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8 - W. E. Johnson
9 - Hanford Operations Office
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Attention: F. C. Schlemmer, Manager
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Attention: F. C. Schlemmer, Manager
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Attention: R. W. Richardson, Historian
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January 20, 1950

HANFORD WORKS
MONTHLY REPORT

DECEMBER 1949

This Document Consists of

295 Pages.

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GENERAL SUMMARY

DECEMBER 1949

MANUFACTURING DIVISIONS

Production Divisions

A total of 62 tons of metal was discharged at an average of 96.5 percent of the goal concentration. Approximately 20 tons of metal were discharged at an average concentration of 112 percent of the goal concentration. The operating efficiency was 92.0 percent. The operating levels were 275 MW at B, F, and H piles and 305 MW at D pile at month end.

A total of 91 tons of acceptable slugs was canned at a yield of 92.0 percent. This is the highest production rate ever achieved on a one-shift, 40 hour week basis.

The machining yield was 76.3 percent, which also is a new record. The melt plant produced 18 tons of billets at a yield of 68.2 percent.

Seventy-six batches were started in the Canyon Buildings, with 78 being processed through the Concentration Buildings and 75 through the Isolation Building. The average purity of completed batches from Isolation was 98.2 percent.

Mechanical Divisions

The electrical power peak demand of 78,600 KW for December establishes a new all time high.

The preparations necessary to transfer 101 Building material to the Purchasing and Stores Division and personnel to the Technical Division were completed with the transfers to be effective January 1, 1950.

A disturbance in the Bonneville Power Administration system on December 11, 1949 established a critical "Y" power condition of eighteen minutes duration.

The general backlog trend is downward and should this continue, further manpower reductions in addition to those made in December will be necessary.

TECHNICAL DIVISIONS

File Technology Division

Work began on devising a method of converting a Hanford pile in whole or major part to tritium production.

Satisfactory progress was made on the construction of the critical mass laboratory facilities.

Graphite machining was begun for the exponential experiments.

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General Summary

Information was developed and furnished to the Design Division on the control system for G Pile.

There has been a 0.07 inch downward movement of the center of the Top Biological Shield and a 0.08 inch inward movement of the Far Side of the B Pile during the last five months. This recovery is attributed to carbon dioxide which was increased from 40% to 80% during this period.

Restraining brackets were installed on the Far Side of the D Pile on December 22 and on the F Pile on December 29.

Due to the use of quality instrumentation. Completion of experimental studies of multi-layer filters made up of No. 55 and "AA" Fiberglas has affirmed the prediction that highly efficient Fiberglas filters can be used to handle the waste stream.

Separations Technology Division

Methods of reducing undesirably high coating waste product losses are being investigated in the Canyon Buildings. Continued progress of a production test in the Concentration Building metathesis has reduced the time cycle to ca. 12 hours without adversely affecting product losses. The extent and correction of bad contamination of Isolation Building final product solutions through corrosion failure of neutron-absorbing assemblies is under study. Temperature cycle changes have been made in Hood 14 of Building 234, in an effort to reduce plutonium metal impurities. Difficulties have been encountered with both tool design and operating procedure in Hood 19 operations on the Model 090 core fabrication in Building 235, as well as in Hood 26 operations, but corrective steps believed to be of promise are being taken.

In redox and Metal Waste Recovery process development, 38 additional column runs were made during the past month, primarily involving studies of packed and pulse columns in the T.B.P. process. Stage heights and throughput rangeability have been determined under admittedly less-than-optimum conditions in 3, 4, and 8-inch packed columns and a 5-inch pulse column. Semi-works studies of the diuranate metal waste feed preparation method were closed out with satisfactory phosphate purification but poor uranium yields and unsatisfactory cake handling properties.

The G.E. & C.L. Submerged Pump No. 2 was returned to life-test operation after a five-month inspection proved satisfactory. Process chemistry studies carried out have involved diuranate fines formation, distribution ratios in the T.B.P. process, T.B.P. process freezing points and saturation values, and hexone drying.

In the research laboratory, continued improvements have been obtained in ruthenium volatilization and zirconium scavenging. The method for the catalytic decomposition of hydrogen peroxide in plant recycle solutions has been further developed. High yields and lanthanum purification have been obtained on new methods of coupling Redox and Bismuth Phosphate final-product solutions to metal reduction steps. Early promise for success in solubilizing 234-5 crucible slag for plutonium recovery is being obtained. Additional T.B.P. process equilibrium and density data have been obtained and a "hot" pulse column has been set up in the

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General Summary

A statistical study of dimensional measurements on Group V uranium slugs exposed to 400 M.W.D. revealed no significant systematic dimensional changes. It was also found that the variability in dimensions of individual slugs had not increased significantly over that observed in canned slugs prior to exposure.

Instructions Letter No. 135, Section VI, authorized an Audit and Inventory Unit in the 700 Area Classified Files which will be responsible for a perpetual plant-wide inventory of classified documents. The nucleus of this new Unit was organized, and initial inventory operations were undertaken.

HEALTH INSTRUMENT DIVISIONS

The force increased by four. Three Class I Special Hazards Incidents were investigated. None of these involved significant radiation exposure.

Survey findings in the Operational division, with some exceptions, were normal. The "special dissolving" resulted in greater contamination spread than had been anticipated. Air and vegetation samples collected by Development division personnel defined the resulting pattern and magnitude of ^{131}I deposition. Other routine monitoring samples were consistent with past findings.

In Bioassay, urine samples showed no confirmed positive results for plutonium but disclosed consistently high tritium oxide content in the samples from two individuals.

In biological monitoring, specimens collected during the month showed thyroid activities ranging from 1 to 300 $\mu\text{c}/\text{kg}$. The latter represents about 80 times the maximum permissible limit of permanently maintained radioiodine concentration. This resulted from the high deposition of ^{131}I in the special dissolving, and is a temporary condition.

Phase I of the Animal Farm is being accepted as opposed to Phase II, the sewage disposal plant, which does not meet operating specifications.

PLANT SECURITY AND SERVICES DIVISION

The year 1949 was completed with eleven major injuries and a frequency rate of 0.714 - the lowest frequency achieved under General Electric operation.

There were four minor fires in the industrial areas with a loss of \$723.

There was a slight increase in laundry volume in both the 700 and 200 Area laundries.

