-
x104,5,6	2nd Cycle	53.0	-	-	299	-	-	299
x110,11,12	2nd Cycle	96.3	-	0	22	-	636	658

T Plant

Bldg. 241 Tanks	Waste	Percentage Full T	U	TX	* Reserve Capacity In Batches to Process T	U	TX	Total
x101,2,3	Metal	100	100	-	0	0	-	-
x104,5,6	Metal	-	100	-	-	0	-	-
x201,2,3,4	Metal	0	0	-	-	37	-	37
x107,8,9	Metal	-	19.7	-	-	214	--	214
x107,8,9	1st Cycle	100	-	-	0	-	-	-
x110,11,12	1st Cycle	-	100	-	-	0	-	-
x104,5,6	1st Cycle	85.0	-	-	63	-	-	63
x104,5,6	2nd Cycle	-	-	-	-	-	-	-
x110,11,12	2nd Cycle	71.0	-	-	170	-	-	170

MECHANICAL PERFORMANCE

B and T Plants

Agitator Failures

The 10-1 tank agitator at T Plant and the 9-1 tank agitator at B Plant failed and were replaced using standard remote control methods. Both of these agitators were in metal waste neutralization service and had been in service since start-up. Determination of the cause of the failures was not permitted because of excessive radiation levels.

Process Leaks

At T Plant the 8-2 centrifuge to 8-4 product solution tank jet assembly was determined to be leaking by the action of the conductivity meter. Excessive radiation prevented the replacement of the leaking gasket and the assembly was replaced. Approximately 0.5 per-

cent of a run was lost because of the leak.

At B Plant two leaks were located in the second cycle decontamination section (Section 17) through the action of the conductivity meter and the analysis of the cell drainage water. Both leaks were on the exhaust side of product transfer jets: one on the centrifuge to solution tank assembly, and one on the solution tank to Concentration Building assembly. Both leaks appear to have been caused by the loosening of the jet flange bolts. All future assemblies will have the flange bolts tack-welded to prevent subsequent failures of this nature. It is estimated that approximately 2.5 percent of a normal run was lost before these leaks could be located and repaired.

Parallel Operation - Extraction Step

Due to the increased production schedule and to the erratic extraction losses while processing material from the 100-B reactor, Extraction Sections 7 and 8 were placed in parallel operation at both T and B Plants on November 29, 1948. This change will permit the reworking of extraction wastes without over-all lost time to the Canyon Buildings.

Test Hole Through Base of Stack - 291-T

In order to ascertain that the small leak in the line discharging from the stack pan which is evidenced by a drip from the ceramic annular line, has not damaged the stack pad structurally, a two inch test hole was drilled through the pad immediately under the pan. Cores obtained at all points showed the concrete to be in first class condition and no contamination was encountered. This confirms the belief that the leak is from the discharge line instead of the pan and that it is confined in the ceramic annular sleeve.

SPECIAL HAZARDS

Personnel Contamination - B Plant

High level product contamination occurred when an insecurely fastened drip cup fell from the outlet of the F-10 final product tank in the Concentration Building and splashed product solution on an operator's neck, ear and arm. The contamination was successfully removed without injury to the operator by standard skin decontamination procedures. Immediate steps were taken to prevent recurrence. Consideration is being given to certain modifications in design.

Stack Gas Contamination

a. Sand Filters

Operation of the sand filters at T and B Plants was satisfactory. Samples of activity collected on CWS Type 6 filters taken before and after the sand filters indicated an efficiency of approximately 99.6 percent and 99.8 percent at T and B Plant respectively, with air flow of approximately 23,000 cfm at T Plant and 26,000

cfm at B Plant. The over-all effect, however, has been discouraging as noted below:

Samplers were installed at the tops of both stacks during the month. Results from the sampler at T Plant indicated that the sampler was not working properly and inspection by means of a telescope proved that the Saran tubing at the top of this sampler had been ruptured during installation. Additional samples are now being taken from the water leg of the assembly which was installed to provide a means of flushing the stack should this become desirable. At B Plant the results of the samples taken at the top of the stack are in fair agreement with those taken at the fifty foot level. At both plants samples at the fifty foot level indicate that considerable recontamination may be taking place between the stack breeching and the fifty foot level. Samples of the off-gas at both plants presently indicate that only a very small amount of this recontamination, which tends to nullify the effect of the filters, originates from the dissolver off-gas lines.

Data collected by the Health Instrument Division show a decrease in the ground deposition rate at T Plant by a factor of approximately ten with a decrease of a factor of four at B Plant. Additional data may establish a favorable trend, however.

A meeting of the Stack Gas Committee will be held early in December to consider the future action to be taken.

b. Type 6 C. W. S. Cell Filters

As reported last month, modified Type 6 C. W. S. filters equipped with fiber glass forefilters were installed in all cells in the T and B Plant Canyons. The installation of these filters, however, coupled with the installation of the sand filters so reduced the air flow through the operating cells that the canyon ventilation was seriously affected. Removal of the filters from the operating cells at T Plant has resulted in satisfactory Canyon ventilation. Their removal from the B Plant operating cells is now in progress.

DESIGN AND CONSTRUCTION CONSULTANT'S SECTION

Redox Development

As a result of recent development work by the General Engineering and Consulting Laboratory of Schenectady, a binocular periscope principle employing polarized light has been selected for final development. This system, which has not appeared promising in the past because of low light transmission by the optical system, is now possible because of a new type of polarizing prism developed by Eastman Kodak. Light transmission values of approximately 50 percent are reported for the system. Schenectady is also undertaking the preliminary design of a monocular optical system for the Test Plant crane.

The final choice (Doc. HW-11698, O. H. Greager to Redox Advisory Committee) of contactor type for the Test Plant and the Main Plant was made during the past month when, after a careful comparison of columns and mixer-settlers, the columns were selected as being the more desirable. Column specifications which were transmitted to the Architect-Engineer recommended column diameters and heights ranging from two inches to four inches and twenty feet to forty feet for the Test Plant and three inches to eight inches and eighteen feet to forty feet for the Main Plant.

Design meetings between Redox Section of Design Engineering and representatives of the Architect-Engineer to establish mutually satisfactory equipment arrangements and cell wall pipe patterns have been completed. From this work, two wall patterns for the Test Plant cells have been developed which will satisfy the process equipment needs.

In the absence of conclusive data on Redox corrosion studies, it has been decided that type 309 (25-12 S Cb) stainless steel will be used in the Test Plant for all buried piping through concrete, all cell and trench jumpers, and all cell vessels. Type 347 (18-8 S Cb) will be used for "cold" area piping and vessels where stainless steel is required.

Process flow sheets for the Main Plant have been completed and approved by the Design Division, the S Division, the Technical Division, the Architect-Engineer and the Atomic Energy Commission. These sheets will now serve as the basis for the cell equipment and piping layouts for the Main Plant.

Basic work authorities were issued during the past week by the Design Division for the Redox Test Plant and one Redox Main Plant. Although both of these work authorities included appropriations for separate laboratory buildings, the Main Plant Control Laboratory has now been eliminated from the project; all analytical work for both the Test Plant and the Main Plant is being considered as a function of the Test Plant laboratory.

The Process Group of Design Engineering has issued three documents (HDC-812, HDC-844 and HDC-846) to augment their previous suggestion (HDC-736) that, rather than continue with the Redox Process for the recovery of in-process uranium and plutonium, a solvent extraction uranium decontamination process be adopted and coupled with the present $BiPO_4$ plutonium process. The most recent documents include a Chemical Flowsheet for the process and a general description of process equipment. It is further proposed by the Process Group that two uranium cycles be installed in the Head End cells of T Plant. Detailed equipment and piping layouts in the T Plant Head End along with a tentative operating outline for the equipment have been shown in HDC-844. The preliminary estimates of the "New Money" cost of such a full scale, full activity level pilot plant for uranium recovery work have been quoted at $400,000.

7 Comment drawings for the Redox Waste Storage Tank Farm were received

from the Architect-Engineer. The proposed farm consisted of 30 stainless steel lined tanks each of 660,000 gallon capacity as well as other tank farm auxiliaries. The size of the farm has now been reduced to 12 tanks each of 758,000 gallon capacity. This unit is expected to offer storage space equivalent to four years of Main Plant operation if the proposed waste concentration system proves to be operable. One tank is to be utilized for the storage of Test Plant Wastes.

Permission has been granted to Construction to use the ten ton Whiting crane now installed in the 221-U Building as a construction crane for the 201-R Building. Delivery dates on new cranes of this type and the economies to be realized in making such a transfer have made the reuse of this unit as a construction crane very attractive. Dismantling of the crane will be started in December.

The Architect-Engineer has been requested to develop a caustic scrubber for use as a dissolver off-gas scrubber in the Redox installations. To avoid the direct cribbing of low activity effluents from the off-gas scrubber, it is planned to concentrate the effluent and crib only the relatively innocuous distillate. Unless the active iodine is chemically combined in the effluent (as NaI) it is believed that any attempt to concentrate the waste will result in re-release of the iodine. For this reason the current water scrubbers are not considered satisfactory for the Redox installations.

BY Tank Farm

Detailed design work on the "balance off" lines to tanks 109 BY and 111 BY is being completed. With the completion of the layout of two inlet lines to the 252-B diversion box, it is expected that all major design work on the tank farm will be completed.

In place of the expensive concrete trench or the steel pipe encasements which have been used in previous underground waste line installations, it is planned to use a less expensive type of protection for secondary process lines. This protection consists essentially of a Glyptal coating, two layers of Polykon tape, and one layer of Sisalkraft paper. Provisions are also made for Cathodic Protection. This system of protection is also being adopted for secondary lines in the Redox Waste disposal system. Improved methods used in the fabrication of the bottom dollar of the steel tank liners has resulted in a reduction in welding time for each tank bottom by approximately two thirds.

POWER DIVISION
NOVEMBER 1948

GENERAL

All rejected steam line poles were replaced in the 200 Areas and approximately 95 per cent completed in the 100 Areas at the end of the month. Additional poles are being added in the 200 Areas to provide double poles at expansion loops where necessary.

PERSONNEL AND ORGANIZATION

Number of employees on payroll	November
Beginning of month	423
End of month	428
Net Increase	5

The increase indicated above resulted from the hiring of six operators, one transfer into the Division, one transfer out of the Division, and the termination of one operator.

100 AREAS

On November 22, the 100 Areas Power Division personnel returned to a 40-hour work week, except for the day shift. This eliminated approximately 70 per cent of planned overtime. The normal 40-hour work week will be resumed when personnel are procured to form day relief crews.

In the F Area, the No. 8 process pump motor was returned to service on November 5 after being rewound.

Work was completed anchoring roof slabs on the process water pump room on November 5.

One process water elevated storage tank was inspected in the D and F Areas during the month. Considerable evidence of tuberculation and corrosion was noted in both tanks. An inspection of additional tanks is planned before formulating procedures for correction of these conditions.

In the B Area, the turbine driven export pump failed during scheduled test on November 10. The cause was apparently due to water leaking into the oil system. Necessary repairs on the turbine and reduction gear have been completed.

Power Division

Normal conditions were restored on the export water system on November 11 after several weeks of operation with all areas sectionalized to facilitate isolation of a section of line being intersected by construction of new sewer line for the DR Area.

Normal chlorine feed to the raw water reservoir in the D Area was interrupted for several hours on November 19 when the chlorine line between the chlorinator and the chlorine storage tanks was broken by excavation equipment working on steam line pole replacement.

In the F Area the No. 2 motor generator set and No. 2 refrigeration unit motor were made available to the Electrical Division for power factor correction test purposes.

In the D Area the Nos. 2, 3, 4, 6, 10, 11, and 12 process water pumps were removed from service, independently, during the month, and discharge line connections made for supplying the DR pile building.

The silicate feed to process water reduction test at B Area is progressing satisfactorily. The feed rate is now 2.5 ppm, and it is planned to hold this rate for a six month period until Technical has collected sufficient corrosion data.

200 AREAS

In the East Area a 6-inch raw water connection was completed November 1. This line will serve the subcontractor for construction of new water storage plant.

Steam service to the isolation building in the West Area was interrupted for approximately four hours on November 6 to facilitate making connection for a new 6-inch 225 pound steam line to serve the 234-5 construction area.

On November 16 it was necessary to interrupt fire and sanitary water service to the West Area isolation building for two and one-half hours while making repairs to leaks on the 8-inch fire and sanitary water main.

On November 25 a scheduled complete 225 pound steam shutdown was made in the East Area for approximately eight hours and repairs made to all leaks in the system.

Construction of the West Area power house and filter plant extensions are progressing according to schedule.

Power Division

300 AREA

On November 12 a connection was made to the area service water system connecting the two 6-inch supply lines from the North Richland system.

It is planned to use this new system as an alternate supply for the area. The new system was completed at the month's end but was not placed into service pending completion of sterilization.

The new boiler (No. 3) was placed in service on November 5 and has operated satisfactorily, with the exception of auto-combustion control, which will be completed at an early date.

WHITE BLUFFS

A complete scheduled shutdown on the ice plant was effected November 22, 23, and 24 to facilitate installation of a new waste water sewer line.

Ice in storage at the month's end was 1,144,800 pounds.

POWER DIVISION STATISTICS

From November 1, 1948

Through November 30, 1948

			AREAS		
			100-B	100-D	100-F
RIVER PUMP HOUSE (Building 181)					
River stage	Feet above sea level	(max)	387.2	379.5	366.0
		(min)	385.2	378.0	364.5
		(avg)	386.1	378.7	365.1
River temperature	avg. °F.		50.6	50.5	50.3
Water pumped to Reservoir	gpm avg. rate		39311	38459	34418
Water pumped to Refg. Condensers	gpm avg. rate			0	0
RESERVOIR (BUILDING 182)					
Water pumped to Filter Plant	gpm avg. rate		33061	34054	30584
Water pumped to Condenser System	gpm avg. rate		3790	3785	3248
Water pumped to Export System	gpm avg. rate		2460	620	586
	gpm normal rate		3666	3666	3666
Chlorine added at #1 inlet	pounds		10962	10510	1500
FILTER PLANT (Building 183)					
Filtered water to Power House	gpm avg. rate		299	284	266
Filtered water to Process	gpm avg. rate		29448	29588	29135
Filtered water to Fire & Sanitary	gpm avg. rate		97	158	135
Chlorine used in Water Treatment	pounds		4815	4390	8000
	ppm avg.		1.17	1.12	.85
Lime used in Water Treatment	pounds		23416	14200	9000
	ppm avg.		1.9	1.2	.8
Coagulant used in Water Treatment	pounds		103825	127000	103000
	ppm avg.		8.7	10.4	9.4
Raw Water pH	pH avg.		8.0	8.0	8.3
Finished Water pH	pH avg.		7.53	7.43	7.42
Alkalinity, M. O. - Raw	ppm avg.		61	59	59
Finished	ppm avg.		60	54	54
Residual Chlorine - Settled	ppm avg.		.24	.24	.18
Finished	ppm avg.		.10	.17	.10
Iron - Raw	ppm avg.		.07	.07	.07
North Clearwell	ppm avg.		.01	.02	.02
South Clearwell	ppm avg.		.01	.02	.02
Hardness - Finished	ppm avg.		71	68	72
Turbidity - Raw	ppm avg.		4.0	3	3
Filtered	ppm avg.		0	0	0
REFRIGERATION (Building 189)					
Refrigeration produced	Tons per day			0	0
Temperature, Process Water In	avg. °F.			-	-
Temperature, Process Water Out	avg. °F.			-	-

From November 1, 1948

Trhough November 30, 1948

POWER HOUSE (Building 184)

Steam generated - Total	M pounds	103289	96833	96653
Average rate	lbs./hr.	143457	134490	134240
225 psi Steam to plant (est.)	M pounds	90395	84131	84555
15 psi Steam to plant (est.)	M pounds	499	1082	499
Coal consumed	Tons	7708	7870	7106
Coal in storage (est.)	Tons	40142	46205	44905

DEAERATOR PLANT (Building 185)

Water flow	gpm avg. rate	29198	29338	28885
Chemicals consumed:				
Dichromate	pounds	22600	20800	21000
Sodium Silicate	pounds	122000	207125	239240
Chemical Analysis:				
pH	pH avg.	7.64	7.65	7.67
Dichromate	ppm avg.	2.0	1.9	2.0
Silica	ppm avg.	2.9	5.5	5.5
Dissolved Iron	ppm avg.	.01	.02	.02
Free Chlorine	ppm avg.	.09	.15	.08

PROCESS PUMP ROOM (Building 190)

Total Water pumped	gpm avg. rate	29023	29163	28710
	gpm normal rate	32137	30840	31980
Water temperature	avg. °F.	52.2	51.8	52.7

VALVE PIT (Building 105)

Chemicals consumed:						
Solids		pounds		3250	2000	0
Chemical analysis:						
A, B, C, & D Headers						
	Standard limits					
pH	7.5-7.8	pH	(max)	7.70	7.70	7.70
			(min)	7.58	7.60	7.60
			(avg)	7.63	7.65	7.65
SiO_2		ppm	(max)	4.0	6.5	6.0
			(min)	2.5	5.0	5.0
			(avg)	3.0	5.4	5.5
$Na_2Cr_2O_7$	1.8-2.2	ppm	(max)	2.0	2.0	2.1
			(min)	1.8	1.9	1.9
			(avg)	1.9	1.9	2.0
Iron		ppm	(max)	.02	.02	.02
			(min)	.01	.01	.01
			(avg)	.01	.02	.02
Chlorides		ppm avg.		1.4	1.3	1.0

From November 1, 1948

Through November 30, 1948

	UNIT	200 Areas	
RESERVOIR (BUILDING 282)		200-E	200-W
Raw Water Pumped	gpm avg. rate	1773	1893
FILTER PLANT (BUILDING 283)			
Filtered Water Pumped	gpm avg. rate	426	339
Chlorine Consumed	lb.	209	175
Alum Consumed	lb.	1465	1400
Chlorine Residual - Sanitary Water	ppm	.7	.8
POWER HOUSE (BUILDING 284)			
Steam Generated - Total	M lb	22314	34624
Steam Generated - Ave. Rate	lb./hr.	30991	48089
Coal Consumed (Est.)	tons	1716	2308
Coal in Storage (Est.)	tons	15542	13666

	UNIT	300 Areas
		300 Area
POWER HOUSE (BUILDING 384)		
Steam Generated - Total	M lb	13930
Steam Generated - Avg. Rate	lb./hr.	19347
Coal Consumed - Total (Est.)	tons	1249
Coal in Storage (Est.)	tons	663
SANITARY AND FIRE SYSTEM (300)		
Well Water Pumped - Total	gal	29,292,200
Well Water Per Day	gal/day	976,400
Well Water	gpm avg. rate	678
Chlorine Residual	ppm	.3

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INSTRUMENT DIVISION

MONTHLY REPORT

NOVEMBER, 1948

December 3, 1948

b

GENERAL

During the month, all service operations phases of the Instrument Division were placed on a five day basis. A small group assigned to Design and Construction and a few employees who are performing acceptance tests for 105-DR are remaining on a six day week.

Organization and Personnel

Number of employees on payroll:

	November
Beginning of Month	207
End of Month	212
Net Increase	5

Reason: 6 new hires; 2 transferred into Division;
2 terminations; 1 on leave of absence.

100 AREAS (Reference Report HW-11750)

The Instrument Division in the 100 Areas returned to the regular 40 hour work week, effective the week ending November 21, 1948. This move was made possible through the procurement and training of new hires since the re-activation of 100-B Area July 1, 1948. Forces not yet as complete as required and in some instances it may be necessary to assign a limited number of personnel to overtime work of special nature.

Several phases of the 105-DR instrumentation have been completed and a crew of three mechanics and a Craft Foreman have been assigned to acceptance testing this equipment.

The prototype "R" panel at 185-B has been completed and is ready for inspection by Project Engineering and Power Divisions.

Actual instrument installation in the first of five panels for the P-10 project is expected to begin December 6, 1948. Preliminary thermocouple work has been started and a test installation of a Wheelco controller has been completed.

Instrumentation and controls have been revised in 100-B and 100-F to provide for CO_2 addition. Recording flowmeters for CO_2 have been ordered, with the first expected delivery date of January 10, 1949.

New installations of additional strain gages at 100-B and 100-F (for purpose of movement study) have been made.

47

Instrument Division

100 AREAS (Cont.)

A twelve point recorder and as many copper-contantan thermocouples were installed in the 105-D Flow Lab at the request of the Technical Division.

The condensate pot and air line in the No. 2 Dryer Room, 115-D, was overhauled. The portion of the air line extending into the post was found badly corroded. High beta readings were also found in the pot and on the tip of the air line. Units in other dryer rooms will be checked and if similar conditions exist a change to stainless steel will be considered.

It has been necessary to replace five orifice tap nipples since Construction changed 185-D orifice plates. The apparent difficulty has been due to poor threads.

The 105-F Pile came up to full power on November 14, 1948, for the first time since the water tube failure on October 20th. Dew point readings have been taken continually on plenum chambers 93 and 94, and inlet and exit gas samples since trouble developed.

A special temperature survey was developed as a result of the above problem and suitable thermocouples were made up by the Instrument Division.

The ionization chamber for galvanometer use, and inner plug, were removed from the "A" test hole so Technical Division could use the space for experimental purposes.

On November 9th at 11:25 A.M. the 105-F unit was shut down by the No. 2 Control Beckman. No apparent cause could be ascertained, but on November 15th, it again showed erratic operation. Investigation revealed a low resistance to ground on the high voltage lead to the chamber. Since that time a different chamber has been connected, and cables, connectors and chamber have been thoroughly checked.

A potential "scram" occurred at 105-F on November 17th when the No. 4 Beckman dropped its annunciator tab. A faulty tube was found to be the cause and the condition was corrected. A second potential "scram" occurred at 105-F on November 26th when a mechanic plugged a soldering iron into a receptacle at the rear of the Temperature Monitor cabinet, blowing a fuse. The No. 1 Beckman dropped an annunciator tab, but the time delay relay evidently avoided a shut down. Investigation revealed that the short was provided by the soldering iron which has neutral and ground directly connected.

An inadvertant shutdown occurred at 105-B on November 26th at 9:15 A.M. when a mechanic erroneously checked the Beckman adjacent to the one he has asked by-passed. The unit was back up to power at 9:40 A.M.

An unscheduled shutdown occurred at 105-D on November 26th at 9:37 A.M. The fuse in the No. 4 Beckman transformer circuit failed. No reason for this failure has been determined and the instrument is by-passed until the next scheduled shut down, when a complete overhaul will be performed.

200 AREAS (Reference Report HW-11751)

Instruments were put in service on the 200 East Area stack gas sand filter without difficulty during the month. It was found unnecessary to use the vent duct. Consequently the draft gage to indicate the amount of air being vented was not installed and the duct has been sealed. Apparatus has been installed for drawing a gas sample from the top of the stack and through a filter for analysis. Instrumentation for measuring the sample flow rate was installed in 292-T and 292-B.

The highly contaminated Beckman amplifier, multiple switch and Leeds and Northrup recorder on Section 12, 221-B have been removed and replaced by those from inactive Section 18. Little hope is held for salvaging any part of them. Replacements have been ordered for those previously removed from Section 12 with an indicated delivery of approximately 14 weeks.

Eight inch GE ionization chambers, charged with two atmosphere of gas for increased sensitivity, were installed on the centrifuges in F Section, 224-T. This was done to give a more definite indication of by-product removal. Those previously installed in Sections B and E have definitely cut down the time cycle.

Instruments for Section 7, 221-T are being put in service preparatory to the activation of the section.

Ball point pens are being installed on all Leeds and Northrup recorders in 200 Area locations subjected to extremes of temperature and humidity. Experimental pens have reduced the instrument maintenance time in 614 Buildings by a considerable amount.

Instrumentation was fabricated and installed on a portable gas sampling panel to be sent to Las Alamos. This consisted of two orifice sections with compound manometers for indication of rate of flow of gas sample, and two draft gages for indication of pressure loss across the sample filter.

Servicing of ventilation controls for the fresh air units for Building 231 has been completed. The humidity and booster heating controls are yet to be serviced. Humidity control systems for the operating floor of 221-T have been serviced and are in normal operation. The third floor units will be serviced as soon as they are moved to an accessible position. In their present location it is not possible to reach them for proper service, due to a maze of piping. Work is being started on repair of air conditioning equipment in 200 East Area.

300 AREA (Reference Report HW-11752)

C-171 - Alterations to Crane Periscopes

All component parts are available and installation has started.

Instrument Division

300 AREA (Cont.)

C-219 - Additional Health Instruments

This project is approximately 55 per cent complete. The 20 CO survey meters fabricated by the Instrument Division, Hanford Works, have been accepted by the Health Instrument Divisions. Units manufactured by Technical Associates have not been received.

The 20 Junos fabricated by the Instrument Division, Hanford Works, have been accepted, Four of those instruments received from the outside vendor passed the calibration and scanning tests but proved unsatisfactory in the field. Fifteen units were altered by adding potentiometers for individual range adjustment. All of these have passed calibration tests and six units have been acceptable on scanning tests.

All components for one neutron survey meter have been completed by the Machine Shop and have been delivered to the Electronic Shop for wiring. Machine work on the additional units will continue to meet a scheduled delivery of all parts to the Electronic Shop by the end of the first week in December.

Input resistors for the probe type CO meters are being changed to higher values in an effort to furnish a more acceptable calibration performance.

All poppy cars have been received.

Cases for 180 of the 2" x 9" poppy probes were received from the vendor on November 15th. Insulator design and wiring arrangement have been confirmed by the Health Instrument Divisions. Unit assembly is scheduled to start the latter part of December. 180 bent pencil probes are approximately 50 per cent complete.

Tank type cleaners for the air sampler units have been received. Tests are being conducted by the Instrument Division to furnish information required by the Health Instrment Divisions in specifying the type of filtering device to be used.

C-290-Fabrication of Neutron Spectrometer

Materials are being ordered and shop work is scheduled to start about the first of the year.

Optical Shop

A special optical viewer was designed and a model made, at the request of the Technical Division. The unit contains two offset sections, mounted at an angle, to afford protection for the operator while viewing a process through a shielding wall.

300 AREA (Cont.)

Maintenance Section

Additional study of the accuracy of temperature recorder controllers used in conjunction with the 303 Area canning process. Calibrated thermocouples and a precision potentiometer were used to take readings at one-half hour intervals over a period of three day shifts. The average recorder error was found to be minus 0.7°C with a maximum error of plus 1.5°C.

A North American Phillips X-ray Powder Spectrometer has been serviced and shop tested. It was returned to the Technical Division and is now undergoing operational tests to insure functional accuracy.

Development Section

Development work which is now in progress includes:

1. Electrometer circuits as practicable replacements for portable alpha meters.
2. Thyration control relay for Technical Division.
3. Ionization chambers for 1000, 10 and 1 cubic centimeter capacities.
4. One 150 kilocycle, 50 watt oscillator and two 30 megacycle, watt oscillators.
5. Induction heating in preparation of samples for the fluorophotometer.

700 AREA (Reference Report HW-11753)

National Bureau of Standards certified Class S weights have been received and are being used as primary standards for the calibration of analytical balance weights throughout the plant.

A General Electric fluxmeter has been used to measure the pole face field strength of permanent magnets which are to be used with Miller vacuum gage equipment. Following the fire at Lewis and Clark School the clock and bell system was cut off at the damaged rooms, and the system in the rest of the building was checked for proper operation.

A Hammond organ was repaired on a Cross Order from Village Maintenance.

Apparatus has been set up for calibrating 23 Miller gage elements and 9 Miller amplifier chassis. It is intended to determine, in addition to the accuracy and reproducibility of the instruments, how interchangeable are the component parts.

Tube Shop

Production Report

15 Mica Window Tubes
61 Thin Wall Glass Tubes
6 PC Tubes

Instrument Division

DESIGN AND CONSTRUCTION (Reference Report HW-11754)

Acceptance Test Procedures for all tests and inspections not covered by Design Specifications are being prepared for all instrument installations in 100-DR Area. A report of observed data is prepared, based on procedures for tests which have been established in the various sections of the Instrument Division Manual. This job is now 95 per cent complete. Similar work has been started for the 234-5 project.

It was originally intended to have C. F. Edens return to the DuPont Co. on December 10th but at the request of the Construction Division he will remain until 100-DR Area is turned over to the Manufacturing Divisions which will be shortly after January 15, 1949.

J. M. Holeman inspected the horizontal periscopes being fabricated at the Gaertner Scientific Co. in Chicago, and the binocular periscope mock-up at the Kollmorgan Optical Co. in New York.

The 105-DR Pressure Monitor is complete with the exception of connection of copper tubing to the nozzles at the front face of the unit and testing lines for proper identification and leaks. A higher percentage of unsatisfactory gages was encountered than had been anticipated. These gages are being accumulated and will be returned to the vendor for repairs.

The Technical Division has requested a modification of design for the slug monitoring equipment to be installed in the 105-DR viewing basin. This will entail considerable work as they request an automatic device for slug changing and a means of remotely changing the shielding between slug and chamber.

The "P" Division requested that a bucket monitoring unit be installed in the storage basin near the dummy elevator. Design of this device is complete and installation has begun.

The Health Instrument Divisions submitted requirements for the effluent monitor station. This building has been designated 1908-H and will contain a 15 ft. diameter tank for gamma monitoring and a newly designed beta monitor. Giffels and Vallet are designing the building and facilities required.

A study is being made by the Mechanical Design group on possible substitution of aluminum for stainless steel flanges on 105-H process tubes. Some concern is felt about the stainless valves used on pressure monitor connections. Investigation with Hoke Inc. reveals that these valves could be made of aluminum in the same dimensions with the same pressure rating.

No instrument installations have been made in 100-H Area as yet. Follow up of the construction crews has been necessary in order to make sure that adequate facilities are provided for these installations. In one case, alteration of duct work in 105-H was necessary in order to provide such facilities.

The problem of a rod position indicator for the 105-G unit was outlined in a letter to D. E. Garr at Schenectady asking their advice and assistance in obtaining a suitable solution.

Instrument Division

DESIGN AND CONSTRUCTION (Cont.)

Ventilation control specifications and requisitions for the 234-5 Building were reviewed and sent to Construction Procurement. The proposals of Johnson Service Co. and Minneapolis Honeywell Regulator Co. have been received in response to these requisitions and consultations are now being carried out with each vendor in order to bring their proposals up to the specified design, and to facilitate the early placement of this rather critical order.

A number of documents submitted by Schenectady on the 432 project were reviewed and comments in regard to instrument application forwarded to Technical Division and D. D. Streid. Several engineers from Schenectady visited this site and discussions were held in connection with our desires for instrument arrangements, etc.

We have assumed the responsibility for designing suitable probes for monitoring special pieces for both the rubber glove and mechanical line. Clearance has been requested for one of the Development Engineers to work on this problem.

Assembly of instrument panels for the 234-5 Building rubber glove line is continuing at the White Bluffs Instrument Warehouse. It is expected that the building will be completed to the extent that some of the completed panels can be moved within the next two weeks.

Some difficulty was experienced with the operation of control equipment furnished by Bailey to C. C. Moore on the new boiler in the 300 Area power house. A meeting with Bailey representatives, Power Division and Instrument Division resulted in agreement as to calibrations which should be established for these controls to produce the desired results.

A review of both Redox Test and Production plant instrument flow sheets submitted by Kellex was made. Each instrument function indicated on these sheets was studied and insofar as possible, specifications established for them. Considerable time was spent in establishing exactly what information each instrument was intended to furnish, and in getting agreement from all interested parties.

MAINTENANCE DIVISION
NOVEMBER, 1948

GENERAL

A mechanic in the 100-D Area received a fracture of the terminal phalanx, left index finger on November 12, 1948 when his finger became pinched between a base board and pipe clamp while he was fastening the clamp to the wall.

Work has been started this month in removing equipment out of the 111-B Building so that mock-up facilities for special metallurgical studies can be installed in this building.

The renovation of area administration buildings has been started on the 1704-B and F Buildings.

Construction of the temporary radio-botany laboratory in the 100-F Area has been started and is progressing satisfactorily.

Excavation was started for the installation of 1050 feet of 3" cast iron pipe to supply water to the meteorological station in 200 West Area.

The project for converting the electrical building in the 200-East Area into a garage has progressed as far as permissable at this time. The gasoline dispensing facilities have been installed and are now being used.

The 3707-C Change House has been completed and is now in use by the Technical personnel. Lockers are being moved into this change house as rapidly as they are available. The gate house used for entering this restricted area was moved to its permanent location.

The installation of 1600 feet of 24" VC pipe to the new retention basin in the 300 Area and the construction of manhole and cleanouts was completed during the month.

ORGANIZATION AND PERSONNEL:

Employees on Roll	November
Beginning of Month	603
End of Month	602
Net Decrease	1

2 Maintenance Division

WORK ORDER SUMMARY:

Area	Backlog Mandays 11-1-48	Men on Roll	Backlog Days 11-1-48
100	3620	131	29
200	4354	142	31
300	2119	67	35
G.C.	19945	155	129
Total	30698	495	62

The total backlog decreased 1960 mandays for the month, and a drop from 66 mandays to 62 mandays.

The #1 export pump and turbine in 182-B Building was damaged when the Morgan Smith Rotor Check Valve failed to close after the pump was shut down. The pressure in the export line caused the pump to run backwards and consequently no oil was pumped to the bearings of the turbine, pump and gear case. This caused the bearings to fail on both the pump and turbines. New bearings were installed in the equipment.

The manufacture of 9 horizontal rods for the DR Pile was completed and 2 carrying boxes holding 3 rods each were built to transport these equipment pieces. Work was started immediately on fabricating 17 horizontal rods for 105-H. The metal spraying of the cooling tubes for these rods has been completed. Work is now in progress on the machining of the aluminum casings for these tubes.

Nineteen additional steam line poles were installed in the 100-B Area at main stress points. These poles were treated at the base with one coat of creosote, one coat of osmos and wrapped with 15# building paper.

The annual testing of vertical safety rod thimbles in the D Pile was completed with no thimbles found to be leaking. No. 26 Rod Guide seems to be rusted or corroded in the thimble so much that it takes approximately 20 minutes to fill the thimble with air at 80# p.s.i. and equal time to bleed air from the thimble.

Two standard size lead slugs were removed from #27 vertical safety rod thimble in D Pile with a special fishing device. These two slugs were dropped in the thimble when a nylon cord broke while taking the traverse measurement of the thimble.

One mercury pneumatic motion indicator was installed in the center of the top of D Pile.

3 Maintenance Division

The two 8' x 20' horizontal steel acid storage tanks at the 108-D Building were dismantled and moved to another location on the project.

Filter plant supply pump #5 in the 182-D Building developed considerable vibration and the bearings seemed to be loose. The impeller was removed and sent to the machine shop where it was checked in lathe centers for a bent shaft. It was found that the machined centers at each end of the shaft were off center and the metalized journals had been machined off center causing the journals to whip or vibrate in the bearings. The new centers were machined in the shaft ends. The journals were metalized and machined. This repair stopped the vibration.

Fifteen additional steam line poles were installed at main stress points in the 100-D Area and 76 steam line poles were stubbed with 12' stubs to provide a safety factor on poles previously treated with minimum allowable diameters.

The rod guide of #27 vertical rod in the F Pile was removed and replaced with a shorter guide, (2 ft. shorter). The rod operated satisfactorily after the replacement. It was noted that when the old rod was removed that the flutes were filled with corrosion and rust, thus making the 3X system less dependable.

Air jets were installed at #2 and #3 Drier Rooms in the 115-F Building to remove condensate from the pots. An air jet had been previously installed at #1 Drier on a trial basis in an attempt to eliminate operational difficulties experienced in the use of the Bristol Valves. This installation facilitated the removal of the water from the pots while drying the F Pile.

A stud gun (spot welder) purchased for another job was used to secure the outside 2 rows of pre-cast roof slabs to the steel roof members at 190-F Building. A 16 penny nail with head removed was used as a stud and poked through the built roofing, at the slab corners, and welded to the steel I beams. A large O.D. washer was welded to the stud on top of the paper; the extending excess stud cut off and hot asphalt poured over the washer. This method of anchoring roof slabs on 190-F alone saved considerable manhours over a conventional tie strap installation.

<u>200 AREAS:</u>

The drilling of a 2" hole through the base of the 291-T Building exhaust stack was completed. The hole was drilled horizontally a distance of 16'±4" which left 8" of masonry undrilled in the 17 foot base. The core samples indicated that this masonry is in an excellent condition and has not been affected by acid

which was thought to be a possibility.

The roof expansion joints on 271-T Building were covered by an expanding type asphalt and cloth membrane to prevent rain water from entering the cells. Instead of these joints being originally caulked with expansion joint compound they had been filled with tar which was not sealing. The F-10 scale tank in the 224-U Building was replaced. The original had been used as a replacement in an other location. The new tank is made of 11 gage SS instead of 16 gage. This was done in order to provide a stronger tank. A three compartment sheet metal enclosure was installed in room F-10 for storage of product runs during week ends while the isolation unit is not in operation. This was done for security reasons.

A new safety shower was installed near the acid storage shed of the 222-T Technical Control Building. There was no shower at this location.

The replacement of condemed steam line poles in 200-West Area is about 98% complete with six poles to replace. Double poles have been set at critical points. It is planned to install double poles at every fifth support on all steam lines.

An obstruction was removed from the power house sump pump discharge line in the 200-West Area. This was caused by sediment collecting in a low spot. Correction was made by relaying approximately fifty feet of this line to the proper grade.

In Section "E" of the pipe gallery in the 224-B Building it was found necessary to remove the original tile sewer lines as they were cracked, broken and showed signs of deterioration. New installations were of scrap 3 1/2" O.D. stainless steel tubing.

To further minimize waste during processing in "F" cell in the 224-B Building it was necessary to remove the jet assembly from F-8 to D-1 and install in F-9 to D-1 tank; also to provide necessary additional 1" and 2" pipe fabrications to complete the tie-in. This work has been completed.

To eliminate the possibility of water entering scale tanks F-1A, F-2B, F-1C, and G-1A in the 224-B Building as it has been known to do in the past, the 1" air supply lines to these tanks were relocated to an elevation 5" above the header line. The header bleed-off was relocated to drain from the bottom instead of the end of the line.

On E-2 centrifuge over-flow line in the 224-B Building it was necessary to weld in a new flanged section of 8" stainless steel pipe. The old line was leaking as a result of inner granular

corrosion from strong acids.

In Section #14 of pipe galley in 271-B Building it was necessary to replace the tile sewer lines which were broken and leaking. Replacements were from scrap 3 1/2" O.D. stainless steel tubing which it is felt will give much longer service. This work is approximately 10% complete in this building.

For replacement in the canyon cells, one 5 H.P. and one 15 H.P. gear reduction unit, complete with shafts and agitator, were assembled, run in, and delivered to the operating Division.

Float gauges were fabricated and installed on waste storage tanks 202, 203, and 204 in the 200 East Area to aid operating procedures.

300 AREA:

A new surface grinder was obtained from the Technical Division and installed in the 313 metal machining shop to replace the one that was in need of repairs. When this machine is repaired the new grinder will be returned to the Technical Division.

A trial installation of asbestos mill board has been made under the crucibles in the melt plant furnace in 314 Building. The asbestos mill board has been installed on top of the insulating fire brick to prevent the contamination of the metal by sand when a spill occurs.

The top section for the Scale-Up 8" Column in the 321 Building was installed at the beginning of the month and then an 8" section was fabricated and installed in the top section of the Demonstration Unit 5" Column. Also, a new type magnetic coupling to be used with a packingless pump was balanced and installed in addition to numerous changes and additions required to carry on the work in this building.

The three dimensional painting of the machines in the 3717 Instrument Shop is being carried on and enough has now been completed that the general result can be determined, and it appears to be very satisfactory.

The new No. 3 boiler in the 384 Building has been put into operation and numerous maintenance items on boilers #1 and #2 that could not be done because of continuous operation can now be accomplished.

ELECTRICAL DIVISION

NOVEMBER, 1948

GENERAL

Work Order Summary - Estimated Mandays:

Area	Work on Hand Oct. 31 Estimated Man Days	Work Completed to Nov. 30 Estimated Man Days	Work on Hand Nov. 30 Estimated Man Days
100-B	340.8	267.0	624.7
100-D	362.0	274.0	410.0
100-F	375.0	259.0	471.0
200-E	345.0	255.4	349.4
200-W	361.1	236.3	427.2
300	184.4	198.5	198.0
Telephone	3384.0	549.0	3183.0
Minor Const.	376.8	248.0	222.8
*Distribution	6598.0	1421.0	6957.0
Total	12327.1	3708.2	12843.1

*These figures are on revised basis which includes backlog of routine work or completion of routine work. Such will be included in the future.

The attached load chart for the peak day of the month, November 29, shows a peak of 62.1 MW for the entire project with coincidental maximum demand of 27.1 MW for the 66 KV system. Both values are new highs. The 66 KV demand is not only seasonal but also reflects the increasing housing load in Richland.

Under Project C-177 (new 115 KV system), work on transmission line from Benton station at Columbia River to north station in Richland is essentially complete. The steel has been erected and foundations complete for north station in Richland. Preliminary acceptance of this part of the station was made on November 29, with final inspection arranged for December 1. The first transformer and switchgear has arrived and electrical installation by Electrical Division crews will start immediately.

Also, under Project C-177, agreement has been reached with Design and Construction and the Atomic Energy Commission to proceed with design and construction (by Sub-contractor) of a 7500 KVA 115 KV/66 KV step down station in North Richland to supply that village 66 KV station from 115 KV, thus permitting the ultimate abandonment of all of the 66 KV system. For this purpose, one 7500 KVA Pasco bank will be moved to North Richland when 66 KV load has been reduced sufficiently. Project proposal and appropriation and budget request have been submitted.

The Electrical Superintendent visited Portland on November 5 to co-ordinate the development of operating instructions for the new 115 KV system with the Bonneville Power Administration.

Electrical Division

Principal activities of the Standards Committee concerned adoption of 208/110 volts as permissible for the new village commercial area, adoption of standard flood-lighting structure, and consideration of various minor backlog items.

Divisional reviews of the following items were prepared as requested by various other divisions: housing, vehicles and budget recheck. A complete check and revision of departmental blueprint files is being made.

A preliminary discussion with both exempt and non-exempt representatives was held relative to a possible departmental educational program. It was agreed that such is necessary and desirable, and that it is feasible. Plans are being developed by an Educational Committee to be presented to all divisional personnel for consideration.

ORGANIZATION AND PERSONNEL

There were two terminations during the month, comprising one Electrician A and one Helper.

There were ten new hires (eight Helpers and two Substation Operators). One Helper and one General Clerk C were transferred in from other divisions.

Our position with respect to Substation Operators and telephone men remains critical, but this is being remedied slowly by new hires.

Number of employees on payroll:	November Exempt	Non-Exempt
Beginning of month	46	227
End of month	46	235
Net increase	0	8

AREA ACTIVITIES

1. 100 Areas

A. General

A check was made on the feasibility of operating the 2000 h.p. synchronous motors in the 189-F Refrigeration Building as synchronous condensers to aid the Bonneville Power Administration system power factor. The No. 2 motor was disconnected from its compressor and operated with 145 ampere field; the result was approximately 1600 KVA reactive. After a short period of operation, the field dropped to 128 amperes with a resultant drop in KVA to approximately 1400. The 1600 KVA output could be maintained by cutting out a section of fixed resistance from the field circuit. The area power factor was increased from 79 to 86. Four motors in 100-F and four in 100-D could be used when arrangements can be completed with Bonneville Power Administration.

B. 100-B Area

The No. 1 reuse water pump motor (125 h.p.) and its switchgear were removed from the 190 Process Water Building for installation in Building 190-D in connection with the 100-DR expansion.

105 Pile Building

Trouble was encountered with the forward and reverse relays on the No. 4 horizontal rod electric drive installation. These are clapper type relays and have shown a tendency to stick in a closed position. After several attempts were made to adjust them the rod was locked out and will not be used until further tests can be made on the relays. A plunger type relay would probably be more positive in its action.

C. 100-D Area

The pump motors in Building 1608 are controlled by a float switch. Recently, the float became disengaged from the operating rod so the motors failed to start when they should. The trouble was detected as a result of erratic operation of instruments in the tunnel and the pumps were put on hand operation until the next shut-down when the float was repaired.

On an inspection of carrier equipment in Station A-4, it was found that the wave trap supporting molds are starting to disintegrate similar to the one that collapsed in the 100-B Area substation sometime ago. At the first opportunity to have this equipment out of service, it is planned to reinforce these molds and prevent collapse of the coils.

105 Pile Building

The strain gauge installation on the reactor unit was completed.

Installation of the motion recorder equipment on the reactor unit is approximately 90 percent complete.

Due to failure of a flange on a therm-ohm well, water leaked into conduit in the Valve Pit, including lines to the chilled and unchilled water pressure mercoid switches in the safety circuit. The circuit was kept in operation until the scheduled shut-down six hours later. The conduit was then drained and dried out with a warm air blast and the wiring was replaced

100-DR Area

The 100-D Area Electrical crews continue to devote a large proportion of time to construction tie-in with status as follows:

(a) Preliminary tests were made on the new 200 h.p. filter supply pump motor and control equipment in Building 182 preparatory to final acceptance tests.

(b) The "Hi-tank" instrument panel wiring in the 182 Reservoir Building was completed.

(c) Electrical ties to the new flocculator motors and basin lighting at the Filter Plant Building 183 were completed.

(d) In the Process Water Building 190, electrical ties were completed to the "Hi-tank" instrument, the flowmeter recorder and motor indicating lights. Also, the feeds to the normal and emergency lighting panels in 190-DR were tied in, using temporary circuit breakers until the proper breakers are received from construction forces.

(e) Re-use Water Pump No. 3 in Building 190-D was disconnected for Construction to relocate in the north end of the building for use in the shut-down water supply system. This will be supplemented by Re-use Pump No. 1 from 100-B Area.

(f) The new substation at 190-DR was tested and accepted from Construction.

(g) Conduit was installed for the sluice gate valve motors in the effluent lines from Pile Building 105-D.

(h) Feeder L-4 was restored to its original routing and tied into the new 190-D Substation. Fence lighting circuits south of 181-D were also restored to their original routing.

D. 100-F Area

It was necessary to remove carrier service at Station A-2 during the month due to loss of sending and receiving current. The entire carrier equipment was thoroughly checked and tested. Some questionable tubes were replaced and the radio frequency transformer was replaced. However, no definite cause for loss of current was determined. Along-with the above inspection, there were several contacts found corroded, all of which were cleaned and tightened. The carrier was returned to service and has been normal ever since.

The frequency relay on the switchgear in the 184 Power House Building was found to be considerably out of adjustment and was replaced with a spare unit. The old relay was repaired and will be used to replace units in the 100-B and 100-D Areas while those units are removed for checking and calibration. These relays are being set to trip in approximately five seconds at 57 cycles.

A special test set-up was made for testing microphones used on the "C" and "D" elevators to eliminate those with weak output. This has helped communications on these elevators.

105 Pile Building

The necessary conduit and 30 pairs of wire were installed from the top of the unit on the front face to the zero level near side for use in connection with the strain gauge installation. A similar installation of 22 pairs was installed on the rear face.

E. Hanford

Considerable work was done on the Hanford temporary control house to place it in good operating order. Additional heater units were installed in both the control room and the rest room. Rack for switch sticks installed inside of control house and additional heaters placed in the control cabinets of the 66 KV oil circuit breakers.

2. 200 Areas

A. General

Under Project C-485, Sand Filter Installation (105 and 106), the electrical portion of this installation was completed on emergency basis as required and

is in satisfactory operation. The stainless steel portions were placed under cathodic protection by tying to tank farm protective system.

The experimental work relative to cathodic protection is essentially complete and semi-final report was issued on November 1. We are now confident that the stainless steel pipe networks are correctly protected. Some final field survey work remains.

B. 200-E Area

The contaminated conduit and Beckman in Section 13 of the 221-B Canyon Building was removed and new equipment installed during the month. The new conduit was sealed in three different places to prevent similar trouble. Other conduits leading from the canyon have been sealed in an attempt to prevent future trouble.

The sump pump motor in the 284 Power House Building crusher house was completely covered with water as a result of washing down the Coal Handling Building. The motor was let set a few days after the water was removed by another means. The operators then attempted to run the sump motor and the motor burned out. There is no float switch on this motor, it is manually operated.

Fifteen motors were repaired in the 200 East Area Electrical Shop during the month.

The 13.8 KV line to the Morrison-Knudsen Company construction site at 241-BY Area was energized on November 3, 1948. This line was tapped onto the C8-L5 line supplying the 200-E Area.

C. 200-W Area

On November 15, 1948, the main fuse in the lighting service at the 284 Power House blew due to overload. This overload is due to the additional load picked up in the new section of this building. The Design Division has promised to install a service and switch to adequately handle this entire load.

The emergency generator in the 284 Power House came on the line automatically three times on November 3, 1948. A loose connection on the test switch was the cause of the above trouble.

The circuit feeding the battery charger in Section 13 of the 221-T Canyon Building was interrupted on November 17, 1948. This failure was caused by a steam leak in the carrier unit. A temporary service was established to the charger unit until the leak could be repaired and a new wire installed.

The agitator motor (2 h.p.) on tank 401 in the 271-T Process Building had to be rewound due to a grounded winding. The operator was washing the equipment with a water hose causing water to enter the motor. There are considerable acid fumes also around this equipment. This motor was rewound in our 200 East Area Electrical Shop.

3. 300 Area

Other than normal maintenance and minor construction, there is no report of special interest.

5

Electrical Division

4. Distribution and Transmission

Ground wires were installed at thirteen 230 KV dead end structures in preparation for the bonding and grounding of those structures.

During the month, all Richland line crews were moved to a consolidated headquarters in the old Labor Yard east of George Washington Way just south of the Commercial Bus Depot. This required the moving of spare line materials from both hutments, 722-E and No. 1.

In order to correct the overloaded transformer and secondary condition north of Williams Blvd. between Stevens Drive and Farrol Lane, it was necessary to remove two 50 KVA transformers and replace with four 37.5 KVA transformers. This required the construction of four complete transformer settings. This is indicative of the tendency of load per dwelling to increase in Richland.

Village line crews are extremely busy, mainly concerned with the following items:

(a) Escort duties for movement of construction equipment.

(b) Extension of primary and secondary for new housing, new commercial facilities, etc.

(c) Extensions to telephone system.

(d) Preparatory re-routing and strengthening of existing feeders for later tie-in to the new 115 KV system.

The following work was done on pole treatment and replacement program during the month:

	Inspected	Condemned	Treated	Replaced
Inter-plant Area	290	25	265	35
200 East				27
200 North				22
Total	290	25	265	84

The labor crew treating poles spent a considerable portion of the month at other work (substation clean-up, etc.).

The following radio equipment was serviced during the month:

Two-way mobile units serviced.....	93
Two-way mobile units overhauled.....	36
Stationary units serviced.....	11
Stationary units overhauled.....	2
Two-way mobile units installed.....	8
Two-way mobile units removed.....	2

While attempting to carry load normally fed over the circuit on Stevens Drive, serious trouble and outages resulted on November 3-4 due to overloaded conductors and fuses. Fuses were replaced and oil circuit breakers readjusted in order to carry the excessive load. This rerouting of load was necessary in order to construct two new circuits on Stevens Drive between Wilson Street and Lee Blvd.

Electrical Division

Power Supply Interruptions

Date	Area	Circuit Affected	Duration	Remarks
There were no unscheduled interruptions during the month on the 230 KV system.				
		66 KV		
Nov. 3	Richland	D1-L11 and D1-L1 from D1-11X108 to end of line	2 hrs. 5 min.	Blown fuses
Nov. 3	Richland	D1-L11 from OCB D1-X11 to end of line	8 min.	Relayed on overload
Nov. 4	Richland	D1-L11 and D1-L1 to end of line. OCB D1-X11 relayed.	14 min.	Relayed on overload
Nov. 22	Richland	D1-L11 from OCB D1-X11 to end of line	22 min.	Construction crane got into line

5. Telephone Section

A third position was installed on the White Bluffs switchboard. This switchboard is now equipped as follows:

250 common battery lines
30 ringdown trunks
10 interposition trunks
45 cord circuits
3 operator circuits

Alternate 200 East-West trunk route (one line) poles and messenger are up as far as the intersection of the Benton City road. Fifty-two quad cable is installed to the southwest corner of the 3000 Area heavy equipment yard. Balance of 52 quad cable required for this route was received November 30. Thirteen thousand feet of 27 quad cable was received on the same date. The balance of 10,000 feet of 27 quad required is to be shipped December 2.

The installation of all underground duct designed to date has been completed. Cable work in this underground cannot be completed until 833 pair cable is received in the first quarter of 1949. The "A" Housing Area is now serviced through the underground cable on George Washington Way. The area trunk cable is also in underground from the corner of Williams and Goethals to the corner of George Washington Way and Van Giesen. This has permitted the removal of the overhead cable from Williams Blvd. to Van Giesen in the proposed commercial facility area.

Two 200 pair underground cables were damaged by a hole digger on Williams Blvd. It is planned to install markers on all underground routes.

Seven hundred and fifty dials were installed on manual telephone instruments and 200 of these were installed in residences in preparation for the change to dial operation.

Electrical Division

The number of lines and sides vacant on the Richland telephone switchboard as of midnight, November 29, 1948 is as follows:

Class	Lines Vacant	Sides Vacant
1500 Series	6	24
Residential Numbers	22	265
Office Numbers	34	4
Total	62	293

The following telephones were moved during the month:

Area	Installed	Removed
All work areas (active)	112	47
Richland	191	159
North Richland	141	82
White Bluffs, Hanford and 100-H	6	0
Total	450	288

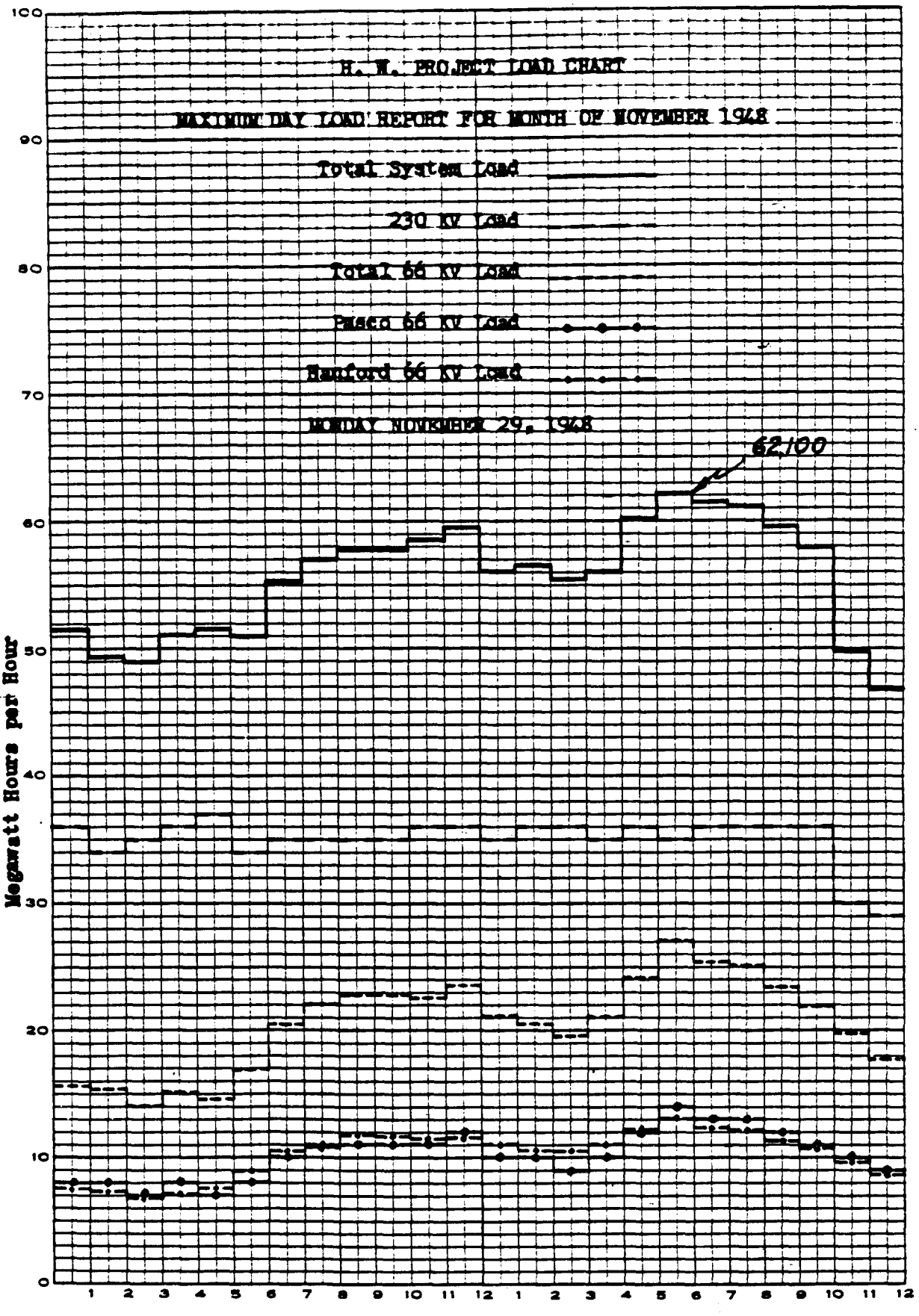
POWER STATISTICS - ELECTRICAL DIVISION
FOR MONTH ENDING NOVEMBER 30, 1948

ITEM	ENERGY - MW HRS. Oct.	ENERGY - MW HRS. Nov.	MAX. DEMAND - KW Oct.	MAX. DEMAND - KW Nov.	LOAD FACTOR - % Oct.	LOAD FACTOR - % Nov.
230 KV SYSTEM						
A-2 Out (100-B)	7,390	7,120	11,200	11,700	88.7	84.5
A-4 Out (100-D)	7,530	7,420	12,800	12,300	79.1	83.8
A-6 Out (100-F)	6,440	6,680	11,300	11,200	76.6	82.8
A-8 Out (200 Areas)	2,150	2,420	3,700	4,300	78.1	78.2
TOTAL OUT	23,510	23,640	39,000**	39,500	-	-
MIDWAY IN	23,816	23,981	36,800*	37,600*	87.0	88.6
Transm. Loss	306	341				
Per Cent Loss	1.3	1.4				
66 KV SYSTEM						
B1-S1 Out (Richland)	3,414	6,214	9,700	11,900	47.3	72.5
B1-S3 Out "	2,117	2,598	5,100	6,600	55.8	54.7
B1-S2 Out "	1,882	514	4,335	2,225	58.4	32.1
B3-S4 Out (300 Area	206	230	456	504	60.7	63.4
B3-S5 Out "	606	624	1,220	1,240	66.8	69.9
B1-S4 Out (North Richland)	2,074	2,635	4,204	4,550	66.3	80.4
B7-S10 Out (White Bluffs)	411	411	1,080	1,125	51.1	50.7
B9-S11 Out (100-H)	211	264	640	840	44.3	43.6
Hanford Out	334	309	500	500	89.8	85.8
TOTAL OUT	11,255	13,799	27,235**	29,484**	-	-
Hanford In	6,019	7,058	12,000*	16,400*	67.4	59.8
Pasco In	5,458	6,648	12,600*	15,600*	58.2	59.2
TOTAL IN	11,477	13,706	24,600**	32,000**	62.7	59.5
Transm. Loss	222	93				
Per Cent Loss	1.9	.7				
PROJECT TOTAL						
230 KV (Item 5)	23,510	23,640	39.000**	39,500**	-	-
66 KV (Item 15)	11,255	13,799	27,235**	29,484	-	-
TOTAL OUT	34,765	37,439	66,235**	68,984**	-	-
230 KV (Item 6)	23,816	23,981	36,800*	37,600*	87.0	88.6
66 KV (Item 18)	11,477	13,706	24,600**	32,000**	62.7	59.5
TOTAL IN	35,293	37,687	58,900*	62,100*	79.1	82.8
Transm. Loss	528	248				
Per Cent Loss	1.5	.7				

* Coincidental Demand
** Non-Coincidental Demand

Average Power Factor - 230 KV System--98.4
Average Power Factor - 66 KV System--94.4

DECLASSIFIED



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

1211045

TRANSPORTATION DIVISION

MONTHLY REPORT

November 1948

GENERAL

Absenteeism in the Transportation Division for the month of November was 2.05% which is an increase of .21% over October.

ORGANIZATION AND PERSONNEL

E. E. Gillum, Labor Foreman, was upgraded to General Foreman effective November 1, 1948. Mr. Gillum will continue to direct the Transportation phases of Minor Construction Activities and Well Drilling Operations for the Transportation Division.

Paul P. Barr, Project Engineer Construction Division, was transferred into the Transportation Division as a Transportation Engineer effective November 1, 1948. Mr. Barr will conduct a study of the assignment and application of Operations' automotive equipment.

Force of the Transportation Division for November was as follows:

[redacted]

Non routine work consisted of work train service for the movement of aggregate from White Bluffs to the 241-BY Area in 200 East and the 234-5 Area in 200 West. Work train service continued for the bank widening project between May Junction and North Richland.

2. Railroad Repairs

Completed major repairs on Baldwin Locomotive 39-3724 and returned to service November 3, 1948.

Completed major repairs on flat car 10-A-3613. Repairs on flat cars 10-A-3611 and 10-A-3626 are now in progress.

Preliminary inspections and service have been completed preparatory to placing new Alco Locomotives 39-3731 and 39-3732 into service.

Inspected and made minor adjustments to the electrical, mechanical and air brake equipment on locomotives 39-3719, 39-3721, 39-3722, 39-3725, 39-3726, 39-3729, and 39-3730.

3. Railroad Track Maintenance

Track Maintenance continued in a routine manner throughout the Areas by Transportation Division forces and outside the Areas by Subcontractor's forces with the following items of interest.

a. General

Cut and replaced track at two locations near Stevens Drive and Lee Boulevard for excavation to place telephone cable. Renewed 50% of the ties in Hanford Spur. Unloaded 19 cars of cross ties, four cars of tie plates, and two cars of rail anchors.

b. 100-B Area

Installed three permanent type crossings. Replaced 210 ties in the 108 lead. Raised 600 feet of track on the 183 lead curve and replaced defective ties.

c. 200-East Area

Renewed 375 ties on 271-B lead and installed 200 tie plates.

d. 200-West Area

Installed two permanent type crossings and renewed 240 ties.

e. 300 Area

Unloaded and distributed 80-pound rail and began relay and change out of ties.

f. The Railroad Track Maintenance Subcontractor was engaged in the following work in addition to that of a more routine nature.

1) Completed temporary spur to the 241-BY Area in 200-East.

2) Project C-185 (Richland By-Pass) Salvaged 2,800 feet of track and one turnout on the abandoned portion of the Richland Main Line.

3) Project C-214 (Rehabilitation of Plant Railroads) Relaid 1.2 miles of track east from Riverland and 0.3 mile north from Betty; stripped a pit at May Junction, loaded and distributed 7,550 yards of bank widening materials; installed five permanent crossings, renewed approximately 25,580 ties and placed 7,800 rail anchors; picked up and redistributed excess ties from May Junction to the 300 Area.

AUTOMOTIVE OPERATIONS AND REPAIRS

1. Automotive Operations

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

Fifty-nine new GMC suburban type coaches have been assigned to Area service and the remaining three have been placed into the inactive group for replacement use as needed.

Three K-7 International busses have been removed from the Reserve Pool and assigned to the Pasco Depot and the 700-300 Area Shuttle because of increased passenger traffic.

Effective November 1, 1948, the Williams-Thayer bus route was changed to provide service for the new housing area located in the vicinity of Torbett Street and Sanford Avenue.

Effective November 8, 1948, the Cottonwood route was established to serve the southwest section of Richland. This new route will be extended as more residences are occupied.

b. The extent of Area bus traffic is indicated by the monthly total passenger count of 126,873 and the extent of Village Local bus traffic is indicated by the monthly total passenger count of 63,809.

c. The extent of automotive equipment usage is indicated by the monthly total mileage of 1,358,765.

d. Off-the-Plant special automobile trips (Company business and official visitors) totaled 264.

e. Miscellaneous automotive operations services including (a) Motor Pools, (b) Inter-Area Shuttle Service (c) Inter-Area Freight, Mail and Express services (d) Towing and Wrecker Service were rendered during the month in a routine manner.

2. Automotive Repairs

The Repairs Section received 230,015 gallons of gasoline, 91,600 gallons of Diesel fuel and 8,513 gallons of kerosene during the month for Project use.

Sixteen White busses have been repainted and modified to comply with Washington State regulations governing school busses.

Safety devices, as required by the Safety Division, have been designed and installed on the new Bay City Motor Crane. Brake band guards were fabricated and installed on seven well drilling machines.

A new Fairmont coal loader has been serviced and placed into operation. One D-7 and two D-8 caterpillars were completely overhauled.

LABOR SECTION ACTIVITIES

1. Roads and Streets

Expended 1,038 man-hours in crushing and stockpiling 1,032 cubic yards of road aggregate and preparing 1,425 tons of pre-mix material.

Expended 1,859 man-hours in construction of the 300 Area Retention Basin. Placed approximately 875 tons of pre-mix material in repairing Village streets, installing blacktop in the 300 Area and repairing Area railroad crossings requiring 3,037 man-hours.

2. Areas

Work in the Areas of a non-routine type was as follows:

a. 100-B Area

Suspense Code 10240 (Alterations to 108 Building) Placed 55 cubic yards of concrete in footings, crib slabs, and sewer. Expended 117 man-hours on excavations, 131 man-hours on backfillings, 249 man-hours on hauling and handling of materials.

b. 100-D Area

Project C-238 (Effluent Sewer Line 105-F to 107-F) Backfilled 600 cubic yards of earth on the 105-D effluent line and replaced temporary fence at the 105-D Area. Expended 545 man-hours in hauling and stripping forms, setting pipe and forms, handling steel, and placing 78 cubic yards of concrete at the 105-D West Gate Box.

c. 100-F Area

Project C-238 (Effluent Sewer Line 105-F to 107-F) Excavated 30 cubic yards of earth on 105-F Area sewer. Backfilled 2,650 cubic yards from spoil pile and cinder pit. Disposed of 500 cubic yards of excess soil at the 107 effluent line.

Project C-269 (Radio-Botany Laboratory) Expended 101 man-hours in hand excavations for sewer and water lines at the 1705 Building and 60 man-hours for footings at the Fish Laboratory. Placed 37½ cubic yards of concrete in Fish Laboratory footings and 1705-F Building walls. Expended 165 man-hours in hauling materials, stripping forms, and cleanup at the 1705-F Building.

d. 200-East Area

Suspense Code 10225 (Stack Gas Decontamination Facilities) Expended 164 man-hours on excavation, 403 man-hours on backfillings, 1,226 man-hours on material handling, 224 man-hours on cleanup and 237 man-hours in placing 84 cubic yards of concrete at the 291-B Building.

Project C-133 (Special Test Wells) Wells 25-80, 34-51.5 and 55-88.5 were completed at depths of 336, 385 and 235 feet respectively. Wells 34-88.5 and 62.5-90 were started in September and have present depths of 541 and 163 feet respectively. Footage on all wells drilled to date totals 15,799.

e. 200-West Area

Suspense Code 10225 (Stack Gas Decontamination Facilities) Expended 655 man-hours in digging post holes and setting posts, grading and hand backfilling, and general cleanup at the 291-T Building.

Project C-163 (Additional Process Waste Storage) Excavated 290 cubic yards of earth for the temporary steam line and one line encasements. Hand excavations for process sewer supports and the one and two line encasements required 169 man-hours. Backfilled 200 cubic yards of earth on the one line encasements, 2,850 cubic yards on seven line encasements, 650 cubic yards on nine line encasements, 250 cubic yards on temporary steam line, and 350 cubic yards on Diversion Box 154-T. Placed 130 cubic yards of concrete in encasements and water line supports.

Project C-273 (Water Supply and Plumbing for Meteorological Station) Excavated 500 cubic yards of earth on water line and 1,950 cubic yards on tile field at Meteorological Tower.

f. 300 Area

Project C-104 (3707-C Building) Expended 80 man-hours on fence work, helping plumbers, and general cleanup.

Project C-220 (3708 Building) Expended 469 man-hours in helping blocklayers and carpenters, pouring curbs, excavating and backfilling for water line and general cleanup.

Project C-227 (3706 Building) Expended 438 man-hours on sewer line, placing concrete, repairing blacktop, helping insulators and carpenters, and general cleanup.

Suspense Code 10242 (Auxiliary Waste Disposal Pond) Expended approximately 5,000 man-hours on construction of a new Retention Basin which is complete except for some backfilling to be done in the Spring. Well 303-1 was completed at a depth of 74 feet. Wells 303-2 and 303-3 were started and completed during the month at depths of 75 and 77 feet respectively. Footage on all wells drilled to date totals 191.

EQUIPMENT CONTROL SECTION ACTIVITIES

Eighty-nine units of automotive equipment were excessed during the month.

General Purpose Vehicle Study-Survey of H.O. 1-A Sedans is presently under way for the purpose of ascertaining the need and usage of present assignments.

TRAFFIC SECTION ACTIVITIES

1. On October 1, 1948, Northwest Air Lines discontinued the 5% refund on flights which were more than thirty minutes late upon arriving at destination.

2. Effective November 1, 1948, amendment No. 6 to Service Order No. 775 eliminated the penalty charges of $11 for the 4th and $16.50 for the 5th and each succeeding debit day on gondola and hopper cars. All cars are now subject to a maximum charge of $5.50 per debit day for the 3rd and successive days.

3. As a result of our proposal of November 2, 1948, the North Coast Lines have approved a rate of 35 cents on Caustic Soda from Portland and Tacoma to Pasco and Hanford effective January 8, 1949. This will provide a savings of 8 cents per cwt. or approximately $80 per car.

4. Effective November 14, 1948, the Willamette Tariff Bureau approved a rate of 37 cents, minimum 30,000 pounds, on Caustic Soda and other chemicals in tank trucks from Portland to Hanford. This will provide savings of 36 cents per cwt. or approximately $108 per shipment.

5. In line with our October request, the North Coast Lines have approved a rate of 50 cents per cwt. 20,000 pounds minimum, from Portland to Hanford on Alcohols other than Alcoholic Liquors. This rate will be effective December 18, 1948 and will provide savings of 13 cents per cwt. or approximately $26 per car.

6. As a result of rate reductions secured from the carriers, there was a total savings in freight charges for the month of November amounting to $19,925.73.

PROJECT ENGINEERING DIVISION

MONTHLY REPORT

November 1948

PRESENT STATUS OF WORK

Projects and Suspense Codes Authorized and Under Construction

100 AREAS

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-172	Dismantling of Equipment in Demineralization and Deaerating Plants	15	8-19-47	$486,000
C-184	Experimental Animal Farm - Part I (Part II Awaiting Auth. for Additional $507,000)	0	10-27-47	286,000
C-222	Dismantling Unoperated Equipment in 105 Valve Pits	18	2-10-48	4,000
C-238	Effluent Sewer Line 105-F to 107-F	92	3-26-48	207,000
C-269	Temporary Radio Biological Lab. 100-F Area	11	7-28-48	10,100
C-290	Fabricate & Install Spectrometer	0	9-29-48	9,000
C-294	Mock-Up Facilities for Metallurgical Studies	2		47,700
SC 10239	Segmental Discharge Devices (thru Model II only)	95	9-1-48	30,000
SC 10240	Special Technical Laboratory (P-10)	35	9-22-48	215,000*
TOTAL Estimated Cost 100 Area Projects				$1,294,800

200 AREAS

C-133	Special Test Wells 200-E and W (Part III in preparation for additional wells)	97	1-30-47	180,600

* High Spot Estimate

Project Engineering Division

Projects and Suspense Codes Authorized and Under Construction (cont.)

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-163	Additional Waste Storage & Tie Lines 200-W (G.E. Portion Only - Subcontract not Included)	74	7-25-47	600,000
C-171	Alterations to Six Periscope Assemblies	83	8-6-47	7,200
C-262	Bismuth Subnitrate Preparation Fac.	99	7-13-48	23,000
C-273	Water Supply & Plumbing - Bldg. 622-A	13	8-4-48	13,500
SC 10155	Physical Testing Equipment	65	9-1-47	17,600*
SC 10225	Stack Filtration Facilities	88	11-28-47	840,000*
C-298	Decontamination Stations for Small Equipment - 221 T-B	0	11-15-48	33,000
TOTAL Estimated Cost 200 Area Projects				$1,714,900
	300 AREA			
C-189	Building 3745-A X-Ray Facility Part I. (Part II Awaiting Auth. for Additional $11,000)	91	8-20-47	$ 22,000
C-219	Construction of Additional H. I. Instruments	55	1-27-48	97,200
C-220	Optical Instrument Bldg. and Elect. Shop 3708 - 300 Area	73	1-30-48	82,000
C-227	Conversion of Offices to Labs. - Bldg. 3706 & Construction of 3707-C Change House	68	3-15-48	429,000
C-237	Nine Tube Mock-Up Bldg. & Equipment	50	4-12-48	106,000
SC 10241	Increased Ventilation 313 & 314 Bldgs.	0	9-24-48	200,000
SC 10242	Process Sewer Effluent Pond - 300 Area	95	10-13-48	30,000*
TOTAL Estimated Cost 300 Area Projects				$966,200

* High Spot Estimate

Project Engineering Division

Projects and Suspense Codes Authorized and Under Construction (cont.)

GENERAL PLANT AREAS

Project Number		% Phys. Complete	Date Auth.	Est. Cost
C-138	Richland Telephone Exchange - Bldg. 702	43	5-12-47	470,500
C-144	Additional Telephone Cables - Richland	20	5-12-47	45,000
C-177	115 KV Power Transmission Line (Part III Awaiting Auth. for Additional $197,000)	55	8-14-47	1,167,000
C-195	Radio Communications for Railroad & Electrical Division (Part II Awaiting Auth. for Addit. $11,000)	84	10-15-47	34,000
C-196	Electrical Distribution Headquarters Bldg. & Conversion of 2713-E to Garage	1	10-10-47	162,400
C-214	Rehabilitation of Plant Railroad	64	2-18-48	3,214,000
C-265	Additional Telephone Cable - Richland to Kennewick	32	7-29-48	30,000
C-276	Overall Plant Telephone Project	32	10-6-48	1,232,000
C-279	Improvements to Area Administration Bldgs.	1	8-20-48	98,200
C-291	Security Fences - All Areas	0	10-18-48	246,800
TOTAL Estimated Cost Plant General				$6,999,900
GRAND TOTAL Est. Cost Authorized Work - All Areas				$10,675,700

Projects Being Routed for Authorization

939	(C-195) Radio Communications for R. R. Dispatching and Part II Electrical Distribution	11,000
941	(C-184) Experimental Animal Farm Part II	507,000
962	(C-177) 115 KV Transmission Line (Part III for 3000 Area Part III Substation)	197,000

Project Engineering Division - Area Reports

Projects Being Routed for Authorization

E. R. NO.	Project Number		Est. Cost
A-464		Metering of Power - Process Areas	18,800
A-502	(C-284)	Transportation Consolidation	1,947,000
A-507		Workshop Addition to Bldg. 303-C for 300 Area Plant Assistance Group	50,000
A-1057		Effluent Diversionary Outlet (105-107-B & F)	137,500
A-1060	(C-306)	Revised Pile Shielding - Front Face Shield Nozzle Caps	88,000
2414	(C-305)	Waste Segregation Facilities - 231-W	6,200
3060	(C-287)	Experimental Metallurgy Laboratory (Bldg. 3730)	140,000
3019	(C-189)	Building 3745-A X-Ray Facilities - Part II	11,000
TOTAL Estimated Cost of Projects Awaiting Authorization			$ 3,113,500

PROJECT ENGINEERING - AREA REPORTS

Status of Engineering Study & Design Work in Progress During Month of November

100 AREAS

E. R. No.		% Engineering Complete
A-1004	Downcomer Design 105-F	20
A-1034	Alterations to Bldgs. 186 and 185	15
A-1044	Outlet Charging Device (through proposed Model III)	35
A-1051	Remove Equip. in Valve Pits - Bldgs. 105-B & F	52
A-1054	Design Roller Flanging Device for Van Stone Joints	50
A-1055	Design and Estimate a Radiation Shield for Top Far Side of 105-D and F	90
A-1057	Prepare Project for Earth Crib 100-B & F	95
A-1059	Prepare Project for Steel Sewer Line at 100-B Area	20
A-1060	Increased Shielding of Front Nozzle Caps	87
A-1061	Estimate Cost of Slack Cable Limit Switches	100

Project Engineering Division

Status of Engineering Study & Design Work in Progress During Month of November

E. R. No.		% Engineering Complete
A-1062	Prepare Project for Mark II and Mark III Machines for Segmented Discharge	80
A-1063	Special Metal Splines	30
A-1064	Equipment Designs for Oxygen in Pile Atmosphere	10
A-1065	Equipment Designs for Large Scale CO_2 Evaporator	20
A-1066	Mock-Up Facilities for Metallurgical Studies	45
A-1067	Special Technical Laboratory (P-10)	65
A-1068	Design Special VRS-27	80
A-1069	Prepare Project for Dismantling and Crating of York Refrigeration Units - 151, 181 & 189-D & F	10
A-1070	Prepare Project for Changes to Unit Motion Instruments	10
A-1071	Prepare Project "B" Hole Type Sample Loading Facilities	0
A-1072	Design Cash Storage Pad - 100-F Area	0
A-1073	Design Top Far Side Joint Mock-Up	70
A-1074	Design Moisture Extraction System for Gas System - 105 Bldg.	0
	200 AREAS	
2277	Revise Cell Piping per Marked Prints	90
2279	Prepare Project for Regasketing Facilities - 221-T & B	80
2285	"B" Jet Assembly	75
2287	Study Rail Alignment of 200-N Cranes	70
2288	Special Test Wells - 200-E & W. 70 Wells Complete	89
2309	Water Supply & Plumbing - 622 Building	95
2326	Mark Grade on Steam Line Supports - 200-W (W.O. cancelled by Maintenance Division)	10
2327	Study Possibility & Redesigning Connector Head to Simplify Gasket Changing	90
2353	Crane Alignment & Rail Elevation - 221-T	70

Project Engineering Division

Status of Engineering Study & Design Work in Progress During Month of November

E. R. No.		% Engineering Complete
2355	TX Waste Storage (Field Engr. for Proj. C-163)	75
2369	Install Manifold Outlet Piping Tank Baffles to Permit Future Use of Remaining 3-200 Series Tanks for 224-T and B Waste (Work completed without necessity for project)	100
2376	Cathodic Protection to Underground Waste Lines (Survey Work and As-Built Drawings)	95
2381	Design Acid Supply Tanks & Piping for 222-B	80
2385	Steel Stack Handling Equipment - 272-E & W	80
2393	Steam Jet with Remotely Removable Features	0
2400	Maintenance Hoist for Cranes 211 T-U-B	100
2401	Maintenance Hoist for Cranes 212 N-P-R	10
2403	Revision of 222 T & B Control Labs.	20
2417	Location Determination for Zone Signs & Directional Markers over BX Lines	75
2421	Procure & Install Lab. Equip. in 271 T-U-B Control Labs.	5
2422	Prepare Project for Clothing Change House with Monitoring Facilities at 221-T & B	100
2435	Design Waste Disposal Sumps - 222-B	100
2437	Prepare Project for the Study of Process Waste Separation 200-B-T-U - Cancelled	3
2438	Design and Estimate Improved Well Sampling Device	50
2442	Recommend Remedies for Tank Agitator Bearing Failures to Philadelphia Gear Works	50
2443	Design Piping for Parallel Operation of Cells in 221-T & B	75
2444	Design Method of Storing 42 instead of 30 Buckets per Row in 212-N PR	60
2446	Make a Composite Map of 200-W Area with H.I. Features	100
2447	Sample Container 231 Building	100

Project Engineering Division

Status of Engineering Study & Design Work in Progress During Month of November

E. R. No.		% Engineering Complete
2449	Locate Shallow Wells in Waste Disposal Tile Fields	40
2450	Design Disposal Sumps for 224-B Waste	25
2451	Check Crane Wheel Alignment - Bldg. 221-B	0
2452	Prepare Map of 200-E Area for H. I. Division	50
2453	Locate Water Supply Line for Batch Plant	50
2454	Select Oil Filter for Compressed Air Line - 221-T & B	75
2455	Prepare Map of Outside Steam Lines with Trap, Support Locations and Numbers	0
2456	Prepare New Map of Underground Water & Sewer Lines 200-E & W	0
	300 AREA	
A-3057	Design Cooling Coil for Bldg. 313 Chip Recovery Press	100
A-3058	Study & Recommend Design Changes for Air Conditioning System - Bldg. 321	85
A-3059	Evaluate Construction of "P" Div. Change House in the 303 Area	65
A-3060	Temporary Metal Melting and Fabrication Bldg.	68
A-3061	Increased Ventilation - 313 and 314 Bldgs.	20
A-3062	Installation of Rolling Mill in Bldg. 314	5
A-3063	Evaluate CO_2 System for Rooms 4A and 6 - Bldg. 3706	75
A-3064	Study Backfiring of Stokes Pumps	20
A-3065	Process Sewer Effluent Pond	97
A-3066	Revise Maps - 300 Area Water & Sewer Systems	0
A-3067	Billet Lifting Tongs	0
A-3068	Automatic CO_2 Fire Extinguishers - Bldg. 3706	0

Project Engineering Division

Status of Engineering Study & Design Work in Progress During Month of November

E. R. No.		% Engineering Complete
A-3069	Solvents Storage - 3706 Bldg.	0
A-3070	Study 3706 Ventilation Requirements to Provide 40% Humidity	10
A-3071	Estimate installation Costs for C.W.S. Filters, Room 55, Bldg. 3706, Exhaust System	0
A-3072	Estimate Installation Cost to Replace Library Reading Room Sprinkler System with Thermal Alarm	100
A-3073	Design Glass Shop Gas System	5
	GENERAL PLANT AREAS	
828	Bldg. 702 - Automatic Dial Exchange	97
872-R	Improvement to Area Administration Bldgs.	80
941	Designs for Experimental Animal Farm - Project C-184	90
E-962	Designs for 115 KV Power Line through Richland	75
972	Survey of Effluent Lines 100 B, D & F Areas	100
973	Designs & Engr. for Elec. Dist. Hdqts. Bldg. near 251 Substation & Conversion of Bldg. 2713-E to Garage. Project C-196	75
990-R	Fencing All Areas	75
E-401	Telephone Cable Layout - Bldg. 720	20
E-409	Telephone Cable Layout for Bldgs. 703, 705, 760 & 770	0
A-420	Engineering Work for Rehabilitation of Plant Railroad. Project C-214	90
E-445	Electrical Design for Bldg. 3706, 3703 and 3707-C	100
E-452	Prepare Project for Expansion of Main Plant Telephone System (Design Work Only)	70
E-463	Electrical Drawings for Charging Device	45
E-464	Metering of Power - All Process Areas	70
A-489	Study Road Improvement Between Midway and Priest Rapids	100

Project Engineering Division

Status of Engineering Study & Design Work in Progress During Month of November

E. R. No.		% Engineering Complete
E-492	Preparation of Project Additional Telephone Cable-Richland to Kennewick (Design work only)	75
A-496	Design Work for Temporary Biological Laboratory Facilities - 100-F Area (Project C-296)	95
A-498-R	Prepare Project for Addition to Fire Station - 200-W Area	30
E-499	Lighting Study - Rooms 2240-1-2-3, 703 Bldg.	30
A-501-R	Ice Flaking Machine Installation - Hospital	0
A-502	Prepare Project for Transportation Consolidation	5
E-505	Electrical Standards	15
A-507	Project for Workshop Addition to 313 Building	30
A-509	Drafting for 300 Area Planning Committee	50
A-510	Prepare Project for Badge House Addition - 300 Area	30
E-511	Prepare Project for Butt Treatment of Power Line Poles	90
A-513	Study of Air Conditioning First Aid Bldgs. - 300 and 100-B & F Areas	60
E-514	Prepare Project for Improvement to Area Fence Lighting	0
A-515	3000 Area Barracks Possible Conversion of 3 Units for Office Space	100
A-516	Salvage Yard Fence - 3000 Area - Cancelled	
E-517	Study of Lighting - 271-B	100
A-518	Prepare Project for Partitioning of Manufacturing Division Offices - 703 Bldg.	30
A-519	Centerline Area Roads	10
A-520	Layout Pole Location for New 13.8 KV Line - 200-W Area	0

ENGINEERING STUDIES GROUP REPORT

Studies Completed This Month

E. R. No.		Date Completed
4339	Standard Sign Catalog	11-4

Project Engineering Division

ENGINEERING STUDIES GROUP REPORT (Cont.)

Studies Completed This Month (cont.)

E. R. No.		Date Completed
4345	Automatic, Machining Equipment	11-4
4350	Inspection and Care of Wire Rope	11-9

Studies Added This Month

4354	Bronze Furnace Heating	11-4

ACTIVE STUDIES

E. R. No.		Engineering % Complete
A-489-S	Midway-Priest Rapids Road	95
4318	Packing and Gasket Standards	50
4326	Use of Inhibited Turbine Oil	85
4327	Maintenance of Pitched Roofs	40
4336	Review Oil Coding System	5
4342	Analysis of Heavy Duty Lacquers	80
4343	Forced Draft Fan Inspection and Overhaul	98
4344	Operating Standards for Hydrocrane	80
4346	Welding Line Analysis	95
4347	Improved Frost Test Line	98
4348	Soft Water System - Kadlec Hospital	75
4349	Pistol Range Sanitary System	99
4351	Asbestos Shakes vs Painted Siding	95
4352	Lubrication Survey - 105 DR	10
4353	Telephone Cost Study	75
4354	Bronze Furnace Heating - 313 Bldg.	0

BACKLOG SUMMARY

	Work on Hand 10-31 Estimated Man Days	Work on Hand 11-30 Estimated Man Days
Studies	185	156
Project & Design	8,096	8,111
TOTAL	8,281	8,267

TECHNICAL DIVISIONS

NOVEMBER 1948

SUMMARY

Pile Technology Division

The F Pile has recovered all of the reactivity which was lost during the process tube leak in October. For a few days the pile was shut down and the water flow was interrupted, permitting the residual radioactivity of the pile to heat the graphite and accelerate the vaporization of water in the wet zone. The immediate production losses encountered by this method of drying must be balanced against the more rapid rate of drying; when large amounts of reactivity (on the order of several hundred inhours) have been lost it is preferable to shut the pile down and dry by this method rather than attempt to operate the piles.

Test work with smaller orifices in the B Pile indicate that an outlet temperature of 75°C may be tolerated from a corrosion standpoint.

For new piles it is important to take corrective measures for Van Stone flange corrosion prior to start-up, if possible. It is believed that the reduced production losses after start-up will justify discarding the stainless steel nozzles for DR and H Piles and substituting aluminum nozzles. Less expensive corrective measures are being studied for the existing piles, since any correction to these piles will involve production losses. Work on anodizing the flanges has been discontinued because of unfavorable experimental results.

Graphite made from Whiting coke is of very poor quality and could not be used in the piles, but after purification this material is as high quality as purified graphite made from Cleves coke.

Theoretical studies indicate that the use of 24 control curtains four feet wide would be about as effective as the 60 control and safety rods being provided for the H Pile.

Measurements of the deflection of the No. 27-F Vertical Thimble shows that the maximum deflection of 3.0 inches occurs at a point nine feet above the midplane of the graphite. A similar but less pronounced skewness was observed in the corresponding thimble of the D Pile.

Development of the lithium-aluminum alloy process for tritium production is being accelerated as rapidly as possible and no further irradiation of lithium fluoride slugs is contemplated. Construction of facilities in Building 108-B is scheduled for completion early in January, 1949, and initial operation will handle irradiated fluoride slugs now on hand.

Separations Technology Division

Elimination of a recently observed accumulation of precipitate in the first cycle by-product precipitator at B Plant is currently being attempted. Processing of the first increased-product-concentration metal at both T and B Plants has produced increased extraction step waste losses, as previously encountered with similar metal. Sections 7 and 8 at both plants have been rearranged to operate in parallel for the extraction step. The centrifugation rate for the metathesis waste rework has been increased in test, indicating a possible saving of 1-1/2 to 2 hours in time cycle. Production testing of the rate of hydrogen peroxide

Separations Technology Division (continued)

addition in the first cycle of the isolation process also indicates a potential saving of another 30 minutes in time cycle.

At both T and B Plants, continued testing of the newly installed sand filters has indicated efficiencies of 99.3 to 99.9% being obtained for activity removal. Pressure drops at flow rates of 25,000 CFM have been maintained at ca. 7 inches of water across the 36-inch sand bed at B Plant and at ca. 4.5 inches of water across the 24-inch sand bed at T Plant. Recontamination of the sand filter exhaust air during discharge through the stacks has still continued, however. Pilot plant studies of I^{131} removal by sand bed filtration and electrostatic precipitation have been initiated again.

Redox development studies have been continued at an accelerated pace. Spray column measurements of H.E.T.S. in a 3-inch IA Column at relatively low throughput rates have produced encouraging stage efficiencies. Compound column operation with a 3-inch IA Column has indicated a need for better IAF-IAS solution mixing at the IAF feed point. Column IB studies have produced uranium scrub stage heights of ca. 2.9 ft. H.E.T.S. vs. throughput measurements have demonstrated less than 0.6% losses to be obtained for the 8-inch IA Column over a range of 1.8 to 4.8 short tons of uranium/day and for the 5-inch IA Column over a range of 0.55 to 1.8 tons of uranium/day. An automatic flow control system, consisting of Fischer & Porter recording-controlling rotameters and Hammel-Dahl control valves, has been installed on all feed streams in the Demonstration Apparatus. The 10-stage full-scale S.O.D. mixer-settler contactor installation was completed during the month. Clarification studies of IAF feed solution by the use of stainless steel filters and filter aid have arrived at what is believed to be an optimum design. Corrosion tests with various types of stainless steels and IAX, IAF, IAS, and IBX Redox process solutions have all demonstrated less than 10^{-4} inches penetration per year. Laboratory equilibrium studies and flash vaporization of hexone measurements have been continued.

Laboratory studies in the Research Section have demonstrated no effect of ruthenium concentration on ruthenium volatilization by either permanganate or ozone oxidation. Deposition of ruthenium tetroxide on stainless steel surfaces has been proved to be greater than that on glass surfaces. The amount of glass wool required to obtain a zirconium decontamination factor of 1000 or greater by adsorption from 8-1-MR solution has been determined. Ceric-dichromate complexes formed in aqueous solutions are being investigated, as are the oxidation of hexone and plutonium by ozone, the instability of plutonium(IV) systems, and the specific heats of Redox process solutions. An experimental model of a pulse-type extraction column has produced HNO_3 H.E.T.S. values as low as 0.34 ft. Studies of the neutralization of metal waste solution by volume-reducing complexing agents and the decontamination of Redox wastes by ion-exchange have been initiated.

Metallurgy & Control Division

Production rolling of uranium rods for Hanford continued at Lockport, N.Y. and Aliquippa, Pa., under technical supervision by the 300 Area Plant Assistance Group. The 5-ton experimental lot of rods forged to 2" squares and then rolled to size, at Aliquippa in October, showed structural and machining characteristics very similar to those of regular rolled material.

Statistical quality control charts applied to non-seat rejects in the triple-dip canning of rolled uranium led to the discovery that slugs machined from this metal undergo an appreciable diameter increase, and length decrease, during canning by this process. Experiments in progress with rolled metal slugs deliberately machined to allow for this dimensional change in canning indicate that

both yield and quality can be improved greatly thereby.

Using equipment available at Schenedtady, induction heating was tried with uranium rods and slugs as a means for effecting the structural transformation now being achieved in the bronze bath of the triple-dip canning process. Results were very encouraging; heating was fast, oxidation in air was negligible, and after quenching the uranium showed fracture characteristics like those obtained with the bronze dip.

A B. Greninger

ABG/khs

PILE TECHNOLOGY DIVISION

NOVEMBER 1948

December 14, 1948

VISITORS AND BUSINESS TRIPS

There were no visitors during the month of November.

Business trips of Pile Technology personnel during November were as follows:

C. W. J. Wende and A. A. Johnson visited Argonne National Laboratory, Chicago, Illinois, November 1 - 3, 1948, for consultation with Dr. W. H. Zinn regarding P-10 Project.

C. W. J. Wende visited Oak Ridge National Laboratory, Oak Ridge, Tennessee; National Carbon Company, Inc., Cleveland, Ohio; Washington, D. C.; and Schenectady, N. Y., from November 17 through December 8, 1948, for consultation on the development program for subsequent piles.

ORGANIZATION AND PERSONNEL

	October	November
Pile Physics Section	34	38
Pile Engineering Section	21	21
Administration	5	5
Totals	60	64

One physicist was awaiting clearance at month-end.

One physicist, and two chemical engineers were terminated; one physicist and one technical graduate were transferred into the Division; and two physicists, one laboratory assistant, and two chemical engineers were added during the month.

PILE PHYSICS

Tube Leak - F Pile

During the month, the F Pile recovered all of the reactivity which was lost during the process tube leak which occurred in October. Water is still being removed from the gas system at a rate greater than normal but it is coming from parts of the system which have little effect upon reactivity. A total of 1050 gallons of water had been removed from the pile at month-end.

Experience in drying the pile has shown that the limit on the rate of water recovery was set by the amount of moisture that could be gotten into the circulating gas. When large amounts of water are present, a preferred way to accelerate the vaporization of water into the gas stream involves shutting down the pile and using the heat of fission product decay to raise the graphite temperature in the wet zone. This increase in temperature is produced by completely cutting off the flow of water through the pile, thus allowing water temperatures to increase until such time as it is necessary to purge the unit with water for a brief interval to prevent boiling.

Much higher graphite temperatures can be obtained in the wet zone by this method than by normal operation since in operation there is negligible power output from tubes in this region after wetting, whereas the fission heat output is determined primarily by the power output prior to the leak. This procedure was demonstrated on the F Pile early in the month.

Graphite Development

Additional measurements on CS type graphite exposed in test holes and capsules show that the rate of expansion perpendicular to the axis of extrusion is only 50% that for KC type graphite. Samples of CS graphite cut parallel to the axis of extrusion expanded about 20% as much as the transverse CS samples. Parallel KC samples do not change in length, or contract slightly. These observed differences in KC and CS graphite are in agreement with X-ray diffraction measurements which have shown that the graphite crystals in CS bars have a more random orientation. Purified CS graphite expanded at the same rate as ordinary CS graphite. Measurements of the changes in other properties show similar behavior for both KC and CS graphite during pile irradiation.

Physical expansion measurements on various experimental graphite exposed in both test holes and capsules gave the following results. Ceylon natural graphite expands at from 2 to 3 times the rate for KC graphite. Mexican natural graphite (amorphous natural graphite) expands at about the same rate as KC graphite. An "all flour" CS graphite expanded at the same rate as standard CS graphite.

X-ray diffraction studies have shown that at least at low exposures the rate of expansion of the c-axis is the same for all the graphites studied.

Tests on an experimental lot of Whiting graphite indicate that this material, when purified, is the equal of purified CS graphite. Unpurified Whiting is of very poor quality, however, and could not be used in the piles.

Graphite Testing

The density of new shipments of CS and CSF graphite has been dropping steadily since last August. A pile built of material like the present receipts would have 35 inhour less reactivity than one of material similar to the August shipments.

Control System - G Pile

Calculations have been carried out on the effectiveness of a new type of safety control system. This system, called curtain control, contemplates the use of neutron absorbing sheets about four feet in width which drop into the pile in slots. A row of these sheets extending from front to back of the pile, with four inch gaps between the sheets, forms a curtain which nearly isolates the portions of the pile on either side. Four of these curtains, containing a total of 24 separate sheets would have a control strength of 3400 inhours. The 29 safety rods on the present piles have a strength of 1700 inhours and 45 large, moderator filled, rods would have a strength of 2900 inhours. Shadowing by the horizontal rod system makes a substantial reduction in the strength of the present verticals whereas the curtain type control would not be subject to any shadowing by the horizontals.

The maximum control obtainable in H Pile, by the use of 45 vertical plus 15 horizontal rods is 3500 inhours. Thus the 24 sheets accomplish almost as much as 60 rods.

Critical Mass - Redox Process

The critical mass problems as it affects design of the Redox process has been reviewed and is being reported in a separate document.

Reactivity

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

	B Pile	D Pile	F Pile
In rods	39 ih	47 ih	95 ih
In xenon	526	487	523
In over-all coefficient	-105	-150	-132
Total cold, clean reactivity	750	846	770

*This represents the inhours gained due to Special Request 52, (U^{235} -Al alloy).

The B Pile lost 15 inhours, and the D Pile 19 inhours during the month. The F Pile gain was 408 inhours due to removal of water.

Status of Special Irradiations

The status of the Special Request program on November 30 is given below. Those items which were active during the month are marked with an asterisk. Items listed as completed last month will receive no further mention. The number under P. T. indicate the Production Test, series 105-P. 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. Under "Tube and Pile" the initials BTHD, BTHF, DTHF mean the piece is charged into the "B" test hole at the D or F Pile or into the "D" test hole at the F Pile. The suffix T will denote a tentative schedule which may be changed. The abbreviations ORNL and ANL after the request number refer to Oak Ridge National Laboratories and Argonne National Laboratories respectively; KAPL refers to the Knoll Atomic Power Laboratory, UCRL refers to the Radiation Laboratories at the University of California.