Mail volume has increased to the point where it was necessary to secure an additional employee to aid in distribution.

Responsibility for handling the 250, 700 Area General, Account was placed with the Office Services Division.

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General Summary

Records inventories of all divisions except Accounting General, Health Instrument, and Technical have been completed.

A group of five employees has been set up to conduct continuous inventories of classified documents throughout the Project. It is expected that this group will begin operation in January.

EMPLOYEE AND COMMUNITY RELATIONS DIVISION

Open requisitions increased from 86 at the beginning of the month to 94 at the end of December. Total plant personnel decreased from 7,429 to 7,405. Turnover rate, including terminations due to lack of work, was 1.04% during December. Turnover rate exclusive of terminations due to lack of work was .55%. Six hundred and fifty-six employees are in lack of work status. Seniority dates in 15 seniority groups were brought up-to-date and reissued. Shortage of stenographers and typists necessitated advertising in newspapers in nearby communities.

A draft of a procedure for disciplinary action was prepared during December. One hundred ~~sixty~~-five visits were made to employees off work because of illness. One employee optionally retired during December. Three employee deaths occurred during the month. Six awards, totalling \$85, representing an estimated saving of \$771, were granted during the month.

Thirty-four supervisors participated in the 40-Hour Supervisors Training Program in December. Supervisory Management Cost Control Program was presented during 37 meetings in December, with a total of 532 supervisors participating. Eighty-six meetings were held for non-exempt employees for the presentation of an economics film, entitled "This Is Our Problem," with 3,983 employees attending. Three revisions and two additions for the Supervisors' Employee Relations Handbook were distributed during the month.

One monthly employee has been added to the payroll of Community Relations to act as the representative of the Division Head, Community Relations. This monthly payroll employee was assigned specifically to handle all public information matters concerned with the Richland Community Divisions. He attends the Community Manager's staff meetings as well as those of the Division Head, Community Relations, in carrying out his responsibilities which include advising the Community Manager and members of his staff on community and public information matters; the release of information to residents in the form of letters, newspaper articles, and radio releases.

A total of 28 releases were distributed to the "Local List" of newspapers during the month of December, including releases to radio stations in the vicinity. Six releases were sent during the month to the 72 daily newspapers, radio stations and wire services in the Northwest.

"You and General Electric at Hanford Works" was distributed to those on the Richland Community Thought Leaders list as a means of further acquainting them with the efforts of General Electric to keep its employees informed concerning matters affecting them, their jobs, and their company.

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General Summary

As a community service, Community Relations assisted in publicizing the Christmas Seal sale campaign during the month. In addition, assistance was given to the Community Safety Supervisor in publicizing the formation of the Richland Safety Council to replace the former Village Safety Committee.

Hanford WORKS NEWS played an important role in publicizing special campaigns within individual divisions of the Nucleonics Department during the month. The newspaper was also active in community service through assistance given to the League of Women Voters in publicizing the precinct map and in urging Hanford Works people to register and to vote.

A readership survey questionnaire was distributed as an insert in Hanford WORKS NEWS during the month. This project was undertaken as a means of obtaining suggestions from employee readers of Hanford WORKS NEWS on how the paper might be improved as a medium for furnishing them with the information they desire about their jobs and other information important to them in the course of their work at this plant.

Four special Women's Pages were prepared during the month for Hanford WORKS NEWS by the Women's Feature Writer. Other features prepared by this writer were published in Hanford WORKS NEWS as a means of further stimulating the interest of women employees in the various recreation activities available to them in the course of their work at this plant.

A formal hearing was held by the NLRB in regard to the bargaining rights petition filed by the Building Service Employees International Union. The petition filed by the Hanford Industrial Firemen's Union was withdrawn and resubmitted by the HAMTC. A hearing was scheduled by the NLRB for February 8, 1950, in the case of the Technical Engineers and Architects Association. Conferences were held between representatives of the Metal Trades Department, the HAMTC, and General Electric Company for the purpose of discussing mutual problems. Two meetings were held with the Council Grievance Committee. Work was continued on the Northwest Community Rate Survey. A study of rates for Draftsmen and Designers was made. The method of computing the retroactive pay adjustments was explained to the supervisors.

PURCHASING AND STORES DIVISIONS

	<u>Total Personnel</u> <u>as of 11-30-49</u>	<u>Total Personnel</u> <u>as of 12-31-49</u>	<u>Net Change</u>
Exempt	49	53	+ 4
Non-Exempt	262	232	- 30
TOTALS	311	285	- 26

The above tabulation indicates a decrease of 26 people. This decrease is due principally to the completion of Surplus, Salvage, and Scrap Inventories.

The work load of the Purchasing Division decreased during the month of December. This decrease was due principally to delays in receiving requisitions for the DR Water Plant and the Redox construction.

The initial purchase requisitions covering materials for the DR Water Plant were received during the month. These requisitions represented a minor

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portion of those scheduled for December.

On December 5, 1949 the coal mines supplying the project resumed operation on a three-day work week basis. By increasing our daily shipments, we were able to maintain our inventory position of three months' supply on hand at month end.

The efforts of our Inspection and Purchasing Sections through review of specifications and developing new sources of supply resulted in savings amounting to \$81,000 during December.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of December amounting to \$2,825.16. Total savings from September 1, 1946 to date equal \$1,133,061.70.

Stores active inventories were reduced approximately \$50,000 during the month.

The control of graphite stored in the 101 Building was taken over by the Stores Division and inventory of this material has been completed.

Scrap valued at \$10,173.45 was sold.

Inventories of subcontractor-held materials were completed and control of these materials was taken over by General Electric Stores.

There were 977 items furnished against Purchase Requisitions from plant sources thus obviating the necessity of purchasing from outside sources.

An agreement was entered into between the Commission and the Bureau of Federal Supply whereby the Bureau will undertake the disposal by sale of surplus property.

Arrangements for a simplified method for the handling of excess materials were made which will result in a saving of approximately \$15,000 annually.

COMMUNITY DIVISIONS

The Charter under which the Richland Community Council will operate was officially adopted and approved by representatives of the Atomic Energy Commission, the General Electric Company, and members of the Community Council.

Five new commercial enterprises opened for business.

There was no significant change in the number of housing applications.

The usual activities, programs, etc., related to the Christmas and New Year holiday season were evident.