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih absorbed
12-B(UCRL)	Pu^{239}	1 slug	1 year	5/25/48	1769D			200	5**
13-5(ORNL)	Be_3N_2	19 slugs	6 mo.	2/2/48	1569D	8/4/48		70D	
		19 "	6 "	1/18/48	2374D	6/29/48			
		53 "	6 "	5/12/48	2374F	10/20/48			
		53 "	6 "	5/12/48	1569F	10/20/48			
		38 "	6 "	6/6/48	3169D				

**Tube 1769D also contains 1 pc. SR-64, 4 pcs. SR-63, UCRL-100-105, 1 pc. SR ANL-111, and 2 cobalt slugs.

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih ab sorbe
13-5(ORNL)	Be_3N_2	39 slugs	6 mo.	8/4/48	1569D				17
		53 "	6 "	8/13/48	1579D				17
		36 "	6 "	8/4/48	1474F	10/20/48			
		36 "	6 "	8/4/48	3274F	10/20/48			
28-5(ORNL)	Iron Enriched	1 casing	Indef.	4/4/48	BTHD			87C	0
*28-6(ORNL)	Iron Enriched	1 casing	6 mo.	4/4/48	BTHD	11/23/48	11/26/48	87C	
28-7-12(ORNL)	Iron	6 casings	2 mo.					96B	0
*29-5-10(ORNL)	P_2O_5	6 casings	60 days	10/22/48	DTHF	(2 casings (11/24/48	(2 casings (11/26/48		
*40-1(KAPL)	Pu	3 slugs	1 wk	11/5/48	3473B	11/12/48	11/26/48	148	
*40-5(KAPL)	Pu	3 slugs	4 mo.	5/25/48	3177D	9/28/48	11/26/48	148	
47(ANL)	BeO	4 slugs	1-15 da.	12/21/47	3169D	1/6/48	1/14/48	127	
			1-30 da.	Has not been rec'd					
			1-90 da.	12/23/47	2666F	4/4/48	4/14/48		
			1-180 da.	Has not been rec'd					
48(ANL)	BeO	4 slugs	1-15 da.	12/21/47	3169D	1/6/48	1/14/48	128	
			1-30 da.	To be recanned at ANL					
			1-90 da.	12/23/47	2666F	4/4/48	4/14/48		
			1-180 da.	8/4/48	3876F				0
*49(ANL)	Graphite-U Oxide	4 slugs	1-15 da.	12/21/47	3169D	1/6/48	2/11/48	129	
			1-30 da.	11/5/48	3166B	12/7/48-T			5***
			1-90 da.	12/23/47	2666F	4/4/48	5/3/48		
			1-180 da.	Sample not received					
***Tube 3166B also contains 1 pc. ANL-114, 1 pc. SR 62 (U-1)									
*52(ORNL)	Al-U^{235} Alloy	229 slugs	100 da.	7/27/48	100F			208	0
				7/30/48	100D	11/16/48			
59(ORNL)	Antimony	1 casing		1/27/48	BTHF			139	0
60(ORNL)	KCl	7 casings	1-2 wks.	2/16/48	BTHD	3/9/48	4/14/48	140	
			1-1 mo.	2/16/48	BTHD	4/4/48	4/14/48		
			1-3 mo.	3/2/48	BTHD	6/29/48	8/2/48		
			1-6 mo.	2/16/48	BTHD	8/26/48	9/23/48		
			3-1 yr.	2/16/48	BTHD				0
61(ORNL)	Co_3O_4	1 casing		1/27/48	BTHF			141	0
*62(ORNL)	Al-U^{235} Stainless, Be, U, Al	10 slugs	1 mo.	2/16/48	3179D	3/15/48 (Pcs.Be-1 (Al-1, SS-1 (Al-U-1	4/14/48 (pcs.Al-1 (SS-1 5/3/48 (Pcs.Be-1 (Al-U-1	145	

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih ab sorbe
			1 mo.	11/5/48	3166B (pc.U-1)	12/7/48-T			
			5 mo.	2/16/48	1774D (pcs.Be-2, (Al-2,SS-2	7/19/48	9/3/48		
			5 mo.	4/25/48	2382F (pc.Al-U-2	12/6/48-T			
			5 mo.	11/5/48	3276B (pc.U-2				
*63(ORNL)	Al-U^{235} Alloy	21 slugs	7-3 mo.	4/11/48	1671D	7/15/48	9/3/48	146	
			7-6 mo.(6)	4/25/48	2382F	12/6/48-T			5
			7-12 mo.(4)	5/25/48	1769D				
			(1)	11/5/48	1882B	- -			5
64(ORNL)	Cu-Au Alloy	5 slugs	1-15 da.	4/11/48	2382F	4/25/48	5/3/48	142	
			1-30 da.	2/16/48	3179D	3/15/48	5/3/48		
			1-60 da.	8/4/48	2578D	10/5/48	10/13/48		
			1-150 da.	2/16/48	1774D	7/19/48	9/3/48		
			1-300 da.	5/25/48	1769D				
79(KAPL)	U^{235}	Experiment is on a continuous basis			0865F				
					1481F			180	10
80(ORNL)	HgO	4 casings	6 mo.	To be recanned for process tube exposure				163	
81(ORNL)	Zn	3 casings	1 yr.	4/25/48	DTHF			164	0
82(ORNL)	Ni	1 casing	1 yr.	4/25/48	DTHF			165	0
		1 casing	1 yr.	5/12/48	DTHF				0
83(ORNL)	TiO_2	1 casing	6 mo.	4/25/48	DTHF	12/6/48-T		166	0
84(ORNL)	$AgNO_3$	1 casing	1 yr.	4/25/48	DTHF			167	0
85(ORNL)	Se	1 casing	1 yr.	To be recanned for process tube exposure				181	
86(ORNL)	$Tl(NO_3)_3$	1 casing	1 yr.	To be recanned for process tube exposure				181	
87(ORNL)	WO_3	1 casing	6 mo.	4/25/48	DTHF	12/6/48-T		181	0
88(ORNL)	Sn	1 casing	1 yr.	4/25/48	DTHF			181	0
89(ORNL)	Cd	1 casing	6 mo.	4/25/48	DTHF	12/6/48-T		181	0
ANL-100	Be	5 casings	6-12 mo.	3/24/48	BTHF	3 pcs. 9/13/48	3 pcs. 9/15/48	176	0
*ANL-101	U^{238}	1 recept.	4-6 mo.	11/12/48	2074B			177	0

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih ab sorbe
ANL-107	Bi	1 recept.	6 mo.	8/4/48	2173F			211	0
*ANL-108	ThO_2	1 recept.	6 mo.	11/5/48	3271B			218	0
*ANL-109	Pa_2O_5	1 recept.	3 mo.	11/5/48	3378B			218	
ANL 110	PuO_2	1 slug	6 mo.	8/4/48	2974F			210	5
ANL-111	PuO_2	1 slug	1 yr.	5/25/48	1769D			200	
ANL-113	$RaBr_2$	6 slugs	3 mo.	12/48-T				230	
*ANL-114	ThO_2	7 slugs	1 mo.(1 pc)	11/5/48	3166B	12/7/48-T		215	
			2 mo.(1 pc)	11/5/48	3181B				
			3 mo.(3 Pc)	11/5/48	3378B				5
			6 mo.						
			1 yr.(1 pc)	11/5/48	1882B				
*ANL-115	Mo	4 slugs	6 mo.(2 pc)	11/5/48	3276B			215	5
			1 yr.(2 pc)	11/5/48	1882B				
ANL-116	Diamond, Be, C	1 casing	3 mo.	10/22/48	DTHF			221	0
ANL-119	S.Steel	2 recept.	6 mo.	12/48-T				227	
ANL-120	S.Steel	1 recept.	6 mo.	12/48-T				227	
ANL-121	Nickel	1 recept.	6 mo.	12/48-T				227	
ANL-122	Nickel	2 recept.	6 mo.	12/48-T				227	
UCRL-100	Pu	1 slug	1½-5 yr.	5/25/48	1769D			200	
UCRL-101	Pu	1 slug	1½-5 yr.	5/25/48	1769D			200	
UCRL-102	Pu	1 slug	1½-5 yr.	5/25/48	1769D			200	
UCRL-103	Am	1 slug	2 yrs.	5/25/48	1769D			200	
UCRL-104	Pu	1 slug	1-3 yr.	5/25/48	1769D			200	
UCRL-105	Am	1 slug	2 yrs.	5/25/48	1769D			200	
UCRL-106	Tissue Ash	72 casings	2-3 wks.(12 casings received)					189	
UCRL-107	Osmium	1 slug	1 mo.					229	
UCRL-108	Tantalum	1 slug	1 mo.					229	
UCRL-109	Phosphorus	1 slug	1 mo.					229	
UCRL-110	Selenium	1 slug	1 mo.					229	
UCRL-111	Palladium	1 slug	1 mo.					229	
UCRL-112	Rhenium	1 slug	1 mo.					229	
UCRL-113	Iridium	1 slug	1 mo.					229	
UCRL-114	Tungsten	1 slug	1 mo.					229	
UCRL-115	Am.Oxide	1 slug	2 yr.					229	
ORNL-100	$CaCO_3$	8 casings	18 mo.	9/3/48	DTHF			182	0
ORNL-102	Zr	1 slug	6 mo.	8/4/48	3876F			204	
ORNL-103	Be	30 slugs	3 mo-1 yr.	10/22/48	(1980F			217	4
					(2385F				1
					(3473F				1

Req. No. & Source	Material	Quantity	Exposure	Charged	Tube & Pile	Discharged	Shipped	P.T.	ih ab sorbe
*ORNL-104	Metals	8 slugs	3-6 mo.(4)	11/5/48	3378B			223	
ORNL-105	NaCl -	3 casings	6 mo-1 yr.	10/22/48	DTHF			219	
*ORNL-106	Th	1000 slugs	125 days					228	
		40 slugs	125 days	11/12/48	3179B				31
		40 slugs	125 days	11/12/48	2374B				31
		40 slugs	125 days	11/12/48	1579B				31
ORNL-107	Cobanic Alloy & Cobalt	3 slugs	1 mo.	12/6/48-T				229	
ORNL-108	Cu_3Au Alloy	2 slugs	1 mo.					232	

The following requests have been approved but the samples have not been received:

ANL-105, ANL-112, ANL-117, ORNL-101, ORNL-109, ORNL-110.

PILE ENGINEERING

Corrosion and Blistering of Slugs

Corrosion measurements on slugs exposed in the 0.240 orifice zone in special tubes fitted with 0.200 orifices showed that the twenty per cent increase in temperature rise approximately doubled the corrosion rate. A maximum penetration of 0.2 mils/mo. was observed, compared to the normal average rate of 0.08 mils/mo. This rate, however, is still quite low, and, as previously reported, no increase in Van Stone corrosion was detected on these hot tubes. From the standpoint of corrosion, these results indicate that a maximum tube-outlet temperature of 75° C. is allowable as standard operating practice.

Difficulty was encountered in discharging a number of tubes of alpha-rolled, lead-dipped slugs at exposures of approximately 230 MD/ton. Two tubes were encountered which required "stuck-tube" procedures to effect discharge. Examination of a portion of the discharge which probably (but not definitely)contained the pieces from the stuck tubes failed to detect a stuck slug or a slug deformed sufficiently to offer any possibility of sticking. Examination of this material is continuing in an effort to explain the abnormally high forces required during discharge.

Corrosion of Van Stone Flanges

A successful galvanize coat was applied to sixty stainless steel nozzles by the hot-dip method. The coatings were satisfactory in regard to bond and thickness, and showed only slight wear after the passage of 500 slugs. Corrosion tests are now in progress in the flow laboratory.

Installation of aluminum nozzles on the DR and H Piles has been recommended and tentatively approved, pending results of mechanical and hydraulic tests which will be made on a portion of the 200 prototype nozzles ordered by the Design Division. It is anticipated that these tests will be completed in time to procure and install aluminum nozzles on the H Pile during its construction.

Magnesium alloy slugs installed over outlet Van Stone flanges at the F Pile showed evidence of sacrificial corrosion after one month of operation.

All anodized aluminum pieces which had endured four months' test in flow cups at inlet water temperature failed after one week at 60°C. In view of these results work on anodizing essentially will be discontinued and efforts concentrated on the more promising methods of flange protection.

Plant Assistance

A box-like fitting to prevent loss of water from a process tube during charging has been fabricated and found to perform satisfactorily. This device satisfied the requirements in preventing a beam from a process tube in which the front shielding-slug pattern has been eliminated.

Helium analyses show that dissociation of water caused by operation of the F Pile after the water leak caused an increase in hydrogen content from a value of 0.35% (tank-car helium) to a value of 0.80% (helium from wet, operating pile).

A bubble tester was designed and fabricated to test the weld on cans containing radioactive slugs to be exposed in the piles as S. R. ANL-113.

Assistance to New Construction

Calculations of the temperature reached by the polyethylene moderator in the type "M" vertical rods for DR and H Piles indicate that no thermal damage will occur during at least the first two years of operation.

Radiation shielding tests of gun barrel doughnut assemblies were made in the "A" hole of the D Pile to compare the new design 2" gun barrel doughnuts with the old design. Inconclusive results were obtained because conditions on the face of the unit were not duplicated in "A" hole. One apparent difference was a crescent shaped beam through the thermal shield. The arrangement which caused this beam was necessary because a 4" diameter steel plug was the maximum which could be placed in the $4\frac{1}{4}$" diameter hole in the thermal block.

Graphite Expansion

Measurements were made of the deflection of the #27 vertical thimble at both the D and F Piles to obtain information on the cause of binding of the vertical rods. These traverses showed that the thimbles sloped $1\frac{1}{2}$" to 2" towards the far side in the four foot length just below the rod guide. The maximum horizontal deflection of #27-F was 3" at a point 9 feet above the center line of the graphite. At 27-D the maximum was 2.6" at a point 7 feet above the centerline. Studies of various methods of relieving the rod binding are in progress.

Experiments were continued on a method of annealing a graphite tube block in the D Pile. A heat transfer of 3 KW per 16" was obtained with an oxygen acetylene flame. However, there was difficulty with soot formation.

Experiments by the Industrial Heating Divisions of the Apparatus Department with induction heating of graphite blocks at 3000 cycles indicated that this method would be feasible for obtaining temperatures of 500°C. or above. Work on this method will be continued at Hanford.

The CO_2 concentration in the D Pile atmosphere was maintained at 40% during the month. The necessary equipment and instrumentation is being installed so that the concentration can be increased. At the F Pile all necessary equipment and instruments have

been installed so that addition of CO_2 to the pile gas can be started. This was postponed, however, due to possible corrosion damage in the pile which still contained water from the recent leak.

Tritium Production (Project P-10)

The P-10 project which covers the design, construction, and operation of facilities for the extraction of tritium from irradiated lithium bearing slugs was initiated approximately October 1, 1948. These extraction facilities are being installed at Hanford to supplement facilities at ANL in order to meet the increased production requested by the AEC. Eventually all extraction will be done at Hanford. Design is now almost complete and construction is scheduled to be completed early in January, 1949.

Tritium is made in the Hanford piles by the $Li^6(n,\alpha)$ reaction. Two types of lithiu bearing slugs have been studied by ANL; one, a slug composed of sintered lithium fluoride wafers separated by perforated copper disc spacers and the other, a solid metal slug of lithium-aluminum alloy. The lithium fluoride process has been used for several years to produce relatively small quantities of tritium for experimental purposes. The alloy process is in the early stages of development, in fact, when this project was initiated only two slugs had been irradiated.

Although the lithium fluoride process had many disadvantages it appeared that we would need to use it during the interim period while the alloy process was being investigated. The amount of lithium fluoride in the piles was therefore increased as rapidly as possible.

Shortly after the increase in irradiation was begun, two of the fluoride slugs ruptured and water leaked into the graphite. These accidents were so serious that all of the fluoride slugs were discharged.

As a result of these accidents, the development of the alloy process is being accelerated as rapidly as possible at ANL and the production and irradiation of alloy slugs has been increased. A total of 177 four inch slugs have been charged and an additional 223 are scheduled to be charged. Fifteen pieces have been discharged and returned to ANL for extraction. Three pieces have been extracted and the results were encouraging. The principal problem that remains is to develop a vacuum furnace for melting the alloy.

The future program at Hanford is 1) instal and test one extraction line during December, 2) complete all construction early in January, 3) install and test the second line in January, 4) operate these extraction lines on a one shift basis to extract the 800 irradiated lithium fluoride slugs now available and, 5) begin extraction of alloy slugs about March 1, 1949.

INVENTIONS

All Pile Technology Division personnel engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions

or discoveries.

Inventor(s)	Item
P. F. Gast	Curtain Type Safety Control
G. M. Muller	Automatic Safety for Chemical Separation Processes.
C. W. J. Wende	Operating Procedure for Drying a Wet Pile Using Residual Radioactivity.
Helen Hoskinson	Remotely Operated Bubble Tester for Radioactive Slugs.
C. P. Cabell	A Box-like Fitting to Prevent Loss of Water from a Process Tube During Charging.

Signed W. K. Woods
W. K. Woods
Acting Division Head

WKW:sr

SEPARATIONS TECHNOLOGY DIVISION

NOVEMBER, 1948

VISITORS & BUSINESS TRIPS

D. H. Marquis, J. A. Choules J. E. Brown, and W. D. Egner, of the General Engineering & Consulting Laboratory, Schenectady, spent several days during the second week in the month conferring with the 234-5 Project group on technical design problems for this program.

R. B. Korsmeyer and A. A. Abbatiello, from Carbide and Carbon Chemical Corporation, Oak Ridge, were at the Hanford Works on November 15-20, to obtain metal waste tank sludge samples.

S. Lawroski, C. E. Stevenson, M. D. Peterson, F W. Schumacher, and J. Marsden visited this Division on November 18-19 to attend the Redox Steering Committee meeting which was held at this site.

M. R. Fenske, of the Petroleum Research Laboratory, Pennsylvania State College, visited the Development Section on November 15-19 for technical consultations on the Redox program.

W. J. Warnock, W Giegold, and E Schoch, General Engineering & Consulting Laboratory, Schenectady, conferred with the Process Section at Hanford on November 17-24 on design problems for the 234-5 Project.

G. W. Watt, a Division consultant from the University of Texas, visited here on November 25-27 for technical conferences on the chemical research and 234-5 development programs of the Division.

W. M. Harty visited the Oak Ridge National Laboratory on November 3-17 to make a survey of the Rala process installation.

R. H. Beaton, O. H. Greager, and C. A. Rohrmann spent November 8-9 in New York City, engaged in technical discussions on metal recovery with the Carbide and Carbon Chemical Corporation.

C. A. Rohrmann visited the Carbide and Carbon K-25 Plant at Oak Ridge, Tenn., on November 10-12 for further review of the metal recovery program.

O. H. Greager and R. H. Beaton attended a meeting of the Redox Advisory Committee in New York City on November 10, to discuss the choice of contactor equipment for the Hanford Redox plants.

B. Weidenbaum visited the Los Alamos Scientific Laboratory on November 15-19 for 234-5 technical consultations and initiation of filter tests at that site.

Separations Technology Division

ORGANIZATION & PERSONNEL

Personnel totals in the Separations Technology Division may be summarized as follows:

	October	November
Process Section	23	24
Development Section	94	94
Research Section	27	25
Tech. Grads. in training	27	27
Administration	1	1
	172	171

New hires were as follows: One Technical Graduate was added to the training pool and one clerical employee was added to the Development Section.

One chemist was transferred to the Process Section from the Design Division. Two chemists were transferred to the Metallurgy and Control Division from the Research Section, and one Technical Graduate was transferred to the Pile Technology Division. One operator and one clerical employee terminated and one clerical employee was transferred to the Construction Division from the Development Section.

At month end there were six non-exempt personnel on the rolls awaiting security clearance.

200 AREAS PLANT ASSISTANCE

Canyon Buildings

Continued difficulties have been observed at B Plant in obtaining complete transfer of the first cycle by-product precipitate from the precipitator to the centrifuge under the settling procedure of processing. In an attempt to obtain a more quantitative transfer, the water used for this operation was increased following a clean-out of the precipitator tank. Data from a subsequent Acid Wash Run, however, indicate that, while the efficiency of this transfer has been increased, some accumulation in the 13-1 Tank still occurs.

Recalibration of the first cycle product solution tank at T Plant has indicated that the calibration in use may be low by as much as 7%. It is planned to investigate this further.

An acid flush of the cell drainage tank was made at T Plant. This flush originated in Cells 6 and 8 (pre-extraction reduction and extraction sections) and removed "crud" from this tank containing product equivalent to 0.5% of a normal run. The flush was disposed of as waste.

The first metal received from the 100-B Pile following the start-up of this unit was processed at B and T Plants with increased extraction losses. Attempts to recover product from these wastes were relatively inefficient, a characteristic previously noted in processing metal containing higher product to uranium ratios. This is being investigated.

Ammonium silicofluoride containing insoluble material in excess of that allowable under Hanford specifications was used in the product precipitations of Run T-8-11-F-11 at T Plant under Production Test 221-T-14. The first cycle product cake solution contained difficultly soluble material which may have been beta bismuth phosphate since the precipitate had been held for several hours prior to centrifugation. The off-standard material will be tested further at B Plant.

Section 7 was prepared for operation in parallel with Section 8 for extraction at both B and T Plants.

Concentration Buildings

The bismuth phosphate by-product precipitator tank was inspected at T Plant following Run T-8-10-F-22 after 77 runs had been processed without the standard flush of this tank with the acid used for cake removal. A small amount of scale was observed at the solution level and no accumulation was found on the bottom. Processing with the omission of the tank flush was continued.

The centrifugation rate for the routine metathesis waste rework was increased from 12 lbs. per minute to 20 lbs. per minute in processing Run B-8-11-D-12 at B Plant. The waste loss was unaffected, indicating a possible time cycle reduction of 1-1/2 to 2 hours through increased centrifugation rates during this rework. This is under further testing.

Isolation Building

Production Test 231-8, designed to reduce the Isolation Building time cycle, was initiated with Run B-8-11-B-5. Preliminary data indicated that the first cycle peroxide precipitation time may be reduced by approximately 30 minutes through the modified procedure of hydrogen peroxide addition.

REDOX DEVELOPMENT

Demonstration Unit Studies

Six studies have been completed in the 3-inch IA Column to determine the feasibility of spray column application and to obtain definitive H.E.T.S. values relative to Redox Test Plant design. The spray studies are tabulated below. Dichromate was omitted from the IAFS feed and water-washed raw hexone was employed to prepare the IAX.

SPRAY COLUMN STUDIES - THREE-INCH IA COLUMN

IAX Distributor = Elgin-Type, 66 Holes, each 0.04 inches i.d.

Run No.	Unpacked Length	Total Volume Velocity % of ANL	Total Volume Velocity Gal./(Hr.)(Sq.Ft.)	U Losses, % of Feed U	H.E.T.S., Ft. (Extract. Sect.)
25	12.9	491	873	10.3	4.4
26	22.8	495	880	5.0	4.6
27	22.8	101	179	10.6	7.4

Pumping capacity limitations prevented the study of performance at higher volume velocities. It is believed that the highest capacity listed above is only 25-30% of the limiting capacity of the unpacked section. It is quite possible that H.E.T.S. values of the order of 1.5-2.5 ft. would be realized at 80-90% of the complete flooding point.

Previous studies in 3-inch IA Column with 1/4-inch Raschig rings have been conducted mainly under simple column (extraction section only) conditions, utilizing water-washed raw hexone and omitting IAF dichromate. During the month, a series of three studies was completed employing both scrub and extraction sections to determine the adequacy of the present intermediate single point IAF entry. These studies are tabulated below together with one previous check point.

COMPOUND COLUMN STUDIES: THREE-INCH IA COLUMN

Packing = 1/4 x 1/4-inch Raschig Rings
Process Conditions = ANL Flowsheet, Pretreated Hexone, $Na_2Cr_2O_7$ in IAF
Extraction Length = 12 Ft.

Run No.	Total Volume Velocity % of ANL	Total Volume Velocity Gal./(Hr.)(Sq.Ft.)	U Losses, % of Feed U	H.E.T.S., Ft. (Extraction Section)
28	100	177	2.7	2.0
29	200	350	0.5	1.2
22*	250	445	0.5	1.1
30	50	87	11.0	4.0

*Reported previously.

Previous studies of the individual effect of water-washed raw hexone, pretreated hexone, and dichromate have indicated a negligible H.E.T S. difference when these three constituents are employed. The above data indicate that at low rates poor IAF-IAS mixing probably prevails. Previous simple-column studies produced an H.E.T.S. of about 1.0 ft. at 100% rates and 1.2 ft. at 200% rates. It would be expected that mixing improves as the IAF rate is increased through any given distributor. A distributor is being designed to improve mixing at low rates by giving a higher IAF entrance velocity.

Five studies have been completed in the 2-inch Demonstration Column with 1/4 x 1/4-inch Raschig rings to test the performance of a simulated product-free IB system. Feed conditions were chosen in accordance with the June ANL Flow Sheet.

IB FLOW SHEET STUDIES: TWO-INCH DEMONSTRATION COLUMN

Packed Length: 11.6 Ft. Below Feed, 7.3 Ft. Above Feed

Run No.	Total Volume Velocity, Gal./(Hr.)(Sq.Ft.) Above Feed	Below Feed	IBP U Losses g.UNH/l.	% U in IAF	Uranium H.E.T.S., Ft. (Below Feed)
1(1)	360	131	0.0025	10×10^{-5}	2.9
2	360	131	0.0015	6×10^{-5}	2.9
3	190	70	< 0.1	------	---
4	540	197	< 0.1	------	---
5	940 (limiting capacity)	324	< 0.1	------	---

(1) Conducted with an inverted cone for mixing IBF and IBS streams. Mixer removed for Run No. 2. Uranium processed at approximately 1/25 nominal plant capacity.

Difficulty in developing a fluorometric technique for low uranium in IBP has delayed the reporting of studies 3, 4, and 5. The June, 1948, ANL Flow Sheet calls for IBP uranium losses of 2.5×10^{-5} % of IAF uranium. The loss values for Runs 1 and 2 appear to be slightly high. More information regarding the analytical accuracy of the above determinations and the accuracy of the original ANL Flow Sheet value is required before firm values may be quoted. Flow Sheet amounts of Pu in the two IBP streams (Runs 1 and 2) listed above would be contaminated with uranium to the extent of 1.3×10^{-3} and 7.5×10^{-4} % respectively. Some IB studies in the 3-inch Demonstration Column are planned.

Scale-Up Studies

Further work has been done by way of extending the H.E.T.S.-throughput relationship for the 8.42-inch IA Scale-Up Column employing 1/2 x 1/2-inch Raschig ring packing. The pertinent data are summarized below. Since the previously reported runs, the 8-inch disengating section has been replaced with a 5 ft. long 16-inch i.d. section.

SCALE UP UNIT STUDIES: EIGHT-INCH IA COLUMN (SIMPLE)

Extraction Length = 19.7 Ft.
Packing = 1/2 x 1/2-inch Raschig Rings

Run No.	Type of Run	Volume Velocity, Gal./(Hr.)(Sq.Ft.)	U Capacity, Short Tons Per 24 Hrs.	U Losses, % of Feed U	H.E.T.S., Ft. (Extract. Sect.)
7(1)	Service	966	---	< 0.04	< 4.0
8	H.E.T.S.	1770	5.4	2.3	2.5
8(2)	Flooding	1900 ± 50	5.7	---	---
9(3)	H.E.T.S.	904	2.7	0.4	1.6
10	H.E.T.S.	518	1.6	2.8	2.4
11	H.E.T.S.	366	1.1	8.8	4.2

(1) Study conducted to remove 260 g./l. of UNH from an off-standard IAFS by salting to 1.46 M aluminum nitrate and contacting an acid-free IAX in ratio of 4 IAFS:2.3 IAX. More accurate equilibrium data required for calculation of a firm H.E.T.S. value.

(2) Flooding study conducted at conclusion of H.E.T.S. study.

(3) Runs 9, 10, and 11 conducted without interruption.

Studies 9 and 10 above, check almost exactly studies 1 and 3 reported previously.

The 8 inch H E.T S. values obtained to date indicate that a 20 ft extraction section packed with 1/2 x 1/2 inch Raschig rings will provide at least 10 stages (IAW losses below 0.6% of feed uranium) over a capacity range of 1.8 to 4.8 short tons of uranium per 24 hr. day. Provision has now been made for inserting an intermediate feed introduction point to permit operation with 4 ft. of scrub and 14 ft. of extraction length. A 16-inch i.d. IAF feed section and distributor are being fabricated.

Three H.E.T.S. studies have been completed in the 5 inch IA Column together with a determination of the limiting capacity. An 8-inch i.d. disengaging section 5 ft. long has been added to the top of the column and provision made for inserting an intermediate feed point. The pertinent data are tabulated below. H.E.T.S. values are as yet preliminary.

SCALE-UP UNIT STUDIES: FIVE-INCH IA COLUMN (SIMPLE)

Extraction Length = 19.6 Ft.
Packing - 1/2 x 1/2-inch Raschig Rings

Run No.	Type of Run	Volume Velocity Gal./(Hr.)(Sq.Ft.)	U Capacity Short Tons Per 24 Hrs.	U Losses, % of Feed U	H.E.T.S., Ft. (Extract. Sect.)
4	H.E.T.S.	993	1.0	0.4	1.3-1.5
5	H.E.T.S.	1317	1.3	0.2	1.3-1.5
6	H.E.T.S.	1638	1.7	1.3	1.9
7	Flooding(1)	1750 ± 50	---	---	---

(1) This is in contrast to a value of 1900 ± 50 gal./(hr.)(sq.ft.) for the 8-inch IA Column.

H.E.T.S. values obtained to date in the 5-inch column indicate that a 20 ft. extraction section packed with 1/2 x 1/2-inch Raschig rings will provide at least 10 stages (IAW losses below 0.6% of feed uranium) over a capacity range of 0.55 to 1.8 short tons of uranium per 24 hr. day.

A program is now underway to define the H.E.T.S. - Capacity - Diameter relationship for the IC system under ANL process conditions. Heretofore all IC studies have been of the "service" type, designed mainly to return IAU uranium to an aqueous phase and have not been adjusted for IBS dilution. The studies conducted to date are tabulated below. Uranium H.E.T.S. values are as yet preliminary.

FLOW SHEET IC STUDIES: FIVE-INCH SCALE-UP COLUMN

Extraction Length = 19.6 Ft.
Packing = 1/2 x 1/2-inch Raschig Rings

Run No.	Type of Run	Volume Velocity Gal./(Hr.)(Sq.Ft.)	U Capacity, Short Tons Per 24 Hours	ICW U Losses, % of Feed U	H.E.T.S.,Ft.
39-C	H.E.T.S.	1240	1.0	<0.05	<5
40-C	H.E.T.S.	1380	1.2	0.10	<6
40-C	Flooding	1500 ± 100	---	----	-

The range indicated above will be checked and extended to lower volume velocities. Nine routine IC "service" runs were conducted during the month in the 4-inch Demonstration Column and the 8-inch Scale-Up Column.

Equipment Modifications and Development

The precipitation and centrifugation equipment now employed for recovering uranium from Demonstration Unit wastes was modified by the addition of a gravity head tank for feeding the centrifuge. Improved rate control resulted in a higher average uranium content of the sodium diuranate cake. An automatic flow control system has been installed to control all feeds to the 2 and 3-inch Demonstration Columns. The equipment consists of Fischer and Porter recording-controlling rotameters set to actuate Hammel-Dahl control valves. Head is provided by Fischer Scientific rotary vane pumps. The units are currently being calibrated. An Elgin-type ICF distributor and enlarged top disengaging section have been designed for the 4-inch IC Demonstration Column. To permit more rapid procurement of first cycle uranium recovery data in the Demonstration Unit, changes necessary to allow direct cascade of IA-IB-IC units are being studied.

The 10-stage full-scale S.O.D. mixer-settler unit was completed during the month. It is planned to test the hydraulics by means of a nitric acid transfer study. Thermocouples have been attached to the 8-inch column shell in order to better define temperature gradients during uranium transfer. Scattered instances of interface dip tube plugging, instrument line leaks, and instrument diaphragm failure were encountered during the month. An additional steam supply to Scale-Up Tank AQ-8 now permits ICU concentration to proceed at rates up to 800 lbs./hr. A continuous hexone stripper has been designed to carry out ICU hexone removal during a short contact time - thus eliminating the formation of hexone - HNO_3 decomposition products.

The evaluation of IAF clarification by means of filters and filter aids was substantially completed during the month. The following filtration conditions are considered optimum: Porosity "F" Micrometallic plate (0.0008-in mean pore opening), 53 gm./sq.ft. precoat of Johns-Manville elutriated Standard Super Cel, 0.75 to 1.0% pre-mix of filter aid in IAF, and a pressure drop of 14.8 psi. Under these conditions 4 hr. average rates of 0.3 to 0.4 gal./(min.)(sq.ft.) are possible with an increase in photometric clarity from 84 to 93%. Based on these data, filtration units having about 8 sq.ft. of area would be capable of handling a 24-hour supply of plant-sc: e IAF in 4 hours.

Design changes to the S.O.D. 21-stage 1/100th scale box mixer-settler to provide for positive interface control are approximately 85% complete. Vibrating mixer plates have been fabricated to reduce pumping action. Life testing of G.E. Turbine Pump No. 2 at 3450 rev./min. and 25 psig. was discontinued after 304 hours due to failure of the carbon-filled fluorothene bearings. Testing to date has indicated the chief problem to be that of obtaining a satisfactory bearing material. A test stand has been completed for study of head-producing pumps under submerged conditions. Following dynamic balancing, the Kellex magnetically coupled turbine pump has been placed under test with water. Initial operation appears to be satisfactory.

Dynamic corrosion tests with Types 316, 316 ELC, 347, and 309 SCB stainless steel indicate a maximum corrosion rate of 10^{-4} inches per year after 90 days exposure to IAX, IAF, IAS, and IBX. Specimens of 304 and 347 stainless steels exposed to neutralized IAW (pH of 10 and 2) solutions and non-neutralized evaporated and reslurried IAW solutions at 170° F. for 30 days have exhibited slight increases in weight.

Process Laboratory

During the month, three 10-stage counter-current IB uranium equilibrium studies were completed. The second study was conducted with high sulfate content to note the effect of the component on uranium distribution ratio. Individual batch IB equilibrium studies are to be conducted with variable sulfate content to define further the extent of uranium-sulfate complexing.

Studies have been initiated to determine the extent of hexone removal from IAW under continuous flash conditions. One study designed to produce a 7-minute hold-up time resulted in complete hexone removal without decomposition at a liquid temperature of 113° C. and a vapor temperature of 104° C.

A study of methods for the preparation of ferrous sulfamate indicates that a 2.5 - 2.7 M solution may be prepared by contact of hydrogen-reduced powdered iron and C.P. sulfamic acid at 25° C. for 2.5 days.

REDOX RESEARCH

Ruthenium Chemistry

The effect of ruthenium concentration on the efficiency of RuO_4 removal from simulated dissolver solutions was tested in experiments in which ozone and permanganate were employed as oxidizing agents. Employing 0.1 mg Ru/ml and 0.1 M $KMnO_4$, 0.2% of the ruthenium remained in the residue after heating for one hour at 95°C. The same result was obtained employing 0.0034 mg Ru/ml (tracer) under otherwise identical conditions. Similarly, employing ozone catalyzed by Ag^+ as oxidizing agent, no significant difference in ruthenium removal was noted at 0.1 and 0.0034 mg Ru/ml.

Exposure of various stainless steels to the action of ozone in solutions 0.3 M in HNO_3 and 0.01 M in $AgNO_3$ resulted in a pink color identified as permanganate. Accordingly, rough corrosion tests were run by exposing coupons of 309 and 309 S Cb stainless steel to ozone in a solution 2 M in UNH, 0.3 M in HNO_3, and 0.01 M in $AgNO_3$. Negligible weight losses and no pitting were observed after 45 hours, either at room temperature or at 85°C.

Build-up of activity on the walls of the still could seriously limit the usefulness of RuO_4 distillation as a decontamination procedure. This effect has been further studied with respect to both glass and stainless steel surfaces. Using a glass still, hole-up on the walls has been of the order of 25-90, 0.1 to 8.0, and 0.1 to 3.0%, using Ce(IV), $KMnO_4$, or O_3-Ag^+, respectively, as oxidizing agents. The capacity of $KMnO_4$ and O_3-Ag^+ for positive removal of wall deposits was tested by employing Ce(IV) to produce a large wall deposit, removing the Ce(IV) still residue, then continuing with the usual permanganate or ozone treatment. With 50-60% of a tracer charge deposited on the walls during Ce(IV) oxidation, this amount was reduced to 5% and 2% after treatment for one hour at 75° with permanganate and ozone, respectively. Hold-up on stainless steel was studied by suspending a coupon above the first caustic trap. Use of Ce(IV) resulted in deposition of a large but undetermined amount of activity on the coupon, which was only partially removed when Ce(IV) was replaced by ozone, permanganate, or perchloric acid. Subsequent heating of the coupon, immersed first in 0.1 M $KMnO_4$ - 0.3 M HNO_3 solution and then in 0.01 M $AgNO_3$ solution through which ozone was passed, removed about 12% of the total activity, but an equivalent amount may have remained undissolved. When ozone only was used in a distillation experiment, approximately 3-5% of the total activity was found on a stainless steel coupon. Evidently the problem of deposition on walls is more serious with stainless steel then with glass equipment.

Study of methods of interchange of active and inactive ruthenium and of the effect of such isotopic dilution on Column IA distribution ratios is continuing.

Adsorption of ruthenium from laboratory tracer solution by ion-exchange resins has been determined as a function of NH_4NO_3 and $Al(NO_3)_3$ conentrations. Reduction of the adsorption by a cation exchanger to zero, as the concentration of NH_4NO_3 was increased, suggested that no colloidal species of ruthenium were present in the tracer solution

Zirconium Chemistry

A series of adsorption experiments was conducted employing 8-1-MR solutions and varying ratios of glass wool to solution. In order to obtain a zirconium decontamination factor of 1000 in three contacts, a minimum of 175 grams of Corning Pyrex #800 glass wool per liter of 8-1-MR solution was found to be necessary.

Experimental work is under way, in which the two-phase system, benzene-TTA and aqueous nitrate, will be used in an effort to establish the nitrate complexes and hydrolytic and polymeric species of zirconium existing in the nitrate system.

Cerium Chemistry

The aqueous chemistry of cerium in the presence of dichromate ion is now being investigated. Preliminary results indicate a ceric-dichromate complex is formed containing one chromium atom per cerium atom. The equilibrium constant for the reaction

$$1/2\ H_2O + Ce^{+4} + 1/2\ Cr_2O_7^{=} \rightleftharpoons CeCrO_4^{+2} + H^+$$

has a value of approximately 190.

Separations Technology Division

Oxidation of Plutonium and Hexone by Ozone

A synthetic IAF solution containing 0.176 g Pu(IV)/l and 0.01 M $AgNO_3$ was ozonized for one hour at 75°. Spectrophotometric analysis indicated that all of the Pu was oxidized to the (VI) state.

Supplementing work previously reported, a synthetic IBP solution saturated with hexone was ozonized for one hour at 75° and the flow of oxygen then continued for 15 minutes to sweep out residual ozone. Analysis showed 95% Pu(VI) and 5% Pu(IV). After two days, 10% was present as Pu(IV). An earlier experiment in which no Pu(IV) was found differed from this experiment in that hexone was sparged out before ozonization and conditions of ozonization were more severe.

Reaction between hexone and ozone was studied under extreme conditions by passing ozone through a two-phase mixture of hexone and water for three hours at room temperature. Although no violent reaction or crud formation occurred, 0.05 volume percent of methyl isopropyl diketone, 7.0 m.e./l of oxidizing impurity and 0.04 eq./l of total organic acids were formed in the hexone phase. None of these materials was formed in a control experiment in which oxygen containing no ozone was bubbled through a two-phase system. The mesityl oxide content of the hexone was reduced from 0.18 to 0.015 volume percent by ozonization.

Possible process use of ozone need involve none of the above difficulties because of the low solubility of ozone in aqueous systems and the ease with which ozone could be completely removed from an aqueous stream prior to contact with an hexone stream.

Instability of Plutonium (IV) Systems

Experiments have continued concerning the reduction of Pu(IV) to Pu(III) in systems lacking dichromate, otherwise simulating IA feed plate conditions (June 1, 1948, flow sheet). The reduction has been found to continue to an equilibrium mixture of from 15% to 30% Pu(IV), reaching this equilibrium value after approximately 30 minutes vigorous stirring in the presence of air. The distribution ratio correspondingly increases from an initial 3.3(aq/hex) to 20-25. While the rate constants have not proved to be reproducible between identical experiments, the reduction data have been found to fit an equation derived from the assumption of first order rate dependences for both oxidation of Pu(III) and reduction of Pu(IV).

The use of specially purified materials has not served to make the rate constants or the final equilibrium mixtures more reproducible.

A similar experiment approximating IIIA feed plate conditions showed a decrease in the distribution ratio (aqueous/hexone) with time, implying an oxidation of Pu(IV) to Pu(VI).

Pu concentration in these experiments was about 10% flow sheet concentration.

Specific Heats of Process Solutions

Specific heats have been measured with an accuracy of ±1% for aqueous systems covering ranges of UNH and $Al(NO_3)_3$ concentrations and for hexone systems covering ranges of UNH and HNO_3 concentrations. These data were graphed as a function of

composition. The C_p of aqueous solutions containing mixed UNH, HNO_3, and $Al(NO_3)_3$ were calculated from the pure component curves and found to agree with spot experimental measurements of mixed systems within 2%. Satisfactory results were similarly obtained for multicomponent hexone systems.

The Pulse Column

An experimental model of a new type of contactor has been constructed and preliminary performance data have been obtained. The column section of this contactor is similar to a sieve-plate column but with much smaller holes in the plates. The entering light liquid has a pulsating motion imparted to it by an outside pump. On the positive portion of the cycle the light liquid is squirted up through the holes and through layers of the heavy liquid. On the negative portion of the cycle the heavy liquid is squirted down through the holes and through layers of light liquid lying under each plate. Plates are spaced at intervals of one inch.

Employing hexone and an aqueous phase 8 M in NH_4NO_3 and 1 M in HNO_3, stage heights for nitric acid transfer have been determined at various organic and aqueous phase throughput rates and at various pulse frequencies and volume displacements per pulse. These H.E.T.S. values have ranged from 0.34 to 0.73 ft. A stage height of 0.34 ft. was obtained at a total throughput of 670 gal./hr./sq.ft. At a total throughput of 2,050 gal./hr./sq.ft., a stage height of 0.45 ft. was obtained. Duplicate runs have checked within 0.03 ft. There is no reason to believe that maximum performance has yet been attained, since variables such as plate spacing and the number and size of holes have not yet been studied.

Other conclusions from the data are (1) that there are optimum flowrates giving lower H.E.T.S. values than for higher or lower flow rates, (2) that, at constant feed rates and stroke of the pump, the H.E.T.S. seems to vary inversely as the square root of the pumping rate, and (3) that the flood point appears to be a condition at which the discontinuous phase is fed at a rate greater than the average pumping rate in the direction of discontinuous flow.

Advantages of this contactor are low H.E.T.S. values, high throughput, ease of interface control, control of drop size and absence of moving parts in a hot zone.

Stage Height Studies

Stage height studies have continued using the experimental column with 3/16-in. Fenske helices, water-washed raw hexone, and IAFS made from crystalline UNH and NH_4NO_3. Whereas addition of tin and/or copper in trace amounts has been found to lower the H.E.T.S. for uranium transfer about 0.6 ft., no lowering H.E.T.S. is observed when these materials are added in somewhat larger amounts. These materials are also of no effect when the solid surfaces have been made more organophilic by addition of palmitic acid.

Neutralization of Metal Waste Solution

Complexing agents for uranium, other than carbonate, which will inhibit the precipitation of uranium from a neutralized metal waste solution are being studied with a view to finding a neutralization procedure which will result in a smaller final volume of the waste. The uranium citrate complex was found to be sufficiently stable to hold uranium in solution at pH values up to 10 in the absence of phosphate ion but not in the presence of phosphate. Hydroxylamine, however, was found to prevent the precipitation of uranium at a pH of 10 in the presence of phosphate.

Redox Waste Disposal

Preliminary tests of the adsorption of ruthenium tracer by Dowex-A1 and -A2 anion exchangers have been performed. At pH values near 7.0 and from solutions low in anion content, 95-98% of the ruthenium was adsorbed by each of the resins, employing 0.6 g of resin per 3.1 ml of solution. The adsorption falls off much more rapidly with increased acidity than with increased basicity at comparable anionic strength of the solution.

STACK GAS DISPOSAL

Plant sand filter efficiency evaluation was continued at both plants. At B Plant, the filtration efficiency, based on laboratory beta analyses, varied from 99.3% to 99.9% during the month. The pressure drop across 36 inches of sand was about 7 inches of water at approximately 25,000 CFM air flow. Considerable recontamination of the sand filter effluent gas (up to 1100-fold) in the stack has been indicated by samples drawn from the 50-foot level and from the sampling device recently installed at the top of the stack. It was necessary to suspend operation of the filter monitoring the air entering the sand filter during the latter part of the month due to high activity levels. This activity was the result of an intensive maintainance program in the B Plant Canyon.

At T Plant, the sand filter operated with an efficiency of 99.3% to 99.8%, based on laboratory analyses. The pressure drop was approximately 4.5 inches of water at 25,000 CFM air flow through the 24 inches of sand. The activity of the air at the top of the stack sampler was considerably below that at the 50-foot sampler, suggesting that there may be a leak in the former system. The activity of the air leaving the stack at T Plant is many-fold lower than that at B Plant, but still significantly above the activity of the effluent from the sand filter.

A program is under way at B Plant to ascertain the source of this recontamination beyond the sand filter. It is indicated that most of the recontamination comes from the stack itself rather than from the dissolver off-gas. More data and study of other variables during the dissolving cycle are necessary before this indication can be considered definite.

A pilot plant evaluation of the utility of a sand filter for removal of I^{131} from direct dissolver off-gas was started. First results showed that 90% of the iodine and 85% of the other beta activity was removed by the sand, although only 17% to 25% of the iodine was previously found to be removed from mixed gases at the 50-foot level through use of a sand filter. The data still show about 1% of the theoretical I^{131} activity originally in the slugs to be evolved from the stack.

A short run was made with the pilot plant electrostatic precipitator. Satisfactory operation was obtained for the first time, due to repairs to the rectifier unit. The activity level of the feed was too low to yield significant efficiency data.

A new sampling line from the upstream side of the sand filter to the stack gas laboratory is being installed at B Plant. This will provide typical plant contaminated air for resumption of the pilot plant studies which had to be discontinued when the installation of the plant sand filter eliminated the previous sampling point.

STATEMENT OF INVENTIONS OR DISCOVERIES

All persons engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

R. H. Beaton

R. H. Beaton

Head, Separations Technology Division

METALLURGY & CONTROL DIVISION

NOVEMBER 1948

VISITORS & BUSINESS TRIPS

N. H. Nachtrieb of the Institute for the Study of Metals, University of Chicago, was here November 6-8 in consultation with the Analytical Section on spectrographic methods for the 234-5 Project.

Business trips of personnel in this division during November were as follows:

D. F. Shepard spent the week of November 1-5 at Oak Ridge National Laboratory investigating Redox analytical methods.

R. J. Brouns spent November 8-12 studying mass spectrographic equipment and techniques at the University of Minnesota and the University of Chicago. He continued these studies the week of November 15-19 at Oak Ridge National Laboratory and the Carbide and Carbon Co.'s K-25 and Y-12 plants in Oak Ridge, Tenn.

A. H. Bushey accompanied W. E. Cass (of Schenectady) (during the week of November 15-19) to contact candidates for advanced degrees in chemistry at the following schools: Northwestern University, University of Minnesota, University of Wisconsin and University of Chicago.

W. W. Koenig spent November 2-15 in the East discussing corrosion studies in general at several large industrial laboratories; namely, The Aluminum Co., New Kensington, Pa.; International Nickel Co. and Bell Telephone Co., New York City; the Standard Oil Development Co., Elizabeth, N.J. Specific Redox corrosion problems were discussed at the Knolls Atomic Power Laboratory in Schenectady, the Kellex Corp. in New York City, and the Crane Co. in Chicago. He also discussed these studies at the Massachuetts Institute of Technology.

E. A. Smith attended a conference at Argonne National Laboratory on November 2-3 to discuss the fabrication of Li-Al alloy slugs in connection with the P-10 Project. He spent November 4-13 at Schenectady making high frequency induction heating studies on uranium rods at the Knolls Atomic Power Laboratory.

T. S. Jones and R. M. Padden followed the rolling of uranium rods for Hanford at Aliquippa, Pa., November 13-22 and November 15-29, respectively. R. Teats and W. T. Kattner began the supervision of rolling at Lockport, N.Y. on November 27. They were joined there by R. M. Padden on November 30.

C. A. Bennett attended the West Coast Regional Meeting of the Institute of Mathematical Statistics in Seattle, November 26 27.

ORGANIZATION & PERSONNEL

Personnel totals in the several sub-divisions are summarized below:

	October 31	November 30
300 Area Plant Assistance Group	12	12
Metallurgy Laboratory Section	20	18
Analytical Section	410	421
Statistics Group	9	9
Information Group	46	51
Administration	2	3
Totals	499	514

Effective November 1, the following changes were made in the Analytical Section organization:

D. W. Pearce (transferred from the Separations Technology Division) was appointed Section Chief, replacing R. E. Curtis who was made Special Assistant to T. W. Hauff.

H. R. Schmidt (transferred from the Separations Technology Division) was appointed Group Head in charge of chemical methods research and development.

W. W. Marshall was appointed Group Head in charge of physical methods research and development.

Drs. Schmidt and Marshall are reporting directly to Dr. Pearce. W. A. Briggs is continuing as Assistant Chief Supervisor, in charge of all analytical control laboratories and miscellaneous services, reporting to D. W. Pearce.

One engineer (assignment) was added to this Section by transfer from the Company's West Lynn Works to work on design of special equipment. One exempt chemist was transferred to the Pile Technology Division, and three non-exempt personnel were transferred to other divisions. Three non-exempt chemists and eleven laboratory assistants were employed during the month, and three laboratory assistants terminated.

The change of two people in the Metallurgy Laboratory Section is accounted for by (1) the termination of one laboratory assistant, and (2) a change this month in the system of reporting personnel totals, whereby one exempt engineer previously included in this Section now is in the Technical Manager's Staff.

The Information Group employed four non-exempt Files personnel and one stenotypist.

At month-end, this Division had no exempt and sixteen non-exempt personnel on the rolls awaiting security clearance for classified work. Ten of these were non-exempt Files personnel, and the other six were laboratory assistants.

300 AREA PLANT ASSISTANCE

Uranium Melting and Casting

Magnesium-containing briquettes of uranium turnings, which have been on hand since melt plant start-up, are now being melted at the rate of one briquette per crucible heat. Trials made using two of these 0.1% magnesium-containing briquettes per heat showed that this amount of magnesium increased the casting yield 1.2% by reducing (by 8 lbs.) the amount of metal retained in the crucible after pouring. Although additional magnesium might effect a further yield improvement, it would probably also complicate the furnace operations. Present plans are to discontinue the use of magnesium when the present magnesium-containing briquettes have been remelted, since billet yield improvement through the use of pickled turnings is more attractive.

A 4-1/8" I.D. straight-walled cast iron mold was tried in the melt plant. One uranium billet was cast successfully in this mold. In a second trial, the base of the mold wall was severely eroded by the molten uranium during pouring. Presumably this resulted from the mold not being positioned vertically in the furnace. Additional ferrous-metal molds are being fabricated.

Uranium Rolling

Uranium billets were rolled at Lockport, N.Y. and at Aliquippa, Pa., during the month under the technical supervision of 300 Area Plant Assistance personnel.

All uranium rods rolled at Lockport during the run starting October 25 were spray-quenched using water under 800 psi pressure. Although spray quenching noticeably reduced the amount of uranium contamination at the mill prior to shipping, no substantial decrease in air contamination was noted at Hanford when the rods were unloaded.

Uranium Machining

The 52 type B uranium billets which were forged and finish-rolled during the October production rolling run at Aliquippa, Pa. were received at Hanford on November 11. These rods have been machined into FA-size slugs, and the yield data are under study. A production test (314-58-M) has been drafted to cover the canning of these slugs for pile evaluation.

Slug Canning

Investigation of the dimensional stability of rolled uranium slugs during triple-dip canning showed a length decrease of about 0.036" and a diameter expansion of about 0.008" (for the particular material tested). A test with 50 slugs specially machined 0.008" smaller in diameter and 0.036" longer than FA specification (under PT-313-107-M, Supplement A) showed comparable dimensional changes during canning, which resulted in final size approximating FA standards. Furthermore, none of these special slugs were rejected because of canning faults, whereas fifty FA-size slugs canned at the same time had 12% canning rejects (4% non-seats, 4% penetration, 2% frost test, and 2% air pockets). These results show

that it is possible to take advantage of this dimensional change in canning (by starting initially with longer slugs, smaller in diameter), and thereby improve both canning yield and slug quality. The optimum slug dimensions required to effect this improvement are being determined with extended plant trials, starting with 5000 slugs machined to 1.352" (+ 0.002", - 0.001") diameter by 4.040" (± 0.010") long.

Canned uranium slugs having two degrees of transformation (1/16" and 5/16", measured in from the periphery) were prepared under PT 313-106-M for comparison with completely transformed material in the piles.

About 380 slugs of lithium-aluminum alloy were received from the Argonne National Laboratory and canned (unbonded) for pile exposure.

Induction heating trials with uranium rods and slugs were made at Schenectady, using the 3000-cycle motor-generator set at Peek Street. The results were very encouraging. Fracture tests on slugs heated with 50 KW at 3000 cycles for 18 seconds and then water-quenched indicated it was possible to obtain a structure similar to that obtained in the present bronze dip. Further study of this promising process is being programmed.

PT 313-108-M (Doc. No. HW-10816, dated 11-1-48) was issued to cover study of the effect of the fine grain structure obtained by quenching from the beta phase on the pile behavior of alpha rolled uranium slugs. A report for PT 313-105-M, Uranium Slug Pickling, was issued as Doc. No. HW-11634 (dated 11-22-48). The results of this test were reported last month.

METALLURGY LABORATORY

Forged Uranium

Macro- and micro-examination of sections of uranium rods fabricated experimentally at Aliquippa, Pa. by forging in the alpha phase to a two-inch square, and then alpha rolling to size (1.45" round), showed these rods to have a structure very similar to that of current production alpha rolled metal.