General Summary

MEDICAL DIVISIONS

The Medical Divisions' roll decreased by 6 from 371 to 365.

Our medical consultants met in Chicago. The subject of prepayment medical coverage was considered.

Formal request was made to the Atomic Energy Commission for approval of private practice of medicine in Richland to be effective some time during 1950. The request has not been acted upon.

GENERAL ACCOUNTING DIVISION

Considerable work was done in preparing Unit Costs reports for Patrol, 200 Area and 700 Area Laundries, Janitor Service, and Purchasing and Stores Divisions.

Revisions were made in the Research and Development Budget Summary per agreement reached with divisional and AEC representatives. Also, fiscal year 1950 mid-year budget estimates were revised for certain divisions and distributed December 15, 1949.

During the month of December, additional Employees and Payroll Statistics were prepared in chart form for information of Management.

In connection with preparation of the Weekly Payroll, routines have been revised which have resulted in completion of the Payroll each week approximately four hours earlier than in the past without additional cost. The effect of this change is reflected in increased employee efficiency within the Division due to the alleviation of the "pressure" in meeting the deadline for the payoff each week.

Hanford Works and Nucleonics Department Financial Statements for the month of November were completed and distributed on December 16, and December 20, 1949, respectively. General Divisions Operating Reports covering November operating costs were completed on December 15, 1949.

Advances from AEC were increased from \$3,000,000 at the beginning of the month to \$4,000,000 at the month end. Items comprising the balance in the advance account as of December 31 compared with those of November 30 are detailed below:

	<u>November 30</u>	<u>December 31</u>
Cash in Bank - Contract Accounts	\$ 2,416,198	\$ 8,199,012
Salary Accounts	55,000	55,000
Travel Advance Funds	50,000	50,000
Unliquidated Portion of Advances Prior to June 1, 1949	2,117	-0-
Advances to Subcontractors	300,000	300,000
Cash in Transit	176,685	395,988
Total	<u>\$ 3,000,000</u>	<u>\$ 4,000,000</u>

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STAFF

General Manager	G. R. Prout
Assistant General Manager	R. S. Neblett
Assistant General Manager	F. K. McCune
Assistant to the General Manager (Technical and Education Matters)	W. I. Patnode
Assistant to the General Manager	J. R. Rue
Assistant to the General Manager and Manager of the Plant Security and Services Divisions	G. G. Lail
Department Comptroller	F. E. Baker
Counsel	L. F. Huck
Community Manager	E. L. Richmond
Manager, Design and Construction Divisions	W. E. Johnson
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
Manager, Purchasing and Stores Divisions	W. A. Jeffrey

FORCE REPORT - DECEMBER 1949

	<u>NON - EXEMPT</u>		<u>EXEMPT</u>		<u>TOTAL</u>	
	<u>11-30-49</u>	<u>12-30-49</u>	<u>11-30-49</u>	<u>12-30-49</u>	<u>11-30-49</u>	<u>12-30-49</u>
<u>GENERAL</u>	19	19	13	15	32	34
<u>LAW</u>	2	2	3	3	5	5
<u>DESIGN & CONST. DIV'S.</u>						
Administrative	17	-	5	-	22	-
Construction	51	26	68	9	119	35
Const. Acct'g.	51	53	8	8	59	61
Design	129	176	129	188	258	364
No. Richland Realty	55	56	11	14	66	70
<u>MANUFACTURING DIV'S</u>						
General	4	4	10	11	14	15
Proj. Eng'r. Control	16	15	18	20	34	35
Proj. Eng'r. Design	66	67	42	42	108	109
Proj. Eng'r. Minor Const.	177	174	25	31	202	205
Mfg. Accounting	44	47	8	8	52	55
<u>OPERATING DIV'S</u>						
"P"	275	275	66	66	341	341
"S"	295	296	77	78	372	374
Power	456	460	81	81	537	541
<u>MECHANICAL DIV'S.</u>						
Maintenance	332	329	60	56	392	385
Electrical	257	255	46	46	303	301
Instrument	192	189	47	47	239	236
Transportation	556	549	58	56	614	605
<u>TECHNICAL DIV'S.</u>						
General	2	2	5	4	7	6
Pile Technology	22	23	56	56	78	79
Separations	61	61	95	96	156	157
Metallurgy & Control	332	333	120	124	452	457
<u>MEDICAL DIVISION</u>	287	282	84	83	371	365
<u>H.I. DIV'S.</u>						
General	3	4	6	4	9	8
Operational	149	151	53	53	202	204
Development	66	68	26	26	92	94
Biology	26	29	20	21	46	50

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FORCE REPORT - DECEMBER 1949

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	<u>NON - EXEMPT</u>		<u>EXEMPT</u>		<u>TOTAL</u>	
	<u>11-30-49</u>	<u>12-30-49</u>	<u>11-30-49</u>	<u>12-30-49</u>	<u>11-30-49</u>	<u>12-30-49</u>
<u>ACCOUNTING DIV'S.</u>						
Gen. Acct'g. Payroll	83	77	7	8	90	85
Gen. Acct'g. Acct'g.	77	78	13	13	90	91
<u>EMPLOYEE & COMMUNITY REL. DIV.</u>	52	54	27	28	79	82
<u>PLANT SECURITY & SERVICE DIVISIONS</u>						
Patrol & Security	519	519	57	57	576	576
Safety & Fire	113	115	36	35	149	150
Gen. & Off. Serv.	184	181	21	21	205	202
<u>PURCHASING & STORES DIV'S.</u>						
Purchasing	35	37	27	32	62	69
Stores	230	197	28	28	258	225
<u>COMMUNITY DIVISIONS</u>	<u>591</u>	<u>588</u>	<u>147</u>	<u>146</u>	<u>738</u>	<u>734</u>
 GRAND TOTAL	 5826	 5783	 1603	 1622	 7429	 7405

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DESIGN & CONST. DIV'S.

No. Richland Realty

Supervisors

Engineers

Clerical

Others

Total

100-B	100-D	100-F	100-H	200-E	200-W	300	Plant	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	Area	General	Area	Area	
-	-	-	-	-	-	-	-	12	-	12
-	-	-	-	-	-	-	-	2	-	2
-	-	-	-	-	-	-	-	11	-	11
-	-	-	-	-	-	-	-	45	-	45
-	-	-	-	-	-	-	-	70	-	70

MANUFACTURING DIV'S.

GENERAL

Supervisors

Clerical

Total

100-B	100-D	100-F	100-H	200-E	200-W	300	Plant	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	Area	General	Area	Area	
-	-	-	-	-	-	-	-	-	4	4
-	-	-	-	-	-	-	-	-	11	11
-	-	-	-	-	-	-	-	-	15	15

PROJ. ENG'R. CONTROL

Supervisors

Engineers

Clerical

Others

Total

100-B	100-D	100-F	100-H	200-E	200-W	300	Plant	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	Area	General	Area	Area	
-	-	-	-	-	-	1	-	-	9	10
-	-	-	-	-	-	1	1	-	8	10
-	-	-	-	-	-	-	-	-	11	11
-	-	-	-	-	-	2	1	-	4	4
-	-	-	-	-	-	-	1	-	32	35

PROJ. ENG'R. DESIGN

Supervisors

Engineers

Draftsmen

Clerical

Others

Total

100-B	100-D	100-F	100-H	200-E	200-W	300	Plant	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	Area	General	Area	Area	
-	-	-	-	-	4	1	-	-	33	38
-	-	-	-	-	-	-	-	-	4	4
-	-	1	-	-	6	2	-	-	39	48
-	-	-	-	-	-	-	-	-	6	6
-	-	-	-	-	3	-	-	-	10	13
-	-	1	-	-	13	3	-	-	92	109

MANUFACTURING DIV'S.
PROJ. ENGR. MINOR CONST.

	100-B	100-D	100-F	100-H	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	
Supervisors	-	-	-	-	-	-	-	-	-	29	29
Engineers	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	13	13
Others	-	-	-	-	-	-	-	-	-	161	161
Total	-	-	-	-	-	-	-	-	-	205	205

MFG. ACCOUNTING

Supervisors	-	-	-	-	-	-	-	-	-	8	8
Clerical	-	-	-	-	-	-	-	-	-	47	47
Total	-	-	-	-	-	-	-	-	-	55	55

OPERATING DIV'S.

Supervisors	11	10	12	11	-	-	-	14	-	8	66
Operators	36	38	36	36	-	-	-	114	-	-	260
Clerical	2	2	2	2	-	-	-	4	-	3	15
Total	49	50	50	49	-	-	-	132	-	11	341

"S"
Supervisors

Operators	-	-	-	-	25	38	-	-	-	15	78
Clerical	-	-	-	-	107	165	-	-	-	-	272
Total	-	-	-	-	139	215	-	-	-	5	24
	-	-	-	-	-	-	-	-	-	20	374

"P"
Supervisors

Technical	12	12	12	14	5	8	5	2	-	-	70
Operators	-	-	-	-	-	-	-	11	-	-	11
Clerical	86	78	83	83	26	48	10	2	-	-	416
Others	1	1	1	1	-	1	-	6	-	-	11
Total	106	97	102	104	31	64	16	21	-	-	33
	-	-	-	-	-	-	-	-	-	-	541

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MECHANICAL DIV'S.MAINTENANCE

Supervisors
Engineers
Craftsmen
Clerical
Others
Total

100-B	100-D	100-F	100-H	200-E	200-W	300	Plant General	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	
2	5	8	8	5	13	5	-	-	2	48
-	-	2	1	-	-	-	-	-	5	8
15	26	38	42	30	80	43	-	-	-	274
-	-	3	2	2	2	2	-	-	1	12
3	3	11	7	3	11	5	-	-	-	43
20	34	62	60	40	106	55	-	-	8	385

ELECTRICAL

Supervisors
Engineers
Craftsmen
Clerical
Others
Total

100-B	100-D	100-F	100-H	200-E	200-W	300	Plant General	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	
1	2	2	3	1	5	2	-	-	9	41
-	-	-	1	-	-	1	-	-	1	5
12	12	16	17	10	15	11	-	-	35	219
1	-	1	1	-	1	1	-	-	23	32
-	-	-	1	-	1	-	-	-	1	4
14	14	19	23	11	22	15	-	-	69	301

INSTRUMENT

Supervisors
Engineers
Craftsmen
Clerical
Others
Total

100-B	100-D	100-F	100-H	200-E	200-W	300	Plant General	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	
2	2	2	3	2	6	8	-	-	4	29
1	1	-	-	-	2	10	-	-	4	18
12	13	13	15	14	32	59	-	-	12	170
1	1	1	1	1	1	6	-	-	3	15
-	-	-	-	-	-	-	-	-	-	4
16	17	16	19	17	41	87	-	-	23	236

TRANSPORTATION

Supervisors
Engineers
Drivers (Based on Areas Serv'd.)
Journeyman
Trainmen
Servicemen
Clerical
Others
Total

100-B	100-D	100-F	100-H	200-E	200-W	300	Plant General	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	
2	1	1	1	1	1	1	-	-	26	51
-	-	-	-	-	-	-	-	-	5	5
-	-	-	-	-	-	-	-	-	17	162
8	3	3	3	2	5	-	-	-	69	93
-	-	-	-	-	-	-	-	-	-	24
2	2	2	2	5	4	5	-	-	25	59
2	1	1	1	1	1	1	-	-	16	29
7	9	6	7	4	14	6	-	-	60	182
21	16	13	14	13	25	13	-	-	218	605

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100-B	100-D	100-F	100-H	200-E	200-W	300	Plant	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	Area	General	Area	Area	

TECHNICAL DIV'S.
TECHNICAL GENERAL

Supervisors	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	6	6

PILE TECHNOLOGY

Supervisors	1	-	-	1	-	-	-	-	3	12
Physicists-Technologists & Chemists	7	7	1	3	-	28	-	-	1	47
Tech. Grads.	-	-	-	1	-	-	-	-	-	1
Laboratory Assistants	4	4	1	-	-	5	-	-	-	14
Clerical	-	-	-	1	-	3	-	-	-	4
Others	1	-	-	-	-	-	-	-	-	1
Total	13	11	2	6	-	43	-	-	4	79

SEPARATIONS TECHNOLOGY

Supervisors	-	-	-	-	1	4	19	-	1	25
Chemists - Engr's.	-	-	-	-	5	9	54	-	3	71
Tech. Grads.	-	-	-	-	-	2	2	-	-	4
Clerical	-	-	-	-	-	2	9	-	1	12
Others	-	-	-	-	-	1	44	-	-	45
Total	-	-	-	-	6	18	128	-	5	157