Uranium Alloys

Sample uranium rods received from Battelle during the month have nominal contents (in atomic per cent) of 0.01, 0.1, and 0.5 per cent vanadium; 0.01, 0.05, and 0.1 per cent cerium; 0.1, and 1.0 per cent tantalum; 0.01, 0.1, and 1.0 per cent lead; 0.01, 0.1, and 1.0 per cent germanium; 0.1, 1.0, and 2.5 per cent boron; 0.01, 0.1, and 1.0 per cent cadmium; 0.01, 0.1, 1.0 per cent molybdenum; 0.01, 0.1, and 1.0 per cent zinc; and 0.5 per cent iron plus 0.5 per cent vanadium. Four 1-1/2 inch diameter uranium rods chill cast in metal molds were also received.

A number of heat treated uranium samples containing columbium, chromium, tungsten silver, zirconium, silicon, aluminum, and titanium as alloying elements were examined. Fine grain structures were observed in the 0.01 and 1.0 atomic per cent zirconium and 1.0 atomic per cent silicon alloys when quenched from the

beta phase, and in the 0.01 and 4.0 atomic per cent aluminum samples after a water quench from the gamma phase. It should be noted, however, that these same alloys do not show this grain refinement when they are air cooled rather than water quenched. Fine grain structures were also observed in the alloy containing nominal 1.0 per cent chromium, both in the alpha annealed and in the beta quenched conditions. It was observed that columbium appeared to increase the number of twins, but no effect expected to be beneficial to randomization or reduction of grain size was noticed.

Vickers hardness measurements have been completed for all the uranium alloy samples prepared to date. For the most part, hardness values continue to follow the trend reported previously. In addition to iron and manganese, cobalt alloys also show a significant increase in hardness when quenched from the beta and gamma temperature ranges.

X-ray Crystallography

A new method of analyzing x-ray spectrometer data is being tried in order to distinguish slugs having various degrees of orientation. One line, the intensity of which is not affected by orientation, is chosen as the standard. The ratio (ρ) of intensity of any other lines with respect to the standard as measured by hte spectrometer is then compared to the ratio (σ) which yields the theoretical ratio of the two intensities as given by the structure factor equation. In a randomly oriented sample, $\frac{\rho}{\sigma}$ would be unity and by plotting $\frac{\rho}{\sigma}$ as measured, one might expect to determine the relative orientation by measuring deviation from unity. Considerable time was spent in calculating the the theoretical intensities to be expected in the diffraction of x-rays from a flat polycrystalline uranium sample.

Preliminary tests were run on air filters to be used by the Health Instrument Divisions in connection with airborne contamination in the Bldg. 314 melt plant. This preliminary testing was done in order to determine the pattern to be expected from the filter paper alone. If sufficient material can be collected on the filter, identification of the particles will be attempted.

A newly designed integrating sample holder has been tested. Although a few alterations in design appear to be needed, this instrument shows promise.

Studies of Irradiated Materials

Modification of the 111-B Building to provide facilities for a temporary hot metallurgy laboratory began November 22. The estimated completion date is February 1, 1949.

An optical system designed by the Instrument Division was checked for adaptation to the 7-inch shielding proposal and was tentatively accepted.

Plans were made to move the wooden mock-up cell work from the 189-F Bldg. to the 108-B Bldg. This move will allow all development studies on hot metallurgy to be concentrated in the 100-B Area.

Preliminary design drawings of the dutch oven and the rotobin (a cask for transport of hot samples) are nearly complete.

Dilatometry

Considerable revamping work was done on the recording dilatometer to remove the remaining inaccuracies. Dilatometric and thermal stability of the dial micrometer and the micro-torque potentiometer were fully investigated. After a number of changes were made, the performance of the dilatometer was checked by heating a standard copper sample to 600° C and cooling back to room temperature. The coefficient calculated from the resulting curve agrees very closely to the known value.

A study of upset, or compressed, alpha rolled uranium was made. Five samples having different reductions were heated to 600° C and cooled. The curves were examined in the light of a possible breaking down of the former preferred orientation. The object was to produce a random structure and to find, if possible, a correlation with the degree of working. Judging from the dilatometer results of previous samples, it appeared that a new preferred orientation was established instead of the random structure and that only very slight differences in coefficients of thermal expansion were observed for these different reductions; these latter differences were sufficiently small to be very near the experimental error. The samples show a much larger thermal coefficient than regular alpha rolled metal.

Testing of Proposed Pile Materials

In a survey being conducted by the Design Division, inquiry was made by that Division about the properties of beryllium in connection with the surface of materials for process tubes in future piles. A beryllium creep program was started and has progressed to the point where calculations have been made and design is under way for special fixtures and cans in which to test the effects of irradiation on creep. To determine the nominal creep without irradiation, samples are now under test at constant temperature with various amounts of stress. Accuracy of the deflection measurements is of the utmost importance in these particular tests; therefore, microscopic methods are being employed.

Redox Corrosion Testing

Static immersion corrosion tests of metal samples in Redox solutions have been completed and a summary report has been written. Examination of metal samples being tested dynamically in Redox solutions shows no evidence of corrosion failure after a three months interval.

Miscellaneous

Sections of lithium fluoride containers which had failed, and an aluminum tube recently removed from the 100-F pile, were received to determine the cause of failure. Film packed specimens have been exposed to determine the radiation hazards involved. Examination of these pieces is awaiting the results of this test from H.I.

ANALYTICAL LABORATORIES

Work Volume Statistics

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

	October		November	
	Samples	Determinations	Samples	Determinations
Routine Control - 200	2160	3674	2613	4288
Routine Control - 300	1527	8320	1380	6209
Water control - 100, 700	13512	25562	12934	24737
Redox Control	2266	7411	2479	8020
Process Reagents	816	1530	1030	2009
Essential Materials	142	965	129	678
Special Samples	3462	7268	3402	6043
Stack Gas	90	207	180	502
Totals	23975	54937	24147	52486

200 Area Process Control

General

A series of C-4-P samples was taken on ten canyon runs to check the reliability of the 17-4-P results for material balance calculations. Results of these analyses checked material balance calculations satisfactorily. Similar samples will be analyzed on a routine basis in the future.

Filter assemblies have been installed in the vacuum lines to all three of the plutonium Panelboard Hoods in the Isolation Laboratory, and are now in the process of being tested. If found satisfactory, they will replace the water aspirators now in use and thereby reduce cribbed liquid waste volume.

Routine measurements of the methane proportional alpha counting instruments (accepted geometry value 50.50%) in the 200 Area Laboratories were as follows:

Laboratory	Ave. Geometry (%)	No. Tests
B Plant (222-B)	50.51	100
T Plant (222-T)	50.52	119
Isolation Bldg. (231)	50.47	48

The precision of the analytical results of the canyon starting solution (8-1-MR), the Isolation Bldg. starting solution (P-1), and the final product solution (AT) may be summarized as follows:

Sample	Period Ending October 31		Period Ending November 30	
	Precision (±%)	Weeks Covered	Precision (±%)	Weeks Covered
8-1-MR	1.42	43	1.43	15
P-1	2.09	43	2.41	21
AT	1.97	17	1.99	21

The cumulative precision figure for the 8-1-MR analyses has been revised to include only those weeks since August 6, 1948, when the T Plant Control Laboratory (222-T) began the analysis of such samples for the T Plant.

The rise in the cumulative P-1 precision resulted from the use of a revised calculation for the past twenty-one week period instead of the cumulative figure since the first of the year. This change was necessary because on July 6, 1948 the analysis of both the P-1 and the AT samples was changed from one chemist using one panelboard to two chemists using two different panelboards.

On November 25, new control limits were adopted for the P-1 and AT chemical titrations. The P-1 checking limit has been changed from ± 2.0% to a range of less than 4.75%, and the AT from ± 1.5% to a range of less than 4.00%; this change was considered advisable since statistical evaluation of results has proved the previous limits to be too stringent.

The results of the synthetic 8-1-MR assays are tabulated below. The standard precipitation procedure, CA-2a, was used, and the per cent recovery based on 2.077×10^6 c/m/ml.

Month	Laboratory	Ave. Results ($\times 10^6$)	No. Assays	% recovery
October	222-B	2.048	23	98.6
	222-T	2.029	17	97.7
November	222-B	2.064	16	99.4
	222-T	2.044	11	98.4

The standard iron solution used in the Isolation Bldg. Laboratory to check the chemical titration of plutonium was analyzed a total of 46 times during the month. There were 24, 12 and 10 results inside ± 1%, ± 2% and outside ± 2% of the assay value, respectively. The average precision for duplicate titrations was ± 2.75% as compared to ± 2.95% for October. A summary of the results follows:

Assay Value	Group Ave.	% Diff.	No. Determinations	Precision (±%) Single	Precision (±%) Duplicate
10.52	10.44	- 0.8	12	3.15	2.23
10.52	10.44	- 0.8	16	5.59	3.88
14.84	14.87	+ 0.2	18	3.09	2.19

300 Area and Essential Material Control

General

New purchase specifications applying to hydrogen peroxide have been submitted by the Separations Technology Division. Satisfactory analytical methods have been developed for all required constituents except phosphorus and tin. Using a colorimetric procedure employing hydroquinone as a reagent for phosphorus, average spike recoveries of 87.6% can be obtained. Methods for the determination of tin are still being investigated.

Redox Process Control

At month end, 93 people were assigned to this program as follows: 78 in 3706 Bldg., 300 Area, and 15 in training in the 100 Area Laboratories.

Methods Adaptation

Two general methods have been established for the fluorimetric determination of uranium. The first is a direct fusion method and applies to samples which are free of interfering elements; a lower limit of about 0.002 g/l UH has been established for this procedure. The second method involves a preliminary separation of uranium by extraction with penta-ether; with this method a lower limit of 0.0006 g/l is possible.

Prints of the Schenectady fluorimeter have been obtained and turned over to the Instrument Division so that one such unit may be fabricated.

A Sargent polarograph has been received and set up for control work. Calibration of the instrument is in progress.

Analytical Research and Development

Priorities for the development of analytical methods relating to the 234-5 program were established; in decreasing order of present importance are methods for the analysis of metal, compounds involved in the operation of the small-scale development and process lines, and 231 Bldg. process solutions. Spectrographic working curves were prepared for standard solutions of beryllium and chromium.

An X-ray photometric method for the determination of uranium in LAFS Redox solutions has been developed; an accuracy of ± 1% is obtained. Data to establish working curves for application to the analysis of LAU, IBF and ICF solutions have been submitted for statistical study.

The design of the high frequency oscillator, to be used in the electrodeless-discharge method for P-10 gas mixtures, was submitted for construction of the equipment.

The infrared spectra of anthracene and benzanthracene were mapped as part of the study of materials involved in pile graphite structure problems.

Radioactivation analysis has indicated that certain samples of pile graphite contain ca. 0.3 ppm of europium and ca. 0.5 ppm of samarium.

A polarographic method for the analysis of hexone in aqueous solutions has been developed. The hexone is separated from the aqueous solution by nitrogen sweeping at room temperature and is collected in an acidic hydrazine solution at 0° C. Well defined waves are obtained for the reduction of the hydrazone of hexone. The method has an accuracy of ± 5% for 0.04 to 1.2 g. hexone per liter of solution.

A series of analyses for UNH in synthetic IAW Redox solutions using the polarograph developed at Hanford has been completed. The diffusion current vs. concentration curve is similar to that obtained using a Sargent polarograph. The Hanford instrument has the advantages of being simpler to operate and more rapid. The present accuracy is ± 8% in the range of 0.2 to 3 g./l. UNH in the original samples.

The consistently high results obtained by the gasometric method for the determination of sulfamic acid have been traced to the incomplete removal of oxides of nitrogen from the gas stream. A new type of gas scrubber was designed and constructed.

The acidimetric method for the determination of aluminum in Redox solutions was found to be precise but not of the desired accuracy. A constant correction factor of 3% was found to be applicable over the range of 100 - 300 g./l. aluminum nitrate nonahydrate and unaffected by the presence of Cr (III).

The gravimetric determination of sulfate in the presence of sulfamic acid was found to give high results due to hydrolysis of the latter if the usual digestion step was followed. Eliminating the digestion step and using highly purified sulfamic acid containing a negligible amount of sulfate, decreased but did not eliminate the difficulty; it was concluded that co-precipitation of barium sulfamate occurs.

Iso-octane has been found to be the most suitable solvent for the spectrophotometric determination of mesityl oxide in hexone. For this solvent, the hexone correction is small and the nitric acid interference can be removed readily by a water extraction. MIBC interference was found to be negligible.

A tentative method for the determination of small amounts of plutonium in the presence of large amounts of uranium has been based on the preferential reduction of plutonium with hydroxylamine hydrochloride and subsequent removal of the plutonium with a lanthanium carrier. From plutonium-free solutions containing only uranium, the activity carried amounts to three counts per minute for a 50 lambda sample.

Special Hazards Control

A flashlight, wand type, battery operated, stirrer has been designed, fabricated and tested. Minor changes in design have been made and a second unit is now being built. It is expected that these stirrers will replace the unsatisfactory air turbine stirrers now in use.

The Victoreen G-M counter is now being used for floor and work station surveys in Buildings 222-T and 222-B (B and T Plant Control Laboratories). A 500 c/m maximum limit has been set for these locations. The greater sensitivity of this instrument accounts for the apparent increase in contamination found in these locations.

On November 16, the Maintenance Division completed work on connecting the decontamination sinks to the exhaust fans in front of Building 222-T. This will supplement the present exhaust system for the stainless steel sinks.

BATE NUMBER

1211098

NOT USED

On November 17, the T-Plant Laboratory began a two-month experiment with surgeon's gloves being required for all work in regulated areas of the laboratory. The results will be evaluated and reported when the experiment is completed.

STATISTICAL STUDIES

Uranium Slug Distortion

A statistical control chart study of the length, diameter, and warp of 4" triple-dip canned slugs of alpha rolled uranium prior to exposure in the piles indicates deviations in length from the norm comparable in magnitude to those previously observed after pile exposure. As reported last month, however, there is no correlation between length and diameter of canned slugs before exposure, whereas after exposure a significant length-diameter relationship is present. This indicates that part, but not all, of the observed differences in dimensions previously attributed to irradiation are present prior to pile exposure.

A significant correlation coefficient was found between the percent of non-seat canning rejects and length of canned slugs prior to exposure. (Likewise a significant correlation existed between non-seats and slug length after exposure.) This indicated that deviations in length of canned slugs prior to exposure (and some of the deviations after exposure) are associated with difficulties encountered in properly seating slugs in the can.

A second statistical quality control chart program, installed in the 300 Area this month in cooperation with the P Division and the 300 Area Plant Assistance Group, revealed further pertinent information regarding slug distortion. It was found that during canning the bare slug decreases in length and increases in diameter. The bare slug with enlarged diameter is more difficult to seat, and does not go as far down in the can as it would otherwise. Accordingly the bare slug is shorter, but the canned slug is longer in length due to poor seating characteristics. Plant-scale experimentation is now underway with bare slugs of increased length and decreased diameter to compensate for dimensional changes during canning.

Uranium Billet Pouring

A statistical analysis has been made of the effect of billet pouring sequence on the appearance, weight, and reactivity of 800 uranium slugs. Significant differences were found between slugs from the first and second billet poured from the various heats, slugs from the first billet being consistently better in quality than those from the second billet.

Pile Physics Data

A statistical analysis was made of the variations in dimensions of graphite blocks used in the DR pile. Further computations of diffusion lengths in the DR pile were made from additional data submitted by the Pile Physics Section. Calculations in connection with the critical size determinations being made by the Pile Physics Section have been completed.

Chemical Research Data

Previously equations were determined for estimating the amount of aluminum present in Redox samples from the 1A column. At the request of the Chemical Research Section, a new equation has been calculated for use with samples from the 1B column. A quadratic equation relating e.m.f. from a thermocouple to temperature was fitted to data submitted by the Chemical Research Section. An equation giving the thermocouple coefficient at any temperature was determined by differentiating the quadratic equation. Work is in progress on a general equation for the solubility of hexone in solutions containing various amounts of nitric acid, aluminum nitrate, and UNH. This equation is to replace the individual equations previously computed for each system.

Other Problems

Other current statistical problems include: (1) setting up a continuous statistical program relative to blood count data, (2) effect of uranium rolling conditions on slug distortion during canning and during pile exposure, (3) the determination of families of curves relating the solubility of hexone with temperature in various Redox solutions, (4) the determination of calibration curves for the X-ray photometer, (5) a study of the rolling, machining, and canning yields from uranium billets supplied by different vendors, (6) a study of sampling errors in Redox solutions and in the 8-1-MR solution, and (7) a simplified procedure for determining the optimum separations batch size from pile discharges with varying MWD ratings.

LIBRARY AND FILES

Plant Library

Work on the acquisition, cataloging and circulation of books proceeded routinely, although smooth operation of the 300 Area Library was hampered by the reconversion of the main reading room made possible by the opening of Building 3703. This involved the dismantling of the temporary offices which were occupying half of the reading room floor space, the construction of eleven large sections of wooden stack shelving, the re-alignment of the fluorescent light fixtures to illuminate the new shelves, and the temporary storage of the displaced books in the new Library work room (Room 21 of Building 3702) until the completion of the job.

A complete Kardex File Unit using a specially developed form was set up for improving control of the 313 periodicals currently being received by the Plant Library. Each card will contain the full information on a single periodical, including the number of copies, publisher, price, HW requisition number, expiration date of the subscription, book binding information, route list, etc., and will be set up with a system of colored tabs so that over-due periodicals may be immediately noted and the vendor reminded of the omission.

The change-over of the 300 Area Library book catalog from a letter-by-letter arrangement to a word-by-word arrangement, reported as underway in the October Monthly Report, was completed.

Forty-six medical books were cataloged for the Kadlec Hospital Library. Arrangements were made for the purchase of this type of book to be cost-coded against the Medical Division, effective December 1.

Library statistics were as follows:

	October	November
Number of books on order received	185	106
Number of books fully cataloged	201	106
Number of bound periodicals processed but not fully cataloged	251	16
Pamphlets added to pamphlet file	300	56
Miscellaneous material received, processed, and routed (Included maps, photostats, patents, etc.)	50	34
Books and periodicals circulated	957	1002
Reference services rendered	991	920

	Main Library	W-10 Branch	Total
Number of books	3447	1294	4741
Number of bound periodicals	2460	100	2560

Classified Files

Daily work on the receipt and issuance of documents proceeded routinely, with continuing efforts to simplify and streamline Files' routines. First in this connection was the introduction of a newly developed pre-printed combination "route" and "cut" card. This form will streamline the current routing procedure, and also provide the recipients of documents with a copy of the Files charge-out record to assist individual offices in keeping a record of classified material charged to them. In addition, a procedure intended to expedite the handling of Operations Project Proposals was drafted and circulated to those concerned for suggestion and comment.

All File Record Cards, the basic File accountability record, were re-arranged into numerical order in the 300 Area Classified Files. The duplicate of this record in the 700 Area Classified Files will continue to be arranged in date order to provide a cross-reference.

Six file cases of offsite Research and Development reports were moved from the 700 Area Classified Files to the 300 Area Classified Files, where the holdings of both files were merged. This will consolidate the Research and Development file in the 300 Area where the index to these reports is currently being maintained, and will strengthen the 300 Area Classified Files as the technical reference unit.

Special messenger delivery of classified mail was instituted in the 300 Area with delivery at 10:30 A.M. and 2:30 P.M., and with pick-up on telephone call. Similar pick-up and delivery of classified mail planned for the 700

Area is being delayed pending clearance of the messenger hired for this purpose.

The inventory of classified documents onsite was completed. A preliminary review of unaccounted-for items, made by surveying other copies of the missing documents, has been completed and those of non-technical and minor significance eliminated. The remainder, chiefly technical reports, will be segregated by Division and referred to the appropriate technical personnel for evaluation.

In response to a request from Schenectady the complete Hanford document receipt file was checked for documents transmitted to Pittsfield as "yellow" copies.

The Files Assistance Unit was moved to Hutment 321-A, which has been outfitted with additional furniture in preparation for establishment of the Central Reporting Service.

Work statistics for the Classified Files were as follows:

	October	November
Documents routed	8392	10042
Documents issued	5265	5452
Reference services rendered	5702	5570

Files Assistance Unit statistics were as follows:

	October	November
Ditto masters run	712	627
Mimeograph stencils run	341	248
Ditto master copies prepared	36930	33010
Mimeographed copies prepared	19023	24780

INVENTIONS

All Metallurgy and Control Division personnel engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Inventor(s)	Item
J. F. Gifford J. K. Figenshau	Electric Stirrer - Tapered Stopper Combination
R. D. Fletcher	Constant Temperature Bath For Falling Drop Sp. Gr. Determination

Metallurgy & Control Division **DECLASSIFIED** HW-11835-DEC

Inventor(s)	Item
T. J. Birchill	Multiple Stirrer (4 and 6 place)
S. A. Hays	Chmetric Titration Circuit
S. A. Hays	Mercury-Sealed Titration Apparatus
W. N. Carson, Jr.	Electronic Coulometer
W. N. Carson, Jr.	Magnetic Clutch Coulometer

Signed _____
T. W. Hauff,
Division Head.

TWH:rds-mcs

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MEDICAL DIVISION

NOVEMBER 1948

GENERAL

The Medical Division roll decreased from 532 to 525. The apparent decrease, however, will be offset by replacements.

There was no evidence of injury to any employee during the month due to radiation.

Employee physical examinations and first aid treatments decreased slightly.

Absenteeism due to sickness increased from 1.07% to 1.41%, due to an increase in upper respiratory infections and to the state-wide high incidence of a virus intestinal infection.

Twenty-eight major and fifty-two submajor injuries were treated. Of these, three major and one submajor injury were sustained by G. E. employees.

The monthly health topic was "Your Medical and Dental Service". The occasional swapping of health educational material between departments of the G. E. indicates the need for a central agency to coordinate employee health educational programs for the entire company.

The average daily hospital census was 96, a 10% increase over October. This increase resulted in considerable crowding and will be relieved by opening one of the in-patient wings at North Richland Hospital on December 13th.

Clinic visits were constant at 339 per day as compared with 152 per day a year ago, a 125% increase.

Dental clinic visits were at a peak of 137 per day.

Public health nurses home visits were up 20%. This was primarily due to the state-wide epidemic of virus disease; namely, respiratory and gastro-intestinal illness.

The net cost of operating the Medical Division for October was $161,000., an increase of $9,000. over September, in spite of a revenue increase of $6,000. The increase in expense was largely due to increased transferred charges from other divisions.

The net expense of hospital operations after assessments was $31,000., while that of the clinic was $1,000.

MEDICAL DIVISION

NOVEMBER 1948

Plant Medical Section

Physical Examinations	October	November	Year to date
Pre-employment (G.E.)	256	263	3983
Annual	619	525	3107
Sub-contractors & food handlers	3527	3055	35194
Rechecks	547	524	6259
Interval Rechecks (area)	545	518	7598
Terminations & Transfers (G.E.)	147	107	7304
Army & government	31	14	275
Assist to A & H Ins., Clinic, Etc	0	0	0
Total	5672	5006	63720

Laboratory Examinations
Clinical Laboratory

Government	187	58	827
Pre-employment, terminations, transfers	14065	11057	164653
Annual	4006	3354	19434
Rechecks (Area)	2996	2840	39287
First Aid	262	72	950
Plant Visitors	0	0	12
Clinic	3398	3845	31735
Hospital	3253	3531	33975
Public Health (Inc. food handlers)	816	640	8058
Total	28983	25397	298931

X-Ray

Government	8	1	77
Pre-employment, terminations, transfers	2343	1881	28341
Annual	628	543	3202
First Aid	360	354	3330
Clinic	406	409	3758
Hospital	265	286	2570
Public Health (Inc. food handlers)	145	127	1857
Total	4155	3601	43135

Electrocardiographs

Industrial	255	219	1400
Clinic	19	28	153
Hospital	23	52	243
Total	297	299	1796

Allergy

Skin Tests	26	28	411

MEDICAL DIVISION

NOVEMBER 1948

First Aid Treatments	October	November	Year to date
Occupational Treatments	2880	2825	31166
Occupational Retreatments	10019	9777	98068
Non-occupational Treatments	6682	6600	66866
Total	19581	19202	196100

Absenteeism Investigation Report

Total number calls requested	29	22	241
Total number calls made	29	22	241
No. absent due to illness in family	0	0	1
No. not at home when call was made	0	1	4

General

Dr. J. S. Felton, Medical Director of the Oak Ridge National Laboratory, and Dr. Robert J. Hasterlik of the Argonne National Laboratory, visited the Medical Division during the month. Area visits and exchange of information resulted from the visits.

The first aid station at the Pasco warehouses was closed during the month due to the small number of employees working at that location. Two new first aid stations are nearing completion in 100-H and 200-W areas so that temporary facilities now being operated in these areas can soon be dispensed with. The next location for the mobile first aid unit will be at the Central Batch Plant located between 200-E and 200-W areas.

The total number of examinations during November decreased from 5672 in October to 5006. The 1947 figure was 4857. First aid treatments also decreased slightly from 19,581 in October to 19,202. The 1947 figure was 9,055.

Major injuries were as follows:	October	November
General Electric	2	3
Atkinson-Jones	18	18
Nettleton-Sound	0	3
Morrison-Knudsen	1	0
McNeil Construction	2	4
Total subcontractors	23	28

Submajor injuries were as follows:		
General Electric	4	1
Atkinson-Jones	64	46
Nettleton-Sound	0	2
Morrison-Knudsen	2	2
McNeil Construction	4	1
Total subcontractors	74	52

General (continued)

The health topic for the month of November was devoted to a description of the available medical facilities and to the details of obtaining medical service. Material on this subject was distributed throughout the plant. The Health Activities Committee discussed various complaints regarding medical service, and clarification on these points was made so that members could pass on such information at the area council meetings.

Absenteeism for the month was as follows:

Total absenteeism weekly employees all causes	2.22 %
Total absenteeism weekly employees sickness only	1.41%
Total days lost by male employees due to sickness	1135
Total days lost by female employees due to sickness	768
Total days lost due to sickness	1903

Lowest absenteeism was in Community Division with 1.53% and Health Instrument with 1.75%. Highest absenteeism was in Accounting Division with 3.15% and Medical Division with 2.96%.

The net cost of the industrial program including operations and construction was $116,000., an increase of $4,000. Salaries were unchanged. Supplies and other expenses including transferred charges from other divisions accounted for the increase. Revenues remained about the same.

Village Medical Section

Clinic Visits	October	November	Year to date
Medical	1967	2109	16432
Pediatrics	886	922	8634
Surgical	764	888	9102
Gynecological	692	582	5850
Obstetric (new)	98	90	974
Obstetric (recheck)	677	847	7584
Venereal Disease	443	390	6743
Ear, Nose & Throat	400	547	4006
Eye	270	282	3105
Visits handled by nurses (hypo,dressings)	1916	1425	12838
Night clinic visits	711	740	8441
Total	8824	8822	83709
Total clinic visits per day	339	339	330
Seen in Well-baby Clinic	234	281	2698
Home Visits			
Doctors	195	314	2516
Nurses	113	171	1681
Total	308	485	4197

MEDICAL DIVISION

NOVEMBER 1948

Kadlec Hospital Section

Census	October	November	Year to date
Admissions	529	536	5521
Discharges:			
Surgical	128	146	1400
Medical	98	121	1135
Obstetric & Gynecologic	123	107	1130
Eye, Ear, Nose & Throat	52	49	640
Pediatrics:			
Children	49	27	472
Newborn	74	61	705
Total Discharges	524	511	5492
Patient Days	2720	2881	29769
Average Stay	5.1	5.3	5.4
Average Daily Census	87.7	96.0	89.0
Discharged against advice	6	2	34
One-day cases	79	90	911
Operations			
Transfusions	48	72	474
Eye, Ear, Nose & Throat	36	41	343
Dental	2	1	14
Casts	21	21	218
Minors	70	70	680
Majors	55	78	578
Vital Statistics			
Deaths	5	7	42
Deliveries	73	66	704
Stillborn	1	1	7
Physiotherapy Treatments			
Clinic	90	80	1298
Hospital	50	53	728
Industrial:			
Plant	187	291	3925
Personal	50	52	548
Total	377	476	6499
Pharmacy			
Number of prescriptions filled	3448	3415	33983

5

MEDICAL DIVISION

NOVEMBER 1948

Patient Meals	October	November	Year to date
Regulars	3323	3404	38181
Lights	117	124	688
Softs	1200	1429	16356
Surgical Liquids	77	99	996
Tonsils & Adenoids	116	105	940
Specials	1311	1536	9906
Liquids	250	277	3882
Total	6394	6974	70949

Cafeteria Meals			
Breakfast	6	2	115
Noon	2701	2691	28002
Night	393	346	3863
Total	3100	3039	31980

Nursing Personnel			
First Aid Nurses	57	53	
Clinic Nurses	17	18	
Public Health Nurses	12	13	
Hospital General Nurses	76	82	
Aides & Orderlies	56	56	
Total	218	222	

General

A total of 536 patients was admitted to the hospital, a slight increase over October, and 129 more than were admitted a year ago. The average daily census was 96, a 10% increase over October. Due to the increasing patient load, one wing of the North Richland hospital will be opened in December for infirmary type patients.

Clinic visits remained constant.

Personnel in the division decreased from 532 to 525. Replacements will be needed.

The net cost of hospital operations was $24,000., a decrease of $2,000. over September. Salaries increased $2,000. Supplies and other expenses, including transferred charges from other divisions, increased $5,000. Revenues increased $5,000.

The net cost of clinical operations was $3,000., an increase of $4,000. over September. Salaries remained the same. Supplies and other expenses, including transferred charges from other divisions, increased $5,000. Revenues increased by $1,000.

MEDICAL DIVISION

NOVEMBER 1948

Public Health Section	October	November	Year to date
Administration			
Newspaper Articles	26	35	215
Committee Meetings	8	3	37
Attendance	35	66	227
Staff Meetings	4	8	44
Lectures & Talks	0	0	38
Attendance	0	0	2191
Conferences	40	20	137
Attendance	75	70	401
Radio Broadcasts	0	0	3
Immunizations			
Cholera	0	0	3
Diphtheria	52	183	2636
Influenza	173	41	243
Rocky Mt. Spotted Fever	0	0	45
Schick Test	0	0	1
Smallpox	33	54	878
Tetanus	26	53	325
Typhoid	0	2	670
Whooping Cough	0	0	332
Total	284	333	5133

Social Service

Cases carried over from October	61
Cases admitted in November	28
Cases Closed in November	12
Cases carried to December	77

Sources of referral included the following:

Public Health	9
Doctors	7
Hospital	1
Interested Person	1
School	1
Personnel Office	1
Personal Application	2
Other Agency	6

Admissions to service were 86% higher than a year ago.

Sanitation

Inspections made	403	381	2912

7

MEDICAL DIVISION

NOVEMBER 1948

Bacteriological Laboratory	October	November	Year to date
Treated Water Samples	236	259	2632
Milk Samples (Inc. cream and ice cream)	119	109	1523
Other bacteriological tests	367	328	4076
Total	722	696	8231

Communicable Diseases			
Chickenpox	10	42	144
German Measles	6	10	105
Gonorrhea	27	32	235
Impetigo	0	0	16
Influenza	8	0	74
Measles	5	0	752
Meningococcic Meningitis	0	0	2
Mumps	3	4	991
Pediculosis	3	0	8
Pinkeye	6	5	21
Poliomyelitis	1	0	1
Ringworm	4	8	16
Scabies	3	5	45
Scarlet Fever	0	7	25
Syphilis	35	38	342
Thrush	0	0	2
Tuberculosis	0	1	13
Vincent's Infection	3	3	16
Whooping Cough	0	1	49
Malaria	0	0	1
Typhoid	0	1	1
Food Poisoning	0	0	7
Total	114	157	2866

Total number nursing field visits	660	781	13150

General

During the month communicable disease visits increased, especially chickenpox, and morbidity visits were up 20%. The nurses' home visits were up 20%. This was primarily due to the state-wide epidemic of virus disease; namely, respiratory and gastrointestinal illness.

In collaboration with a consulting illuminating engineer, studies are being made relative to the improvement of lighting conditions in Richland schools. It is proposed that one or two "model" classrooms be provided in several schools as a means of emphasizing to the public and school officials the necessity for improving school lighting.

This section is cooperating with the Washington State Anti-tuberculosis League in the sale of Christmas seals in order to finance the mass x-ray survey. The mobile x-ray unit to be used in Richland is supported through such sale.

8

General (continued)

The Richland Health Council sponsored a meeting at which time Mr. George F. Ault spoke on "World Citizenship".

The net cost of public health activities was $15,000., an increase of $2,000. over September. Salaries remained about the same. Supplies and other expenses remained about constant. Transferred charges from other divisions increased $2,000. Revenues remained about the same.

Dental Section	October	November	Year to date
Patients treated.....	3446	3600	33497

9

MEDICAL DIVISION PERSONNEL SUMMARY

Nov. 30, 1948

AREAS	PHYSICIANS	DENTISTS	NURSES	AIDES & ORDERLIES	TECHNICIANS	OFFICE WORKERS	OTHERS
100-DR			4			1	
100-H			3				
234-5			3				
White Bluffs			3				
Pasco			1				
101			1				
3000	11	2	10	6	10	29	14
100-B							
100-D			5		2*	1	
100-F					2*		
200-E			3		2*	2	
200-W			3		2**		
300			2		2**	1	
Plant General	7		16				
700-1100	25	11	112	50	27	91	69
Total	43	13	166	56	39	125	83

Grand Total 525

No. of employees on payroll:
Beginning of month 532
End of month 525
Net decrease 7

* One day per week.
** Two days per week.

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HEALTH INSTRUMENT DIVISIONS

NOVEMBER 1948

Summary

The force increased by ten. Two Class I Special Hazards Incidents were reported, neither involved serious consequences.

Survey findings in the Operational Division were normal with the exception of a few instances where off-standard practices were noted.

In the Control and Development Division, analytical results on samples of water, air, and vegetation followed the normal pattern. The yield in plutonium analysis of urines showed some improvement over past months but was still not up to the desired standard. No positive results were obtained. The maximum uranium content found in the urine of the 300 Area workers was 85 μg/liter. A special sample from a 100 Area worker showed positive results for Ca^{45} and Fe^{59}.

Biological monitoring proceeded without unusual incident. A program of off-site monitoring of predators has been initiated and local coyote control is in progress. Studies on the possibility of a sputum survey for active particles in workers is nearing completion.

HEALTH INSTRUMENT DIVISIONS

NOVEMBER 1948

Organization

The composition and distribution of the force as of 11/30/48 was as follows:

	100-B	100-D	100-F	200-W	200-E	300	700	P.G.	Total
Supervisors	1	1	3	8	4	17	5	0	39
Engineers	4	5	8	14	14	7	2	0	54
Clerical	0	0	1	1	0	4	3	0	9
Others	9	16	16	59	35	54	14	6	209
Total	14	22	28	82	53	82	24	6	311

Number of Employees on Payroll	November
Beginning of Month	301
End of Month	311
Net Increase	10

Additions to the roll were two technical graduates, one technologist, three laboratory assistants, eight general clerks (one return to roll) and one moto-messenger. Deletions were four general clerks and one moto-messenger.

General

Further data obtained on active particle deposition showed insignificant reduction in the rate of deposition as reported last month.

The General Electric Nine Point Job Improvement program was started in the H. I. Divisions with thirty-nine supervisors participating in the discussions.

During the month, three members of the H. I. Divisions visited other locations. F. P. Seymour visited Oak Ridge National Laboratories for Rala process discussion; P. L. Eisenacher attended a conference on Electronic Instrumentation in Nucleonics and Medicine held jointly by the I.R.E. and A.I.E.E. in New York; and D. E. Jenne attended a series of lectures in Washington, D.C. on the subject of Atmospheric Turbulence and Pollution given by Professor O. G. Sutton of the University of Manchester, England.

Two Class I Special Hazards Incidents occurred. One involved gross product contamination of the skin, the other concerned improper attention to Special Work Procedure recommendations.

To facilitate the necessary documentation of inventions and discoveries within the H. I. Divisions, current developments which can be considered as possible patentable items will be summarized for the period covered and included in this and future reports. During the period covered by this re-

port, all persons in the Health Instrument Divisions engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Inventor	Title
T. R. Cartmell	Magnetic Modulation of Vacuum Tube Electrometer
D. L. Reid	A Method for Complexing Radio-iron with Citric Acid in the Analyses of Radiocerium

OPERATIONAL DIVISION

100 Areas

General Statistics

	October				November				1948
	B	D	F	Total	B	D	F	Total	To Date
Special Work Permits	601	731	940	2272	637	683	939	2259	22,936
Routine & Spec. Surveys	472	380	518	1370	431	386	531	1348	11,836
107 Effluent Surveys	93	80	23	196	92	77	40	209	1,906
Air Monitoring Samples	104	42	172	318	189	41	129	359	*

* Included with Routine and Special Surveys until July, 1948

Retention Basin Effluent

The activity of the water leaving the retention basin was as follows:

	100-B	100-D	100-F
Power Level	275	275	0-275
Average beta dosage rate (mrep/hr)	0.8	0.9	0.9
Average gamma dosage rate (mr/hr)	1.9	2.0	1.8
Average total dosage rate (mrep/hr)	2.7	2.9	2.7
Average integrated dose in 24 hours (mrep)	65	70	65
Maximum integrated dose in 24 hours (mrep)	77	84	110*
Maximum integrated dose in 24 hours - 1948 (mrep)	94	115	110*

* The activity at the effluent end of the Retention Basin at 100-F totaled 4.6 mrep/hr on November 23, 1948. Dilution at the 1904 Building reduced this activity below 4 mrep/hr.

100-B Area

Following the discharge of one process tube the ammeter for the discharge area HM Chamber remained at the full scale position. A dosage rate of 35 mr/hr was observed at the inner door of the discharge area at the 30 foot level. Investigation revealed the tube in question contained no front dummy train and that the new charge was loaded without taking this into consideration. Conditions returned to normal when the proper charge was installed.

Two Instrument Division mechanics and one "P" Division operator reported shoe contamination which jammed the five-fold counter following work in the discharge area. Decontamination was effected with some difficulty and a small portion of the heel of one shoe had to be cut off to reduce the count to background.

Several days following the shutdown of November 5th it was realized that the "B" Experimental hole equipment had been left without a plug in one of the holes. During the shutdown a graphite sample was sheared by the rotation of the loading mechanism and the plug could not be replaced. Surveys in front of the hole showed a maximum slow neutron flux of 4,910 $N/cm^2/sec$ and a maximum fast neutron flux of 490 $N/cm^2/sec$. The gamma dosage rate was 125 mr/hr. Since the area is normally restricted, no personnel other than H. I. had entered the area. Regular badges and pencils worn by these men showed no over-exposure and slow neutron pencils showed no significant readings. The situation was corrected on the subsequent shutdown.

Five blistered special request pieces were raised from the storage basin to make photographs. Dosage rates of 500 mr/hr were encountered. Two of the pieces were badly ruptured and loaded into a cask for storage in the #2 Purge Blower Room. The other blistered samples were returned to the basin. At 4:00 p.m. on November 25, 1948, high activity was observed on the water monitor in one of the sample rooms. Investigation revealed this activity to be due to the effluent water from the #4½ header. Evaporated samples analyzed by the H. I. Methods Group showed no significant fission product or plutonium contamination. Ryerson samples showed an increase in activity on this header by a factor of two. On the subsequent shutdown this activity was found to be caused by a ruptured uranium piece in tube #0569.

One cask box returned from the consignee was found contaminated to greater than 500,000 d/m. Decontamination was attempted on the wash pad and as a result a portion of the floor became contaminated to the extent of 6,000 d/m. It was successfully cleaned by repeated washings. Another special cask returned from the consignee was found contaminated to the extent of 65 mrep/hr.

100-D Area

Fifteen casks and boxes, returned from the consignee in a railroad boxcar, were found to be grossly contaminated. A check of protective clothing worn while transferring these casks and boxes from the railroad car to a truck showed gloves to be contaminated to a maximum of 4,000 d/m. The entire floor of the box car was then surveyed and found to be contaminated with dosage rates from 5,000 to 46,000 d/m. Preliminary checks on the outside of the boxes showed them to be entirely contaminated. The entire area directly east of the Pile Building as far as the exclusion fence was restricted and surveys revealed spots in this area contaminated to the extent of 2500 d/m. Forks on the high-lift used to transfer casks from the car to the truck were contaminated to a maximum of 4500 d/m. No personnel contamination was observed. The contaminant is undoubtedly polonium.

A "P" Division operator was inadvertently splashed with water while adjusting the trough in the discharge area. A subsequent check of his clothing showed his coveralls to be contaminated to the extent of 20 mrep/hr, one sock to 10 mrep/hr, and one shoe to 400 c/m. No contamination was detected

on his person. The sock and shoe were easily decontaminated.

At the completion of a vertical traverse of the #27 VSR thimble, the traverse equipment became stuck in the rod guide. In freeing this equipment, two lead pieces used to weight the equipment fell to the bottom of the thimble. The pile was started up with those pieces in that position. During the following shutdown both pieces were removed in a maximum radiation field of 50 mr/hr at 8 feet. Both pieces were finally buried.

The special gun barrel assembly was removed from the "A" Experimental Hole and another type assembly installed. The first assembly was handled remotely during removal and exposure rates were not excessive. Contamination was controlled and was confined to the paper spread beneath the hole. Moderate exposure rates were encountered during the manipulation of samples at the "B" Experimental Hole. Following this work, two spots of contamination were found on the stairs leading to the zero level.

A fast neutron survey at the end of the special gun barrel assembly in the "A" Experimental hole showed 755 $N/cm^2/sec$.

A fast neutron survey around the vertical safety rod enclosure using the Neut showed fluxes ranging from 130 to 160 $N/cm^2/sec$, the maximum being observed opposite rod #12. A slow neutron survey in the beam at the top far edge of the pile gave a maximum flux of 47 $N/cm^2/sec$. A check of the special gun barrel assembly in the "A" Experimental hole showed a maximum fast neutron flux of 540 $N/cm^2/sec$ and a maximum slow neutron flux of 200 $N/cm^2/sec$.

100-F Area

An attempt was made to dry out the pile by raising the temperature through the use of the residual activity in the pile after shutdown. The water flow through the unit was stopped until the water in the unit reached the maximum temperature of 60°C. When this temperature was reached the water flow was again started until the temperature decreased and then the cycle was repeated. Thermocouples were installed in process tubes to monitor the rise in temperature and this was accomplished with low exposure rates.

Replenishing of the silica gel in the drier room gel towers was accomplished using chemox masks for respiratory protection. The chemox masks were contaminated up to 18 mrep/hr. The maximum contamination observed during the job was 80 mrep/hr. One case of contaminated hands showed a dosage rate of 4 mrep/hr but decontamination was successful.

Collection of the contaminant from the driers continued during this period. Exposure rates as high as 120 mr/hr were experienced. Buckets were used to collect the contaminant from the driers until a jet assembly was installed which enabled transfer of the liquid directly to the drums for burial. These buckets became grossly contaminated with a reading of 2.5 rep/hr reported. Contamination on the floor in the drier rooms reached a maximum of 3 rep/hr.

Health Instrument Divisions

Attempts were partially successful to decontaminate the far side after displacement of water with air in the experimental hole cooling system. Dosage rates still were found as high as 140 mrep/hr on the -9 level, 100 mrep/hr on the zero level, and 200 mrep/hr on the experimental level. An air sample on the experimental level showed a dosage rate of 15 mrep/hr uncorrected. During decontamination work a "P" Division operator received contamination on his forehead which showed 400 c/m.

The rod guide in the #27 VSR thimble was removed and replaced with a shorter guide. The maximum exposure rate during the removal of the rod guide was 300 mr/hr. After start-up fast neutron readings at the bumper plate of this rod were as high as 1380 $N/cm^2/sec$.

Health Instrument Divisions

200 Areas, T and B Plants

General Statistics

	October			November			1948
	T	B	Total	T	B	Total	To Date
Special Work Permits	348	514	862	351	462	813	8425
Routine & Special Surveys	430	296	726	513	273	786	6946
Air Monitoring Samples	688	694	1382	671	591	1262	10909
Thyroid Checks	122	104	226	89	79	168	3135

Canyon Buildings

In the T Plant, remote tests for process leaks in Section 8 showed a leak in the 8-2 to 8-4 line. Air samples taken during this work showed a maximum surface dosage rate of 750 mrep/hr. The motor on the 18-3 tank was replaced with a maximum exposure rate of 600 mr/hr, and air samples taken on the deck during this period showed a maximum of 3×10^{-9} µg Pu/cc. Frequent cell maintenance work caused deck protective paper contamination of up to 10 rep per hour surface, principally from the placement of cell blocks on the paper. Paper removal and clean-up was effective on Sections 1 through 14, and decontamination is continuing. Regasketting of connectors for the activation of Section 7 was done with a maximum exposure rate of 1 rep per hour. After the installation was complete the crane impact wrench showed a surface dosage rate of 15 rep per hour.

In the B Plant, the 9-1 agitator was replaced. Paper on the deck used in this work showed a maximum surface dosage rate of 15 rep per hour and was removed. A load of defective connectors was removed from cell 11L to the Burial Ground; a maximum dosage rate of 5 roentgens per hour at 2" was reported on the carrier box. The equipment changes necessary for activation of Section 7 were completed remotely. Some air samples taken on deck during this work were too hot to count and showed a maximum surface dosage rate of 235 mrep/hr. Extensive decontamination of the canyon deck in Sections 1 through 7 and 12 through 16 was done. Fourteen spots on the deck at Sections 10 and 11 with surface dosage rates of greater than 35 rep per hour have been roped off for several weeks. Plutonium contamination on paper on the deck from a Section 17 jet repair job was roped off pending decontamination. A total of 47 canyon air samples showed significant concentrations, the maximum being 6×10^{-6} µc f.p./liter and 6×10^{-8} µg Pu/cc when cells 14L and 14R were opened. Several high product air filter samples were obtained throughout the canyon; some during cell work, others when all canyon cells were closed. A portion of these was attributed to two process leaks in Section 17, which were subsequently repaired.

Control Laboratories

In the T Plant, 150 items, not regulated with respect to handling, were found contaminated on surveys by Technical and Health Instrument Division personnel. In addition, 43 contaminated floor locations were reported. Thirteen cases of fission product and 20 cases of product hand contamination were reported, and all were successfully reduced. The reduction in the number of hand contaminations as compared with last month (74) was ascribed in part to the wearing of surgical rubber gloves for radiochemical work the latter part of the month.

In the B Plant, 185 items, not regulated with respect to handling, were found contaminated on surveys by Technical and Health Instrument Division personnel. In addition, 72 contaminated floor locations were reported. Fourteen cases of fission product and 12 cases of product hand contamination were reported and all were successfully reduced. Air sample filters from the Stack system have shown surface dosage rates of up to 35 rep per hour, and were handled in preparation for analysis with a maximum exposure rate of 2 rep per hour at eight inches.

Concentration Buildings

In the T Plant, a survey of the roof exhaust fan blades showed product contamination of 6000 to 150,000 d/m. A survey of the F-10 zone showed a total of about 3.5 µg Pu, including a reading of 50,000 d/m on a wheel of a Poppy instrument. Maintenance work included vent line orifice removal, A-1 dip leg inspection, and replacement of the E-2 to B-4 jet and was performed without contamination spread.

In the B Plant, an untagged assault mask showed product contamination of 400,000 d/m on the nosepiece. Survey of all men who might have worn this mask revealed no contamination.

Stack Areas

In the T Plant, general contamination of equipment in the 292-T Building with surface dosage rates of up to 200 mrep/hr was reported and decontamination was effective. The hole through the stack base pad was completed with no contamination detected. The sample line to the top of the stack was installed with a maximum exposure rate of 20 mr/hr in the vicinity of the base of the stack recorded.

In the B Plant, removal of contaminated equipment from the vicinity of the fans continued. Paper and plywood with surface dosage rates of up to 11 rep per hour was removed, and residual contamination on the concrete apron shows surface dosage rates of up to 24 rep per hour including 1.3 roentgens per hour at 2". The maximum exposure rate during this work was 1.5 rep per hour. The activity at a point on the inlet duct to the sand filter has in-

creased from 2 mr/hr to 46 mr/hr at 2" during the month.

Waste Disposal Areas

In the T Plant, liquid and sludge samples were taken from the 101, 102, and 103-T tanks. Sludge sampling was successfully done with a maximum exposure rate of 100 mr/hr. The liquid samples were obtained with a maximum exposure rate of 920 mrep/hr including 120 mr/hr. Difficulty was encountered in disassembling the sampling equipment and the pump inadvertently slipped into the liquid in the tank, where it now is suspended on a cable. Dosage rates on the containers were 20 mr/hr at 2" on the sludge samples and 48 mr/hr at 2" on the liquid samples.

In the B Plant, the protective paper on the lowboy used to transport the old fan ducts to the burial ground was found contaminated with a maximum surface dosage rate of 1 rep per hour including 80 mr/hr at 2". After removal of the paper, planks and I-Beams were found contaminated with a maximum dosage rate of 215 mrep/hr surface recorded. The planks were removed and the beams were cleaned to 25 mrep/hr surface. The lowboy is now "regulated" equipment.

General

All thyroid checks were below the warning level, in both areas.

In the T Plant, radioautographs of 36 dustfoe filters showed three particles. Radioautographs of air filter samples from process buildings showed the following particle counts:

Building	Approx. Cubic Ft. of Air Sampled	Particles
224-T	26,000	0
221-T Op. Gallery	14,000	1
222-T	1,360	0
221-T Canyon	65,000	667*

*Principally on samples taken during paper pickup, where an average of one particle/10 cu. ft. of air was found and during periods when cells were open.

The Isolation Building

General Statistics

Special Work Permits Approved, November - 33
Special Work Permits Approved, 1948 to date - 381

Air Monitoring

There were 179 spot air samples taken, of which six were above 10^{-11} µg Pu/cc. Four of these occurred in Cell #4, and of these two were during SWP work when masks were worn and showed a maximum of 3.2×10^{-11} µg Pu/cc. The other two were taken during normal operating conditions and showed a maximum of 9.4×10^{-11} µg Pu/cc. Two were obtained in Laboratory 6-C during slurping of traps and samples and showed a maximum of 2×10^{-11} µg Pu/cc. One of the 38 continuous Little Sucker samples showed greater than 4×10^{-12} µg Pu/cc. This sample was taken in Cell #4, on the 12-8 shift of 11/22 through 11/26 and showed 2.9×10^{-10} µg Pu/cc, and no reason for this high concentration could be determined. Thirteen samples of the 903 exhaust system air showed 1.4×10^{-11} µg Pu/cc as a maximum concentration.

Surface Contamination

A total of 240 items, not regulated with respect to handling, was found contaminated on surveys by Technical, Health Instrument, and "S" Division personnel. Ten items above 20,000 d/m, and three above 80,000 d/m were recorded. A total of 16 incidents of floor contamination occurred, 13 of which originated in the laboratories, and 3 in the operating cells. The maximum amount involved was estimated at 8 µg Pu, apparently originating at a hood in Room 35 with subsequent tracking into Rooms 32, 33, 34, and 36, and a small amount of about .09 µg Pu into the corridors near these laboratories.

All twelve cases of product skin contamination were successfully reduced. The maximum individual amount involved was 0.09 µg Pu.

Gamma Radiation

P.R. Container	9 mr/hr (maximum)
Process Hood	4 mr/hr (maximum)
S.C.	5.3 mr/hr (maximum)

Laundry Monitoring

A total of 36 spot air samples and 35 continuous Big Sucker air samples was taken during Plant Laundry Operations. The maximum concentration, calculated as plutonium, was 2.6×10^{-10} µg Pu/cc, taken at Washer #2, during the processing of laundry from 222-U, 3706, and 300 Area Operations.

The 300 Area

General Statistics

	October	November	1948 To Date
Special Work Permits	280	146	2932
Routine & Special Surveys	135	210	1588
Air Monitoring Samples	116	391	1452

Metal Fabrication Plant

Ninety-three of 162 air samples taken were above a concentration of 5×10^{-5} µg U/cc as follows:

Location	No. Taken	No. above 5×10^{-5} µg U/cc	Max. Conc. (µg U/cc)	Conditions
Melt Plant	44	32	1.6×10^{-3}	In furnace room-opening "B" furnace-no downdraft.
Other parts of 314	34	24	6.8×10^{-3}	At straightener during operation.
Outside 314	23	6	8.2×10^{-3}	By temporary cooling platform during oxide unloadi
Chip Recovery	18	6	1.5×10^{-4}	During Operation.
Machining	18	3	5.6×10^{-5}	During Operation.
R.R. Cars	19	17	1.1×10^{-2}	Unloading rods.
303-B	6	5	2.5×10^{-2}	Special Tests

Technical Building

Six casks, each containing 5 grams of radium, arrived in the 300 Area via railroad. Low level alpha contamination was detected on the surfaces of all casks but analyses for radium were negative. Average exposure rates 2" from the casks were 35 mr/hr, but one cask showed a crescent-shaped beam emerging from the top plate. This beam, verified with film, gave a dosage rate of 680 mr/hr.

A total of 128 air samples was taken in the 3706 Building of which 3 were greater than 2×10^{-11} µg Pu/cc. One of these samples was taken in rooms 1 and 3, one in room 96, and one in room 98. The maximum concentration of 5×10^{-11} µg Pu/cc was reported in room 96 between hoods 2 and 3 while work was in progress. Subsequent checks in all three rooms were below 2×10^{-11} µg Pu/cc.

A plutonium spill occurred in room 98 due to an improperly shipped sample. The sample was shipped with a cork stopper held in place with scotch tape. The stopper disintegrated partially during transit and while being removed broke apart farther and scattered about the hood. A survey taken immediately

after the spill showed approximately 3 µg Pu on the paper in the hood. The hood was successfully decontaminated. There was no personnel contamination reported.

A waste box showing a surface dosage rate of 1100 mrep/hr including 12 mr/hr at 18" was found near the east exit of the 3706 Building. The box was removed and the proper procedures for handling such waste reviewed with the people involved.

A laboratorian in room 66 contaminated her hand with a Bureau of Standards sample. The contamination, confined to the middle finger of the left hand, showed a total of 4,500 d/m. Decontamination was effected according to procedure.

Cold Semi-Works Building

Seven of 84 air samples taken were above 5×10^{-5} µg U/cc, the maximum being 9.5×10^{-4} µg U/cc obtained in "A" cell while the A-2 centrifuge was in operation.

Contamination was reported on the A-2 centrifuge frame and adjacent floor, and on the D-cell balcony floor.

It was previously reported that 263.7 lbs. of Uranium had been discharged to the 300 Area pond. This was incorrect, as about 7 lbs. was reclaimed from the sump decanter. Corrected figures through 11/30/48 showed 259.5 lbs. discharged to the pond. During the month 15.1 lbs. of uranium were disposed of in the 300 North Area bringing the total amount cribbed to 36.4 lbs.

Plant General

A total of 88 frames exposed on the reservation and at Benton City and Pasco showed a deposition rate of 4.6×10^{10} particles per month. Frame studies completed in the 200 Areas since the installation of the Sand Filters indicated deposition rates of 3.1×10^{8} particles per month in 200 West, and 5.9×10^{8} particles per month in 200 East. Both of these last two studies showed reductions from previous results but are not significant.

Particle inhalation, estimated by the use of filters, showed the following results at certain key locations. (October results are included for comparison)

Location	Inhalation rate particles per month* October	November
200 East Area Gatehouse (outside)	30	3
200 East Area Gatehouse (inside)	6	1
B Plant Excl. Gatehouse (outside)	45	10
200 West Area Gatehouse (outside)	50	2
200 West Area Gatehouse (inside)	35	1
T Plant Excl. Gatehouse (outside)	30	1
3 ft. level Meteorological Tower	10	3
150 ft. level " "	25	4
250 ft. level " "	50	3
400 ft. level " "	40	3
100-F Area	4	1
100-D Area	3	1
100-B Area	4	1
Benton City	5	1
Richland	5	1

* Results rounded off to nearest whole number.

Air samples taken inside various 200 Area buildings showed the following estimated particle inhalation rates.

Location		Particles* Inhaled per Month
2707E-A Site Survey	(4 samples)	2
East Area Maintenance Shop	(4 samples)	6
West Area Maintenance Shop	(4 samples)	2
222-T Hall	(4 samples)	3
224-T Air Conditioning Room	(4 samples)	1
622 Meteorology Building	(4 samples)	2
2704-E Administration Bldg.	(4 samples)	3
222-B Hall	(4 samples)	4
B Plant Operating Gallery Sec. 11	(4 samples)	3
West Area Garage	(4 samples)	2

* Results rounded off to nearest whole number.

Air samples taken in off-Area locations showed the following results:

Location	Particles inhaled per Month Nov.	Average	Months Sampled
Spokane, Wn.	0.5	1	3 Mo.
Walla Walla, Wn.	None	(one filter only)	
Stampede Pass, Wn.	None	0.2	2 Mo.
Boise, Idaho	0.4	0.4	1 Mo.
Meacham, Oregon	0.2	0.3	2 Mo.
Klamath Falls, Oregon	1.1	1.1	1 Mo.
Great Falls, Montana	None	None	1 Mo.
Bellingham, Wn.	None	None	1 Mo.
Lewiston, Idaho	0.80	0.70	2 Mo.
Mullan Pass, Idaho	3.1	1.1	3 Mo.

Five filters filmed for 74 hours in May 1948 were re-exposed to film for a period of 5 months with the following results:

Location	Date	74-hr. Filming	5-Month Filming
Gable Mountain	5/5/48	12 particles	21 particles
Meteorological Tower, 400'	5/14/48	10 "	124 "
" " 350'	5/14/48	25 "	134 "
" " 300'	5/21/48	10 "	300 "
Riverland	5/20/48	2 "	19 "
Blank	---	0 "	0 "

Hand Score Summary

There were 35,488 alpha hand scores and 42,973 beta hand scores recorded. About 0.37% of the alpha and about 0.09% of the beta scores were high. No attempt at reduction was indicated in 5 high alpha and 3 high beta counts. Where decontamination was attempted it was successful in all cases.

PERSONNEL METERS

	100-B	100-D	100-F	E&N 200	200-W	300	Total	1948 To Date
Pencils								
Total Pencils Read	10,961	11,713	14,465	33,235	43,396	40,720	154,490	1,530,327
No. of Single Readings (100 to 280 mr)	15	45	21	34	61	69	245	4,618
No. of Paired Readings (100 to 280 mr)	0	0	0	0	1	0	1	35
No. of Single Readings (Over 280 mr)	64	39	36	99	127	120	485	9,421
No. of Paired Readings (Over 280 mr)	0	0	0	0	0	0	0	136
Paired Readings Lost	1	1	0	0	1	1	4	64

No significant pencil result was confirmed by the badge result. Investigation of lost readings where required showed no possibility of an overexposure.

Badge Resume, Construction Areas

	105-DR	241-TX	115-KV 384	241-BY	Total	1948 To Date
Badges Processed	6,894	5,972	641	856	14,363	166,744
No. of readings (100 to 500 mrep)	10	5	1	0	16	810
No. of readings (Over 500 mrep)	0	0	0	0	0	75
Lost Readings	7	1	0	0	8	117

Lost readings were accounted for as follows:

Badge lost in area	2
Window exposed to X-ray	2
Stuck film	1
Light leak	1
Film not packaged	1
Lost in processing	1

Badges

	100-B	100-D	100-F	200-E	R.R.T. 200-N	200-W	300	Total	1948 To Date
Badges Processed	1,833	3,206	3,295	2,684	477	3,466	6,899	21,860	246,111
No. of readings (100 to 500 mrep)	0	19	3	101	4	5	254	386	3,026
No. of readings (Over 500 mrep)	0	0	0	2	0	1	0	3	44
Lost Readings	1	2	0	2	0	5	0	10	105

Results of over 500 mrep in the 200 areas were for a two-weeks period. The West area reading was attributed to contamination. It was not confirmed by the pencils. The results in the East area were in conjunction with work on the sand filter. When results were interpreted on a gamma calibration they were in good agreement with the pencils and were below 300 mr for the period. Seven of the 300 Area results were above 300 mrep for the week, with a maximum of 380 mrep recorded.

Lost readings were accounted for as follows:

Lost in processing	4
Light leak	3
Lost badge (recovered, but impossible to read)	3

Total 1948 badges to date - Operations -	246,111
" " " " " - Construction -	166,744
Grand Total - - - - - - - - -	412,855

In addition, 2,838 items of non-routine nature were processed. The 1948 total to date is 22,480.

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17

CONTROL AND DEVELOPMENT DIVISION

Water Monitoring

Two hundred and seventy-one 500 ml. samples of drinking water were taken during the month. The maximum individual value of alpha activity was 124 dis/min/liter from 300 Area Well #3. The 300 Area wells and sanitary water averaged between 30 and 80 dis/min/liter. The maximum alpha result in a sample other than the 300 Area wells was 30 dis/min/liter from the 100-D Area sanitary water. This was an individual result, not confirmed by later samples and may have been due to cross-contamination in the crowded analytical laboratory. Other water sources in Richland, 3000 Area, White Bluffs, etc. continued to give positive alpha results in the order of magnitude expected from previous work. The fluorophotometer results are slightly lower than the ether extraction possibly due to differences in the calibrations or to some natural activity other than uranium carried by the ether. A 500 ml. sample from North Bend, Washington gave less than 5×10^{-5} µc/liter of beta emitters but 66 dis/min/liter of alpha emitters. Duplicate samples from Puget Sound at Edmonds, Washington gave 1.5×10^{-4} µc/liter of beta emitters and 69 dis/min/liter of alpha emitters. Samples from the Snake, Palouse, Touchet, Yellowhawk, and Umatilla Rivers gave less than 5×10^{-5} µc/liter of beta activities. All routine drinking water samples from the reservation gave less than 5×10^{-5} µc/liter of beta activity except for one sample from Kennewick and one from Pasco that gave 8×10^{-5} and 9×10^{-5} µc/liter respectively. These results have not been confirmed on resampling.

Sixteen test well samples have been taken with maximum alpha results of 6 - 20 dis/min/liter at Spring 13, White Bluffs Q1439, and White Bluffs Q1440. No beta activity as high as 5×10^{-5} µc/liter was found.

Sixty-five samples of Columbia River water were taken with individual samples from Hanford and Richland giving alpha emitter values of 7 and 22 dis/min/liter. All locations averaged less than 6 dis/min/liter for the month. The maximum beta activity was 1.9×10^{-3} µc/liter from a Hanford sample. Eleven samples of Yakima River water were taken with one sample giving 7 dis/min/liter of alpha activity. No beta activity as high as 5×10^{-5} µc/liter was detected.

Atmospheric Monitoring

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

Location	Integrons (mrep/24 hours) October	Integrons (mrep/24 hours) November	C Chambers (mrep/24 hours) October	C Chambers (mrep/24 hours) November
100-B Area	0.2	<0.1	0.3	0.3
100-D Area	0.2	0.3	0.4	0.4
100-F Area	0.8	1.2	0.4	0.4
200-W Area	0.4	0.4	0.3	0.4
200-E Area	0.5	0.3	0.5	0.6
Riverland	0.6	0.5	---	---
Hanford	1.3	*5.1	---	---
300 Area	1.5	0.6	0.5	0.5
700 Area	<0.1	0.5	---	---
Kennewick	<0.1	<0.1	---	---
Pasco	0.2	<0.1	---	---
Benton City	0.5	0.6	---	---

*Instrument is being checked. The higher level indicated is not verified by any other air monitoring equipment in this locality.

Film badge readings averaged <5 mrep/24 hours at the 28 locations used. Detachable chamber readings at Hanford, DR, and White Bluffs averaged 0.67, 0.73, and 0.57 mrep/24 hours respectively. The maximum eight hour reading on a constant air monitor was 4×10^{-7} µc/liter at the 200 East Area. The maximum average air filter for the month was 4×10^{-9} µc/liter in the 200 East Area. Air filters at Hanford, White Bluffs, and 105-DR indicated $1.5 - 2.5 \times 10^{-10}$ µc/liter. The maximum rain sample was 0.01 µc/liter in the 200 East Area. The maximum off-area rain sample was 2×10^{-4} µc/liter at Richland. Snow samples collected from the ground on November 19, gave an average of 1.8×10^{-4} µc/liter with a maximum of 4.4×10^{-4} µc/liter at Rt. 4S, Mile 10. An examination of the radio-autographs of filter papers from the air monitors shows a marked decrease in the number of localized dark spots attributed to active particles.

Land and Vegetation Contamination

The average vegetation contamination from the direct count on a sample calculated as I^{131} was:

Location	Average for October	μc I^{131} per kg. November Maximum	November Average
North of 200 Areas	0.04	0.11	<0.04
Near the 200 Areas	0.12	1.23	0.11
South of 200 Areas	0.04	0.12	<0.04
Richland	<0.04	0.07	<0.04
Pasco	0.04	<0.04	<0.04
Kennewick	<0.04	0.04	<0.04
Benton City	<0.04	0.10	<0.04
Richland "Y"	0.05	0.04	<0.04
Hanford	<0.04	0.12	0.04

The results of off-area surveys made during the month are given below:

Location	No. Samples	μc per kg. Maximum	Average	Location of Max
300 Area to Hanford	16	0.16	0.04	5 mi. SE of Hanford
Goose Egg Hill	19	0.26	0.09	---
Benton Gap	69	0.11	0.04	2650 foot level
Pasco - Ringold	16	0.09	<0.04	2 mi. E 300 Area
Plymouth - Kennewick - Hover	22	0.10	<0.04	---
Seattle - Richland	34	0.06	<0.04	---
Waitsburg	64	0.05	<0.04	---
Wahluke	86	0.06	<0.04	---

Most of the maximum vlaues up to 0.1 μc/kg are probably due to active potassium in the vegetation. Several samples of alfalfa, grass, weeds, and sage have been analyzed for potassium and found to contain 0.5 to 1.1%. This could give up to 5 - 6 c/m (neglecting self-absorption) which would be considered a positive counting rate.

Waste Monitoring

Twenty-eight samples of the 100 Area waste effluent were taken. The maximum beta activity was 0.43 μc/liter from the 100-B Area. The effluent from all areas averaged between 0.2 and 0.4 μc/liter.

Eight samples from the 200 West Retention Basin averaged 8 x 10-5 uc/liter of beta activity and 9 dis/min/liter of alpha activity. Maximum readings of 145, 320, 835, and 35 dis/min/liter of alpha activity were found in the "T" Swamp, "U" Swamp, Laundry Ditch, and 231 Ditch respectively. Beta contamination up to 0.012 μc/liter was found in the laundry ditch. The maximum activities in the mud from the "T" Swamp

were 4.8 x 10^5 d/m/kg of alpha and 0.15 μc/kg of beta. The activity in laundry lint ranged up to 1.3 x 10^6 dis/min/kg of alpha and 1.9 μc/kg of beta.

The 300 Area pond averaged 1165 dis/min/liter and 2960 dis/min/liter of alpha activity at the inlet and northwest corner respectively. Mud samples from the inlet gave up to 5.9 x 10^5 dis/min/kg of alpha activity and 0.5 μc/kg of beta activity.

Geology

The extent of ground water contamination in the 361-B Area is again less this month , presumably because of continued dilution caused by encroachment of uncontaminated ground water into this zone. Analyses of the alpha emitting contaminants here indicate that most of the activity is due to uranium and not to plutonium.

A total of 418,000 gallons of waste has been discharged into the 241-B Area second cycle crib system from the 105-B tank. On November 11, overflow into the tile field was begun. Liquid is again seeping into the sampling shaft and there is now about 12 inches in the bottom. The radiation level over this liquid is about 100 mrep/hr. Sludge is still being obtained from the samples taken 10 feet beneath the crib but the samples from 20 feet below are clear.

A sediment sample taken from a depth of 20 feet under the 241-T Area #3 crib had beta activity of about 0.08 μc/kg confirming previous positive results. Results for alpha activity were negative.

The positive result indicating alpha activity of about 27 dis/min/liter from the 231-2 well has been shown to be in error. Recent samples indicate no measurable activity.

Wells 303-2 and 303-3 were completed during the month. These wells along with 303-1 are located between the 300 Area Retention Pond and the Columbia River. All wells have been drilled to a depth of 75 feet. Analyses of water samples from these wells have not given consistent results. The maximum alpha activity observed was about 146 dis/min/liter which is presumably due to uranium.

Only two wells remain to be drilled on Project C-133, Part 2. Information so far obtained proves the existence of a major river channel in the basalt along the northeast side of the Cold Creek Valley. The wells requested on C-133, Part 3 will further explore this channel.

Eleven water level recorders have been installed and some data has been obtained. Some of the wells in permeable ground have changed as much as 1.3 feet which can be directly correlated with changes in barometric pressure.

Well #60-60, which is located between Gable Butte and Gable Mountain, has shown a slow but steady rise of nearly a foot since July. This is probably due largely to the flood of June which recharged the gravels underlying the Project.

Meteorology

Eight-hour Production Forecasts - Eighty-nine were made. The average accuracy was 80.4%. Twenty-four hour General Forecasts - Sixty were made. The average accuracy was 82.2%. Special Forecasts - Fourteen were made. Eleven of these were correct for an average of 78.6%

November, 1948, was a near normal month in most respects. The mean temperature was 40.8 compared with a normal of 40.0. There were no unusual temperature extremes during the month. The highest was 57 on the 23rd and the lowest was 20 on the 8th. In previous November months at 622 Building, temperatures as high as 72 and as low as 16 have been recorded.

Total precipitation for the month was 0.95 compared with a normal amount of 0.78. Total snowfall was 1.7 inches compared with a normal of 1.6 inches.

The latter part of the month was featured by the passage of a number of storm fronts. Although the passage of these fronts brought large amounts of precipitation in mountain areas, only windy weather accompanied these frontal passages at 622 Building. In spite of the wind, there were no duststorms and there was no wind approaching record speed.

Bioassay

Four hundred and fifty-four urine samples were analyzed for plutonium. Twenty-one resamples were taken this month, sixteen because of low spike returns on the process. Resamples from last month have not been processed or samples have not been obtained. The average yield during the month was 78% which indicates a considerable improvement over the past few months, but still not as high as desirable. Ten water and ten mud samples were also analyzed for the Site Survey group.

Two hundred and ninety-five urine samples were analyzed by the fluorophotometer method. The average uranium content found in the urine of the 300 Area workers was:

	µg/liter	
	Maximum	Average
Melt Plant	85	28
Material Handling	62	16
Machining	45	8
Canning and Dipping	18	2
Inspection	27	4
Building 305	25	5

A special sample taken after exposure to contaminated air in the 100 Areas was analyzed for Fe^{59} and Ca^{45}. The first sample taken the day after the exposure gave 1.7×10^{-4} µc of Ca^{45} and 4×10^{-5} µc of Fe^{59}. A second sample taken a week later gave $< 10^{-5}$ µc of Ca^{45} and 2×10^{-5} µc of Fe^{59}, while a third sample taken a week later gave $< 1 \times 10^{-5}$ µc of Fe^{59}. A feces sample taken immediately after the accident gave $< 10^{-5}$ µc of Ca^{45} and 5×10^{-5} µc of Fe^{59}.

Methods Development

A procedure for analyzing for radio-iron in the presence of radio-calcium was developed to allow analysis of samples from the 100 Areas. The self-absorptions of Fe^{59} in $Fe(OH)_3$ and of Ca^{45} as CaC_2O_4 were measured for the counting techniques in use. A procedure for the analysis of potassium in vegetation involving the precipitation with picric acid has been adapted for semi-routine use and several samples analyzed.

The program of calibrating the counting equipment is continuing with measurements of back-scatter and effects of sample spread. An attempt to measure the geometry of the standard alpha counters by counting known weights of uranium has been unsatisfactory due to uneven spread of the material on the counting plate. Additional points on the calibration of the two liter glass chamber for CO_2 measurement have been obtained. Geometrical considerations have hindered the use of this equipment for measuring the dosage rates around a point source by measuring the ion current at reduced pressures. An attempt to measure tritium gas in the chamber resulted in gross contamination. Procedures for measurement of tritium gas are now under consideration.

An attempt to reproduce the "mud flat" deposition observed by high magnification of precipitron samples from the stack by collecting mists containing various solids has failed although some similarities to an aspirated 1% sodium chloride solution was noted. The filter-scrubber panel for stack monitoring is completed and should be installed shortly. A support and manifold for ten precipitrons has been designed. This unit is to be used for collection of particles from the stack for the Biology Division.

Methods Control

A 4 - 12 shift for the routine work was initiated on November 15, 1948. This shift consists of four girls and a shift leader who is responsible for the work on shift.

The following samples were analyzed: (1) A sample of machine oil from hood exhaust fan in Building 3706 gave 10,000 d/m of Pu and 250 d/m of U; (2) Four air filters from the 300 Area for Pu; (3) Two air filters from the 200 Areas for chemical identification of a deposited material; (4) Seven samples from the helium drier at 100-F Area gave values from 0.4 to 2.3 mc/liter; (5) Water soluble oil from 100-B Area gave 5×10^{-3} μc/liter; (6) Oil from VSR enclosure at 100-D Area with Fe as the main contaminant; and (7) A smear from the X-level at 100-F Area showed S^{35} as the chief contaminant.

The quenching errors in the fluorophotometer analysis are being investigated with preliminary data indicating a positive quenching effect with nitric acid. Three thousand, one hundred and fifty-two measurements were made for alpha activity and four thousand, four hundred and twenty-seven measurements were made for beta activity for a total of seven thousand, five hundred and seventy-nine measurements. In addition, twenty-one absorption curves, two hundred and sixty-four decay points, eleven hundred and ninety-two control points, and eighty-eight calibration points were measured. Four hundred and ninety-three fluorophotometer analyses were made.

Physics

Aluminum liners have been inserted inside the lucite liners in the neutron source containers, and the stems on the vertical plugs which fit into these liners have been made of aluminum tubing filled with the boric acid-paraffin mixture. It is believed that sufficient heat dissipation has now been provided to prevent internal disintegration of the source containers. The containers are now ready to receive the sources.

Considerable time was spent investigating developing and fixing techniques. The concentration of developed grains in a thin top layer on the surface of the emulsion has not been appreciably affected by any variation of processing technique tried so far. A few lithium-loaded plates have been exposed in the calibration standard pile and indicate a sensitivity of about 10^{-3} tracks per neutron, about 1/10 that obtained with boron loaded plates. The lithium (n, alpha) tracks are very much longer than the boron (n, alpha) tracks, and are therefore easier to observe.

The chamber and the vibrating reed electrometer have been completely overhauled and checked, and the instrument is ready to take dosage measurements again.

A feasibility report on the measurement of long-lived alpha emitters in the presence of natural decay products was submitted to H. M. Parker in response to his suggestion of the possibility of evaluating the alpha emission of radon and thoron decay products by a beta-alpha coincidence count. It was recommended that a laboratory investigation of this problem be made.

Instrument Development

Work is continuing on the reduction of background on the water screen beta monitor. Contamination still is produced although the surfaces inside remain dry.

A new light G.M. probe has been designed and built and is now in the field for test with a portable scaler unit.

A standard poppy probe has been modified and provided with an argon atmosphere for use in counting of very soft betas. Data obtained to date indicate a usable range of about 10 to 15 volts with about 1270 volts on the wires.

Some instability and noise troubles have been found in the pulse height analyzer and part of the unit has been rebuilt to eliminate them.

A Zeuto has been altered to provide some monitoring method for tritium for the P-10 Project. An enlarged thin wall chamber was provided along with a metal chamber to provide a method of balancing out gamma ray effects as is done with Chang and Eng. The walls of the thin walled chamber allow quick diffusion of tritium into the chamber. The system can be balanced to give zero reading in a gamma field for only one particular geometry at one time, and as a consequence of this it will have only limited usefulness. A more suitable device can be made along the lines of "Vacsniff" as is used in the Pile Buildings.

Health Instrument Divisions

The routine calibrations were:

RADIUM CALIBRATIONS	Number of Calibrations October	Number of Calibrations November
Fixed Instruments		
Gamma	658	572
Portable Instruments		
Alpha	72	87
Beta	149	173
Gamma	528	668
X-Ray	6	36
Neutron	1	4
Total	756	968
Personnel Meters		
Beta	744	962
Gamma	7354	6642
X-Ray	9422	5996
Neutron	14	--
Total	17,534	13,600
GRAND TOTAL	18,948	15,140

BIOLOGY DIVISION

Aquatic Biology

1. Effect of Pile Effluent Water on Aquatic Life

The salmon eggs being exposed to the greatest concentration of area effluent (20%) have developed most rapidly and are now hatching, due to the higher temperature of the water. Deposition of activity in various parts of the eggs are being determined, 75% occurring in the shell membrane.

Twenty per cent pile condensate containing S^{35} was quickly lethal to small carp. Very dilute solutions are now being used.

Other monitoring tests are progressing without unusual incident.

2. Biological Chains

The interruption in the operation of the 100-F pile during the last 10 days of October followed by a gradual return to the normal operating level during the first two weeks of November resulted in a gradual decrease in activity in the tissues of test animals. Levels are again increasing in biological materials being exposed.

In addition to the five listed last month, a sixth food study was started on November 24th in which fingerling sized trout are being fed their regular food spiked with algae scraped from the 107 Basin.

3. Radiobiological Survey

Collection of aquatic insects on a scheduled basis has now been initiated and coordinated with the collections of other bottom life.

Zoology

1. Chronic Toxicology of I^{131} in Stock Animals

Sheep and rabbit feeding of I^{131} has continued without change. The two hens which have been fed 0.2 microcuries per kilogram of feed are now receiving 1 microcurie per kilogram in order to determine whether a proportional increase of activity in the egg will occur.

The possibility of using Locke Island for an experimental animal farm is being investigated.

2. Biological Monitoring

Preliminary arrangements have been completed for the collection of predator samples from off the area through the cooperation of the Washington State

Wild Life Service and Dr. M. E. Ensminger of Washington State College. Collections are expected to start in January, 1949. The routine monitoring of biological materials has indicated no unusual activities, in general all of them being very low. Sampling of 100-F Area ducks is being discontinued until after the breeding season next year.

Eleven male and four female goats of the old "Hanford flock" were sacrificed and the tissues counted for beta activity. With the exception of the thyroids which were also low, none of the tissues showed activity much in excess of that which may be expected from natural occurring radiopotassium. It was interesting to note that the thyroid activities of fetuses from two nannies were 10 to 90 times that of the parent's thyroids. A radioactivity and histological study will be made of these animals and reported separately.

3. Special Studies

The specks which have been implanted in rabbits about one year ago could not be found in a histological examination of the testes. As indicated in the previous month's report there is a possibility for solution of the material or migration to other locations within the carcass. No aspermia or necrosis was observed.

4. Miscellaneous

The 15 goat carcasses (No. 2 above) have been injected with poison and were planted throughout the area for predator control by the Wild Life Service. Coyotes so poisoned will be examined for radioactivity.

Preliminary studies have been completed on sputum surveys of workers in active particle areas and will be reported on separately.

The possible contribution of muskrats to the 300 Area pond leak will be investigated by a representative of the Fish and Wildlife Service.

GENERAL ACCOUNTING DIVISION

NOVEMBER 1948

GENERAL

Budget estimates and narrative explanation of the budgets for the fiscal year ending June 30, 1949 were prepared by the General Divisions. Assistance by the General Accounting Division was rendered divisions in the preparation of the budget estimates and in the narrative preparation. Assembling of data was nearing completion at the month end in order that budgets in final form could be presented to the Appropriation and Budget Committee for review early in December.

Financial Statements for September covering Hanford Works operations and Consolidated Departmental Operations were issued on November 8 and those for October on November 30. Cost Reports for Hanford Works operations were also issued for the months of September and October on November 4 and November 24 respectively.

Representatives of the Regional Office (Seattle) of the National Labor Relations Board visited Hanford Works during November for the purpose of examining Payroll records in connection with recent application by the Hanford Metal Trades Council for bargaining rights for all production and maintenance employees of Hanford Works.

Unreimbursed expenditures decreased by $1 289 618 from last month. The reason being that the amount of unpaid approved vouchers in the hands of the government was reduced by $3 213 348. However, unbilled expenditures increased by $226 287. The increase in unbilled items can be attributed to an increase in volume of work as there was an increase of $2 158 594 in Public Vouchers submitted to AEC and an increase of $1 697 441 in Pre-Audit Vouchers submitted to AEC during November.

Following is a comparison of unreimbursed charges as of November 30, 1948 with October 31, 1948:

	October 31, 1948	November 30, 1948
Billed on Public Vouchers	$ 6 520 785	$ 3 307 437
Submitted on Pre-Billing Audit Vouchers	4 401 992	6 099 435
Unbilled	8 952 816	9 179 103
Total	$ 19 875 593	$ 18 585 975

1.

General Accounting Division

STATISTICS

Employees and Payroll	Total	Monthly Payroll	Weekly Payroll
Employees on payroll at beginning of month	8 488	1 719	6 769
Additions and transfers in	245	9	236
Removals and transfers out	(125)	(15)	(110)
Transfers from Monthly to Weekly Payroll	--	(5)	5
Transfers from Weekly to Monthly Payroll	--	14	(14)
Employees on payroll at month end	8 608	1 722	6 886

Employees on Payroll at Month End	October	November
Manufacturing	3 073	3 127
Design and Construction	1 203	1 209
Community	985	983
Other	3 227	3 289
Total	8 488	8 608

Overtime Payments - Weekly Paid Employees	October	November
Number	9 682	10 441
Amount	$194 930	$178 086
Overtime Payments - Monthly Paid Employees		
Amount	$ 50 753	$ 60 706
Number of changes in Salary Rates and Job Classifications	1 063	1 193
Gross Amount of Payroll		
Manufacturing	$1 115 604	$1 344 267
Design and Construction	437 434	493 137
Community	306 262	366 031
Other	991 732	1 165 644
Total	$2 851 032	$3 369 079 *
Annual Going Rate of Payroll		
Manufacturing	$14 420 547	$14 063 863
Design and Construction	5 368 828	5 403 169
Community	3 869 823	3 862 359
Other	12 562 715	12 426 910
Total	$36 221 913	$35 756 301

Average Salary Rate Per Hour	October			November		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	$1.929	$2.581	$2.023	$1.933	$2.584	$2.031
Design and Construction	1.466	2.599	1.834	1.469	2.623	1.828
Community	1.717	2.225	1.798	1.708	2.256	1.795
Other	1.552	2.493	1.742	1.550	2.498	1.735
Total	$1.707	$2.519	$1.866	$1.706	$2.530	$1.863

* Includes five weeks in the case of weekly paid employees.

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General Accounting Division

Employee Plans

Pension Plan	October	November
Number participating at beginning of month	5 427	5 697
New participants and transfers in	319	217
Removals and transfers out	(49)	(28)
Number participating at month end	5 697	5 886
% of eligible employees participating	95.1%	94.3%

Employees Retired	November	Total to Date
Number	2	38
Aggregate Annual Pensions including Supplemental Payments	$418	$6 636
Amounts contributed by employees retired	$153	$2 275

Group Life Insurance	October	November
Number participating at beginning of month	5 831	5 892
New participants and transfers in	158	99
Cancellations	(31)	(22)
Removals and transfers out	(66)	(39)
Number participating at month end	5 892	5 930
% of eligible employees participating	72.1%	72.0%

Insurance Claims	November	Total to Date
Number of deaths	1	16
Amount of Insurance	$4 000	$86 823
Amount contributed by employees	$ 92	$ 778

Group Disability Insurance - Personal	October	November
Number participating at beginning of month	7 096	7 199
New participants and transfers in	250	125
Cancellations	(40)	(9)
Removals and transfers out	(107)	(60)
Number participating at month end	7 199	7 255
% of eligible employees participating	89.4%	90.7%

Group Disability Insurance - Dependent		
Number participating at beginning of month	4 259	4 310
Additions and transfers in	114	62
Cancellations	(27)	(10)
Removals and transfers out	(36)	(19)
Number participating at month end	4 310	4 343

General Accounting Division

Employee Plans (continued)

Group Disability Claims	October	November
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	82	81
Daily Hospital Expense Benefits	92	84
Special Hospital Services	95	77
Surgical Operations Benefits	62	52
Dependent Benefits Paid		
Daily Hospital Expense Benefits	98	84
Special Hospital Services	103	83
Amount of claims paid by insurance company:		
Employee Benefits	$10 092	$ 8 993
Dependent Benefits	3 483	2 898
Total	$13 575	$11 891

Group Disability Insurance - Premiums	October	November
Personal - Employee Portion	$12 234	$12 127
- Company Portion	7 354	6 690
- Total	$19 588	$18 817
Dependent- Employee Portion	$ 3 881	$ 3 850
- Company Portion	392	299
- Total	$ 4 273	$ 4 149
Grand Total	$23 861	$22 966

Annuity Certificates (For du Pont Service)	November	Total to Date
Number issued	0	55

U. S. Savings Bonds	Mfg.	D & C	Comm'y	Other	Total
Number participating at beginning of month	2 201	555	526	1 649	4 931
New Authorizations	36	29	11	59	135
Voluntary Cancellations	(34)	(13)	(4)	(24)	(75)
Removals and Transfers out	(7)	(10)	(8)	(12)	(37)
Transfers in	10	0	2	2	14
Number participating at month end	2 206	561	527	1 674	4 968
% participating	70.5%	46.4%	53.6%	50.9%	57.7%
Bonds issued					
Maturity value	$131 675	$ 30 450	$ 26 225	$ 87 425	$275 775
Number	2 299	544	492	1 616	4 951
Refunds issued	126	30	15	99	270
Revisions in authorizations	8	1	1	4	14
Annual going rate of deductions					
New Plan	$891 893	$203 349	$198 680	$656 013	$1 949 935
Old Plan	354 514	77 800	53 339	176 128	661 781
Total	$1 246 407	$281 149	$252 019	$832 141	$2 611 716

Employee Plans (continued)

Suggestion Awards	November	Total to Date
Number of Awards	43	244
Total Amount of Awards	$445	$2 430

Security Slogan Awards		
Number of Awards	--	7
Total Amount of Awards	--	$175

Employee Sales Plan

	November		
	Total	Major Appliances	Traffic Appliances
Certificates issued	711	88	623
Certificates voided	33	3	30

Salary Checks Deposited	October	November
Monthly	866	875
Weekly	1 031	1 043
Total	1 897	1 918

Special Absence Allowance Requests		
Number Submitted to Pension Board	6	10

Absenteeism (Weekly Paid Employees)	1947	1948
January to November 21	1.73%	2.19%

PERSONNEL AND ORGANIZATION	October	November
Number of Employees		
On Payroll at beginning of month	278	187
Removals and transfers out	(111)	(12)
Additions and transfers in	20	10
Number at end of month	187	185
Net increase or decrease during month	(91)	(2)
% of terminations and transfers out	39.9%	6.4%
% of absenteeism	2.18%	3.73%

Changes by division in number of Accounting Division employees during November were as follows:

General : Decrease of two employees

One transfer to Service Division
One transfer to Medical Division

Accounts Payable: Decrease of one employee

One termination

Cost: Increase of one employee

One new hire

General Accounting Division

PERSONNEL AND ORGANIZATION (continued)

General Accounts: Decrease of one employee

One termination

Property: Decrease of seven employees

One termination
Five transfers to Construction
One on leave of absence

Weekly Payroll: Increase of eight employees

One returned from illness absence
Eight new hires
One termination

Monthly Payroll: No Change

Methods: No Change

Special Assignments: No Change

Injuries	October	November
Major	0	0
Sub-major	0	0
Minor	2	1

Number of Accounting Division employees as of December 1, 1948, were as follows:

	Non-Exempt	Exempt	Total	Non-Exempt	Exempt	Total
General	5	4	9	4	3	7
Accounts Payable	29	1	30	28	1	29
Cost	7	1	8	8	1	9
General Accounts	20	1	21	19	1	20
Property	27	3	30	20	3	23
Weekly Payroll	65	6	71	74	5	79
Monthly Payroll	13	1	14	13	1	14
Methods	0	2	2	0	2	2
Special Assignments	0	2	2	0	2	2
Total	166	21	187	166	19	185

Open employment requests as of November 30, 1948, were as follows:

General Clerk A	1
General Clerk B	4
Office Machine Operator B	2
Total	7

General Accounting Division

	October	November
Accounts Payable		
Number of Vouchers Entered	2 446 *	2 258 *
Amount of Vouchers Entered	$ 5 637 445 *	$ 1 069 340 *
Number of Checks Issued		
Community	293	242
Design and Construction	1 356	1 354
General	1 975	1 606
Manufacturing	532	705
Total	4 156	3 907
Amount of Checks Issued		
Community	$ 150 335	$ 111 549
Design and Construction	12 836 952	12 297 264
General	8 482 201	1 150 583
Manufacturing	563 216	892 150
Total	$ 22 032 704	$ 14 451 546
Public Vouchers (1034) Submitted to AEC		
Not Reimbursed at Beginning of Month	$ 5 445 264	$ 6 520 785
Submitted During the Month	14 477 255	16 635 849
Sub Total	$ 19 922 519	$ 23 156 634
Reimbursements During the Month	13 401 734	19 849 197
Not Reimbursed at End of Month	$ 6 520 785	$ 3 307 437
Public Vouchers (1034) Submitted to AEC		
Not Reimbursed at Beginning of Month	140	154
Submitted During the Month	381	452
Sub Total	521	606
Reimbursements During the Month	367	506
Not Reimbursed at End of Month	154	100

* General Divisions Only.

Amount of Vouchers Entered and Amount of Checks Issued for October include liquidation of $5 000 000 advance from AEC.

General Accounting Division

	October	November
Pre-Audit Vouchers (1035) Submitted to AEC		
Not Yet Approved		
Community	$ -0-	$ 64 807
Design and Construction	2 907 322	3 505 842
General	1 490 732	2 447 263
Manufacturing	3 938	81 523
Sub Total	$ 4 401 992	$ 6 099 435
Not Submitted to AEC on Pre-Audit Vouchers		
Community	87 310	72 652 cr.
Design and Construction	3 746 125	3 802 820
General	4 946 070	5 048 484
Manufacturing	173 311	400 451
Sub Total	$ 8 952 816	$ 9 179 103
Total Unbilled Items	$ 13 354 808	$ 15 278 538
Cash Receipts		
Community	$ 149 801	$ 169 537
Design and Construction	52 164	277 927
General	13 487 385	20 070 739
Manufacturing	11 195	27 300
Total	$ 13 700 545	$ 20 545 503
Detail of Receipts *		
U. S. Government	$ 13 401 734	$ 19 849 197
Hospital	68 316	72 855
Miscellaneous Accounts Receivable	1 112	1 532
Employees Sales	2 005	1 480
Educational Program	2 643	487
Salvage Sale	6 009	2 618
Liquidation of Savings Bonds Account		121 050
Refunds from Vendors		8 841
Scrap Sales		2 618
All Other		10 061
	$ 13 487 385 *	$ 20 070 739 *

* General Divisions Only

General Accounting Division

	October	November
Travel Advances and Expense Accounts		
Cash advance balance at end of month	$ 14 411 *	$ 9 582 *
Cash advance balance Outstanding over one month	1 333 *	818 *
Traveling and Living Expenses:		
Paid Employees	13 978	13 262
Billed to Government	14 016	15 049
Balance in Variation Account at end of month	687 cr.	2 474 cr.
Hospital Accounting		
Accounts Receivable Balance at Beginning of Month	$ 64 314	$ 66 557
Total Invoiced During Month	101 327	106 645
Total	$ 165 641	$ 173 202
Less Cash Received and Payroll Deductions	(98 021)	103 941
Bad Debts Written off	(1 063)	-0-
Accounts Receivable Balance at end of Month	$ 66 557	$ 69 261
Property		
Number of Transfer Notices Received	603	585
Number of Items Affected	1 679	2 821
Number of Receiving Reports Classified	8 778	8 970
Number of Receiving Reports Vouchers	960	**
Number of Items Tagged at beginning of month	95 002	94 866
Number of Items Tagged this Month--Metal	704	1 141
Number of Tagged Items dropped from record	(840)	(2 223)
Total Tagged Items Recorded	94 866	93 784
Number of Items Recorded in quantity only at beginning of month	13 574	13 811
Items added to record during month	248	151
Dropped from record during month	(11)	(4)
Total Items Recorded in Quantity	13 811	13 958
Total Items on Record	108 677	107 742

* General Divisions Only
** Use of Property Vouchers discontinued as authorized by the AEC

General Accounting Division

ACCOUNTS PAYABLE SECTION

General Divisions' accounts payable vouchers entered during November numbered 2 258 and totaled $1 069 340. The number of checks issued for General Divisions amounted to 1 606 and totaled $1 150 583. Checks written for all divisions numbered 3 907 and totaled $14 451 546.

At the month end, 852 accounts payable vouchers, including paid and unpaid, were on hand for which additional supporting data was required before billing to the government could be made. These vouchers totaled $360 820.

The Accounts Payable general ledger balance as of November 30, 1948 was $52 232.

The reconciliation of the inventory account Returnable Containers which is maintained by this Section reflects a balance of $13 932. This represents deposits paid on reels, cylinders, carboys, etc., some as far back as 1944.

Freight bills paid numbered 396 and totaled $16 699. All freight paid has been distributed to proper ledger accounts with the exception of $190 which is the general ledger balance of the account Freight.

During the month many requests were received from independent auditors and accounting firms to confirm receivable balances on the ledgers of vendors from whom purchases were made during the year and furnishing this information required considerable time.

COST SECTION

Operating reports for the month of September were issued and distributed on November 9, 1948. The delay in the preparation of these reports was due to their being the first reports prepared in accordance with the recently installed Cost Accounting procedures. The October operating report was distributed on November 30, 1948.

Due to the unusual amount of time required in the preparation of operating statements during the month, proposed studies in connections with assessment and liquidations were not made as extensively as planned. However, revisions were made in the recording of Research and Development expenses.

In November, analyses were made of various assessments appearing on the September and October reports. Information to substantiate these changes was accumulated, and in the instances where assessments were out of line, adjustments were made.

GENERAL ACCOUNTS SECTION

In October, advances from the government were liquidated in the amount of $5 000 000, reducing the outstanding advance to $25 000 000. Due to this liquidation, and also to the fact that the even flow of billings to the government

General Accounting Division

General Accounts Section (Cont'd)

had been temporarily interrupted as a result of the recent decentralization, contract account bank balances during November reached a very low figure. On November 16 the balance in the Richland Branch was $163 753 and on November 19 it was $105 470. Through emphasis to all accounting divisions of the need for prompt processing of vouchers for billing to the government, and the expediting of these vouchers by the government offices, this condition was remedied. The November 30 balance in the Richland Branch contract account was $6 989 931.

Net cash disbursements for the month were $16 546 862 and cash receipts totaled $20 545 503.

Billings to the government totaled $16 635 849, representing an increase of $2 158 594 over the amount billed in October and $3 350 996 over the amount billed in September.

Financial Statements, comprising balance sheets, balance sheet schedules, and cost summarizations (excluding Design and Construction) for Hanford Works and the Nucleonics Department, were prepared during November for the months of September and October.

Procedures with regard to the control of unbilled items which were made effective with the decentralization of the accounting divisions are to be revised further as delays are continuing in the reconciling of details maintained by other divisions with control figures maintained in this Section. Revised control procedures are being considered and changes in procedures will be made when satisfactory revisions have been agreed upon.

KADLEC HOSPITAL ACCOUNTING

The outstanding accounts receivable balance for both Kadlec Hospital ($66 629) and the North Richland Medical Center ($2 632) totals $69 261. This balance has progressively increased since June, 1948 when it was $47 640. The increase of 45 per cent can be partially attributed to the fact that invoices issued have increased 30 per cent in value since June, from $82 112 to $106 645; and have increased 13 per cent in number, from 12 786 to 14 476.

Much time was spend during November in accumulating data for the Medical Division Budget for the fiscal year ending 1949, and in preparation of operating reports for the month of October.

A thorough review of procedures regarding the payroll deduction method of collecting accounts receivable was made with the intent of formulating a more expeditious routine as regards both the Medical Accounting Section and the payroll sections. This review will continue into December before any action will be taken.

General Accounting Division

PROPERTY ACCOUNTING SECTION

Confirmation of several changes in Property accounting procedures which had been mutually agreed upon with representatives of the AEC Office of Finance was made in our letter to the Atomic Energy Commission dated November 11, 1948.

These changes in procedure were (1) the discontinuance of assigning property voucher numbers to documents reflecting the receipt or disposition of materials, (2) the discontinuance of the practice of routing copies of receiving reports and purchase orders relating to procurements by GE or its subcontractors to the AEC, (3) a change in connection with Property Location Records which will include the assigning of divisional or sectional cost codes to catalogued items and eliminate the necessity of the recording of property movements as long as the division having custody or the area where property is located does not change.

Through the transfer of six employees to the Design and Construction Division and one termination, the number of employees has been reduced to twenty-three. The Property Records group at the present time includes seventeen employees and the Field Inventory group includes five employees. Of the latter group, one employee is covering all receiving points and four are handling inventory adjustments.

Total items recorded on property records as of November 30, 1948 is 107 742.

SPECIAL ASSIGNMENTS

One employee was loaned to the Design and Construction Accounting Division and one Steno-Typist continued her assignment as stenographer to the remaining duPont representative at this location.

Two employees reviewed and investigated three suggestions which were received during the month, reviewed and indexed 28 new forms (bringing total indexed forms to date to 2 154), and made extensive studies with respect to new procedures regarding payroll deductions for Hospital Accounts Receivable, Rents, and Telephones.

General Accounting Division

PAYROLLS

Complete audit by the A.E.C. Audit Section of Weekly Payrolls for October revealed the following errors:

1. Notations on the Payroll Journal were not clear, incorrect or omitted in six instances.

2. There were three errors in gross calculations resulting in total over-payments of $82.65. Adjustments have been made for the over-payments.

In connection with the recent application by the Hanford Metal Trades Council for bargaining rights, Payroll records were examined by representatives of the Seattle Regional Office of the National Labor Relations Board during the period November 15 to November 19, 1948 inclusive. The representatives who made the examination of records were Mr. Kenneth McClasky, Chief Field Examiner; Mr. H. C. Dawson; Miss Ida M. Swanson and Miss Norine Marra. During the examination of our records, I. D. Behymer was an observer representing General Electric Company.

Presumably, the examination consisted of checking certain names to see if they appeared on our Payroll Records. The names were taken from typewritten lists and from "pledge" cards both of which were in the possession of the N.L.R.B. representatives at all times. With the exception of two cards, Mr. Behymer was not permitted to see the lists or cards. Mr. McClasky of the N.L.R.B. checked signatures on only six cards with signatures on the corresponding Employees Withholding Exemption Certificates and showed Mr. Behymer only two of these cards.

The number of time cards received late in Payroll was greatly reduced during November. For the week ended November 28, 1948, only 76 cards were received late, whereas 279 cards were received late for the week ended October 31, 1948.

U. S. Savings Bond Purchase Lists for October bonds were mailed to Employees Savings Division, Schenectady, on November 19. October bonds purchased by payroll deductions under the General Electric Savings Plan and Custody receipts for October bonds purchased by payroll deductions under the Stock Bonus Plan will be delivered to employees early in December. It is expected that in the future, bonds purchased by payroll deductions during one month will be delivered to employees during the last week of the following month.

During November the Payroll Divisions prepared Group Life Insurance application cards showing pay number, name, date of birth and service date for each eligible non-participating employee. These application cards were forwarded to Employee and Community Relations Division for use in connection with the recanvass of this group of employees during the period December 6 to December 17, 1948.

General Accounting Division

In order to facilitate distribution of literature by Employee and Community Relations Division to employees at their homes, an addressograph plate has been prepared for each Hanford Works employee showing name, and home address. Each time literature is to be mailed to employees, envelopes are addressographed and forwarded to Employee and Community Relations Division. Addresses of employees were obtained from the various divisions.

In view of the anticipated volume of year end work considerable planning is being done to avoid overtime work during the month of January 1949.

During the week beginning November 22, when it was necessary to prepare the Payroll in three days due to the holiday, one of the National Cash Register Payroll Posting Machines broke down and had to be sent to Yakima for repairs.

Weekly payrolls have been reimbursed by the Government through the week ended October 31, 1948, and monthly payrolls have been reimbursed through the month of August 1948.

SERVICE DIVISIONS

SUMMARY - NOVEMBER 1948

Purchasing and Stores Division

A survey was taken to determine steel requirements for the first quarter 1949 to be obtained under the Voluntary Steel Association Plan.

A total of forty excess lists were transmitted to the Atomic Energy Commission during the month representing material valued at $1,251,446.

Plant Security and Services Division

There was one major injury during the month of November making a total of 16 for the year to date and an accumulative frequency rate of 1.02.

There were seven plant fires during the month with an estimated damage of $10.

Laundry volume for the 700 Area Laundry increased from 117,547 lbs. in October to 134,107 lbs. in November. The 200 Area Laundry increased from 134,267 in October to 150,463 in November.

PURCHASING AND STORES DIVISION
NOVEMBER, 1948

GENERAL

Purchasing

The work load increased slightly during the month. 1,434 purchase orders were placed as compared to 1,363 placed in October. 2,461 purchase requisitions were received as compared to 2,135 received during October. Requisitions on hand at month end totaled 711 as compared with 603 at the end of the previous month.

In our October report it was mentioned that there were two remaining orders on which cancellations had been requested by the Project Engineering Division. A cancellation claim in the amount of $18,769.98 was received on one of these orders but minor irregularities in completing the required forms forced us to return it for revision. A revised claim had not been received at month end. The vendor with whom the other order was cancelled advised that the final accumulation of cost figures had not been completed.

A survey was initiated to determine our requirements of steel for the first quarter of 1949 to be purchased under the Voluntary Steel Allocation Plan.

Thirty-seven additional orders were placed during the month for Project P-10. All outstanding orders for this Project are now 82 per cent complete. The Project Engineering Division has assured us that all items which were classed as critical have been received.