METALLURGY & CONTROL

Supervisors	1	1	-	1	5	13	31	-	5	57
Chemists-Engr's. & Metallurgists	6	1	1	-	-	3	54	-	2	67
Technologists & Tech. Grads.	-	-	-	2	8	27	30	-	-	67
Laboratory Assistants	1	1	-	5	26	58	72	-	-	163
Clerical	-	-	-	-	2	3	42	-	31	78
Others	2	-	-	-	-	-	23	-	-	25
Total	10	3	1	8	41	104	252	-	38	457

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	100-B	100-D	100-F	100-H	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	
<u>MEDICAL</u>											
Supervisors	-	-	-	-	-	-	-	2	-	38	38
Physicians	-	-	-	-	-	-	-	-	1	24	27
Dentists	-	-	-	-	-	-	-	-	1	8	9
Technicians	-	-	-	-	-	1	1	1	-	18	21
Nurses	1	4	4	1	4	5	2	-	2	74	97
Clerical	-	-	-	-	-	-	1	3	8	68	80
Others	-	-	-	-	-	-	-	-	1	92	93
Total	1	4	4	1	4	6	4	6	13	322	365

H. I. DIVISIONSGENERAL

Supervisors
Engineers
Clerical
Total

-	-	-	-	-	-	-	-	-	-	3	3
-	-	-	-	-	-	-	-	-	-	1	1
-	-	-	-	-	-	-	-	-	-	4	4
-	-	-	-	-	-	-	-	-	-	8	8

OPERATIONAL

Supervisors
Engineers
Clerical
Others
Total

1	1	1	2	2	4	8	-	-	-	1	20
4	3	4	3	5	11	2	-	-	-	1	33
-	-	-	1	1	-	-	-	-	-	-	2
10	14	10	13	15	40	39	8	8	-	2	149
15	18	15	19	23	55	49	-	-	-	2	204

DEVELOPMENT

Supervisors
Engineers
Clerical
Others
Total

-	-	-	-	1	5	5	-	-	-	-	11
-	-	-	-	5	3	6	-	-	-	1	1
-	-	-	-	1	1	2	-	-	-	-	6
-	-	-	-	12	27	16	-	-	-	9	69
-	-	-	-	19	36	29	-	-	-	10	99

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H. I. DIVISIONSBIOLOGY

Supervisors
Engineers
Clerical
Others
Total

100-B Area	100-D Area	100-F Area	100-H Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
-	-	2	-	-	-	1	-	-	-	3
-	-	12	-	-	4	1	-	-	1	18
-	-	1	-	-	-	1	-	-	-	2
-	-	24	-	-	3	-	-	-	-	27
-	-	39	-	-	7	3	-	-	1	50

ACCOUNTING DIVISIONSGEN. ACCT'G. PAYROLLS

Supervisors
Clerical
Total

-	-	-	-	-	-	-	-	-	8	8
-	-	-	-	-	-	-	-	-	77	77
-	-	-	-	-	-	-	-	-	85	85

GEN. ACCT'G. ACCT'G.

Supervisors
Clerical
Total

-	-	-	-	-	-	-	-	-	13	13
-	-	-	-	-	-	-	-	-	78	78
-	-	-	-	-	-	-	-	-	91	91

EMPLOYEE & COMM. RELATIONS.

Supervisors
Employee Rel. Counselor
Clerical
Others
Total

-	-	-	-	-	-	-	-	-	21	21
-	-	-	-	-	-	-	-	-	1	1
-	-	-	-	-	-	-	-	-	45	45
-	-	-	-	-	-	-	-	-	15	15
-	-	-	-	-	-	-	-	-	82	82

PLANT SECURITY & SERVICE DIV'S.PATROL & SECURITY

Supervisors
Patrolmen
Clerical
Seamstress
Total

5	6	6	5	5	9	7	10	-	4	57
41	46	68	55	65	121	64	5	-	37	502
-	-	-	-	-	-	-	13	-	2	15
-	-	-	-	-	-	-	2	-	-	2
-	-	-	-	-	-	-	30	-	43	576

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PLANT SECURITY & SERVICE DIV'S.SAFETY & FIRE

Supervisors
Firemen
Safety Eng'rs.
Inspectors
Clerical
Total

100-B	100-D	100-F	100-H	200-E	200-W	300	Plant	3000	700-1100	Total
Area	Area	Area	Area	Area	Area	Area	General	Area	Area	
8	-	-	-	-	4	4	10	-	4	30
46	-	8	-	-	14	13	-	-	14	95
-	1	-	1	1	-	1	-	-	1	5
3	1	1	4	1	1	1	2	-	1	15
-	1	-	1	1	-	-	-	-	2	5
57	3	9	6	3	19	19	12	-	22	150

GENERAL & OFFICE SERVICES

Supervisors
Laundry Operators
Janitors & Servicemen
Clerical
Others
Total

-	-	1	-	1	2	-	1	-	16	21
-	-	-	-	-	25	-	-	-	11	36
4	6	7	6	4	15	13	-	-	35	90
-	-	-	-	-	-	-	-	-	20	20
-	-	-	-	-	5	-	-	-	30	35
4	6	8	6	5	47	13	1	-	112	202

PURCHASING & STORES DIV'S.PURCHASING

Supervisors
Clerical
Total

-	-	-	-	-	-	-	7	-	25	32
-	-	-	-	-	-	-	-	-	37	37
-	-	-	-	-	-	-	7	-	62	69

STORES

Supervisors
Clerical
Total

8	-	-	-	-	-	-	-	5	15	28
34	-	2	-	-	1	-	-	32	128	197
42	-	2	-	-	1	-	-	37	143	225

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100-B 100-D 100-F 100-H 200-E 200-W 300 Plant 700-1100 Total
Area Area Area Area Area Area Area Area

COMMUNITY DIVIS.