Three scrap sales for a total value of $3,773.72 were completed during the month. These were the final sales to be handled by the Purchasing Division as the responsibility for this function was transferred at month end to the Surplus, Salvage, and Scrap Division. Subsequent reports on scrap sales will appear in that Division's statistical section of this monthly report.

Although the price of many materials continues to increase, it was interesting to note that our supplier of crushed rock salt advised us of a decrease from $9.50 per ton to $9.00 per ton effective November 1, 1948. This was the first decrease we have received on a process material in many months.

Our requirements of Carbon Dioxide have steadily increased. The original estimated consumption was fifteen cylinders per week and has been gradually increased to seventy cylinders at the present time. There is a possibility of a further increase in the future according to the Manufacturing Divisions. The two logical sources of supply, Pure Carbonic, Inc. and The Liquid Carbonic Corporation, both located in Seattle, Washington do not have sufficient cylinders to carry a reasonable stock; therefore, in order to alleviate the situation, the Atomic Energy Commission's Procurement Section was requested to obtain 500 additional cylinders for us from Government Surplus. They were successful in their efforts and the cylinders were enroute at month end.

Sample aluminum cans were received from both Victor Industries and Scovill Manufacturing Company. The samples from Scovill were rejected 100 per cent due to the thickness of the bottoms and the further fact that the bottoms were rounded instead of flat as indicated on our print. Additional samples were requested and they were rejected for the same reason. The Scovill Company was informed that we would accept no deviations from our print. The Victor cans came much closer to-

GENERAL (Cont.)

Purchasing

meeting our specifications; however, it was necessary to reject them because a small percentage failed to meet the specification for wall thickness and a high porcentage were rejected due to bottom thickness. The bottoms of the Victor cans, however, were flat. They were advised of the rejection and requested to supply additional samples which would meet the specifications set forth in our print.

Despite the foregoing, we have, nevertheless, a six months stock of cans on hand based on current consumption. The inventory level was being watched very carefully as the Aluminum Company of America estimates that it will require four or five months advance notice for them to begin shipments on future orders.

Stores

The volume of receipts continued at a high level; however, disbursements amounted to only $268,282.96 as compared with $376,732.32 during the month of October.

It is worthy of note that for the first time in many months the number of items deleted from Stores stock was more than the new items added.

Materials valued at $16,103.88 were declared excess and delivered from Stores stock to the Surplus, Salvage and Scrap Division.

At the request of the Community Division, we made available to them storage space along the south fence of the 700 area and moved the pipe and pipe fittings formerly stored in that location to a new location adjacent to the west fence. In order to accomplish this move, it was necessary that the Community Division relocate the fence nearer the street.

All stainless steel and stainless steel products were consolidated in one inventory caption and physically segregated in a hutment and an adjacent fenced in enclosure. The value of this caption is approximately $500,000.

Due to closer supervision and re-arrangement of the work, it was possible to reduce the number of errors in receiving reports materially.

We were advised that the Community Division is engaged in the sale of certain kinds of equipment and apparatus to facility operators of the Village. Their attention was directed to the fact that we have in Stores stock spare parts for said equipment and apparatus valued at several thousand dollars and they were requested to take whatever steps are necessary to include these spare parts in any sale negotiated with facility operators inasmuch as we will have absolutely no use whatever for these parts once the equipment is sold.

Surplus, Salvage and Scrap

Excess Lists No's. 1 to 40 inclusive were transmitted to the Atomic Energy Commission during the month. These Lists comprised many and varied types of materials, supplies, and equipment. It was gratifying to note that prompt action was taken initially by the Commission. Several shipping orders had been received at month end and were being processed.

GENERAL (Cont.)

Surplus, Salvage and Scrap

Declarations from various divisions, both Operations and Construction, were received in considerable volume and were being processed at month end.

Details with respect to a screening of all project purchase requisitions against Surplus, Salvage and Scrap inventory records were worked out. At the outset, some minor difficulty was experienced with some of the subcontractors; however, at month end these difficulties had all been satisfactorily adjusted.

The Pasco General Depot warehouse and storage yard facilities are generally satisfactory; however, the open storage yards are too easy of access to the personnel of other divisions and subcontractors who may have occasion to visit the Base. Due to the absence of complete physical control of material and equipment items in the yards, it is possible that some discrepancies may develop. All possible safeguards were being studied and put into effect at month end.

The Surplus, Salvage and Scrap Division was assigned the responsibility for the sale of scrap. Revisions of the contract forms used in this connection were accomplished with the aid of the Legal Division and they were ready for use at month end. We were advised by the Construction Division that they expected to turn over to us the Leazer Spur Scrap Yard within the near future.

Office space was assigned in the east wing of Building No. 11, North Richland, and plans were being completed at month end for the move of office equipment and personnel from Building No. 1125-2 to the new location.

PERSONNEL

Administrative Supervision	1
Purchasing	
Employees Exempt	8
Employees Non-Exempt	26
Stores	
Employees Exempt	8
Employees Non-Exempt	107
Surplus, Salvage & Scrap	
Employees Exempt	8
Employees Non-Exempt	28
TOTAL	186

It will be noted that Stores personnel has been reduced to 115 as compared with a total of 166 May 1, 1948.

SAFETY AND SECURITY

Purchasing	
Safety and Security Meetings Scheduled	1
Number of Employees attending	34
Minor Injuries	2

SAFETY AND SECURITY (Cont.)

Stores

Safety and Security Meetings Scheduled	11
Number of Employees attending	105
Minor Injuries	2

Surplus, Salvage & Scrap

Safety and Security Meetings Scheduled	3
Number of Employees attending	36

STATISTICS

Purchasing

Requisitions on hand 11-1-48 (includes 49 assigned to Govt.)	603
Requisitions received during November	2,461
Requisitions placed during November	2,353
Requisitions on hand 11-30-48 (includes 61 assigned to Govt.)	711
HW Orders placed	1,434
TPS Orders placed	165
M.O.'s placed	0
O.R.'s placed	8
Alterations issued	262
Scrap Sales completed	3
Value of Scrap sold	$3,773.72
Orders Expedited	195

Stores

Number of items added to Stores stock	952
Number of items deleted from Stores stock	1,352
Items in Stores stock at month end	51,864
Receiving Reports issued	3,990
Store Orders filled	21,917
Emergency Store Orders filled	8
Returnable containers on hand at month end	5,041
Returnable containers on hand over six months	1,377
Total value Inventories at month end (includes Spare Parts)	$4,557,962.82
Value of Disbursements, not including Cash Sale items	268,282.96*
Value of transfers from Salvage to Stores	10,928.26
Value of Materials declared excess and removed from Stores stock	16,103.88

*Includes $37,367.99 disbursed to Construction and CPFF Subcontractors

PURCHASING AND STORES DIVISION

STATISTICS (Cont.)

Surplus, Salvage & Scrap

Excess Account #10.10 Balance 11-1-48		None
Receipts - 11-1-48 to 11-30-48:		
Process Equipment	None	
Automotive Equipment	$47,216.77	
Machine tools and equipment	None	
Office furniture, machines, etc.	43,056.35	
Household furniture, etc.	101,863.58	
Material and Supplies	1,062,518.93	
Miscellaneous Equipment	72,842.20	
	1,327,497.83	
		$1,327,497.83
Disbursements - 11-1-48 to 11-30-48:		
Project:		
Automotive equipment	$5,640.22	
Office furniture, machines, etc.	1,126.36	
Material and supplies	6,868.86	
Miscellaneous equipment	3,227.50	
Off Project:		
Automotive equipment	2,500.00	
	19,362.94	
Balance of Account #10.10 as of 12-1-48		$1,308,144.89
Value of Excess Lists to AEC		
Office furniture, machines, etc.	$42,906.35	
Household furniture, etc.	101,343.58	
Material and supplies	1,049,351.83	
Other equipment	54,344.70	
Automotive equipment	3,500.00	
	1,251,446.46	
		$1,251,446.46
Receiving Reports (HW 1.54A) issued	307	
Store Orders processed	70	
Shipping Orders processed	1	
Lists transmitted to AEC	40	
Purchase requisitions screened	22	
Scrap Sales pending	0	
Salvage material disbursed prior to excess declaration		
Number of Store Orders	492	
Total Value	$9,495.40	
Number of Store Stock transfers	9	
Total Value	$4,800.47	
Total Value Salvage Disbursed		$14,295.87

PLANT SECURITY AND SERVICES DIVISION

MONTHLY REPORT - NOVEMBER - 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	2	2		
Patrol and Security	676	693	17 (a)	
Safety & Fire Protection	169	183	14 (b)	
Office Services (General & Clerical)	311	308	—	3 (c)
TOTAL	1158	1186	31	3

NET INCREASE - 28

(a) - 24 New Hires - Patrolman
1 Returned from Leave of Absence (Patrolman)
1 Transferred from Transportation (Patrolman)
4 Transferred from Community (Patrolmen)
7 Terminations (Patrolmen)
1 Retired (Patrolman)
2 Removals due to Leave of Absence (1Patrolman - 1 Clerical)
3 Transferred to Community (Patrolmen)

(b) - 18 New Hires (Firemen)
4 Terminations (Firemen)

(c) - 6 New Hires (4 Clerical - 2 General)
5 Transferred from Community (General)
6 Terminations (3 Clerical - 3 General)
1 Retired (General)
5 Removals due to Leave of Absence (1 Clerical - 4 General)
2 Transferred to other Divisions (Clerical)

SAFETY AND FIRE PROTECTION

Safety

Plant Safety Record - 12 days

Injury Statistics

	October	November	Year to Date	Cumulative F/R - 1948
Major Injuries	2	1	16*	1.02
Non-Tabulatable Major Injuries	0	0	0	
Sub Major Injuries	4	2	36	
Minor Injuries	428	445	5234	3.33

Major Injury No. 44½

January 28, 1948, , an employee of the Maintenance Div. in 300 Area, incurred a sprain right ankle. The injured was descending the stairway into the 321 Building Shop. A pipe coupling had been dropped on the stairway sometime previous to this incident. The injured stepped on this coupling and turned his right ankle causing a sprain. This sprain was classified at the time as a minor injury. The injured was discharged from First Aid treatment on February 3, 1948. The case was reopened by the Medical Division on April 15, 1948 upon complaint by the injured that his ankle was bothering him. Injured received medical treatment from April 15, 1948 through September 14, 1948, at which time Medical decided surgery was necessary to effect proper healing. The injured was hospitalized and the injury was reclassified as a Major Injury on November 2, 1948.

Major Injury No. 57

November 18, 1948, at about 11:00 a.m., , while working near the 300 Area incurred a laceration of cornea, left eye. Injured and a helper were uncoupling a caterpillar D-7 tractor from Tourneau Screper. The hoist scraper cable was kinked on the end. The piece was removed by cutting off this portion of the cable. Due to the many times this portion of the cable had run over the sheave, it had a tendencey to coil up after being cut loose from the rest of the cable. While pulling it back through the sheave to free it the end caught in the tube. Injured stepped back, gave a hard pull or a jerk, it came loose, coiled up, and struck Northrup in the face, causing the eye injury.

Sub-Major Injury No. 130

October 28, 1948, , an employee of the Construction Division in the third housing arra incurred a fracture to tip of right middle finger. Survey crew were running curb and gutter grades. It was necessary at one point for the axeman to lower a stake a few hundredths of an inch by striking it with a maul. The Rodman brushed dirt from the top of the stake to more accurately measure the distance just as the hammer descended and struck the end of his right middle finger.

* Includes one Major Injury, which occured January 28, 1948, and reclassified during November.

Service Divisions
Plant Security and Service

Sub-Major Injury No. 131

November 12, 1948, at approximately 10:14 a.m., , a mechanic in the Maintenance Minor Construction Division, 100-D Area, incurred a linear fracture, extreme tip of terminal phalanx left index finger when caught between the baseboard and a one-hole conduit clamp. Injured was installing 3/4" steam condensate line. While working on 6th clamp that held the line, injured allowed the end of the clamp to slip over his finger just as he struck the mail through the clamp with a hammer. His finger was caught between the baseboard and the tip of the clamp.

Safety Meetings

There were 615 safety meetings held during the period of November 1 through November 30, 1948, with a total attendance of 7,670.

Safety Spectacles

There were 67 pairs of prescription safety spectacles ordered during the period of November 1 through November 30, 1948; 52 pairs of prescription safety spectacles were checked, received, and fitted; and 154 adjustments and repairs were made to all types of safety spectacles.

Exposure Hours

There were 1,470,530 exposure hours from November 1, 1948, to and including November 30, 1948.

100 Areas Activities

Safety slogan contest has been inaugurated in 100-B Area to stimulate safety interest and provide slogans for the top of the Jumbo Safety Poster Board.

A program has also been initiated in 100-D Area to promote safe working practices and remind personnel that January 30, 1949, will be the completion of three years without a major injury.

Unsafe working conditions were investigated in regard to the top of the 30-ton crane of the transfer area in 105 Buildings. It was recommended that additional work platforms be installed at the crane carriage level and also that a canopy be erected on the roof with facilities for handling a traveling hoist.

On a recent tour of the 105 ER Building, it was observed that many violations in regard to construction of stairways were prevalent. There were differences of as much as two inches in the height of the risers and differences up to $3\frac{1}{2}$" in the width of the treads, plus the fact that many of them sloped off at various angles. This would indicate that some corrective action is necessary before the building is accepted.

A question has arisen relative to a standard color code for specific materials in the new construction. A proposed plan, developed and send out for comments in January, 1948, appeared to be suitable and action should be taken to adopt this proposed plan as standard. Painting is already under way in the new areas, although no approved plan has been issued.

Service Divisions
Plant Security and Services

A project to recondition the 1704 Building in the 100 Areas is now underway. Many unsafe work conditions have been noted and corrected.

One Sub-Major and three near serious injuries were investigated during the month.

A considerable number of hand power drills were found to be in use without locking mechanisms removed. The Electrical Division was advised, and this condition is bein g checked throughout the areas.

A defective boiler in the Hanford High School was investigated and proper measures were taken to safeguard against explosion.

200 Areas Activities

Eleven films were shown in the 200 Areas. A projector has been obtained for the use of these areas, and it is expected that the use of films will increase.

A near serious accident investigation was held in the 200 East Area.

Pictures were made in the 200 East Area for publicizing the Two Seconds Safety Thought.

Talks were given to the Minor Construction Group in the 200 West Area on Safety Shoes and Safety Glasses.

300 Area Activities

Review of 313 Building and activities therein was made. The following suggestions were made to the "P" Division supervision in this area:

a. Elimination of part of the open area above the bronze tank.
b. Change of location of starting switches on Centrifuges.
c. Different design of tongs: This was not agreed on with "P" Division supervision because of process problems. Addition of a shield between the last bath and the canning pot: A variation of this will be tried.

Assisted the area in getting more adequate Hi-lifts available for use.

700-1100 Areas Activities

A committee was formed to study the operation of steam cleaning equipment in the Transportation Division. Safe procedures, regulations, and operating rules were established for the use of oil fired steam jenneys which are now in operation.

An inspection was made and approval given after the needed changes were made on conveyors for gravel pits, elevator-type truck tail gates, and portable cranes.

Active interest continued in the anticipated safe year for the 700 Area through talks and daily contacts.

A check was made on circumstances pertaining to six suggestions and answers were given for each.

A special request was made by Stores for recommendations for safe procedures in the handling of a carload of cases of nitric and sulphuric acid in which many bottles had been broken in transit.

After considerable time, a study of all types of ditto fluids in use on the project has been completed and recommendations have been submitted for use, handling, and composition of duplicating fluids to prevent illness and fire.

With the assistance of the Area Engineer, an inspection was made of all Village Maintenance shops, storage areas, hutments, and bull pens in the 700 Area and Village. Notes were taken of needed changes and are being put into effect.

Through all safety meeting groups an attempt is being made to encourage more employee participation in safety meetings.

A review of all safety meeting minutes and injury logs has been made and recommendations made from the information contained.

General

Safety orientation for new G. E. employees of the 1100, 3000, Pasco, and White Bluffs Areas is held each Monday at 11:00 a.m. at the College of Nucleonics Engineering.

A simplified method of keeping record of the figures to be posted on the Safety Record Boards has been adopted by the Patrol Division.

New letter-head stationery for the Safety Division has been designed but will not appear for a while as an adequate supply of our present stock is on hand.

A seasons greeting cover for the topic-of-the-month safety meeting discussion material has been prepared.

A safety shoe survey to determine the styles of safety shoes most popular with General Electric Employees is nearing completion.

Each of the four Mondays in December has been declared Injury Free Day by the Nucleonics Safety Council. The necessary publicity has been prepared and sent out.

The 9-point Job Improvement Program is being discussed in the Safety Engineers Staff Meeting.

An Area "No Injury Contest" plan was presented to the various Industrial Areas for their consideration of stimulating interest in having the Two Seconds of Safety Thought before all work activity.

A magnesium ladder was tested and approved for use in the plant.

Construction was contacted as to improving the boxes that material is being sent in to the 300 Area.

The sprinkler system was approved for a section of the 108-B Building.

Services Divisions
Plant Security and Services

A "spot" light check was made in the 720 Building.

An inspection and recommendations were made of the new 3703 Building.

Special study of the "P" Division operations was made in the 300 Area and several recommendations were made.

FIRE PROTECTION

Fires	Number of Fires		Estimated Damage	
	October	November	October	November
Plant Area	6	7	$45.00	$10.00
Miscellaneous	0	0	No Damage	No Damage
Construction Fires	4	5	$ 3.00	No Damage

No fires of any significance

Routine Duties

Fire Extinguishers

Inspected	3,106
Installed and Relocated	51
Refilled	161
Repaired	0

Gas Masks

Inspected	106
Serviced	4

Fire Drills and Lectures

Outside	42
Inside	99
Auxiliary Brigade	143
Safety Meetings	41

All fire alarm boxes in the Industrial Areas were tested.

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

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 Area	Misc. Area	3000 Area	Pasco Area	TOTAL
Minor Injuries	102	34	27	26	59	83	81	9	23	1	445
Sub-Major Injuries	0	0	1	0	0	0	0	0	1	0	2
Major Injuries	1	0	0	0	0	0	0	1	0	0	2
Days since last Tabulatable Major Injury	66	188	670	1316	383	116	184	12	78	488	
Days since last Sub-Major Injury	59	151	18	406	356	236	112	54	33	414	
Days without a Minor Injury	6	12	13	13	8	6	3	25	17	29	
Safety Meetings Conducted	75	50	53	56	52	66	229	10	15	9	615
Number in Attendance	991	272	357	606	492	628	3958	90	218	58	7670
Safety Spectacles Delivered	10	3	6	4	6	9	14	0	0	0	52
Safety Spectacles Serviced	33	18	21	17	20	25	20	0	0	0	154

MONTHLY INJURY ANALYSIS

Period - October 21 through November 15, 1948

Minor Injuries

	Burns	Abrasions	Contusions	Lacerations	Punctures	Splinters	Strains & Sprains	Foreign Body	Blisters	Unclassified	TOTAL NOVEMBER	TOTAL LAST MONTH
GENERAL	0	0	0	0	0	0	0	0	0	0	0	0
MANUFACTURING	39	33	31	61	11	12	10	20	12	8	237	267
COMMUNITY	1	5	7	10	2	2	2	5	0	5	39	29
ACCOUNTING	0	0	0	0	0	0	0	0	0	0	0	4
LEGAL	0	0	0	0	0	0	0	0	0	0	0	0
TECHNICAL	11	8	2	13	2	1	0	0	1	0	38	60
MEDICAL	2	0	3	2	1	0	1	1	0	0	10	7
HEALTH INSTRUMENT	0	0	1	4	1	0	1	0	0	0	7	25
SERVICE	1	4	5	3	4	3	1	0	1	2	24	40
EMPLOYEE AND COMMUNITY RELATIONS	0	0	0	1	0	0	0	0	0	0	1	2
DESIGN & CONSTRUCTION	0	0	0	6	1	0	5	0	0	0	12	24
TOTAL	54	50	49	100	25	18	20	26	14	15	371	
LAST MONTH	57	75	51	121	28	39	23	27	13	24		458

OFFICE SERVICES DIVISION

General Services Division

Laundering volumes were as follows:

	October	November
Plant Laundry (Building 2723)		
Coveralls - Pieces	26,682	33,525
Towels - Pieces	8,312	7,546
Miscellaneous - Pieces	62,120	69,256
Total Pieces	97,114	110,327
Total Dry Weight - Lbs.	134,267	150,463
Richland Laundry (Building 723)		
Flatwork - Pieces	146,160	154,812
Rough Dry - Pieces	29,354	31,971
Finished - Pieces	5,328	5,690
Total Pieces	180,842	192,473
Total Dry Weight - Lbs.	117,547	134,107
Monitoring Section (Building 2723-W)		
Poppy Check - Pieces	60,939	73,203
Sealer Check - Pieces	94,623	105,603
Total Pieces	155,562	178,806

Clerical Services Division

Telephone

New telephone directories were issued during November. Due to many current number changes in North Richland, it was necessary to issue a supplement to the directory

Community Accounting Section has advised that telephone subscribers desiring more than one listing under residence phone numbers may have such listings by paying 25 cents. Facilities may have additional listings for a charge of 50 cents.

Fifteen additional trunk lines have been installed to North Richland which should greatly relieve the congested condition between these points.

Two peg counts during this month show our calls running 31,030 and 31,832.

Our September toll bill dropped $2,863.12 under the August bill. Our October bill is $477.22 higher than our September bill but is still $2,385.90 under the August Bill.

Service Divisions
Plant Security and Services

It is believed that the new procedure for control of toll calls by Division Heads has effected this general reduction by eliminating certain unnecessary calls and providing closer surveilance, thus eliminating unauthorized calls from official phones.

Line capacity of the Telephone Exchange is as follows:

	October		November	
Lines working as 1 - 0 Lines	632		623	
2 - 0	62		62	
0 - PBX	24		24	
1 - N	23		24	
2 - N	2		2	
2-0-R Combination	2		1	
Total Official Lines		744		736
Lines working as 1 - F Lines	91		91	
2 - F	16		17	
F - PBX	6		6	
1 - R	8		9	
2 - R	1259		1266	
2 - RF	22		21	
3 - RF	2		2	
Total Official Lines		1404		1412
Vacant Lines		52		52
Total lines in Multiple Bank		2200		2200

Mail Room and Stationery

A letter folding machine was purchased and installed during the month and is proving very helpful in getting out employee newsletters and other mail more efficiently.

	October	November
Pieces of First Class mail received	31,731	33,888
Pieces of Parcel Post mail received	1,057	1,084
Pieces of registered mail received	413	427
Pieces of Insured mail received	198	172
Pieces of Special Delivery mail received	308	326
TOTAL	33,707	35,897
Pieces of Mail sent out	49,235	38,448
Amount of money used in Postage Meter	$2,295.38	$1,673.94
Teletypes sent out	2,645	2,152
Teletypes received	2,308	2,255
Total teletypes handled	4,953	4,407

Service Divisions
Plant Security and Services

Office Equipment

The Public Works Division assigned a very large building in the lower labor yards which we can use for storage of office equipment. This space was badly needed and will reduce the number of trips to Pasco.

	October	November
Office machines repaired in shop	283	226
Mach ne service calls	262	240

Printing

Volume continues to run very heavy in the Printing Section, and we have been shor of personnel due to terminations. These positions will be filled by transfers from within our division upon receipt of replacements.

	October	November
Multilith orders received	172	215
Multilith orders completed	186	202
Multilith orders on hand at month end	40	53
Mimeograph orders received	2301	2200
Mimeograph orders completed	2301	2200
Mimeograph orders on hand at month end	0	0
Ditto orders received	3043	3121
Ditto orders completed	3043	3121
Ditto orders on hand at month end	0	0

Stenographic Services

Several transfers were made from this section to other divisions during the month. All of them were promotions for the employees involved.

Volume has not been too heavy, and a great deal of time has been spent in trainin sessions preparing the employees for placement in more responsible positions.

Central Records Storage

	October	November
Cartons of material received for storage	125	164
Cartons of material processed	125	153
Material shipped	0	0

Summary of persons viewing records for the month of November, 1948:

General Electric	59	61
du Pont	25	56
Atomic Energy Commission	4	22
Total	88	139

Services Divisions
Plant Security and Services

PATROL AND SECURITY

General

A blackout procedure for the 200-East Operations Area issued under date of October 28th was placed into effect on November 4th.

A construction evacuation plan for the 241-BY area was issued November 11th.

An off-site protection visit for guard instruction purposes was conducted by a representative of the Hanford Works Patrol Division from November 10 to 18, 1948, at the National Carbon Company, Morganton, North Carolina.

Security pamphlet No. 1, "Maintenance of Security", published by the Atomic Energy Commission was issued to all Division Heads November 12th. At the same time a supply of these pamphlets was furnished to the Industrial Relations Division to be issued to all terminating operations employees.

On November 15th, as a result of the series of suspicious fires in the Richland Village, eight Industrial patrolmen were selected from the various areas and posted in sensitive positions throughout the Village during the hours of darkness. These positions included the 1100 Warehouse Area, the 1100 Area Labor Yards and the near vicinity of the 700 Area. The number of patrolmen has subsequently been reduced to five and will be maintained at that average until it is deemed advisable to discontinue the surveillance.

A memorandum was issued November 22nd by Mr. R. S. Bell and directed to Mr. T. B. Farley, entitled "Control of Visitors Entering Exclusion Areas - 200-East and 200-West".

Effective November 30th, direct supervision over activities of the Patrol Emergency Officer will be handled by the Security Office instead of the 300 Area Shift Commander, enabling the Emergency Officer to be in a better position to handle direct contacts with other Divisions and agencies.

In line with the stepped-up Area Traffic Safety Program, as outlined in Security Bulletin #29, all available patrol personnel are being assigned to plant area traffic duty during the critical traffic periods.

Due to the recent installation of an evacuation notification system, the personnel register located at the 221-U area badge house was discontinued on November 18th.

Effective November 19th, commercial freight line trucks, bearing proper authority, will be permitted to go to White Bluffs and return to the purpose of picking up material or equipment to be shipped off of the project.

Effective November 29th, the day shift emergency officer working hours were extended to allow the swing shift sergeant to report at and be in charge of the Prosser Barricade during the afternoon shift change traffic period.

PATROL

The 200 areas handled 116 process escorts between the areas.

Requests handled totaled 484, mainly consisting of opening doors, gates and escorts for employees of other departments.

A total of six construction employees were escorted into areas for First Aid treatment.

There were 159 unusual incident reports received, consisting mainly of contraband picked up at barricades, lost badges, pencils and traffic violations.

There were 22 classified escorts handled during the month.

One employee was given emergency first aid treatment in the areas by patrol supervision during periods when medical personnel were absent from areas.

The outer area traffic car issued ten citation tickets, thirty-four verbal warnings and 158 details in addition to their regular duties.

Practice evacuations were held as follows:

11-5-48	234-5 Construction Area	11:32 a.m.
11-10-48	234-5 Construction Area	8:00 p.m.
11-10-48	White Bluffs Area	11:31 a.m.
11-17-48	100-F	10:35 a.m.
11-18-48	White Bluffs Area	8:15 p.m.
11-29-48	100-B	10:37 a.m.

Training

Classes for all supervisors in the Security and Patrol Divisions were started on November 8th on the "Nine-point Job Improvement Program".

Basic training for all new patrolmen was given during the month, a M-8 Light Armored Car driving course being included.

Advanced training was continued on the M-8 Light Armored Car and its equipment, all personnel being transported across the river to the 37-MM firing range for firing of the 37 MM gun, the 30 and 50 cal. machine guns.

The Army "L" and machine gun courses were not fired

Safety meetings included a discussion on "Winter Hazards of Driving".

Security meetings included a discussion of rumors and the possible ways to curb them.

Health talks were given on the topic for the month, "Care of the Teeth".

An embankment was cut at the M 8 firing range eliminating the ricocheting bullets which were fire hazards.

A fire guard was cut around all buildings and gun ranges at the training school.

Radios were installed in the five new M-8 Light armored cars received recently.

12

Services Divisions
Plant Security and Services

SECURITY

Operations Section

There were 406 Security Meetings held and attended by 6856 General Electric Employees.

Security Education talks were given by Mr. M. J. Headley, Security speaker at 12 Operations meetings - 465 employees attended.

Employee Clearances

Class "Q" clearance received on old employees this month	431
Class "Q" clearances received on old employees to date	3910
Class "Q" Clearances received on new employees this month	303
Class "Q" Clearances received on new employees to date	5246
Class "Q" Clearances received on both old and new employees since February 17, 1947	9156
Formal "P" Clearances awaiting change to "Q"	79
Authorization clearances issued this month to employees	91

The following General Electric Security Bulletins were issued by T. B. Farley during this month:

Bulletin #28 - "What to do in case of;" - November 1, 1948.
Bulletin #29 - "Traffic Within the plant area" - November 11, 1948
Bulletin #30 - "Authorized Atomic Publicity" - November 17, 1948

Statistical Summary of Outstanding Area Badges

	October				November				
	A	B	C	Total		A	B	C	Total
100-B	645	1326	691	2662	100-B	608	1367	680	2743
100-D	765	1363	656	2784	100-D	778	1431	662	2871
100-F	767	1330	640	2737	100-F	760	1397	660	2817
200-E	1149	1430	490	3069*	200-E	1118	1498	495	3111*
200-W	1316	1492	513	3321	200-W	1338	1555	515	3408
200-N	52	790	167	1009	200-N	47	827	166	1040
300	1523	1437	388	3348	300	1505	1486	392	3383
100-DR	4712	422		5134	100-DR	4908	466		5374
241-TX	1659	298		1957	241-TX	1651	302		1953
241-BY	493	26		519					

* - Includes 47 "A" badges at Riverland Yards.

* - Includes 47 "A" badges at Riverland Yards.

Service Divisions
Plant Security and Services

Visitors or Temporary Badges

Area	October	November
100-B	147	173
100-D	243	269
100-F	260	314
200-E	221	277
200-W	348	428
200-N	144	188
300	448	557
100-DR	375	410
241-TX	178	200
241-BY	3	—
	2367	2816

Special Clearance Section

Following is a statistical summary of emergency clearance status of vendor and consultant vendor companies:

Total companies forwarded to AEC this month	13	Personnel	88
Total companies forwarded to AEC to date:	179		1893
Total companies cleared for restricted data this month	20	Personnel	70
Total companies cleared for restricted data last month	24	Personnel	58

New companies forwarded to Atomic Energy Commission this month:

Kirks Office Supplies Company
Yakima, Washington

North Electric Manufacturing Company
Galion, Ohio

Benjamin F. Shaw Company
Wilmington, Delaware

Chas. C. Yost Company
323 Vance Building - Seattle, Washington

Number and type of clearance granted by the AEC this month to vendors:

Formal "Q"	59
Formal "P"	10
Emergency "Q"	3

Emergency clearance requested this month for General Electric Consultants	1
Formal "Q" clearances received on General Electric consultants this month	3

No emergency clearances requested for General Electric employees this month

Emergency clearances for General Electric employees requested to date	157
Emergency clearances for General Electric employees received to date	116

"Q" clearance cards issued to consultants and vendors this month: 1

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HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING NOVEMBER 30, 1948

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
MEDICAL DIVISION						
I. Visitors to this Works						
J. S. Felton Oak Ridge National Laboratory Oak Ridge, Tennessee	Discussion of health problems	W. D. Norwood P. A. Fuqua	11-2-48	11-3-48	X	
S. T. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Medical consultation	W. D. Norwood P. A. Fuqua	11-15-48	11-17-48	X	
R. J. Hasterlik Argonne National Laboratory Chicago, Illinois	Discussion of health problems	W. D. Norwood	11-17-48	11-20-48	X	
CONSTRUCTION DIVISION						
I. Visitors to this Works						
J. T. Roos The Door Company Seattle, Washington	Assist G.E. engineers in setting up materials in connection with Roberts Filter Company contract	G. E. Hotaling	11-23-48	Indefinite		X
E. A. Zeretzke The Oilgear Company Milwaukee, Wisconsin	Install material received from the Company he represents	G. E. Hotaling	11-17-48	Indefinite		X
II. Visits to other Installations						

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
J. H. Barry to: Weber Showcase & Fixture Los Angeles, California	Check on progress of materials for the 234-5 Building Project	F. Weber, Jr.	11-22-48	11-24-48		X
J. H. Barry to: Jensen Machinery Co. Oakland, California	Expedite completion of hoods for 234-5 Building Project	A. V. Osborne R. H. Iverson	11-24-48	11-26-48		X
J. H. Barry to: Oscar Krenz, Inc. Oakland, California	Expedite completion of MMC purchase orders	W. Krenz J. E. Cullen	11-26-48	11-26-48		X
J. H. Barry to: Willamette Iron & Steel Portland, Oregon	Concerning hoods transferred from vendor in eastern part of country	D. J. Kooker	11-27-48	11-28-48		X
J. C. Hamilton to: Gunderson Brothers Portland, Oregon	Set up procedure on inspection of steel plates on MK order	Mr. Larson Mr. Sundt	11-12-48	11-13-48		X
L. G. Jones to: Willamette Iron & Steel Portland, Oregon	Set up shipping schedule of 234-5 hoods	D. J. Kooker	11-22-48	11-24-48		X
L. G. Jones to: Western Foundry Portland, Oregon	Set up procedure for checking inspection of cast iron blocks	J. L. Kieruff (G.E. representative)	11-22-48	11-24-48	X	
L. G. Jones to: Oregon Brass Portland, Oregon	Regarding aluminum castings for rod guides	G.E. inspector	11-22-48	11-24-48	X	
L. G. Jones to: Iron Fireman Mfg. Co.	Establish procedure for checking split bushings	E. Winkler	11-22-48	11-24-48		X
L. G. Jones to: Washington Iron Works Seattle, Washington	Regarding procedure for inspection of 3rd and 4th quarter bushings	O. C. Nugent	11-24-48	11-25-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
T. M. Pettey to: Willamette Iron & Steel Portland, Oregon	Clarify questions on hoods	D. J. Kooker	11-1-48	11-2-48		X
T. M. Pettey to: Gender Machine Works Portland, Oregon	Clarify questions on inspection	N. Gender	11-1-48	11-2-48		X
T. M. Pettey to: Cascade Manufacturing Co. Portland, Oregon	Clarify questions on inspection	R. C. Warren	11-1-48	11-2-48	X	
R. H. Burrell (to be included in December report)	Contact vendors	- -	11-22-48	Still gone	X	

DESIGN DIVISION

I. Visitors to other Installations

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
J. A. Carlen to: Giffels & Vallet Detroit, Michigan	Technical consultation	N. R. Bjornson	11-1-48	11-22-48	X	
R. C. Hollingshead to: Ravenna Metal Products Seattle, Washington	Consultation regarding inner clamp bands	K. O. Hiatt	10-31-48	11-1-48	X	
R. C. Hollingshead to: Oak Ridge National Lab. Oak Ridge, Tennessee	Process design discussion	M. D. Peterson	11-2-48	11-15-48	X	
A. J. Karnie to: Willamette Iron & Steel Portland, Oregon	Approve drawings and equipment	D. J. Kooker	11-3-48	11-5-48		X
J. M. Holman to: Kollmorgen Optical Corp. Brooklyn, New York	Review binocular periscope	H. S. Freidman	11-8-48	11-12-48		X

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
J. C. Bloom to: Charles Brunning Co., Inc. Seattle, Washington	Meeting regarding new machine installed in Blueprint Section	N. L. Spencer H. W. Olson	11-8-48	11-9-48		X
C. W. Buchanan to: Charles Brunning Co., Inc. Seattle, Washington	Meeting regarding new machine installed in Blueprint Section	N. L. Spencer H. W. Olson	11-3-48	11-9-48		X
W. B. Webster to: Kellex Corporation New York, New York	Inspection of development program on Redox Design	D. D. Jacobus	11-12-48	11-21-48	X	
T. Williams to: Kellex Corporation New York, New York	Inspection of development program on Redox Design	D. D. Jacobus	11-12-48	11-23-48	X	
H. W. Huntley to: Kellex Corporation New York, New York	Inspection of development program on Redox Design	J. D. Hagy	11-13-48	11-28-48	X	
A. J. Karnie to: Giffels & Vallet Detroit, Michigan	Design conference	C. J. Steigleder	11-16-48	11-25-48	X	
P. M. Murphy to: Giffels & Vallet Detroit, Michigan	Design conference	M. M. Bush, Jr.	11-20-48	11-26-48	X	
II. Visitors to this Works						
F. W. Schooley Chicago Bridge & Iron Co. Los Angeles, California	Technical consultation	O. H. Pilkey	11-3-48	11-4-48		X
K. R. White Northwest Electronics Spokane, Washington	Discuss communication equipment	E. E. Scott I. M. A. Garcia W. R. Thorson	11-11-48	11-13-48		X

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
M. J. Sargent Northwest Electronics Spokane, Washington	Discuss communication equipment	E. E. Scott I. M. A. Garcia W. R. Thorson	11-11-48	11-13-48		X
V. H. Vodra Northwest Research Portland, Oregon	Demonstration for installation of ducts	W. W. McIntosh	11-12-48	11-13-48		X
W. H. McPhee Products Research Company Los Angeles, California	Demonstration for installation of ducts	W. W. McIntosh	11-15-48	11-16-48		X
W. E. Thompson Products Research Company Los Angeles, California	Demonstration for installation of ducts	W. W. McIntosh	11-15-48	11-16-48		X
H. Hayes Consolidated Western Steel San Francisco, California	Equipment fabrication discussion	F. C. McInerney	11-22-48	11-23-48		X
G. O. Goddard Kewaunee Company Adrian, Michigan	Engineering consultation	G. S. Cochrane	11-29-48	11-30-48		X
D. J. Kooker Willamette Iron & Steel Portland, Oregon	Discussion of vendor prints	A. J. Karnie	11-29-48	11-30-48		X
HEALTH INSTRUMENT DIVISION						
I. Visitors to this Works						
R. J. Hasterlik Argonne National Laboratory Chicago, Illinois	Problems on Health Physics	C. M. Patterson	11-18-48	11-20-48	X	
II. Visits to other Installations						

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
F. P. Seymour to: Oak Ridge National Lab. Oak Ridge, Tennessee	Rala process discussion	L. Emlet	10-31-48	11-13-48	X	
D. E. Jonno to: Atomic Energy Commission Washington, D. C.	Lectures on Atmospheric Turbulence and Pollution	O. G. Sutton (Manchester, England) H. Wexler (Chief, Scientific Services) F. W. Reichelderfer (Chief, U.S. Weather Bureau)	10-24-48	11-11-48		X
INSTRUMENT DIVISION						
I. Visitors to this Works						
K. E. Atwood Bailey Meter Company Cleveland, Ohio	Inspection of Bailey Meter equipment	W. M. Mathis	11-3-48	11-5-48	X	
II. Visits to other Installations						
W. T. E. Elmendorf to: General Electric Company Schenectady, New York	Instrument consultation	G.-W.-Dunlap	11-25-48	12-5-48	X	
PROJECT ENGINEERING DIVISION						
I. Visitors to this Works						
E. F. Dawson Dawson Machine Company Seattle, Washington	Consultation on machine for 314 Building, 300 Area	H. P. Shaw	11-22-48	11-23-48		X
M. S. Greenhalgh General Electric Company Schenectady, New York	Consultation on 313 Building Study	J. S. McMahon G. R. Moore	11-8-48	11-12-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
G. R. Rodo General Electric Company Schenectady, New York	Consultation on 313 Building Study	J. S. McMahon G. R. Moore	11-8-48	11-12-48	X	
II. Visits to other Installations						
J. S. McMahon to: General Electric Company Schenectady, New York	Consultation with regard to 313 Building Study	D. E. Garr	11-22-48	11-24-48	X	
MANUFACTURING DIVISION MANAGEMENT						
I. Visitors to this Works						
C. N. Porloberg Knolls Atomic Power Lab. Schenectady, New York	Inspection of maintenance, transportation, shops, and other facilities pertiment to operation of KAPL	H. D. Middel W. I. Patnode	11-8-48	11-11-48	X	
POWER DIVISION						
I. Visitors to this Works						
J. W. Burton Roberts Filter Company Darby, Pennsylvania	Discussion of equipment supplied by their firm	H. F. Moasley	11-30-48	12-1-48	X	
C. V. Roberts Roberts Filter Company Darby, Pennsylvania	Discussion of equipment supplied by their firm	H. F. Moasley	11-30-48	12-1-48	X	
SECURITY AND SERVICES DIVISION						
I. Visits to other Installations						
S. F. Campbell to: National Carbon Company Morganton, North Carolina	Guard instruction purposes	G. H. Fancher L. F. Perkins (AEC)	11-10-48	11-18-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
T. B. Mitchell to: Metropolitan Life Ins. New York, New York	Obtain ideas of construction and operating procedures in preparation for record center at Hanford Works		11-8-48	11-8-48		X
T. B. Mitchell to: E. I. du Pont de Nemours Wilmington, Delaware	Obtain ideas of construction and operating procedures in preparation for record center at Hanford Works		11-9-48	11-9-48	X	
T. B. Mitchell to: Navy Record Center Arlington, Washington, D. C.	Obtain ideas of construction and operating procedures in preparation for record center at Hanford Works		11-10-48	11-11-48	X	
T. B. Mitchell to: Atomic Energy Commission Oak Ridge, Tennessee	Obtain ideas of construction and operating procedures in preparation for record center at Hanford Works		11-12-48	11-12-48	X	

TECHNICAL DIVISION

I. Visitors to this Works

J. B. Stevenson Argonne National Laboratory Chicago, Illinois	Attend Redox Advisory Committee Meeting	O. H. Greager	11-16-48	11-19-48	X	
S. Lawroski Argonne National Laboratory Chicago, Illinois	Attend Redox Advisory Committee Meeting	O. H. Greager	11-16-48	11-19-48	X	
M. D. Peterson Standard Oil Development Co. Bayway, New Jersey	Attend Redox Advisory Committee Meeting	O. H. Greager	11-18-48	11-19-48	X	
F. W. Schumacher Standard Oil Development Co. Bayway, New Jersey	Attend Redox Advisory Committee Meeting	O. H. Greager	11-18-48	11-19-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
J. Marsden Research Laboratory Schenectady, New York	Attend Redox Advisory Committee Meeting	O. H. Greager	11-18-48	11-20-48		X
M. R. Fenske Petroleum Research Institute Pennsylvania State College State College, Pennsylvania	Technical consultation on Redox Program	O. H. Greager	11-15-48	11-18-48		X
D. H. Marquis Gen. Eng. & Consulting Lab. Schenectady, New York	Technical consultation on 234-5 Program	O. H. Greager J. B. Work	11-10-48	11-19-48		X
J. A. Choules Gen. Eng. & Consulting Lab. Schenectady, New York	Technical consultation on 234-5 Program	O. H. Greager J. B. Work	11-10-48	11-19-48		X
J. E. Brown Gen. Eng. & Consulting Lab. Schenectady, New York	Technical consultation on 234-5 Program	O. H. Greager J. B. Work	11-10-48	11-19-48		X
W. D. Egnor Gen. Eng. & Consulting Lab. Schenectady, New York	Technical consultation on 234-5 Program	O. H. Greager J. B. Work	11-10-48	11-19-48		X
R. B. Korsmeyer Carbide & Carbon Chemical Oak Ridge, Tennessee	Technical consultation on sludge sampling	O. H. Greager	11-15-48	11-20-48		X
A. A. Abbatellio' Carbide & Carbon Chemical Oak Ridge, Tennessee	Technical consultation on sludge sampling	O. H. Greager	11-15-48	11-20-48		X
W. J. Warnock Gen. Eng. & Consulting Lab. Schenectady, New York	Technical consultation on design work on 234-5 Project	O. H. Greager J. B. Work	11-17-48	11-24-48		X

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
W. Giogold Gen. Eng. & Consulting Lab. Schenectady, New York	Technical consultation on design work on 234-5 Project	O. H. Greager J. B. Work	11-17-48	11-24-48	X	
E. Schoch Gen. Eng. & Consulting Lab. Schenectady, New York	Technical consultation on design work on 234-5 Project	O. H. Greager J. B. Work	11-17-48	11-24-48	X	
TECHNICAL CONSULTANTS TO HANFORD WORKS						
G. W. Watt University of Texas Austin, Texas	Technical consultation	R. H. Beaton	11-26-48	11-27-48	X	
G. W. Watt University of Texas Austin, Texas to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Technical consultation on 234-5 problems as HW Technical consultant	E. R. Jette	11-7-48	11-9-48	X	
N. H. Nachtrieb University of Chicago Chicago, Illinois	Consultation on 234-5 analytical problems	D. W. Pearce W. W. Marshall L. F. Kendall	11-6-48	11-8-48	X	
II. Visits to other Installations						
R. H. Beaton to: Carbide & Carbon New York, New York	Technical discussion on metal recovery	G. Folbeck	11-8-48	11-9-48	X	
O. H. Greager to: Carbide & Carbon New York, New York	Technical discussion on metal recovery	G. Folbeck	11-8-48	11-9-48	X	
C. A. Rohrmann to: Carbide & Carbon New York, New York	Technical discussion on metal recovery	G. Folbeck	11-8-48	11-9-48	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
C. A. Rohrmann Carbide & Carbon Oak Ridge, Tennessee	Process design consultation	F. Hurd	11-10-48	11-12-48	X	
W. M. Harty to: Oak Ridge National Lab. Oak Ridge, Tennessee	Process design discussions on Rala problems	M. D. Peterson	11-3-48	11-17-48	X	
B. Waldenbaum to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Technical consultation & inspection including Bldg. 5	E. R. Jette	11-15-48	11-19-48	X	
D. F. Shepard to: Oak Ridge National Lab. Oak Ridge, Tennessee	Analytical consultation	M. T. Kelly	11-1-48	11-3-48	X	
W. W. Koenig to: Aluminum Co. of America New Kensington, Pennsylvania	Discuss corrosion studies	R. H. Brown	11-2-48	11-2-48		X
W. W. Koenig to: International Nickel Co. New York, New York	Discuss corrosion studies	F. L. LaQue	11-3-48	11-3-48		X
W. W. Koenig to: Bell Telephone Laboratories New York, New York	Discuss corrosion studies	R. M. Burns K. Compton	11-1-48	11-1-48		X
E. A. Smith to: Argonne National Lab. Chicago, Illinois	P-10 Project discussions	T. S. Chapman	11-2-48	11-3-48	X	
E. A. Smith to: Knolls Atomic Power Lab. Schenectady, New York	Induction heating experiments	J. P. Howe	11-4-48	11-12-48	X	
W. W. Koenig Standard Oil Company Elizabeth, New Jersey	Discuss corrosion studies	F. C. Fyke	11-4-48	11-4-48		X

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
W. W. Koenig to: Kellex Corporation New York, New York	Discussion corrosion studies	D. D. Jacobus	11-11-48	11-12-48	X	
R. J. Brouns to: University of Minnesota Minneapolis, Minnesota	Analytical consultation	Prof. A. O. Nier	11-8-48	11-10-48	X	
W. W. Koenig to: Mass. Inst. Technology Boston, Massachusetts	Discuss corrosion studies	H. H. Uhlig	11-12-48	11-12-48	X	
W. W. Koenig to: General Electric Co. Schenectady, New York	Discuss corrosion studies	T. W. Fuller J. P. Howe	11-9-48	11-11-48	X	
W. W. Koenig to: Crane Company Chicago, Illinois	Discuss corrosion studies	A. M. Houser, Jr.	11-15-48	11-15-48	X	
T. S. Jones to: Vulcan Crucible Steel Co. Aliquippa, Pennsylvania	Supervise production rolling	J. Flower	11-15-48	11-20-48	X	
R. M. Padden to: Vulcan Crucible Steel Co. Aliquippa, Pennsylvania	Supervise production rolling	J. Flower	11-15-48	11-20-48	X	
A. H. Bushey to: Northwestern University Chicago, Illinois	Personnel recruitment	W. E. Cass	11-15-48	11-15-48		X
R. J. Brouns to: Oak Ridge National Lab. Oak Ridge, Tennessee	Study of mass spectrograph equipment	F. W. Hurd	11-15-48	11-19-48	X	
R. J. Brouns to: University of Chicago Chicago, Illinois	Analytical consultation	A. J. Dempster	11-11-48	11-12-48	X	

[redacted]

[redacted]

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Classified	Restricted Data Unclassified
W. T. Kattner to: Simonds Saw & Steel Lockport, New York	Supervise production rolling	A. D. Potts	11-29-48	11-30-48	X	
C. W. J. Wende to: Oak Ridge National Lab. Oak Ridge, Tennessee	Consultation on development program	A. M. Weinberg	11-17-48	12-8-48	X	
C. W. J. Wende to: Atomic Energy Commission Washington, D. C.	Consultation on development program	Atomic Energy Commission personnel	11-17-48	12-8-48	X	
C. W. J. Wende to: General Electric Co. Schenectady, New York	Consultation on development program	K. H. Kingdon	11-17-48	12-8-48	X	
C. W. J. Wende to: Argonne National Lab. Chicago, Illinois	Consultation	W. H. Zinn	11-1-48	11-3-48	X	
A. A. Johnson to: Argonne National Lab. Chicago, Illinois	Consultation	W. H. Zinn	11-1-48	11-3-48	X	

[redacted]

EMPLOYEE AND COMMUNITY RELATIONS DIVISION

SUMMARY - NOVEMBER, 1948

Classes for the 9-Point Job Improvement Program have been started by the instructors with a total of about 1, 100 supervisors participating.

Open requisitions for additional personnel increased from 439 at the beginning of the month to 456 at the end of November. Total plant roll increased during November by 95 employees. Recruitment activities were conducted by a technical recruiter at the University of Washington; fifty prospective candidates were interviewed.

There were 1, 544 contacts made by Employee Service Counselors during November. Three employees retired. 287 suggestion awards, totaling $ 330.00, were granted during November. Settlement for one claim in the North Richland Barracks Fire was approved for $ 7, 500.00.

Seven news releases were made to newspapers and radio stations in the immediate vicinity of Richland. Nine informative news releases were made to 41 of the leading daily newspapers and 130 weekly newspapers in the Pacific Northwest during November. Arrangements for four speakers, one in Portland, two in Yakima, and one in Seattle, were made during November. Recruiting advertisements for sub-station operators were prepared, and submitted to three Midwest newspapers, one in Des Moines, Iowa; one in Omaha, Nebraska; and one in Minneapolis, Minnesota.

Several meetings were held with the Chief Field Examiner, of the Regional National Labor Relations Board, in regard to the organizing activities of the Atomic Trades Council (A.F. of L.). A plant study was made of a number of employees, whose jobs would fall within the jurisdiction of the bargaining unit. A number of meetings have been held with various Division supervisors, concerning the Company's policies regarding job evaluation and wage rate control. Reclassification of all Technical Graduates "A" and "B" to the new classification of Technical Graduates was placed into effect November 1. Preliminary studies for new classifications, of those jobs previously classified tentatively, were started during November.