Supervisors
Patrolman
Firemen
Journeyman
Servicemen
Truck Drivers
Power Operators
Clerical
Others
Total

-	-	-	-	-	-	-	-	23	123	146
-	-	-	-	-	-	-	-	25	31	56
-	-	-	-	-	-	-	-	41	57	98
-	-	-	-	-	-	-	-	-	174	174
-	-	-	-	-	-	-	-	-	37	37
-	-	-	-	-	-	-	-	-	30	30
-	-	-	-	-	-	-	-	-	52	52
-	-	-	-	-	-	-	-	-	80	80
-	-	-	-	-	-	-	-	-	61	61
-	-	-	-	-	-	-	-	89	645	734

GRAND TOTAL

414 / 325 / 417 / 375 / 422 / 909 / 934 / 492 / 328 / 2789 / 7405

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MANUFACTURING DIVISIONS

DECEMBER 1949

SUMMARY

Production Divisions

A total of 62 tons of metal was discharged at an average of 96.5 percent of the goal concentration. Approximately 20 tons of metal were discharged at an average concentration of 112 percent of the goal concentration. The operating efficiency was 92.0 percent. The operating levels were 275 MW at B, F, and H piles and 305 MW at D pile at month end.

A total of 91 tons of acceptable slugs was canned at a yield of 92.0 percent. This is highest production rate ever achieved on a one-shift, 40 hour week basis.

The machining yield was 76.3 percent, which also is a new record. The melt plant produced 18 tons of billets at a yield of 68.2 percent.

Seventy-six batches were started in the Canyon Buildings, with 78 being processed through the Concentration Buildings and 75 through the Isolation Building. The average purity of completed batches from Isolation was 98.2 percent.

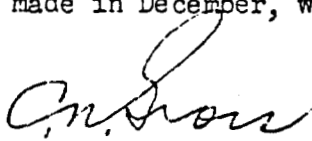
Mechanical Divisions

The electrical power peak demand of 78,600 KW for December establishes a new all time high.

The preparations necessary to transfer 101 Building material to the Purchasing and Stores Division and personnel to the Technical Division were completed with the transfers to be effective January 1, 1950.

A disturbance in the Bonneville Power Administration system on December 11, 1949 established a critical "Y" power condition of eighteen minutes duration.

The general backlog trend is downward and should this continue, further manpower reductions, in addition to those made in December, will be necessary.


C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

MANUFACTURING DIVISIONSPATENT REPORT SUMMARY
FOR
MONTH OF DECEMBER, 1949Richland, Washington
January 9, 1950

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

G. P. Kesel

Project Engineering Divisions

TITLE

Slug Cut-Off Machine

The machine consists essentially of a standard metal circular cut-off saw coupled by a special transfer mechanism to a fluoroscope inspection hood.



C. N. GROSS

MANAGER, MANUFACTURING DIVISIONS**DECLASSIFIED**



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HW-15550-del

January 6, 1950

P DIVISION

DECEMBER, 1949

I. GENERAL

The B, F, and H piles operated at 275 MW, and the D pile at 305 MW throughout the month except for outages listed under Area Activities. The "time operated" efficiency for the four piles was 94.2%. This represents the highest operating efficiency obtained on the piles since February, 1946.

A total of 62.35 tons of metal at an average concentration of 96.5% of the current goal was discharged from the piles during the month.

The production of 112 tons of bare slugs and 91 tons of acceptable canned slugs during December represents a new production record for a one-shift, five day week operating schedule in the 300 Area.

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - December, 1949

Beginning of Month	341
End of Month	340
Net Decrease	1

K. T. Perkins, Area Supervisor, was relieved of his duties in 100-H Area on December 19 to assume the duties of Contact Engineer for G Pile Design.

One operator terminated voluntarily.

W. P. McCue, Chief Supervisor, visited the Knolls Atomic Power Laboratory at Schenectady, New York, during the week of December 12 for consultation on the reactor development program.

P Division

III. AREA ACTIVITIES

<u>PILE SUMMARY</u>	<u>PILE B</u>	<u>PILE D</u>	<u>PILE F</u>	<u>PILE H</u>
Time Operated (%)	91.2	95.5	90.1	100
Operating Efficiency (%)	89.8	90.0	88.3	100
*Power Level (MW)	275	305	275	275
*Inlet Water Temperature (°C)	7.5	7.7	7.6	7.7
*Outlet Water Temperature (Maximum °C., 10 tubes, 0.240" Zone)	50.4	47.9	49.4	42.6**
Number of Scrams	2	0	1	0
Number of Purges	1	0	1	0
Helium Consumption (cu. ft.)	9,197	42,479	26,189	0
Carbon Dioxide Consumption	58,415	60,049	22,059	36,601
Metal Discharged (tons),	30.03	12.63	19.69	0
Inhours Gained (this month)	8	1	17***	24
*Inhours Poisoned	568	549	287***	167
*Inhours in Rods	49	86	110***	144

* Month end figures.

** 0.285" Zone

*** As of 12-28-49.

PILE BUILDING

Outage Breakdown

<u>Date of Outage</u>	<u>Metal Discharged</u>	<u>Scheduled Maintenance</u>	<u>Unscheduled</u>	<u>Length of Outage (Hours)</u>
*12-1-49			B	0.2
**12-2-49			F	0.2
12-7-49	B			21.7
***12-11-49			B	0.1
12-13-49	B			21.4
12-14-49	F	F		52.6
12-21/22-49	D	D		48.0
12-28-49	B			21.1
12-29-49	F			21.0
****12-29-49			B	1.0

* Unit scrambled with #2 safety circuit when pannelit alarm could not be reset.

** Scram caused by unexplained surge on #4 Beckman.

*** Critical Y power condition (See operating experience below.)

**** Unit scrambled when #4 Beckman trip point was exceeded during power level change.

Operating Experience

Production tests having operational significance are reported below:

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P Division

105-31-P (Probe Test of Top Central Tubes)
The tubes listed below successfully passed probes as indicated:

<u>1.485"</u>	<u>1.490"</u>
4663-B	4674-D
4660-D	4687-D
4672-D	4674-F
	4684-B

105-103-P (Corrosion Rates at Elevated Temperatures, Supplement A)
Thirty-two tubes in the F pile operated throughout the month with reduced water flow in accordance with the provisions of this test. No unusual operating conditions were observed.

105-114-P (Van Stone Corrosion Studies)
Ten front face Van Stone flanges protected with sacrificial gaskets were inspected at F Pile during the month. All were found to be in good condition. Cap supported sacrificial dummies were installed across the flange on six of these tubes and all were returned to service.

105-168-P (Replacement of Pile Atmosphere with CO₂)
The CO₂ concentration was maintained at 80% at B Pile and 60% at D and F Piles throughout the month. The H Pile atmosphere was maintained at higher than 95% CO₂.

105-278-P (Effect of Increased Enrichment Levels)
Inspection of two tubes of Group V material discharged at 460 MWD/ton did not reveal any unusual distortion.

105-291-P (Examination of Inlet Ends of Process Tubes)
Nine tubes in the D pile and thirteen in B pile were borescopically examined for corrosion in the inlet eight feet. All tubes at D were satisfactory; eleven at B were satisfactory and two were severely corroded.

A total of 48.52 tons of Group V (alpha rolled, triple dipped, completely transformed) material was discharged during the month. Of this amount, 28.45 tons had an average concentration of the current goal value and 20.07 tons was discharged at an average concentration of 112% of the current goal in accordance with the program of investigation of higher concentration levels. Examination of the higher concentration material did not reveal any unusual blistering or distortion.

During the outage of December 7, three tubes at B pile required forces up to 2000 pounds for discharge. Two tubes (0485-B and 3593-B) contained Group IV (alpha rolled, triple dipped, partially transformed)

P Division

material and one tube (0553-B) contained Group I (gamma extruded, triple dipped, 8 inch) material. All tubes are loaded with dummies at month end pending replacement.

On December 11, shut down of all piles was begun when a Critical Y power condition was declared. B Pile was shut down completely; D, F and H Piles had reached level circa 100 MW when the condition was cleared. B Pile resumed operation, and the other piles returned to nominal level without incident.

Tube No. 1159-B was replaced during the month because of excessive corrosion. (See PT 105-291-P above.) The tube in channel 3968-D was removed and replaced because of the stuck charge reported previously (see HW-15267-A).

Segmental discharge of two tubes was attempted at 100-F Arca. The tape could not be inserted in either tube.

The Beckmans in the #1 Safety Circuit at H Pile operated erratically during the month. On several occasions, annunciator alarms were received, but in no case was the unit scrambled. Investigations are in progress at month end, but the cause of the difficulty has not been definitely established.

Mechanical Experience

All horizontal and vertical safety rods are in satisfactory operating condition at month end except A rod at 100-F Pile. This rod binds severely in operation. It is planned to install a reduced section rod in this position.

During the December 29 outage, the phasing of the emergency lighting circuit in 105-F Building was synchronized with the normal lighting circuit. This work corrected the abnormal condition reported earlier (see HW-15267-A).

The installation of the far side shield restrainers was completed on D and F Piles during the month.

Inspection of the discharge chute liners at the B Pile revealed that the top edge of the steel liner had been raised by metal pieces trapped between the liner and the chute floor. It is planned to remove the metal and repair the liners during January.

An expanded program of checking and exercising the equipment in the DR Pile Building was inaugurated during the month. This work is intended to reduce to a minimum the routine and preventive maintenance required when this facility is activated.

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P Division

Pile Area Development

The installation of the pilot algae filter is complete and operation is planned early in January.

The development of a tube-by-tube product accounting system has been completed. The automatic equipment for recording tube temperature data has been installed at H Pile, and test operation is in progress at month end. Routine operation at H Pile is planned for January; installation of the equipment at B, D, and F Piles will follow. (See HW-13124 and HW-13842.)

Process Control Activities

The routine activities of the group continued throughout the period. In addition, the group completed a study of pile operating level limitations (see HW-15516), and assisted with the preparation of the division's annual report.

Gas Processing Building

Operation of these buildings was normal during the month. The purity of the circulating atmosphere at H Pile was increased from 91% to 97% by increasing the system pressure and by a series of small CO₂ purges.

Special Hazards

The intensity of the beams at the top far edges of B and F Piles did not change significantly during the period. The small beam reported at the front far corner of the D Pile (see HW-15267-A) has not been detected this month.

300 AREA - METAL FABRICATION

Production Statistics

Production for the month of December was as follows:

Billets Produced	18 Tons
Rods Machined	146 Tons
Bare Pieces Machined	112 Tons
Acceptable Pieces Canned	91 Tons

Melt Plant

The casting yields were as follows:

	<u>November</u>	<u>December</u>	<u>To Date</u> <u>1949</u>
Billet	71.4	68.2	68.9
Solid Metal	85.4	86.0	85.8

P Division

Continued difficulty with stopper rod breakage and seating resulted in a lower billet yield this month. Fourteen billets were rejected because crucible charges had to be poured early.

As a result of increased production quotas a backlog of 26 tons of solid scrap (UM and G) is now on hand for casting. It is planned to increase the operation of the Melt Plant to two shifts for short periods during the year to maintain the backlog at proper levels.

Eight additional billets were cast in conformance with Production Test No. 314-59-M, (Effects of Furnace Pressures on Quality of Remelted Uranium). This completes the production phase of this test.

Machining

Machining yields were as follows:

% Yield		
<u>November</u>	<u>December</u>	<u>To Date 1949</u>
74.8	76.3	71.3

The yield for December is the highest yet attained on alpha rolled rods. Continued improvement in rod quality and the reduction in cut-off tool width have attributed to the high yield. The latter has increased the yield approximately 2%.

A total of 112 tons of bare slugs was machined during the month, which represents a record rate for a one-shift five day week.

Chip Recovery

The chip recovery yield was as follows:

Yield		
<u>November</u>	<u>December</u>	<u>To Date 1949</u>
89.9	91.7	90.6

The entire chip recovery process was operated four shifts and the press was operated an additional eleven shifts. All chips were pickled and 36,626 pounds of TXB were produced.

Oxide Burning

The material burned was as follows:

Weight Out - Pounds		
<u>November</u>	<u>December</u>	<u>To Date 1949</u>
51,995	26,956	397,668

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P Division

Oxide burning was scheduled only as necessary to burn raw oxides as they were accumulated from process during the month.