EMPLOYEE AND COMMUNITY RELATIONS DIVISION

NOVEMBER, 1948

ORGANIZATION AND PERSONNEL

Employee Relations

Effective November 1, 1948, one reproduction and photographic assistant "E" was transferred to the Technical Divisions.

Effective November 22, 1948, one stenographer-typist "C" was transferred to the Construction Division.

Effective November 26, 1948, one stenographer-typist "D" was added to the Statistics and Records Group.

Effective November 29, 1948, two stenographer-typists "D" were transferred to the Construction Group.

Effective November 29, 1948, one stenographer-typist "B" was added to the Procurement Group.

Community Relations

Effective November 5, 1948, one stenographer-typist "D" terminated.

Labor Relations and Wage Rates

No organization changes were made in this Group during November.

Number of employees on payroll	November, 1948
Beginning of month	96
End of month	93
Net Loss	3

This loss was due to two transfers and one voluntary termination.

Employee and Community Relations Division

ACTIVITIES

General

Instructor classes in the 9-Point Job Improvement Program continued during the month of November. Most of the instructors have also started their classes in this training program, and there are approximately 1,100 supervisors participating in these various groups. The condensed meetings held for the benefit of all staff members were completed the first part of November.

Employee Relations

Employment

	October, 1948	November, 1948
Applicants interviewed	1,180	1,554

Open Requisitions	October, 1948	November, 1948	Total
Exempt	37	402	439
Non-Exempt	41	415	456

Of the open requisitions at the beginning of November, 275 non-exempt were covered by interim commitments, and 20 of the individuals on exempt requisitions had accepted offers, 8 had been made offers but not accepted, and the remainder were in the process of investigation. At the end of November 236 non-exempt requisitions were covered by interim commitments, and 21 of those individuals on exempt requisitions had accepted offers, 10 had been made offers but not accepted, and the remainder were in the process of investigation.

	October, 1948	November, 1948
Employees added to the rolls	259	235
Employees removed from the rolls	156	144
Net gain	103	95

On November 29, the Employment Group was informed that it was necessary to reduce the force of Carpenters "B" in the Village Public Works Group by fifteen. In addition, the Employment Group was also notified of reduction in force in the Construction Division of nine exempt employees, attached to the Concrete Inspection Section. These

reductions were necessary due to lack of work. Efforts were immediately made to transfer as many of these employees as possible to other Divisions.

During the month of November, the Employment Group was informed that two employees in the Design Division, originally scheduled for lay off, had been re-assigned and were no longer available.

In line with Organization Announcements Nos. A-16 and A-19, dated September 22 and November 1 respectively, preliminary arrangements have been made to transfer the technical recruiting activities from the Employment Group to the newly formed Technical Personnel Group.

Recruiting efforts during the month of November were confined to a visit by a technical recruiter to the University of Washington. A total of fifty prospective candidates were interviewed; including: eight Chemists, fifteen Chemical Engineers, two Ceramic Engineers, six Biologists, eleven Zoologists, and seven who will receive their degrees in Fishery. No direct offers were made to any of these persons.

During November, fifty-six new requests for inter-Divisional transfers were received, and reviewed by the Employment Office. Forty-four of these persons making such requests were personally interviewed, and as a result twenty-three transfers were effected.

Employee Services

During the month of November there were a total of 1,544 contacts made by Employee Service Counselors. These contacts resulted in 1,728 inquiries summarized as follows:

Policy	340
Military Service	77
Group Life Insurance	146
Group Disability Insurance	194
Pension Plan	44
Suggestion System	12
Employee Savings Plan	99
G. I. Bill of Rights	1
Social Security	36
Employee Sales Plan	399
Housing	83
Community	37
Personal	92
Income Tax	61
Miscellaneous	107
Total	1,728

Employee and Community Relations Division

Exit interviews were given to sixty-five terminating employees. Two hundred nine new employees were given orientation. Of this latter number, 76% elected to participate in the Group Life Insurance Plan, and 84% elected to participate in the Group Disability Insurance Plan.

Employee Services Counselors attended two Area Council Meetings, with a total of thirty-two members in attendance. Seventeen meetings were conducted by Counselors. At these meetings Company general benefit plans, as well as Group Life Insurance Re-Canvassing Program, were discussed.

The following employees retired during the month of November:

Earl Jensen, Plant Security and Services Division
Hugh T. Simpson, Manufacturing Maintenance Division
Joseph F. Brazzell, Plant Security and Services Division

The last two named employees were participating in the Pension Plan, and were interviewed prior to their retirement and fully informed as to all matters pertaining to the benefits they would receive under the Pension Plan.

One employee death occured during November. This employee was , Purchasing and Stores Division. A contact was made with this employee's family by the Employee Service Counselor, and all arrangements relative to insurance and hospitalization were handled at that time.

Preliminary arrangements for a Re-Canvassing Program of those eligible employees not participating in the Company Group Life Insurance Plan were made during the month. The re-canvassing of these employees is to be handled through their supervision.

During the month of November, two non-veteran, single employees of the Instrument Division received 1-A classifications from their local draft boards. Deferment requests have been filed for these two individuals. No decision has been received to date on thise requests.

Suggestion System

At the end of November, the volume of work in the Office of the Secretary of the Suggestion System was as follows:

	October	November	Total since 7-15-1947
Suggestions received and acknowledged	111	131	2,825

Employee and Community Relations Division

	October	November	Total since 7-15-1947
Investigation reports completed	98	142	2,551
Awards granted by Suggestion Committee	15	28	247
Cash Awards	$ 115	$ 330	$ 2,435

Insurance

1. Insurance Coverage - Public Liability

-- This individual received a severe hand injury in the North Richland Barracks Fire. He was formerly a brick layer, and the injury has resulted in the loss of the use of his right hand. The Travelers Insurance Company, after carefully investigating and reviewing this case with the Company officials and the Atomic Energy Commission officials approached this claimant with the offer of settlement in the amount of $ 75,00[illegible].00. This offer has tentatively been accepted by the claimant, and approval for payment for this claim in that amount has been requested of the Atomic Energy Commission.

2. Life Insurance

Mr. R. C. Stratton, representative of the Home Office Life Under-Writers Association, has been requested to re-survey the various jobs at this Works, because of some of the inequities that exist, and also because of the recent change in nomenclature of the various jobs on this Project. Mr. Stratton has advised this survey will be conducted shortly after the first of the year.

3. Liberty Mutual Blanket Fidelity Bond

The Liberty Mutual Insurance Company has been requested to cancel the blanket fidelity bond effective December 1.

4. Compensation

-- This employee is presently in the Kadlec Hospital in a critical condition, as the result of the removal of his lung, which was described as cancerous. A letter has been received from his attorney requesting information concerning the possible exposure of this employee to radioactive materials. At a joint meeting between the representative of the Legal Division, the Medical Division, and the Insurance Group, it was agreed that the information should be furnished

5.

to this employee's attorney, in order to establish the fact that his condition was in no way connected with his employment.

-- A claim was filed at the Department of Labor and Industries, as the result of an injury incured by this employee of a sub-sub-contractor on September 4, 1948. The injury consisted of a blow on the head when a piece of lumber fell from the scaffolding. It was the Medical Division's opinion that the cause of this individual's death was not from this blow, but was the direct result of a blow received during an epileptic seizure occurring while off the job on September 13. For this reason, allowance of this claim has been opposed.

-- Allowance of the claim of the above entitled individual by the Department of Labor and Industries was protested by the Company on the grounds that the cause of the death was in no way connected with the Company. Testimony to substantiate this protest was submitted at a hearing held on November 18 in Richland. A transcript of this testimony has not been received from the Department of Labor and Industries.

Community Relations

Public Information -- Community

Informative newspaper releases made during the month to the Villager, Tri-City Herald, Spokane Chronicle, Hanford Works News, Walla Walla Union Bulletin, and radio stations KPKW and KIT, including release dates, were as follows:

11-11-48 This story urged Richland residents to buy pre-fab furniture before December 1, the deadline, and thus avoid a rush.

11-18-48 H. A. Carlberg announces that although some progress in the campaign to conserve electric power is evident, everyone's effort should be redoubled.

11-25-48 This release was based on a speech by C. P. Cabell before the Richland Luther Mens' Club. The address explained atomic energy from a non-technical point of view.

11-25-48 Announcement that several electrical interruptions would occur during the coming week in Richland. Several similar announcements were made during November.

Employee and Community Relations Division

11-25-48 H. A. Carlberg explains the reason for the frequent electrical interruptions in Richland in a news release.

11-11-48 A biographical story and photograph of M.T. Binns was applied to the Villager at their request when Binns was appointed Clerk of the Community Council.

11-18-48 Supplied the Villager with information about the opening of Dent's Candy Shop in the lobby of the Desert Inn.

Arrangements were made so that KPKW will be notified by Richland Patrol when roads leading to, or inside the Project are icy, or otherwise dangerous. KPKW will broadcast the dangerous road conditions between 7 A.M. and 8 A.M., so that employees will use caution when driving to work.

Public Information -- General

Informative newspaper releases were sent to forty-one of the leading daily newspapers in the Pacific Northwest during the month. In the instances noted, the releases were also mailed to approximately 130 weekly newspapers in the same area. The release date is given for each story, and they are as follows:

11-6-48 A copy of R.C. Muir's third letter to employees was sent to daily and weekly papers with an attached explanatory note to the editors. The letter answered employees' questions: "Do I have to join a union?"; "If I do not join now, will it cost more to join later?"

11-11-48 Announcement was made that General Electric President C. E. Wilson had visited the Hanford Works for a two-day series of conferences with supervisors here. This went to weekly papers.

11-11-48 This release stated that on November 1, G. R. Prout assumed his duties here as Assistant General Manager.

11-11-48 Appointment of D.W. McLenegan as a member of R.C. Muir's staff was announced. Mr. McLenegan's work will be the recruitment and placement of technical and engineering graduates at this Works.

11-16-48 A release concerning L. R. Boulware's visit at Hanford Works and his talk to supervisors concerning the 9-Point Job Improvement Program.

Employee and Community Relations Division

11-20-48 A release, based on H. E. Callahan's speech, at Yakima, before the Yakima Student Conference, was sent to the Yakima Republic, the Yakima Morning Herald, and radio stations KIT and KIMA.

11-26-48 Announcement that five hundred apartments are expected to be built in multiple units in Richland early next year

11-26-48 Announcement was made that H. E. Scott, C. C. Tallman, and G. L. Brown had been appointed Division Heads in this Division. Photographs of H. E. Callahan and these three men, who compose his staff, were sent to twelve of the leading daily papers in the Northwest

11-29-48 A news story of the speech given by E. L. Richmond before the Yakima Chamber of Commerce was released to the Yakima Reuplic and the Yakima Morning Herald, and radio stations KIT and KIMA. Mr. Richmond spoke about the operation of Richland, and the commercial portion of the Master Plan.

Helen Gleason, correspondent for the Spokane Chronicle, wrote a series of four articles concerning the present union activity at the Hanford Works. The first concerned the events preceding the writing of the articles; the second was based on an interview with R. C. Muir, in which he stated General Electric's point of view; the third, on an interview with A.F. of L. organizer, Scott; and the last article summed up the status quo, and to a certain extent, looked ahead.

A feature story entitled, "Women of Hanford", was prepared at the request of the Oregon Journal by Virginia Harty, of Women's Activities. Photographs were supplied with the story.

Paul Nations, Editor of the En-Kayan, Morrison-Knudsen's magazine, received some facts from this office for use in a future story on that Company's activities at the Hanford Works.

The copy for an excellent story on Hanford Works, that will appear in a North west Banking Journal, was cleared by this office.

Public Information -- Speakers

W. K. Alexander spoke before the Professional Engineers of Oregon in Portland. A speech written by C. P. Cabell was revised for this occasion. Arrangements at Portland were handled by this Office. Slides were made and taken from our files, and identifications for the slides were written for this event. Also arrangements were made for the dis-

tribution of two hundred copies of General Electric publication, "Inside the Atom", by Alexander after his talk. Transportation to and from Portland was also arranged. Release for newspapers and radio were prepared.

On the occasion of E. L. Richmond's talk before the Yakima Chamber of Commerce, a member of this Division accompanied Mr. Richmond and R. J. Pederson to Yakima. Releases were supplied to the two Yakima daily papers and the two local radio stations. Radio station KIT recorded Richmond's talk on a tape recorder. After the speech the tape was played over at the KIT studio and edited where necessary.

A thirty minute speech was prepared for H. E. Callahan to be delivered before the Yakima Student Valley Conference in Yakima.

A fifteen minute speech was prepared for G. R. Prout for use at the meeting of the Seattle First National Bank Correspondents in Seattle.

Employee Information -- Special Programs

An office letter requesting all supervisors to re-emphasize the need for conserving electric power during the present power shortage was prepared by this Division and signed by Assistant to the General Manager, G. G. Lail. In line with the power conservation campaign, a news release was prepared for the Villager, which explained that some power had been saved in Richland during October.

Arrangements were made for General Electric Vice President L. R. Boulware's address to supervisors in the Columbia High School auditorium on November 15. Twelve hundred invitations were printed, and a speaker's rostrum, table, and public address system were arranged for. It was necessary to have the invitations to the supervisors reprinted due to a change of date in Mr. Boulware's address.

Ten thousand two-color "Employee Newsletter" letterheads were produced. Original art work for these letterheads was prepared by a member of this Division.

One thousand each of seven issues of the Commentator were obtained from the Maqua Company and distributed by this Division to the 9-Point Job Improvement Program instructors.

A "Survey of Open House Practices", covering the Kadlec Hospital open house, was prepared for Mc-Graw Hill Publications. A short description of the Kadlec Hospital opne house with pictures was also included.

Employee and Community Relations Division

Arrangements were made to have one hundred twenty-five reprints of General Electric advertisements, which appeared in the October 18 issue of Life Magazine, posted throughout the plant.

Recruiting advertisements for Electrical Sub-Station Operators were placed in the November 28 through November 30 issues of the Des Moines Register and Tribune, the Omaha World-Herald, and the Minneapolis Star and Tribune.

Eleven instruction charts were enlarged to poster size and reproduced for use by the Employee Relations Division in the re-canvassing of all Hanford Works employees not participating in the General Electric Group Life Insurance Plan. In addition, 2,200 tip-ons were prepared which will be attached to informative material on the Group Life Insurance Plan.

The Island Presentation was given for sixty-one supervisors in the General Electric Security Orientation room in North Richland on November 30. Two members of this Division assisted in the presentation.

Employee Information -- Works News

During the month of November, four issues of the Works News were published. The number of copies printed each issue during the month was kept the same due to the current situation regarding the printer. "Candid Camera" was inserted in the November 26 issue, which was a four-page paper due to the holiday.

During the month, a supplement was added to the Reporter's Handbook which pointed out that free advertising is against the policy of the paper and, therefore, it would be necessary to eliminate references to addresses and phone numbers of employees used in connection with their on-the-side businesses. It was also emphasized that Christmas and New Years copy should be in within the deadlines set for the two holiday issues. Photographs pertaining to holiday festivities were also requested.

In the November 12 issue, an announcement was made to the effect that General Electric Vice President G. R. Prout assumed his new duties as Assistant General Manager of the Nucleonics Department. Also, due to the critical power shortage, a story was run explaining the reasons why at various times electric and power outages occurred throughout Hanford Works.

In the November 19 issue, a summary was made of the talk by Vice President L. R. Boulware to all supervisors at Hanford Works in which he discussed the nine elements that General Electric people wanted most in their jobs.

1C.

Employee and Community Relations Division

Employee Information -- Women's Activities

"Today's General Electric Woman", the Women's Page in the Hanford Works News, appeared in three issues of the Hanford Works News during November. One week the page was not issued because of the Thanksgiving Holiday, necessitating a four-page paper.

A total of eighty-one women came to work for General Electric during November and were present for the women's orientation conducted in the Women's Activities Office.

Thirty-three women terminated during the month and were given exit interviews in this office. A chart is being kept to tabulate the reasons for terminations and the number of terminations in each Division. These figures are incorporated into the termination report for the plant.

There were seven requests for counsel. They dealt with requests for transfer, recreation for women, slipcovering and winter resorts.

One hundred ninety-seven requests for rides or passengers to various points in the state and distant states were recorded. Destinations included Salt Lake, Iowa, Missoula, Oklahoma City, San Francisco, Klamath Falls, Ellensberg, Tacoma, Spokane, Seattle, Portland, Ephrata, Walla Walla, Moscow, Hermiston, and Pullman.

Labor Relations and Wage Rates

Labor Relations

A representative from the Regional National Labor Relations Board, Mr. Kenneth McClaskey, Chief Field Examiner, spent several days at the Hanford Works for the purpose of making a field examination in regard to the organizing activities of the Atomic Metal Trades Council (A.F. of L.). A personnel file was set up for the use of the Field Examiner for the purpose of checking employee authorizations and bargaining unit composition. Meetings were held with representatives of the N.L.R.B. during which information was exchanged in regard to the Company's position in matters of labor relations. The N.L.R.B. was provided with information which it requested in regard to general information about the Company (name, purpose, functions, etc.) and more detailed facts as to number of employees working in various jobs and locations and the Company's position regarding the bargaining unit. J. W. Burnison, assistant to G. H. Pfeif, Manager, Employee Relations, Schenectady, was here for the purpose of working with this Division on matters pertaining to union organizing activities.

Employee and Community Relations Division

A plant-wide study was made of the number of employees whose jobs fall within the jurisdiction of the bargaining unit requested by the Atomic Metal Trades Council.

In keeping with the Company's policy of disseminating information through the medium of the 9-Point Program, representatives from this Division have conducted several meetings with supervisory personnel in other Divisions. Company plans and policies regarding job evaluations and wage rate control were explained along with general information relative to the workings of the classification system which was put into effect on July 19.

Wage Rates

Statistical data has been developed from the information collected from the various Companies throughout the Northwest during the recent Community Wage Rate Survey. It is anticipated that copies of this Survey will be available early in December. A comprehensive cost study was completed which showed the payroll cost by Divisions before and after the installation of the new classification system, along with percentage changes. In addition to the above information, the study also included the number of employees who received take-home pay increases and the number who were placed on preferential rates.

The reclassification of all Technical Graduates "A" and "B" to the new classification of Technical Graduate was effected. Lists of all employees under this classification were provided to all Divisions concerned.

Preliminary studies were started for the purpose of developing new classifications of those jobs that have been tentatively classified with the understanding that new classifications which will more aptly fit the duties of the jobs would be requested. Classification reviews have been conducted in a number of Divisions. A general review of all craft jobs in the Electrical Division was made for the purpose of studying the alignment within the Division. A general review of the Community Division has been started. To date the study has been completed in the Village Facilities Group and partially completed in the Village Realty Group. In keeping with the Division's policy of reviewing any job upon request, groups and individual jobs have been studied in a number of Divisions throughout the plant. Plans were completed for classifications to be used by the one hundred one personnel which were transferred from Atkinson Jones to the General Electric Construction Division.

In conjunction with the above, a large portion of the work conducted by this Division continues to be personal contact with representatives and supervisors from all Divisions. Such contact involves day to day inter-

pretation and decisions relative to wage control, rulings, and policies.

STATISTICS

Employee Relations

Number of employees on rolls	10-31-48	11-30-48
Exempt	1,695	1,697
Non-Exempt	6,791	6,884
Total	8,486	8,581

ADDITIONS

	Exempt	Non-Exempt	Total
New Hires	7	215	222
Re-activations	0	11	11
Transfers from other Works	1	0	1
Re-engaged	0	1	1
Net Additions	8	227	235
Payroll Exchanges	12*	4**	16
Gross Additions	20	231	251

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

Employee and Community Relations Division

TERMINATIONS

	Exempt	Non-Exempt	Total
Actual Terminations	11	107	118
Removals due to extended leaves	3	19	22
Payroll Exchanges	4*	12**	16
Gross Terminations	18	138	156

Approximately 93% of all actual terminations were on a voluntary basis, and most of these were for the following reasons: (A) Another job, (B) Personal reasons, (C) To remain or return home, (D) Housing.

GENERAL

	10-1948	11-1948
Applicants interviewed	1,180	1,554
Photographs processed	5,893	3,768
Fingerprint impressions taken (in duplicate)	546	407
Procurement letters written	1,181	1,199

ABSENTEEISM STATISTICS
(Weekly Salary Roll) ***

	10-1948	11-1948
Male	1.81 %	1.80 %
Female	3.20 %	3.51 %
Total plant average	2.18 %	2.48 %

* Transferred to the Weekly Salary Roll.
** Transferred to the Monthly Salary Roll.
*** Statistics furnished by Weekly Payroll Division.

14.

Employee and Community Relations Division

INVESTIGATIONS STATISTICS

	10-1948	11-1948
Cases pending at beginning of month	1,458	1,437
Cases received during the month	449	408
Cases closed	470	410
Cases pending at end of month	1,437	1,435
Number found satisfactory for employment	254	364
Number found unsatisfactory for employment	14	16
Cases closed before investigation completed	29	24
Special investigations conducted	67	72

Compensation and Insurance

Claims	Reported in November, 1948	Reported in October, 1948	Total since Sept. 1, 1946
Workmen's Compensation	128	102	1,294
Liability	11	8	259
Handled for du Pont	1	0	1

Compensation Payments Approved (Department of Labor and Industries)

	October		September		Total since Sept. 1, 1946
	No. of Claims	Amount	No. of Claims	Amount	Amount
Medical Aid	28	$1,204.10	31	$ 798.39	$14,226.02
Accident Fund	103	6,659.03*	76	7,101.86*	98,832.91
Pension	29	1,364.49	28	1,280.32	36,238.23

* This amount includes $1,030.00 for Adminstrative Expenses.

15.

Employee and Community Relations Division

Liability Payments Approved (Travelers Insurance Company)

	September, 1948*	October, 1948
Bodily Injury - Excluding Auto	$ 2,663.50	$ (none)
Bodily Injury - Auto	4.84	(none)
Property Damage - Excluding Auto	1,670.73	1,929.64
Property Damage - Auto	1,331.55	343.76

* The September statement is being shown in this report because it was not received from Travelers in time for last months' report.

COMMUNITY DIVISIONS

SUMMARY-NOVEMBER,1948

ORGANIZATION AND PERSONNEL

Number of employees on roll:	Beg.of Month	End of Month
Community Administration	7	6
Community Accounting	32	31
Community Public Works	587	586
Community Commercial Facilities	19	19
Community Housing	43	41
Community Fire	132	139
Community Patrol	154	150
Community Activities	9	12
	983	984

GENERAL

Appropriations were approved by the Appropriations and Budget Committee for protection of irrigation ditch west of Richland on the Yakima River and for Sacajawea School, improved heating facilities, supplemental.

A request for type A work authority was issued covering the design and construction of three hundred two-bedroom multiple housing units.

Mid-year review of construction budget was prepared and submitted to the Budget Committee.

During the month of November petitions for nomination of councilmen for the Richland Community Council were received, checked and certified. by the City Clerk's office.

COMMUNITY ACTIVITIES

On November 28, 1948, ground breaking ceremonies were held by the new Richland Baptist Church.

A survey was made in the Tri-City area to ascertain the need for night school classes for those persons who are not high school graduates.

Special assemblies were held at the Columbia High Scool commemorating National Education Week.

On November 11, 1948, the Richland Post 71 of the American Legion, with the assistance of the Veterans of Foreign Wars and the Marine Corps League sponsored an Armistice Day memorial ceremony on the Village common.

COMMUNITY FIRE

Thirty-eight fire alarms were answered during the month, 25 in Richland and 13 in North Richland. These fires resulted in losses of $1,477.73 to the project, and $2,959.90 in personal property. (The figure shown as suffered by the project does not include the yet undetermined loss in the Lewis & Clark Grade School fire.)

COMMUNITY HOUSING

One hundred and forty-seven ranch type houses were completed and accepted for allocation during the month.

Requests for alteration permits were granted to fifty-seven tenants for miscellaneous, minor alterations in Village houses.

COMMERCIAL FACILITIES

The Dent Candy Company, located in the lobby of the Desert Inn, opened for business on November 13, 1948.

Locations were awarded for the following facilities: Drug Store, Food Store and Service Station in Richland.

Invitations to Bid were mailed on the following prospective facilities: Shoe Store, Bakery, Service Station, Sporting Goods Store, Men's Wear Store and Women's Apparel.

Bids were received on the following facilities and the operators will be selected in the near future: Barber and Beauty Shop and Milk Depot in Richland.

COMMUNITY PATROL

One hundred and seventeen individuals were arrested and processed through the Richland Jail during the month of November, 1948.

COMMUNITY PUBLIC WORKS

Fifty renovations of vacated houses were completed during the month of November.

COMMUNITY ACCOUNTING

The total rental revenue received during the month of November, 1948, was $268,838.75.

COMMUNITY DIVISIONS

COMMUNITY ADMINISTRATION

NOVEMBER, 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll	November
Beginning of month	7
End of month	6
Total decrease*	1

* 1 employee on sick leave

GENERAL

The following requests for appropriations were approved by the Appropriations and Budget Committee during the month:

a. Protection of Irrigation Ditch west of Richland on the Yakima River.

b. Sacajawea School, Improved Heating Facilities, supplemental.

A request for type A work authority was issued covering the design and construction of three hundred two-bedroom multiple housing units.

Mid-year review of construction budget was prepared and submitted to the Budget Committee.

During the month of November petitions for nomination of councilmen for the Richland Community Council were accepted. Twenty-eight petitions for Councilman-at-large, and twenty-one petitions for District Councilman were received by the City Clerk's Office, checked with the records of the County Auditor and the petitioners certified to appear on the ballots to be used in the election of December 7, 1948.

COMMUNITY SAFETY COMMITTEE

Recommendations were submitted to the Transportation Division relative to corrective measures to be taken to relieve the existing hazards at the railroad crossings located on the by-pass highway at the coal yard and on Van Giesen Road immediately west of the by-pass intersection.

Recommended changes in the parking facilities serving the administration building, for the purpose of relieving congestion of traffic on Goethals Drive, have been turned over to the city planners for further study.

COMMUNITY DIVISIONS
PUBLIC WORKS DIVISION
NOVEMBER, 1948

ORGANIZATION & PERSONNEL

Number of employees on payroll:	Exempt	Non-exempt	Total
October 31, 1948	68	519	587
November 30, 1948	67	519	586

During the month of November the following personnel changes were made.

New Employees			9
Terminations		1	1
Transfers:			
From:	Purchasing & Stores Divn.		1
	Securities & Service Divn.		1
To:	Securities & Service Divn.		6
	Maintenance Divn.		3
	Design & Constr. Divn.		1

GENERAL

The installation of a Marvair heating unit was started during the week of November 29, and will take approximately one week to install. It is intended that complete records of the operation of this unit will be maintained and distributed to interested parties at regular intervals. The unit will be tested for one year. It is being installed in a four bedroom ranch type house at 635 Cedar.

Negotiations are being made with the Transportation Division to transfer necessary equipment and personnel so that road maintenance, unloading of coal, care of the coal pile at the 784 building, and care of the garbage disposal pit can be handled under the supervision of Public Works Division personnel. It is anticipated that such a transfer will result in a savings to the community in that the services of these men can be used to better advantage.

Site preparation is being requested in the neighborhood shopping area located at the corner of Geo. Washington Way and McMurray Road, and at the corner of Wright and Swift. It is anticipated that construction work in these two areas will be started near the end of the year.

The plans and specifications for 200 one-bedroom apartments are nearing completion by J. Gordon Turnbull, Inc., Graham, Anderson, Probst & White, Inc. These should be completed so that bids may be obtained for construction in the very near future.

An analysis of garbage and waste collection and disposal operation has been made which indicates that: (1) Many other services were being performed by the crews which also handled garbage collection. As a result a very inflated figure has been used for the cost of this work. (2) The rental and maintenance cost of equipment is very high.

Community Public Works Division

GENERAL (Continued)

(3) The present method of borrowing equipment and men from other divisions to perform certain phases of the work is very inefficient and expensive. (4) The Public Health requirement that the garbage cannot be cold for feeding purposes causes the net collection cost to be higher than if this were not the case. (5) That certain economies can be instituted without causing an appreciable deterioration of the services rendered.

Certain rerouting has been accomplished, and commercial facilities placed on a six day garbage collection basis instead of the formerly seven day basis. Other services that have been rendered by the groups doing garbage collection are being charged in their proper place, and as a result, there has been a reduction of approximately 33-1/3% in the amount budgeted for garbage and trash removal. This was made possible because of the figures presented as a result of the new accounting system. Contemplated revision of procedures will further reduce the cost of collection and disposal.

PROJECTS

C-134 - RICHLAND VILLAGE DUST CONTROL AND LANDSCAPING. The replacement of dead street trees, planted last season, was completed in November with a total of 305 trees replaced. The planting of new street trees was started during the month with 310 trees having been planted, making a total of 615 trees planted to date this season. A total of 3640 street trees, shrubs, and evergreens were received during the month in the village nursery. The work on the Duane Ave. shelterbelt is progressing and the job is approximately 30% complete.

There was no grass seeding during November due to the lateness of the season. Areas to the south and east of Richland, which have been disturbed by construction, are being seeded with domestic rye in an effort to control dust, 75 acres having been seeded to date.

C-146 - EXTENSION TO PRESENT IRRIGATION SYSTEM. Work was resumed on extension of present irrigation at Jefferson School. Site grading of the area south of Symons bordered by Geo. Washington Way and Hunt Ave. is complete and irrigation will be installed in this area during December.

C-164 - PARKING COMPOUNDS. The extension of parking compounds was completed by the sub-contractor and accepted.

C-218 - PATCHING AND SEAL COATING OF VILLAGE STREETS. The contract on seal coating was stopped due to the inclement weather and work will be resumed in the spring. That work which was accomplished before cold weather set in was accepted Nov. 29, with a few minor exceptions.

C-229 - OFFICE MACHINE REPAIR SHOP 722-H. The completion notice for this project was issued November 28, 1948.

Community Public Works Division

PROJECTS (Continued)

C-254 - PAINTING EXTERIOR OF 514 PERMANENT HOUSES

Number of houses	primed	290
" " "	sprayed	209
" " "	completed	197
" " "	Accepted	50

It is expected that all houses in division 4 will be completed on or about Dec. 15, 1948. Further work on this contract will be discontinued until next spring.

C-263 - CONSTRUCTION OF STORM SEWER MAIN - SYMONS STREET. The new street, sidewalk, curb and storm sewer on Symons was accepted Nov. 5.

ENGINEERING SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
October 31, 1948	18	11	29
November 30, 1948	16	11	27
Terminations	1		
Transferred to Community Administrative	1		

General

Consideration is being given to the adoption of the National Electrical Code as the standard code for use in the community of Richland.

A total of 27 back charge estimates were prepared during the month.

Preliminary arrangements were made for Community Maintenance to take over from stores division all stocks of key blanks in an effort to eliminate confusion on reorders for material.

A total of 75 purchase requisitions were processed during November, as follows:

Store stock requests	28
Store stock adjustments	7
Purchase orders expedited	16

A total of 846 man hours was spent by Transportation on street maintenance. A total of 284 man hours was spent on sidewalk repair. Road signs and striping required 24 hours.

The work of repairing the prefab roofs was completed by the Lone Pine Roofing Company on Nov. 10, 1948. Since that time leaks have occurred on three roofs and the contractor has been notified so that he may repair them.

Community Public Works Division

ENGINEERING SECTION (Continued)

The foundation of tract house M-960 was inspected and accepted. It was necessary to move this house in connection with the construction of ranch type houses.

The location of the sewer for tract house M-994 was staked and checked. This house has never had sewer connections but has been served by a septic tank. However, since this tank has become inoperative it was deemed advisable to make sewer connections inasmuch as such connections will be necessary when this tract house is replaced by a permanent dwelling.

The water lines, sewer lines, and finish grading in Area C were inspected and accepted with few exceptions, which will be corrected.

The inspection and acceptance of Y, Y-1, Z and Z-1 type ranch houses is as follows:

Previously accepted	213
Accepted during November	147
Total accepted	360
Inspected but not accepted	140

The following major alterations, authorized by alteration permits, were reviewed and approved during the month for Commercial Facilities Division:

a. Installation of Barber Shop in Desert Inn
b. Installation of Fur Shop in Desert Inn

Building alterations were completed and inspected at the following facilities during the month:

a. Elite Shop - Installation of evaporative type coolers in existing heating system air ducts.
b. Diamond 5 & 10¢ Store - Installation of new tube lighting.
c. Desert Inn - 1. Installation of Chrysler Air Temp. units and relocation of two evaporative coolers in dining room.
2. Provision of wooden floor and wire mesh screening and three ceiling lights in the store room.
3. Remodeling portion of lobby to provide facilities for candy shop.

Technical information and instructions were furnished the following:

a. Prospective facility operators subsequent to notice of award.
1. Donsow & Drumheller Drug Store — Neighborhood Area C
2. George Payne Food Store — " " "
3. Shell Service Station — " " "

b. Information prior to preparation of detailed working drawings and specifications for Assembly of God Church.

Community Public Works Division

ENGINEERING SECTION (Continued)

Proposals are now being considered requesting the assignment of ground space and preliminary approval for the following:

a. Richland Baptist Church
b. Frayn Printing Company
c. Shell Service Station - Neighborhood C
d. Thompson and Mills Garage and Service Station
e. Denson and Drumheller Drug Store - Neighborhood C
f. George Payne Food Store - Neighborhood Area C

Drawings and specifications were approved and building permits issued for the following construction to be financed by facility operators or Community Activities:

a. Richland Baptist Church
b. Cahoon Motors
d. Richland Supply Company

Facility	Const. Started	% Complete	Est. Completion Date.
Diamond Store	9-20-48	100	11-30-48
Pennywise Drug	10-21-48	75	12-15-48
Klopfenstein's	8-23-48	99	12- 1-48
South Side UP Church	11- 5-48	15	1- 1-49
Baptist Church	11-27-48	3	2- 1-49
Elect. & Furn. Inc.	9-27-48	85	12- 6-48
Garno's Bakery Addn.		75	12-13-48

Installation of additional utilities and the rearrangement and addition of equipment necessary to expand production at the Richland Laundry has been temporarily suspended pending decision of the facility operator on further charges.

A total of 62 alterations (by alteration permit) were inspected during the month for the Housing Division.

Traverses were run on streets around the laundry, south of Swift and west of Stevens, and north of Lee and west of Stevens.

The following lots were staked:

a. Hale's Service Station
b. Frayn Printing Company
c. Studebaker Garage
d. Baptist Church
e. Packard Agency

Monuments were set at street intersections for future use in locating lots.

Community Public Works Division

ENGINEERING SECTION (Continued)

Project Proposals

Description	% Complete	Date Completed
Installation of hourwatt meters in residences	50	
Installation of water service to five tract houses. K-718, 744, 748, 784 & 787	100	11- 5-48
Installation of steam service pits for men's and women's dorms.	100	11-30-48
Protecto-wire installation in the dormitories & the Desert Inn.	100	11- 8-48
Painting of exterior surfaces of commercial facilities	90	

Studies

Life expectancy of asbestos siding	100	11-19-48
Fire alarm systems - Jefferson & Sacajawea grade schools	Study held in abeyance pending further information from Community Activities Divn.	
Possibility of temporarily connecting 64 multiple housing units to steam mains serving the men's dormitories	100	11-30-48
Lutheran church roof	80	
Lack of hot water for Columbia high school & Jefferson grade school	100	11-30-48
Basic requirements to reduce future maintenance costs on the new 500 units.	50	

Cost Estimates & Drawings

Revisions to municipal building to house Tenant Relations	100	11-16-48
Painting baseball diamond bleachers Columbia high school	100	11-24-48
Installation of a furnace in the tract house at 413 Geo. Washington Way.	100	11-30-48
Installation of blackout curtains in rooms 4B, 6B, 8B, & 10B, Bldg. 770B	100	11-16-48

Community Public Works Division

ENGINEERING SECTION (Continued)

Description	% Complete	Date Completed
Cost Estimates & Drawings (cont'd)		
Draft stop partition and door at the top of lobby stairs in men's dorms M-9 thru M-14	100	11-17-48
Installation of a water line for tract house K-777	35	
Installation of toilet in MS Warehouse	75	
Installation of an exhaust fan and door louver in room 8B, 770B	100	11-16-48
Installation of rest room facilities for Community Labor Section, 700 Area	100	11- 9-48
Preheating busses (Drawing)	100	
Floor covering - halls of Adm. Building (Funds approved and work order issued)	100	11- 4-48
Roofing specifications, Commercial Facilities	50	

UTILITIES SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
October 31, 1948	9	63	72
November 30, 1948	9	64	73
New employees		1	

General

Steam Facilities:
At 784 building a bearing failed and was replaced on the coal crusher. Overhaul work was completed on #3 boiler. The strong acid pump in 784-A building boiler water treatment plant was replaced.

Domestic Water:
Approximately 50% of the water mains in area "F" have been tested, sterilized and flushed. On a test run of the N.K.K. Pit Reservoir Pump House it was found that the pumping installation at present is not satisfactory. This is due to the fact that when the pump is shut off and the water in the reservoir is low the pump loses its prime. Steps are being taken to remedy this situation.

Community Public Works Division

UTILITIES SECTION (Continued)

Irrigation Systems:
All systems are completely shut down and winterized.

Sewage System:
Construction forces have completed a new insulating wall on the present digester. The maintenance section replaced a burned out bearing in the #2 sludge pump motor at the disposal plant. This bearing burned out as a result of lack of proper lubrication. The conditions which permitted this to occur have been remedied.

An inspection of all manholes on the present sewerage system has been completed to determine any necessary maintenance.

Pasco Warehouse Area:
Normal operations and routine maintenance.

MAINTENANCE SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
October 31, 1948	26	300	326
November 30, 1948	26	292	318

During the month the following personnel changes were made:

New Employees		2
Terminations		1
Transfers -		
From:	Purchasing & Stores	1
	Community Administrative	1
To:	Maintenance Divn.	3
	Securities & Service Divn.	5
	Community Administrative	1
	Design & Construction Divn.	1
	Labor Section	1

General

During the month of November 50 renovations were completed of which 26 were permanent type houses and 24 were prefabs. Fifteen of thepermanent type house renovations were complete paint jobs; 7 were partially painted and 4 were cleaned only. Of the prefab renovations 23 were complete paint jobs and 1 was cleaned only. There were on hand at the end of the month 24 orders for renovations not completed.

The interior painting of 82 conventional type units was completed. Bathrooms were repaired and painted in 19 units. The interior painting of the barber shop was also completed.

Community Public Works Division

MAINTENANCE SECTION (Continued)

The following repairs were made to flood damage at the Labor Yard in preparing office space and shops for outside electrical: 2 metal hutments repaired and floors recovered, 1 storage shed, and 1 men's rest room. Construction of shelves, bins, and work space was completed.

All work as outlined for repair of flood damage has been completed.

Bath tub replacements were completed in 17 conventional houses; laundry tubs were repaired in 6; water heaters in 17, kitchen sinks in 20; sink faucets in 130; wash basins in 2; toilets in 6; and five prefab shower stalls were repaired.

During the month only 239 prefab heaters were cleaned and cords replaced as a larger supply of heater cord could not be obtained from Stores.

The summary of work performed in the furniture repair and upholstery shop is as follows: 44 mattresses, 9 davenos, 1 rocker, 53 chairs, 60 beds, 16 dressers, 20 tables and 16 desks.

Linoleum sink tops were replaced in 53 conventional type houses and 40 in prefabs.

Work repairing fire damage was performed in 1524 Hunt, and two jobs in the Masonic Temple.

The overhaul of #3 boiler has been completed and new grates installed in both boilers at the 1131 garage.

The installation of steam heat in 714-A hutment is complete, and is 90% complete in 715-A.

The work of installing the oil burning unit in the incinerator at the Kadlec hospital is complete with the exception of a wind hood and of some painting. It is anticipated that this work will be completed during the coming month.

A hot water tank at dormitory W-2 which was rusted through and required a sizable patch was repaired.

The excavation of the south end of the Nettleton Sound septic tank drain field was completed and settling box installed. Such an installation was made because of the fact that it would have been necessary to cross two streets to get into the village sewer mains and inasmuch as this was a short time operation, it was considered advisable to install the septic tank rather than go to the additional expense of making sewer connections.

A septic tank and drain field was installed at K-734 tract house.

The installation and repairs to fences to facilitate room for labor division groups in the 700 area is complete.

Community Public Works Division

MAINTENANCE SECTION (Continued)

The blowing out of the irrigation lines has been completed and repair and overhaul is now under way.

Domestic water lines were repaired at Wellcian Way, Hospital, Williams at Thayer, and Williams at Stevens.

The necessary rerouting of the eight inch water line from the No. 12 well to the water system, because of the installation of the oil storage tanks, has been completed. This involved the laying of approximately 240 feet of eight inch pipe.

The overhaul of pump and motor for No. 4 well has been completed.

The summary of work performed in Community and Commercial facilities is as follows: exhaust fans and hoods for kitchen ranges have been cleaned at the Cafeteria, Recreation Hall, and Desert Inn; new stainless steel sinks, drain boards, shelves, and pre-rinse machines at the Bus Depot; hand rails for the front steps of the post office; hood and exhaust fans for dishwasher at the Jefferson school is 35% complete.

A preventive plumbing maintenance program on 761, 762, 760, and 720 buildings has been completed. Also, the insulation of steam lines under the 760 building is complete.

The altitude valves on high tanks No. 1 and 3 have been overhauled and pilot valve repaired on #2.

The installation of scales for the labor division is 75% complete.

Repairs to the screens on men's dorms is 80% complete.

LABOR SECTION

Organization & Personnel

Number of employees on payroll:	Exempt	Non-exempt	Total
October 31, 1948	13	143	156
November 30, 1948	13	150	163

During the month the following personnel changes were made:

New Employees	6
Transfers: From Patrol Divn	1
" Maintenance Section	1
To Patrol Division	1

General

Garbage and trash pick up continued on a five day basis with the exception of commercial facilities which require saturday pick up. Sunday collection of garbage from eating facilities was discontinued during November.

LABOR SECTION (Continued)

Sawing and stockpiling of kindling for village consumption continued during November.

Village orchards were maintained as usual, the work consisting of discing and cleaning out of dead wood. Work on orchards will be discontinued until spring. The foreman and crew will be assigned work in connection with project C-134 during the planting season.

A total of 21 personal furniture moves were accomplished. 177 refrigerators and 177 electric ranges were installed in new homes.

The new equipment yard has been stabilized and ready for use in the southwest corner of the 700 area. The mower shop has been moved to the new location in 722-G hut.

The canal crews have been cleaning the banks in preparation for fall burning. This work should be completed within 45 days, at which time grading of silt and muck from the bottom of the canal will begin.

Hose and sprinklers have been stored for the winter, with the exception of those in the newly seeded areas.

Fuel oil delivery is running on an average of 7,000 gallons per day with two trucks. Coal delivery is running from 100 to 150 tons per day. The new coal loader has not proven satisfactory due to a faulty clutch which the manufacturer is making good.

FUEL INVENTORY

Coal:		
On hand 11-1-48	5,313,100	Pounds
Received during November	12,248,600	"
Delivered to other areas	10,457,300	"
Consumed in village	3,136,000	"
On hand 11-30-48	3,968,400	"
Fuel Oil:		
On hand 11-1-48	2,545	Gallons
Received during November	131,212	"
Delivered to houses	101,667	"
Transferred to North Richland	5,746	"
Delivered to J.A.Tertelling & Sons	2,314	"
Delivered to Jefferson School	5,063	"
Delivered to G.E. Engineers	98	"
Delivered to Kadlec hospital	292	"
Delivered to Pasco Fire Station	2,000	"
On hand 11-30-48	16,577	"

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COMMUNITY COMMERCIAL FACILITIES DIVISION

November 1948

ORGANIZATION AND PERSONNEL — NOVEMBER

Number of employees on payroll:

Beginning of month	19
End of month	19
Net increase	

COMMERCIAL FACILITIES

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

	OCTOBER	NOVEMBER
Cafeteria meal customers	101,731	91,866
Percent of room-day occupancy - Desert Inn	95%	94%
Gallons of ice cream sold	8,599	11,247
Carnation milk and cream deliveries	93,323	93,025
Darigold milk & cream deliveries (wholesale only)	8,668	7,735
Theater customer count	54,951	54,669
Gallons of gasoline sold	196,842	177,842

Total number of commercial facility operators' employees, full and part-time, as of November 30, 1948, is 1,024.

The Dent Candy Company, located in the lobby of the Desert Inn, opened for business on November 13, 1948.

The Desert Inn was issued an alteration permit to install, at Suboperator's expense, a plate glass front on space occupied by the Arctic Fur Company.

The Desert Inn was issued an alteration permit and work has started on the altering and modernizing of space northeast of the hotel lobby, at the expense of Suboperator, to house a barber shop.

Improvements and addition to Pennywise Drugstore are nearing completion.

The addition to Garmo's Bakery has been completed.

Greyhound Post Houses, Inc., installed new pre-rinse and dishwashing facilities, at Operator's expense.

Klopfenstein's addition and remodeling program has been completed.

Safeway Food Store has installed, at Operator's expense, two deep-freeze cabinets - one for frozen foods, and the other for ice cream - green colotyle floor covering in back of meat and produce counters, and new check stands.

Richland Supply Company has been authorized to proceed with the construction of an addition to the existing hardware building, at Operator's expense, to provide for additional storage and sales space.

An Agreement dated October 29, 1948, was entered into by and between General Electric Company and Max R. Walton, covering establishment and operation of a Notary Public and License Agency in the multiple-business building in North Richland.

A Supplemental-Agreement dated October 1, 1948, was entered into by and between General Electric Company and Max R. Walton, which provides for enlargement of the scope of activities to be conducted by the Operator in the operation of Columbia Service Company and an increase in monthly rental fixed by Paragraph 4 of the Basic Agreement.

An assignment of agreement dated October 30, 1948, was entered into by and between General Electric Company and L. M. Castleberry and Fred R. Stipe, covering the operation of Drug Store "A" in Richland. L. M. Castleberry has assigned his interest in the Agreement to Fred R. Stipe, partner.

A Supplemental Agreement dated October 19, 1948, was entered into by and between General Electric Company and C. W. Olberg and Marvel S. Morgan, covering altering and modernizing Pennywise Drugstore to provide more sales space.

Vance Properties, Inc., has been authorized to sublet space in the Desert Inn to the following sublessees:

1. Arctic Fur Company, Seattle, who will operate a fur sales shop in the presently unused linen room in the south side of the lobby.

2. Arthur G. Williams, Seattle, who will operate a barber shop in the presently unused linen room in the north side of the lobby.

3. Dent Chocolate Company, Seattle, who will operate a candy store and gift shop in the presently little-used writing room section at the south side of the lobby.

4. Helen Gleason, Richland, who will operate an advertising agency office in a small unused room off the attic stair access on the second floor of the hotel.

A Drugstore location was awarded to Bert Densow and Joseph Drumheller, Spokane, Washington, who will construct their own building in Richland.

A Food Store location was awarded to George Payne, Bremerton, Washington, who will construct his own building in Richland.

A Service Station location was awarded to James R. Parcell, Richland, who will construct his own building in Richland.

Invitations to Bid were mailed on the following prospective facilities to be established in Richland:

Shoe Store
Bakery
Service Station
Sporting Goods Store
Men's Wear Store
Women's Apparel

Bids were received on the following facilities and the operators will be selected in the near future:

Barber and Beauty Shop - Richland
Milk Depot - Richland

It is anticipated that invitations to bid for additional facilities to be established in the new commercial area will be sent out during December.

INVENTORY AND PROPERTY

The annual 1948 inventory of Government-owned equipment at the following location was completed:

Seattle-First National Bank

REQUESTS FOR ESTABLISHMENT OF BUSINESSES IN VILLAGE

A number of individuals expressed a desire during the month to establish and operate businesses in Richland. The types of establishments desired are shown in the following list:

Bakery
Barber Shop
Beauty Shop
Beverage Store
Candy Manufacturing Plant
Coal, Oil and Lumber business
Coin-operated machines
Commercial sign painting & neon signs
Dairy
Dancing, Floor Show & Recreation establishment
Department Store
Dormitory
Fireproofing Christmas Trees
Floral Shop and Nursery
Food Store
Freight Terminal
Fruit and Vegetable Produce Market
Fuel Dealer
Garage
Gift and Toy Shop; Stationery and business machines sales and service
Hardware Store, Fuel and Lumber
Income Tax Service
Janitorial Service
Ladies' Specialty Shop & Infants' Shop
Luggage Store
Men's Ready-to-wear
Motor Boat Sales and Servicing
Newspaper
Optical Shop
Paint and Wallpaper Store
Photo Supply Store
Public Accountant
Restaurant
Rexair business
Richland Rose Society
Roller Skating Rink
Service Station
Shoe Repair Shop
Shoe Store
Tavern
Theatre
Variety Store
Watch Repair Shop

Written permission was granted to nine (9) Village tenants to conduct the following part-time businesses in their homes:

Operate a child-care referral agency (2)
Take orders for baby shoe bronzing
Do portrait photography work
Take orders for "Trousseau Linen Outfitters, Inc."
Take orders for "Real Silk Hosiery Mills"
Painting and Selling Figurines
Take orders for hand-made jewelry
Sell "Compact" vacuum cleaners

Written permission was granted twenty-two (22) individuals living outside of Richland to contact Village tenants on an appointment basis only on the following business matters:

Take photographs in Village homes (5)
Take orders for "Lo-Heet Stainless Steel Cook-ware"
Sell "Avon" cosmetics (2)
Represent Vaught Furniture and Hardware
Represent Wear-Ever Aluminum Co.
Represent "Tri-City Duracleaners"
Sell "The World Book Encyclopedia"
Take orders for pianos
Sell Fuller Brushes
Represent Charles Scribner's Sons, publishers
Take orders for "The House of Marphil" - ladies' custom tailored clothing(3)
Represent Reserve Loan Life Insurance Company of Texas
Sell and service sewing machines (2)
Sell "Rexair" vacuum cleaners

COMMUNITY DIVISIONS

COMMUNITY HOUSING DIVISION

November, 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	November
Beginning of month	43
End of month	41
Net decrease	2

RICHLAND HOUSING

Housing Utilization as of Month End

Houses Occupied by Family Groups	Conventional	Block	T	Pre-Cut	Ranch	Prefab	Apts.	Tract	Total
Operations	2196	264		368	270	1090	63	40	4291
Facilities	145	4		17	7	116	1	9	299
Government	100	27		16	7	42	2	8	202
Kellex Corporation		6		6		1	1		14
Morrison-Knudsen	4			1			1		6
Atkinson-Jones	24	23		24	7	19	2		99
J. Gordon Turnbull	1	2		3	2	12			20
Giffels & Vallet	3	1		1	6	11			22
J. A. Terteling & Sons			10	2		2			14
McNeil Construction Co.	2			2		4			8
Newberry Neon Electric	1	2		2		1			6
Urban, Smythe & Warren	2	2		1		2	1		8
Roberts Filter	1								1
Graysport Construction				1				8	9
Newport-Kern Kibbe								1	1
Vernita Orchards								5	5
C. C. Moore Co.		1							1
P. S. Lord Co.	1								1
TOTAL HOUSES OCCUPIED	2480	332	10	444	299	1300	71	*71	5007
Houses utilized for special purp.								1	1
Houses assigned (leases written)	3			2	9	6	1		21
Houses assigned - awaiting tenants	17	1		4	51	26	2		101
Government houses - unassigned								**34	34
TOTAL HOUSES	2500	333	10	450	359	1332	74	106	5164

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

** This includes 29 Tract Houses boarded up for salvage.

1.

COMMUNITY HOUSING DIVISION

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2479	28	27	2480	Plus 1
Block Type	330	8	6	332	Plus 2
T Type	10	0	0	10	None
Precut Type	447	5	8	444	Minus 3
Ranch Type	154	151	6	299	Plus 145
Prefab Type	1311	33	44	1300	Minus 11
Apartment Type	74	C	3	71	Minus 3
Tract	69	3	1	71	Plus 2
Total	4874	228	95	5007	Plus 133

Dormitory Statistics

Dormitories		Occupants	Vacancies	Total Beds
Men - Occupied	14	545	* 11	556
Men - Unoccupied				
Women - Occupied	14	590	* 2	592
Women - Unoccupied				

Women's Dormitories Occupied By:

G. E. Office	1
Education	1
Apartment	1
	31

* This includes 6 beds in W-9 and 10 beds in M-12 not in use. Space in W-9 is being used for Supply rooms and Dormitory Offices. Space in M-12 is being used for F. B. I. Offices.

GENERAL

There were 147 Ranch type houses accepted during the month of November; 135 Y, three bedroom type, and 12 Z, four bedroom type. This makes a total of 359 Nettleton Sound houses accepted to date.

Messrs. Wheeler and Barrett who are appraising project housing have completed approximately two-thirds of the appraisal. Figures on shelter rents have been submitted on the majority of units. It is expected that the complete report will be submitted shortly after January 1, 1948.

TENANT RELATIONS

The processing of Patrol Orders and Work Orders during the month is as follows:

	Incomplete 10-31-48	Issued Dur. November	Incomplete 11-30-48	Issued Prev. Month
Patrol Orders - Days	1224	3444	1258	3328
Maintenance & Electrical				
Patrol (Off shift elect.)	0	537		508
Patrol (Off shift maint.)	20	447	36	391
Regular Work Orders	286	159	321	203
Backcharge Tenant Relations orders	13	46	8	53

21 Scrap Lumber Permits were issued during the month of November as compared to 43 during the previous month.
91 Conventional type dwellings were painted by Project forces as compared to 35 during the previous month. (Interior)
No Grass Seed Permits were issued as compared to 45 Grass Seed Permits, amounting to 355 pounds of seed for the previous month.
386 Home Fire Inspections were reported and processed. 703 homes were visited. (Posting furnace instructions in all occupied Ranch type houses.)
145 Home Fire Inspections were made during the previous month and 265 homes were visited.

Items of Interest:	Nov. 1948	Outstanding Nov. 1948	Outstanding Prev. Month
1. Window Glass Replacement Requests (All Types)	46	47	72 (-25)
2. Sink Linoleum Replacement Requests	68	115	89 (+26)
3. Bathroom Painting Requests		57	39 (+18)
4. Kitchen & bathroom faucets in need of repair and exchange	11	161	216 (-55)
5. Screen Door Requests			24
6. Miscellaneous	506	935	823 (-112)

Alteration Permits issued to tenants during the month of November, 1948 amounted to 57 as compared to 72 issued during the month of October. Permits issued during November consisted of the following:

Installation of automatic washers and dishwashers	14
Installation of air conditioners	12
Basement excavations	12
Refinish floors	7

Construction of driveways (concrete and blacktop)	3
Installation of humidifier on furnace	3
Reverse position of range and refrigerator	1
Installation of sprinkler system	1
Installation of dark room in basement	1
Construction of rose arbor	1
Construction of work-bench in basement	1
Construction of playhouse in back yard	1
Removal of concrete blocks in basement	1
Removal of kitchen cabinet to another position	1
Installation of concrete platform in basement	1
ALTERATIONS FOR MONTH OF NOVEMBER, 1948 - TOTAL	60

Inspection Information:

527 inspections were made during the month. A break-down of the inspections shows the following distribution:

a. 0 Grass Seed Inspections
b. 24 Lot Line Inspections
c. 29 Top Soil Inspections
d. 18 Bath-tub caulking inspections
e. 14 Floor Board Inspections
f. 16 Sidewalk Inspections
g. 10 Leaking Basement Inspections
h. 26 Linoleum Inspections
i. 24 Wall Inspections
*j. 366 Miscellaneous Inspections

* Under this heading one inspector spent most of his time on the interior house painting program, while another inspector was borrowed by the Housing Division for a period of six days.

COMMUNITY DIVISIONS REPORT

COMMUNITY FIRE DIVISION

November. 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	November
Beginning of the month	132
End of month	139
Terminations	1
New Employees	8

	Richland	North Richland
Response to alarms	25	13
Fire Loss (Estimated)		
Hanford Works	$1,249.00*	$ 228.73
Personal	1,509.90	1,450.00
Investigation of Minor Fires and Incidents	10	13
Safety Meetings	25	6
Outside Drills	30	39
Inside Drills	79	43

Fire Alarm Boxes Tested 134

Fire Inspections:	
700 Area Buildings	68
1100 Area Buildings	101
Commercial Facility Buildings	79
Schools, Clubs, Churches	13
Homes	386
Total - - - - -	647

Fire Extinguishers:	
Inspected	1104
Installed	193
Recharged	85
Removed (Condemned)	180
Tested	28

* Does not include undetermined loss for Lewis and Clark Grade School fire.

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Fire Prevention

Attention of Kadlec Hospital supervision was called to overcrowded and obstructed hallways.

Newspaper publicity was given to careless firing of residential furnaces and improper storage.

Routine inspection and calls by occupants revealed numerous cases of leaking soda and acid fire extinguishers. Hydrostatic tests of both new and used extinguishers of this make resulted in failure of about 30% at 200 pounds whereas guarantee is for 350 pounds. Attempts are being made to return all extinguishers of this type to the Vendor for credit.

Fire Fighting

Three incendiary fires occurred in Richland during the month. Two were set in the Masonic Building, one on the 11th and the other on the 13th. While operations were in progress on the second Masonic Building fire, a series of incendiary fires broke out in the Lewis and Clark Grade School causing extensive damage before being extinguished by regular on-shift companies augmented by hastily summoned off-shift personnel.

Continuous stand-by duty was maintained for three days at both the Masonic Building and school buildings to prevent rekindling. Investigation of these fires was turned over to the Community Patrol Division.

COMMUNITY DIVISIONS

COMMUNITY PATROL

NOVEMBER 1948

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	November
Beginning of month	154
End of month	150
Net Decrease for Month	4
Reason: 2 V. T. Personal	

GENERAL

On November 9, 1948, arrangements were made with the Labor Department for twenty-four hour service for the sanding of village streets, intersections, and bridges during the winter months. Patrol was instructed to be especially alert for icy road conditions and report same to the desk sergeant who in turn would notify the Labor Department.

On November 10, 1948, one patrolman was stationed at the intersection of Van Giesen and Thayer from 6:40 to 7:00 A. M. to handle traffic at this intersection. This assignment will be carried on as long as conditions warrant.

Four men were provided the local school district for the football game on November 11, 1948.

On November 13, 1948, the posting of a patrolman at the Nettleton Sound Construction Barracks was discontinued and the motor patrol was assigned to check this area hourly.

From November 13, 1948, to November 22, 1948, special emphasis was placed on patrolling the entire village in search of possible fires or arsonists. Additional patrol cars and every available man was used in this endeavor.

On November 19, 1948, a new motor patrol plan was put into effect on the first and third shifts in order to bring about a more complete and thorough coverage of the village. The village was divided into four districts. Two cars with one man in each were assigned to District 1 (business district), and one car and one man was assigned to each of Districts 2, 3, and 4 (residential areas).

Due to the severe power shortage existing, Patrol was especially alert for any unnecessary use of lights, etc. observed in the daylight hours as well as the hours of darkness. Patrol personnel was instructed to make written reports on the foregoing.

During November, 1948, 117 prisoners were processed through the Richland Jail.

During November, 1948, 51 gun registrations were taken by the Richland Patrol.

TRAINING

Lts. J. E. Coleman and F. J. Schultz were in charge of the training program for the month of November. Lt. Coleman gave 1 1/2 hours of instruction on "Traffic" with special emphasis on "Point Control". Lt. Schultz gave 1 1/2 hours of instruction on "Interrogation of Suspects" and "The Protection of the Scene of the Crime."

Advance training for Community Patrol members at the Small Arms Range for the period October 4 to November 18, 1948, inclusive, was divided into Field Instruction as follows:

FBI Course	1½ hours
Riot Gun	1 hour
Machine Gun	1 hour

Percentages of scores and qualifications on the FBI course:

	November	
	No.	Percent
Unqualified	106	53%
Marksman	39	21%
Sharpshooter	30	15%
Expert	23	11%

Percentages of scores and qualifications on the Machine Gun Course:

	November	
	No.	Percent
Unqualified	1	1%
Marksman	8	4%
Sharpshooter	34	17%
Expert	155	78%

Note: Inasmuch as neither the FBI nor the Machine Gun Course have been fired for score and record, a report on the progress of scores and qualifications on these courses cannot be submitted at this time.

RICHLAND AREA (VILLAGE)

	September	October	November
Check on absentees	6	3	3
* Persons assisted	290	237	261
Doors & windows found open in commercial facilities	5	8	15
Lost children found	17	10	9
Ambulance runs	60	22	37
Lost dogs reported	7	4	3
Dog & cat complaints	40	35	35
Persons injured by dogs	3	2	4
Bank escorts & details	42	41	42

Community Patrol Division - Continued

	September	October	November
Fires investigated	20	41	42
Miscellaneous escorts	51	40	36
Complaints investigated	70	118	96
Missing persons reported	9	3	0
Totals	595	535	572

* Includes: Persons admitted to residence, delivery of messages to residents who have no telephone; realy of messages; handling requests of out of town police; miscellaneous aids to private parties; and opening trailer parking lot for individuals.

RICHLAND AREA (NORTH)

	September	October	November
Check on absentees	6	9	7
* Persons assisted	464	465	470
Doors & windows found open in commercial facilities	67	48	61
Lost children found	6	5	5
Ambulance runs	22	15	12
Lost dogs reported	0	0	0
Persons injured by dogs	2	0	2
Dog & cat complaints	6	23	8
Bank escorts & details	46	48	68
Fires investigated	13	10	15
Miscellaneous escorts	88	89	61
Complaints investigated	118	130	121
Missing persons reported	1	10	0
Totals	839	852	830

* Includes: Admitting persons to their rooms; contacting parties on long distance calls; issuing rooms and bedding; locating persons wanted for various reasons; relaying messages; assisting outside police agencies; assisting other departments; aiding private persons, etc.

TRAFFIC SECTION

Traffic accidents in Richland jumped from 15 in October to 33 in November. North Richland traffic accidents reamined at 17, the same number as in the month of October.

One man was killed in a motor vehicle-fixed object accident near North Richland. Four other persons received injuries. Four persons were injured in traffic acccidents in Richland during November.

The outstanding cause of the majority of traffic accidents was failure to yield right of way at intersections. Exceeding the safe rate of speed for conditions existing at point of operation and inattention to driving were contributing causes in a number of accidents.

Movement of motor vehicles over the roads of the Village remained at a high point. A combined total count of four streets in the Village showed approximately 19,000 cars used the roads during a twenty-four hour period.

Traffic Safety education lectures were given to nineteen groups of the General Electric Company and Construction personnel. Several newspaper articles were run in the local papers and two thousand Traffic Safety pamphlets were distributed.

Arrangements were made through General Electric Public Relations to broadcast road conditions during inclement weather over Radio Station KPKW. The announcer will merely state that, "Roads of the Hanford Works Project are icy. Please drive with caution." The desk sergeant at Patrol Headquarters will telephone the Radio Station when road conditions are hazardous due to fog or ice.

TRAFFIC AND OFFENSE STATISTICS

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

PATROL

A total of 183 Unusual Incident Reports was received, which consisted mainly of Accidents, Traffic Violations, and Intoxications. Regular Traffic Violation Reports, not accompanied by an Unusual Incident Report, are presented in separate tables in the Traffic Statistics attached to this report.

December 1, 1948

COMMUNITY DIVISIONS

COMMUNITY PATROL

Community Manager - E. L. Richmond

- Community Patrol Chief - H. W. Strock
  - Division Supervisor - A. A. Layman
    - Captain - Administration - C. F. Klepper
    - Captain - Crime Prevention - J. S. Johnson
      - Lieutenant - Richland - L. M. Linkous
        - Sergeants - R. L. Jones, A. L. Reil
      - Lieutenant - North Richland - F. J. Schultz
        - Sergeants - J. F. Banta, G. A. Mumper, O. G. Scheffner
    - Captain - Richland - W. A. Ziegler
      - Lieutenants - J. K. Holmes, R. H. Kays, T. J. McGuire, A. F. Novotny
        - Sergeants - C.B. Conrad, M.E. Lowman, D.F. Metz, J.A. Schmitz, N.H. Woehle
    - Captain - North Richland - C. H. Overdahl
      - Lieutenants - G. M. Everett, W. W. Kerr, H. V. Meigs, G. R. Reese
        - Sergeants - W. Cotton, F. W. Knauer, N. F. Neighbors, R. R. Robertson
    - Captain - Traffic & Accident Investigation - A. E. Barron
      - Lieutenant - J. A. Ramsey, Jr.
      - Lieutenant - J. E. Coleman
        - Sergeants - W. H. Gordon, R. Smertz, H. E. Thomas

PATROL DIVISION REPORT

COMMUNITY

NOVEMBER 1948

FORCE REPORT		Entire Patrol 10/31/48	Entire Patrol 11/30/48
Patrol			
Patrol Supervisor		1	1
Division Supervisor		1	1
Captains		5	5
Lieutenants		12	12
Sergeants		17	17
Patrolmen		113	109
	Total	149	145
Clerical			
Steno-Typists		5	5
	Total Clerical	5	5
	Grand Total	154	150

Additions

4 Transfers

Terminations

8 Patrolmen

TERMINATIONS CONSIST OF

2 V. T. Personal
1 Transfer to Village Labor
1 " " "S" Department
4 " " Industrial Patrol

PATROL DIVISION - TRAFFIC CONTROL STATISTICS
November - 1948

MOTOR VEHICLE ACCIDENTS

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.
Plant	3	None Reported	0	0	3	0	0	0
Richland	15	33	0	0	1	0	2	5
North Richland	17	17	0	1	2	0	7	3
Totals	35	50	0	1	6	0	9	8

ACCIDENT CAUSES

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Causes	
	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.
Plant	3	0	0	0	0	0	0	0
Richland	8	19	7	12	1	1	0	2
North Richland	4	11	9	4	2	2	2	1
Totals	15	30	16	16	3	3	2	3

PLANT WARNING TRAFFIC TICKETS ISSUED

	Speeding		"Stop" Sign		Parking		Imp. License		Def. Equip.		Other Violations		Totals	
	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.
Plant	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Richland	2	2	0	0	128	118	0	1	18	18	0	3	148	142
N. Rich.	0	0	2	1	214	154	2	0	2	11	5	0	225	166
Totals	2	2	2	1	342	272	2	1	20	29	5	3	373	308

COURT CITATION TRAFFIC TICKETS ISSUED

	Speeding		"Stop" Sign		Drunken Dr.		Reckless Dr.		Right of Way V.		Neg. Dr.		Parking V.		Other V.		Totals	
	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.
Plant	11	25	0	4	1	1	0	0	1	0	2	3	0	0	1	5	16	38
Richland	39	44	14	12	3	3	4	3	8	5	19	19	28	24	17	16	132	126
N. Rich.	25	12	13	8	3	6	3	0	12	3	23	15	6	12	27	7	112	63
Totals	75	81	27	24	7	10	7	3	21	8	44	37	34	36	45	28	260	227

TRAFFIC VOLUME: Count taken on November 10, 1948, on George Washington Way in front of Desert Inn, all traffic, 24 hour period, 7,962 Cars.

PATROL TRAFFIC SECTION
RICHLAND JUSTICE COURT CASES
NOVEMBER, 1948
****

Violation	Number of Cases	Number of Convictions	Total Fines	Total Susp.	Sentenced to Jail	Sentence Suspended	License Revoked	Average Fine Paid	Cases Dismissed	Warrants Issued
Drunken Driving.....	11*	9	$522.50	$50.00	None	None	9	$52.50	None	None
Reckless Driving.....	4**	3	102.50	None	None	None	3	34.16	None	None
Negligent Driving.....	20	20	467.50	55.00	None	None	0	21.71	None	1
Speeding.....	74	74	864.25	27.50	None	None	0	12.33	None	7
Hit and Run.....	1	1	102.50	50.00	None	None	1	52.50	None	0
Aiding & Abetting Hit & Run.....	1	1	102.50	None	None	None	1	102.50	None	0
Driv. While License Rev.	1***	1	None	None	None	None	1	None	None	0
Fail. to Dim Hdlts.....	5	5	23.50	None	None	None	0	5.87	None	1
Stop Signs.....	29	29	131.50	3.50	None	None	0	5.33	None	5
Failure to YROW.....	11	11	144.50	92.50	None	None	0	5.20	None	1
Improper Passing.....	10	10	64.75	None	None	None	0	7.19	None	1
Improper Parking.....	38	38	111.50	31.00	None	None	0	3.50	None	6
No Driver's License....	27	13	73.50	18.50	None	None	0	4.23	14	2
Defective Equipment....	5	5	7.50	None	None	None	0	7.50	None	0
No Vehicle License.....	4	3	5.00	None	None	None	0	5.00	1	1
No Cert. of Registration.	2	2	12.50	12.50	None	None	0	None	0	1
Following Too Closely...	1	1	7.50	None	None	None	0	7.50	0	0
Driving in Wrong Lane...	1	1	7.50	7.50	None	None	0	None	0	0
Public Intoxication.....	45	45	600.00	None	6	2	0	13.33	0	0
Public Nuisance.....	17	17	250.00	None	5	1	0	20.83	0	0
Vagrancy.....	15	15	50.00	None	12	10	0	16.33	0	0
3rd Degree Assault.....	1	1	None	None	1	1	0	None	0	0
Possess. of Gambling Equip..	3	3	307.50	None	0	0	0	102.50	0	0
Bootlegging.....	1	1	None	None	1	0	0	None	0	0
Petit Larceny.....	2	2	None	None	2	2	0	None	0	0
Drunk & Disorderly Conduct...	5	5	80.00	None	1	1	0	20.00	0	0
Carrying Concealed Weapons...	5	5	107.50	None	4	2	0	102.50	0	0
Larceny by Check.....	2	2	None	None	2	0	0	None	0	0
	341	323	$4146.00	$303.00	34	19	14		15	26

TOTAL FINES.....$4146.00
TOTAL FINES SUSPENDED..... 303.00
TOTAL FINES RECEIVED.....$3843.00

*1 Case Reduced to Reck. Driv.
1 Case Reduced to Neg. Driv.
**Case Reduced to Neg. Driv.
***Bound Over to Superior Court

The above violations occurred on Hanford Works Project.

PATROL DIVISION - NORTH RICHLAND OFFENCES - NOVEMBER 1948

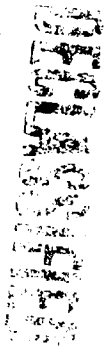
Classification	Offences reported to Patrol during Nov.	Offences Unfounded:	Actual Offences: Oct	Actual Offences: Nov	Offences Cleared: By Arrest	Offences Cleared: By Other Actions	Perpetrators Invl:	
Assault	2	0	4	2	1	1	2	a
Attempted Suicide	1	0	0	1	0	1	1	
Burglary-breaking and/or entering	3	1	13	2	0	0	0	u
Larceny-Theft (except Auto & Bike)								
(a) $50.00 and over value	6	0	9	6	1	1	4	
(b) Under $50.00 value	24	0	12	24	3	4	8	b
Automobile Theft	2	0	1	2	2	0	3	
Bicycle and Motor Bike Theft	0	0	1	0	0	0	0	
Carrying Concealed Weapon	5	0	1	5	5	0	5	
Destruction of Government Property	2	0	3	2	0	1	4	c
Destruction of School Property	0	0	0	0	0	0	0	
Destruction of Personal Property	1	0	4	1	0	0	0	u
Disorderly Conduct	3	0	3	3	3	0	3	
Drunkenness	38	0	30	38	38	0	38	
Embezzlement and Fraud	0	0	0	0	0	0	0	
Forgery	0	0	0	0	0	0	0	
Gambling	3	0	0	3	3	0	3	
Missing Person	1	0	2	1	0	1	1	d
Narcotics	1	0	3	1	1	0	1	
Offence against Family & children	0	0	0	0	0	0	0	
Pickups for outside agencies	3	0	3	3	3	0	3	
Prowlers	1	0	1	1	0	0	0	u
Public Nuisance	13	0	13	13	13	0	13	
Rape	0	0	0	0	0	0	0	
Robbery	1	0	2	1	1	0	1	
Sex Offence	0	0	0	0	0	0	0	
Vagrancy	14	0	3	14	14	0	14	
Violation State Game Laws	0	0	0	0	0	0	0	
Violation State Liquor Laws	1	0	1	1	1	0	1	
Miscellaneous	1	0	0	1	0	0	0	u
Juveniles (other than reported above)								
Disorderly Conduct	0	0	1	0	0	0	0	
Totals	126	1	110	125	89	9	105	e

(Continued)

PATROL DIVISION - NORTH RICHLAND OFFENCES - NOVEMBER 1948 - Continued

a - One of the offences was perpetrated by a juvenile, age 19.
b - Three of the offences were perpetrated by three juveniles, ages, 11, 12, 16.
c - One of the offences was perpetrated by four juveniles, ages, 13, 13, 14, 15.
d - This offence was perpetrated by a juvenile, age 15.
e - 45 of the perpetrators are colored.
u - Represents Unknown.

Value of property recovered during month of November 1948 - $1599.33.



PATROL DIVISION - NORTH RICHLAND - COMPARISON

NOVEMBER 1948

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

Classification	Wash., Oregon & Calif. Six Months (Jan-June 1948)	Wash., Oregon & Calif. One Month Average	North Richland Six Months (Jan-June 1948)	North Richland October 1948	North Richland November 1948
Murder	.181	.030	0	0	0
Robbery	3.47	.57	1.00	1.33	.66
Aggravated Assault	1.75	.29	5.16	2.66	1.33
Burglary	35.69	5.94	.08	8.66	1.33
Larceny	127.06	21.17	25.16	14.00	20.00
Auto Theft	15.56	2.59	1.66	.66	1.33

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

Classification	State of Washington Six Months (Jan-June 1948)	State of Washington One Month Average	North Richland Six Months (Jan-June 1948)	North Richland October 1948	North Richland November 1948
Murder	.140	.23	0	0	0
Robbery	4.90	.81	1.00	1.33	.66
Aggravated Assault	.78	.13	5.16	2.66	1.33
Burglary	36.91	6.15	.08	8.66	1.33
Larceny	92.22	15.37	25.16	14.00	20.00
Auto Theft	18.15	3.02	1.66	.66	1.33

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

Classification	National Average Six Months (Jan-June 1948)	North Richland Six Months (Jan-June 1948)	North Richland October 1948	North Richland November 1948
Robbery	55.5	0	0	0
Burglary	59.9	0	30.7%	0
Larceny	45.2	5.3%	4.8%	10.0%
Auto Theft	71.6	0	0	0

Note: Statistics of juvenile offences 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 North Richland every delinquent juvenile is entered in the records.

12-11-24

PATROL DIVISION - RICHLAND OFFENSES
November 1948

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Offenses Oct.	Actual Offenses Nov.	Offenses Cleared By Arrest	Offenses Cleared By Other Action	Perpetrators Involved
Arson	4	1	0	3	0	0	(u)
Assault	1	0	1	1 (a)	1	0	1
Attempted Suicide	0	0	0	0	0	0	0
Burglary-Breaking and/or Entering	5	0	1	5	0	0	(u)
Breaking and/or Entering	1	0	0	1	0	0	(u)
Robbery	0	0	0	0	0	0	0
Larceny-Theft (except auto & bike):							
(a) - $50.00 and over value	3	0	9	3	0	0	(u)
(b) - Under $50.00 value	24	4	18	20 (b)	0	3	3
Auto Theft	0	1	2	0	0	0	0
Attempted Auto Theft	0	0	0	0	0	0	0
Bicycle Theft	21	5	22	16	0	0	(u)
Weapons: Carrying-Possessing Using	0	0	0	0	0	0	0
Destruction of Government Property	4	0	1	4 (c)	0	1	1
Destruction of Personal Property	6	0	5	6	0	0	(u)
Destruction of School Property	0	0	0	0	0	0	0
Disorderly Conduct	5	0	1	5	0	3	6
Drunkenness	18	0	9	18	18	0	18*
Embezzelment and Fraud	0	0	6	0	0	0	0
Forgery	0	0	0	0	0	0	0
Gambling and/or Possession of Equip.	0	0	0	0	0	0	0
Missing Persons	0	0	1	0	0	0	0
Offense against family & children	1	0	0	1	0	1	1
Pickup for Outside Agency	1	0	0	1 (d)	0	1	1
Prowlers	1	0	2	1 (e)	0	1	3
Public Nuisance	1	0	0	1	1	0	1
Rape	0	0	0	0	0	0	0
Sex Offense	1	0	2	1	0	1	1
Cohabitation	0	0	0	0	0	0	0
Vagrancy	1	0	0	1	1	0	1
Violation State Game Laws	0	0	0	0	0	0	0
Violation State Liquor Laws	0	0	0	0	0	0	0
Miscellaneous	2	0	1	2	0	1	1
Juveniles (other than reported above)							
Disorderly Conduct	1	0	1	1 (f)	0	1	2
	101	11	88	91	21	13	40

(Cont.)

PATROL DIVISION - RICHLAND OFFENSES - CONTINUED

(a) - The one offense was perpetrated by a person, of age 19 years.
(b) - Three of the offenses were perpetrated by three juveniles, of ages 12, 14, and 16 years.
(c) - One of the offenses was perpetrated by a juvenile, of age 13 years.
(d) - Juvenile of age 18 years.
(e) - The one offense was perpetrated by three juveniles, of ages 15 and 16 years.
(f) - The one offense was perpetrated by two juveniles, of ages 14 years.
(u) - Represents 'unknown'
(*) - Three of the offenses were perpetrated by three colored males.

Recovery for the month was $290.00 (8 bikes).

PATROL DIVISION - RICHLAND - COMPARISON

NOVEMBER 1948

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

Classification	Wash., Oregon & Calif. Six Months (Jan-June 1948)	Wash., Oregon & Calif. One Month Average	Richland Six Months (Jan-June 1948)	Richland October 1948	Richland November 1948
Murder	.181	.031	0	0	0
Robbery	3.47	.58	0	0	0
Aggravated Assault	1.75	.29	1.5	.66	.66
Burglary	35.69	5.95	4.55	.66	3.33
Larceny	127.06	21.18	22.0	33.0	26.0
Auto Theft	15.56	2.59	1.44	1.33	0

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

Classification	State of Washington Six Months (Jan-June 1948)	State of Washington One Month Average	Richland Six Months (Jan-June 1948)	Richland October 1948	Richland November 1948
Murder	.140	.023	0	0	0
Robbery	4.90	.82	0	0	0
Aggravated Assault	.78	.13	1.5	.66	.66
Burglary	36.91	6.15	4.55	.66	3.33
Larceny	92.22	15.37	22.0	33.0	26.0
Auto Theft	18.15	3.03	1.44	1.33	0

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

Classification	National Average (Jan-June 1948)	Richland Six Months (Jan-June 1948)	Richland October 1948	Richland November 1948
Robbery	55.5	0	0	0
Burglary	59.9	8%	0	0
Larceny	45.2	8	8%	8%
Auto Theft	71.6	38	0	0

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

In Richland every delinquent juvenile is entered in the records.

COMMUNITY PATROL DIVISION
U.I. MONTHLY REPORT
NOVEMBER, 1948
****

TRAFFIC ACCIDENTS	43
FIRST DEGREE ASSAULT	1
PUBLIC INTOXICATION	47
TRAFFIC VIOLATIONS	29
LOST FISHING EQUIPMENT	1
PICKUP FOR OUTSIDE AGENCY	1
DRUNK AND DISORDERLY CONDUCT	3
MOLESTING OF MINORS	1
DISTURBANCE	7
DEATHS	2
VAGRANCY	12
PUBLIC NUISANCE	12
BOOTLEGGING	1
CARRYING CONCEALED WEAPONS	5
POSSESSION OF NARCOTICS	1
AUTO THEFT	2
FALL FROM POWER LINE POLE	1
LOST SHIELD	1
ROBBERY	1
POSSESSION OF GAMBLING EQUIPMENT	2
PEEPING TOM	1
PETIT LARCENY	1
MENTAL CASE	1
ATTEMPTED SUICIDE	1
BREAKING AND ENTERING	1
THEFT OF GOVERNMENT PROPERTY	4
DESTRUCTION OF GOVERNMENT PROPERTY	1
TOTAL	183

COMMUNITY PATROL DIVISION
OPEN DOORS & WINDOWS
MONTHLY REPORT
NOVEMBER, 1948
****

LOCATION	OPEN DOORS	OPEN WINDOWS
SUB-CONTRACTORS (N.RICHLAND).....	48	12
FACILITIES (N.RICHLAND).....	20	3
SCHOOLS (N. RICHLAND).....	8	
FACILITIES (RICHLAND).....	15	2
SCHOOLS (RICHLAND)	2	
TOTAL.....	93	17

COMMUNITY DIVISIONS

COMMUNITY ACTIVITIES DIVISION

November, 1948

ORGANIZATION AND PERSONNEL

Number of Employees on roll

Beginning of Month		9
Additions	3	
Terminations	0	
End of Month		12

CHURCHES

The following is a tabulation of fill time paid personnel, as of November 30, 1948:

	Ministers	Staff	Total
Assembly of God	1	0	1
Catholic	2	2	4
Central United Protestant	3	1	4
Church of Christ	1	0	1
Church of God	1	0	1
Episcopal Church	1	0	1
Free Methodist	1	0	1
Mission Baptist	1	0	1
Mo. Synod Lutheran (Redeemer)	1	1	2
National Lutheran	1	2	3
Regular Baptist	1	0	1
United Protestant - North Richland	1	1	2
United Protestant - West Side	1	0	1
United Protestant - South Side	1	0	1
	17	7	24

On November 11, the North Richland United Protestant Church announced that the Rev. Frederick H. Fahringer, formerly of Bethesda, Maryland, had been added to the church staff. Rev. Eugene Muench, the newly assigned pastor of the church, assumed his official duties on November 14.

The Northwest United Protestant Church opened regular Sunday School and Sunday Morning Worship Services at the Marcus Whitman Grade School on November 14. The Community-Activities Division is assisting this church group in the completion of its plans for a new church building of its own in the same general neighborhood.

Following the fire which gutted a large section of the Lewis and Clark Grade School on November 13, the Community-Activities Division adjusted its booking schedules and arranged for temporary meeting space for those church groups displaced by the damaged facilities.

Community - Activities Division

On November 28, the Richland Baptist Church held a ground breaking ceremony at the site of their proposed new church building at the corner of George Washington Way and Wordrop Street. Church officials, management representatives of the Atomic Energy Commission and General Electric Company, and the Community-Activities Division participated. Approved plans call for a building which will occupy 8700 square feet and will contain an auditorium with a capacity of 300, 15 classrooms, kitchen, and social facilities. The building is scheduled to be completed in mid-January.

On November 30, reports submitted by Christ the King Catholic Church showed a total membership of 2,260 Richland residents with an additional 380 in North Richland for a total of 2,540.

The South Side United Protestant Church has completed the construction of the basement of the proposed church structure at Goethals and Gillespie and the installation of the first section of the building itself was scheduled for the first week in December. The Community-Activities Division arranged for the installation of temporary water and power supplies for construction purposes and processes requests for the cutover of permanent facilities as the building is completed.

SCHOOLS

On November 1 to 13, the Richland school authorities conducted a survey to locate adults in the Tri-City area who were not high school graduates for the purpose of establishing the needs of a night school schedule to enable these adults to complete that portion of their education.

On November 3, representatives of the Community-Activities Division and J. Gordon Turnbull, Inc. conducted inspections of the Spalding Grade School and Carmichael Junior High School to inspect the progress of the contractors and to assist in the solving of any problems which might delay progress. Similar inspections were made on November 5 with the assistance of McNeil Company and for the purpose of developing adequate storage and cupboard facilities at Spalding Grade School.

Representatives of the Community-Activities Division held a conference on November 8 with representatives of McNeil Construction Company, J. Gordon Turnbull, Inc., and School District #400 with regard to the interior decoration and furnishings of the Carmichael Junior High School.

On November 15, representatives of this Division assisted the Patrol Division, Fire Department, Security Division. F.B.I., and the School District #400 in investigations regarding the Lewis and Clark Grade School fire. Steps were taken to facilitate the immediate rehabilitation of every school room capable of being restored to use prior to making the major repairs necessary. All such rooms were reopened on November 17 and permission was granted to move all undamaged and useabl equipment from the damaged section to be placed temporarily in the useable sections

On November 16, representatives of the Community-Activities Division aided the Atomic Energy Commission and General Electric Property Sections in the taking of inventories of all school equipment damaged in the Lewis and Clark School fire. Work Orders were prepared and issued for the repair or salvage of damaged equipment and the removal to the burning grounds of items beyond repair.

On November 17, a survey was made and orders issued to have all school district (damaged by fire) desks and folding chairs repaired and refinished.

Students of Columbia High School attended special assemblies on November 17 to commemorate National Education Week which is scheduled November 17 thru 23.

On November 18, representatives of the J. Gordon Turnbull, Inc., McNeil Construction Company, and this Division conducted another series of progress inspections for the Carmichael Junior High School and the Spalding Grade School. Representatives of these same companies assisted the Community-Activities Division in conferences with purchasing agents regarding the choice of woodworking and metal shop equipment for Carmichael Junior High School. Additional inspections were made of the same schools on November 23.

In a follow-up survey of Lewis and Clark Grade School, made by representatives of the McNeil Construction Company, School District #400, and the Community - Activities Division, it was determined that all but 5 classrooms would be in use by November 22.

A new publication "Jefferson Sagebrush", made its first appearance on November 24. It is the new school paper for the Jefferson Grade School and will be published monthly, according to the faculty supervisor for the paper.

Representatives of the Community-Activities Division and the Fire Protection groups inspected the school at Priest Rapids on November 30. Three fire extinguishers were installed and orders written to provide all necessary repairs. The Priest Rapids school authorities agreed to maintain these extinguishers.

During the month of November, the following classes were provided for adult evening groups at the High School with the total for each group as shown: 24 students enrolled for Sewing, 20 students in 2 classes of Frieden Calculating, 31 students in 2 classes in Woodcraft, 24 attending a class in Tailoring, 55 in 2 typing classes, 49 in 3 lapidary classes, and 10 students in a Burroughs Calculator class.

On November 30, it was announced that special hobby classes are to be provided and will be scheduled in the afternoons after the regular school classes are concluded. The first class announced was for lapidary work. More than 100 students of the Marcus Whitman eighth grade classes enrolled for this hobby activity. They will be scheduled in two classes each day, ten to each class, from 4:00 to 4:45 and from 4:45 to 5:30. These classes will be conducted 5 days each week. A waiting list numbers more than the number of enrollees.

COMMUNITY

As of November 30, 1948, organizational personnel included:

State Game Commission	1
Villagers, Inc.	8
American Legion	2
Co-ordinate Club	1
Youth Council	1
Boy Scouts	1

Community - Activities Division

Camp Fire Girls	2
Hi-Spot Club	1
Jr. Chamber of Commerce	2
Red Cross	3
Castle Club	1
Post Office	78
Veterans Administration	2
Girl Scouts	2
	105

The Community-Activities Division, working in conjunction with the local election officials, assisted in providing 21 polling places, precinct maps, and election publicity campaigns relating to the turn out of registered voters for the national elections. More than 80% of Richland's eligible voters went to the polls.

The Richland Community Swimming Pool Association, Inc. announced on November 4 that at its first corporate meeting, members had approved the organization's by-laws and elected a nine-member board of trustees. It was announced, also, that the Association's treasury now totaled $15,000.

On November 6, representatives of the Richland Swimming Pool Association, Inc., the Atomic Metal Trades Council, the Chamber of Commerce, and Community-Activities Division assembled at the site of the proposed swimming pool to witness and supervise the unloading of the modern filter plant which had been shipped here from the East for installation at the community pool.

On November 4, the Richland Kiwanis Club officially launched its "Clothing For Tiel's Christmas" drive with a quota of five tons of good, used clothing to be donated by the residents of Richland.

On November 4, the Camp Fire Girls organization announced the formation of two new groups. One of these is to be know as "Minneheca" and will include fifth grade students of Lewis and Clark School. The other group, to be known as the "Rosebud Bluebirds" will meet in private homes of its sponsors.

On November 5 and 6, the Richland Treble Clef, a women's choral group, presented its first concerts of the season in the Columbia High School auditorium.

A delegation of 25 members of the Richland group of the American Association of University Women went to Sunnyside on November 9 to attend a special session conducted by the Sunnyside group of their organization.

On November 11, the Richland Post 71 of the American Legion, with the assistance of the Veterans of Foreign Wars and the Marine Corps League, sponsored an Armistice Day memorial ceremony on the Village common. The Columbia High School band supplied the martial music, and members of the Parent-Teachers Association, the Community Manager, members of the Community Council, Company representatives, and school children were guests. The Community-Activities Division assisted in arranging the details regarding the ceremony. Later in the evening, the Legion Post sponsored an Armistice Day Galafest at the American Legion Ballroom with music by Ray Pitman's band and a Fleetline Chevrolet Sedan was awarded as a door prize. All funds realized from this affair will be used to equip a Drum and Bugle Corps which will represent the Legion Post in future Community celebrations.

The executive director of the Girl Scout organization in Richland represented the Richland groups at the directors session held November 12 and 13 at Hayden Lake, Idaho, and on November 15, 16, and 17, attended the Region Girl Scout Conference in Spokane. She was joined at the latter conference by six additional Richland delegates.

On November 13, the Orthopedic Guild sponsored a Christmas Fair at the Jefferson Grade School. The entire proceeds of the fair will be sent to the Children's Orthopedic Hospital in Seattle. On November 19, in the Red Cross Building, a movie titled "A Day at the Hospital" was shown to illustrate how the $1700 which the fair netted would be spent to aid crippled children.

On November 15, representatives of the Community-Activities Division collaborated with the Patrol, Fire Department, Security Division, and the F.B.I. in investigating the fire damage resulting from the fires which damaged the Masonic Temple on November 11 and 13. Following the investigations, division representatives made the necessary arrangements to expedite necessary repairs which placed the building back in operation on November 15.

The chairman of the Richland Welfare Board, a member agency of the Richland Community Chest, announced on November 18 that the State Department of Social Security Welfare had granted the local Public Health organization a provisional certificate as a child placement agency for foster home care.

On November 18, the executive director of the Washington State Society for Mental Hygiene addressed a large audience at the Columbia High School. The title of the address was "Preparing For World Citizenship" and it was sponsored by the Community Health Council.

The Benton County Chapter of the Disabled American Veterans which was transferred from Prosser to Richland held its initial open meeting November 19 in the American Legion Hall. Representatives of the Community-Activities Division attended to assist in organization proceedings and provide a brief orientation as to the community facilities available to the group.

On November 29, 1948, the Atomic Energy Commission approved organizations recommended to them by the Recreation Advisory Committee on August 31, and September 28, 1948. These included: Tri-City Organized Reserve Corps Rifle and Pistol Club, Northwest (4th) United Protestant Church, Disabled American Veterans, National Association for the Advancement of Colored People, Doris Miller Masonic Lodge #5 (Colored), and Degree of Honor.

At its meeting on November 29, 1948, the Recreation Advisory Committee recommended for approval the following organizations: Employee-Community Relations Recreation Association (E.C.R.R.A.), Daughters of American Revolution (DAR), American Society of Mechanical Engineers, Gonzoga University (Spokane) Alumni Association, Association of Atomic Production Employees, International Chemical Workers Union Local 77, and the Salvation Army (Church Branch), North Richland groups also recommended were Pilgrim Holiness Church (Negro) and the North Richland Holiness Church.

Community - Activities Division

During the month of November, this division processed a total of 58 work orders for new construction and maintenance in connection with community activities. Thirty-nine of these orders related to schools and 19 to churches, clubs, and organizations.

The number and types of organizations presently served by the Community-Activities Division include 14 business and professional clubs, 23 churches and church organizations, 5 civic organizations, 16 fraternal organizations, 7 music and art associations, 9 private instructors, 32 recreation and hobby groups, 7 schools and 7 parent teachers associations, 10 social clubs and organizations, 10 veteran and military organizations, 5 welfare organizations, 18 Boy Scout troops, 15 Camp Fire Girls troops, 36 Girl Scout troops, 3 other youth groups, and 13 miscellaneous organizations.

MAJOR ACTIVITIES DURING MONTH

November 5 & 6	Richland Treble Clef Concert	Columbia High School
11	Armistice Day Memorial Service	Village Greenway
11	Armistice Day Calafest	American Legion Hall
25	Thanksgiving Church Service	United Protestant Church

COMMUNITY - ACTIVITIES DIVISION

RICHLAND PUBLIC SCHOOLS PERSONNEL AND ENROLLMENT REPORT

The following is a tabulation of full-time school district paid personnel, as of November 30, 1948:

Administration	3
Clerical	14
Principals & Supervisors	16
Teachers	224
Bldg. Custodians	34
Cooks	21
Nursery School Ex. D Care	17
Bus Drivers	2
	331

On November 30, 1948, there were 70 children enrolled in the Richland Nursery School with an average attendance of 51. There was a decrease in enrollment during the month of 9. On this day there were 16 children enrolled in the Extended Day Care program of the Nursery with an average attendance for the month of 13. There was an increase in enrollment during the month of 1.

COLUMBIA HIGH SCHOOL

	Boys	Girls	Total
Freshmen (9th grade)	169	177	346
Sophmore (10th grade)	155	158	313
Junior (11th grade)	114	97	211
Senior (12th grade)	106	101	207
	544	533	1077

GRADE SCHOOLS

	Marcus	Sacajawea	Jefferson	Ball	Lewis	Spalding
Kindergarten	55 (2)*	69 (2)*	67 (2)*	99 (4)*	97 (4)*	76 (4)*
1st grade	92 (3)	129 (4)	107 (3)	154 (5)	154 (5)	82 (3)
2nd grade	75 (2)	109 (4)	87 (3)	119 (4)	123 (4)	78 (3)
3rd grade	72 (3)	108 (3)	76 (2)	115 (4)	119 (4)	71 (3)
4th grade	91 (3)	115 (3)	85 (3)	101 (3)	108 (3)	59 (2)
5th grade	64 (2)	106 (3)	66 (2)	88 (3)	99 (3)	87 (3)
6th grade	62 (2)	92 (3)	68 (2)	91 (3)	87 (3)	41 (2)
7th grade	98 (3)	86 (3)	68 (2)	84 (3)	95 (3)	0
8th grade	235 (7)	0	0	68 (2)	72 (2)	0
	844	814	624	919	954	494

* Half days
() Number of Classes

TOTALS BY GRADES		
Kindergarten	463	
1st grade	718	
2nd grade	591	
3rd grade	561	
4th grade	559	
5th grade	510	
6th grade	411	
7th grade	431	4649
8th grade	375	

COMMUNITY ACCOUNTING DIVISION
MONTHLY REPORT
NOVEMBER, 1948

PERSONNEL

One employee terminated during the month to leave the State with her husband. She will not be replaced. Our present organization is composed of the following:

Exempt	3	Male	10	Employees - Beginning of Month	32
Non-exempt	28	Female	21	Terminations	1
Total	31	Total	31	Employees - End of Month	31

General meetings, which are held each month, are proving beneficial as a "two-way communication system" between employees and supervisors. At this time Safety, Security and Health are emphasized in one form or another and general topics of interest are discussed.

ACCOUNTS RECEIVABLE

RENTS

There were 219 new leases processed during the month and 81 leases were cancelled. A total of 301 modifications were received, most of which involved a change from a furnished to an unfurnished type residence. About 1000 modifications regarding furnished pre-fabs have been processed leaving approximately 275 yet to be adjusted.

The total number of residences to be accounted for has now passed the 5,000 mark.

Dormitory activity reflects little change in over-all occupancy with 106 new assignments and 104 removals.

Facility rentals decreased some $3800.00 during the month and no new facilities reported during the period.

The total rental revenue was as follows:

Equipment	$ 220.73
Houses	203,602.66
Dormitories	15,526.26
Facilities	49,489.10
	$268,838.75

TELEPHONE

Resident phones in operation remain at about 2450, with toll calls averaging about 13,000 per month. Work has been kept current and personnel is satisfactory.

GENERAL

There were 114 tenant service and back charge invoices issued last month amounting to $1584.45.

There were 20 collection letters written resulting in the collection of $204.74.

The possibility of having a "standard deduction" system for the deduction of house rents from payrolls is being studied. At the present time a list of deductions to be made is given to the payroll groups each month. This list would be eliminated if a "standard deduction" system was installed but other problems which will arise as the result of such a system are under observation.

There are 7 rent and 8 telephone delinquent accounts over 60 days old totaling $230.73. These are being followed closely.

ACCOUNTS PAYABLE

STATISTICS:

	October	November
Accounts Payable Vouchers processed	348	327
Freight Bills processed	188	186
Purchase Orders Received	62	73
Amount of purchase orders	$44,298.44	$57,736.74
Receiving reports received	210	224
Total Net Amount Disbursed	$150,334.45	$111,549.71

GENERAL

The work in this section is in very good shape. The freight account again reflects a zero balance and there is a debit balance of $48.57 in the Accounts Payable account.

It is now possible to bill the Government for coal purchases without supporting statements of analysis, which allowed us to bill all of the coal vouchers which were being held for analysis statements.

Subcontract estimates of work performed by Puyallup Gardens are being held until the Payment and Performance Bonds have been corrected and approved at which time they will be in order to pay.

An audit was begun on the Vance Properties' records concerning their contract to furnish dormitory maid service. A few discrepancies have been noted and adjustments will be made. A complete report on the results of the audit will be forthcoming.

COST

COST CODES

The cost codes appear to be adequate and easily understood by those who must work with them.

The codes, as revised, will be issued in a bound book complete with code description and coverage in the near future.

WORK ORDERS

The overhead liquidating percentage was increased from 77.1 per cent for Community labor and 78.3 for Community maintenance to 100 per cent for each effective November 25, 1948 to bring it more nearly in agreement with actual.

Routine work orders are being written as required.

Work orders for November for costing purposes cover the period from October 27 through November 25, 1948.

GENERAL

The cost reports for October were delayed because of procedure changes and revisions in the report forms.

The assessments from other Divisions are being reviewed in order that they may be properly evaluated.

GENERAL LEDGER

General Ledger financial statements for October have been completed and forwarded to the General Division for consolidation with the other Divisions' reports.

There were 30 second class invoices issued during November to other Divisions in the total amount of $301,434.35, and there were 70 second class invoices received totaling $648,437.98.

A review of this work is being made in an attempt to consolidate duties and whereas it now required two employees to do the work, only one will be required after the reorganization.

RHH:vh
12-7-48

PROJECT AND RELATED PERSONNEL

GOVERNMENT EMPLOYEES	10-29-48		11-30-48	
Civilian Personnel - Atomic Energy Comm.	344		346	
Civilian Personnel - G. A. O.	4		4	
Total		348		350
RICHLAND VILLAGE PERSONNEL				
Commercial Facilities (Including No. Richland)	1637		1670	
Organizations, Clubs, Etc.,	105		105	
Schools	325		331	
Churches	28		24	
Total		2095		2130
MORRISON-KNUDSEN PERSONNEL (Columbia Camp)		262		245
CONSTRUCTION SUB-CONTRACTORS				
Atkinson-Jones	8779		8953	
Newport, Kern & Kibbe	16		17	
Newberry Neon	657		739	
Urban, Smyth, Warren Co.,	1285		1645	
J. B. Head Co.,	22		45	
Kellex Corp.,	533		552	
J. Gordon Turnbull	75		139	
Giffels & Vallet, Inc.,	184		162	
Morrison-Knudsen Co.,	224		184	
C. C. Moore	256		201	
V. S. Jenkins Insulating Co.,	59		45	
Curtis Sand & Gravel	37		31	
National Carbon/Carbide Co.,	295		290	
Trowbridge & Flynn Electric Co.,	19		13	
J. A. Terteling & Son	1010		677	
Graysport Construction Co.,	263		275	
Estep Electric Co.,	3		-	
Nettleton-Sound	609		347	
Thorgaard Plumbing	31		17	
Chris-Berg Co.,	164		204	
Holert Electrical Co.,	35		33	
Strasser Drilling Co.,	2		-	
Kelly-Wells Co.,	2		2	
McNeill Construction Co.,	635		588	

(Continued on Page #2)

CONSTRUCTION SUB-CONTRACTORS	10-29-48		11-30-48	
Rust Engineering Co.,	10		9	
Arnold & Jeffers Co.,	35		35	
Pacific Roofing Co.,	38		31	
Central Service Co.,	16		16	
Charles Swanson & Lyle	151		139	
Taylor Bros.	14		-	
Builders Insulating Co.,	15		5	
Fox Metal Products	4		7	
Pioneer Sand & Gravel	7		9	
Scott-Buttner	39		39	
Pitsburgh-Des Moines Steel	19		16	
Warsaw Elevators	2		-	
Martins Furniture	24		22	
Parsons Tile	2		5	
Williams Paint & Glass	5		-	
Seldon's Inc.,	2		2	
West Coast Painters	7		6	
Holaday & Haworthy	5		3	
Boedecker Chimney Co.,	8		-	
Chicago Bridge	17		13	
P. S. Lord	93		98	
Haughton Elevator Co.,	7		7	
H. H. Robertson	1		-	
E. J. Bartells Co.,	36		65	
Asbestos Supply	2		-	
H. P. Fischer & Sons	2		4	
Nelse-Mortenson	15		9	
Howard P. Foley Co.,	30		37	
E. F. Sherrill	-		3	
E. F. Hauserman	-		1	
Combustion Eng. Co.,	-		1	
Indust. Engr. & Contractors	-		9	
Lone Pine Roofing	-		2	
Total		15,806		15,752
GENERAL ELECTRIC PERSONNEL		8,486		8,581
GRAND TOTAL		26,997		27,058