Oxide on Hand at Month End (Metal Content)

To be burned	00.0
To be analyzed	9,751.2
To be shipped	<u>30.141.4</u>
Total	39,892.6

Canning Operation

The canning yield was as follows:

<u>November</u>	<u>December</u>	<u>To Date</u> <u>1949</u>
92.7	92.0	91.1

Canning rejects, by cause, were:

	<u>Percent</u>		<u>To Date</u> <u>1949</u>
	<u>November</u>	<u>December</u>	
Non Seating	1.9	1.6	1.1
Marred Surface	1.6	2.2	2.5
Al-Si on Outside of Can	0.5	0.6	0.9
Frost Test	1.7	1.9	2.0
Bad Welds	0.5	0.5	0.6
Miscellaneous	<u>1.1</u>	<u>1.2</u>	<u>1.8</u>
	7.3	8.0	8.9

Marred surface and frost test rejects were the chief causes for the lower yield this month. Non seating rejects were reduced slightly by more rigid controls on canning bath temperatures.

Sixty experimental slugs were bronze dipped at various times and temperatures to establish border line conditions for alpha-beta transformation. The results, along with information previously obtained, will be used to establish minimum dip times and temperatures for the double cycling of slugs in the bronze baths.

The following special request pieces were canned:

<u>Request No.</u>	<u>Content</u>	<u>No. of Pieces</u>
P-10-A	Lithium Aluminum Alloy	541

In addition 4,055 bismuth slugs were canned.

P Division

Slug Recovery

	<u>% Recovered</u>		<u>Average Wt. - Lbs.</u>	
	<u>December</u>	<u>To Date 1949</u>	<u>December</u>	<u>To Date 1949</u>
Z Slugs	78.9	87.5	3.906	3.911
X Slugs	18.2	10.5	3.859	3.859
Rejects	<u>2.9</u>	<u>2.0</u>	<u>---</u>	<u>---</u>
	100.0	100.0		

Inspection and Testing

Autoclave rejects were as follows:

	<u>November</u>	<u>December</u>	<u>To Date 1949</u>
	.04/M	.07/M	.06/M

Three autoclave failures occurred during December, all being completely destroyed.

None of the canned pieces tested during the month were penetrated within 0.015" of the outer can wall.

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

	<u>% Usable</u>		
	<u>November</u>	<u>December</u>	<u>To Date 1949</u>
Aluminum Cans	89.0	87.0	93.0
Aluminum Caps	99.1	96.8	95.0
Steel Sleeves	*	*	88.0

* No new sleeves were inspected.

Aluminum cans received in the last shipments from the Aluminum Company of America continued to show lower quality trends because of deep scratches and dents.

Material Handling

No rolled rods were received and no billets or oxides were shipped off plant during the month.

305 Test Pile

The test pile was operated 14 eight-hour shifts. A total of 35 tests was run on canned slugs, 49 on billet eggs, and the following on special

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P Division

work requests:

<u>Request No.</u>		<u>No. of Tests</u>
113	To test P-10-A slugs for pile loading.	166
114	Test graphite Li_2CO_3 mixture to establish a method to determine content of P-10-A slugs from 305 results.	10
115	To determine the precision of pile period measurements with a P.C. tube.	1
116	Measure the neutron absorption of cutting oils to be used in 313.	4

Special Hazards

No unusual conditions developed during the month.

Development

An additional ninety-six rods were treated with a 50% solution of Calol to determine the effect on airborne contamination during rod straightening. Air samples were comparable with previous results of about two times tolerance for oil treated rods. Air contamination during the straightening of untreated rods has ranged from 5 to 50 times tolerance. Arrangements are currently being made to have a sufficient quantity of rods treated with Calol after rolling at Simonds Saw and Steel Company to evaluate the over-all effects of oil treatment on air contamination during rod handling.

Beginning on November 21, a program was initiated to evaluate the extended usage of aluminum silicon in the canning baths. Through close control of analysis it has been possible to increase Al-Si usage from 8 hours to an average of 14.5 hours. This represents an annual material savings of approximately \$15,000.00 at present production rates.

Tests were run during the month to determine the feasibility of using recovered flux on the bronze canning baths. Results to date are comparable with that of newly mixed flux. It now appears that at least 50% of the used flux can be recovered for reuse, with an annual material savings of about \$20,000.00.

January 10, 1950

S DIVISIONDECEMBER, 1949OPERATING SECTIONI. GENERAL

Seventy-six batches were started in the Canyon Buildings, seventy-eight batches were processed through the Concentration Buildings and seventy-five batches were completed through the Isolation Building. The average purity for completed batches was 98.2 percent.

Canyon and Concentration Building Production Performance Data -
(12-1-49 - 12-31-49, inclusive)

	<u>B Plant</u>	<u>T Plant</u>	<u>Combined</u>
Number of charges started	40	36	76
Number of charges completed	39	36	75
<u>For completed charges:</u>			
Percentage of starting product in waste:			
This month	2.9(a)	2.9(a)	2.9
Last month	2.7(b)	2.7(b)	2.7
Cumulative to date	4.3(c)	4.1(c)	4.2
Percentage of starting product recovered:			
This month	92.2*	96.3	94.1
Last month	96.6	96.8	96.7
Cumulative to date	97.1	95.6	96.4
Percentage of starting product accounted for:			
This month	95.1*	99.2	97.0
Last month	99.3	99.5	99.4
Cumulative to date	101.4	99.7	100.6
Gamma decontamination factor (Log.)			
This month	7.32	7.30	7.31
Last month	7.45	7.48	7.46
Cumulative to date	7.36	7.35	7.35

* Results of acid-flush will be included in January summary.

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(a), (b), (c): Include waste from processing recycle. The recycle wastes are estimated as: (a) 0.010%-T Plant; 0.009%-B Plant.
(b) 0.010%-T Plant; 0.006%-B Plant. (c) 0.095%-T Plant; 0.009%-B Plant.

Isolation Building Performance Data (12-1-49 to 12-31-49, inclusive)

	Prepared for Shipment	% of Incoming Product		Retained Material	
		Recycle	Waste	Samples	Balance
Average for this month	97.2	4.36	0.10	0.037	101.7
Average for last month	96.3	4.01	-0.028	0.036	100.3
Average to date	95.8	4.65	0.06	0.02	100.5

II. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	374
End of month	378
Net increase	4

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

3 transfers from other Divisions (monthly roll)
1 new hire (weekly roll)

Changes in supervisory organization:

B. Bangs was transferred from the H. I. Division on December 12, 1949, as a Supervisor-in-Training.

W. G. Browne was transferred from the Separations Technology Division on December 19, 1949, as a Supervisor-in-Training.

R. G. Zumhoff was transferred from the H. I. Division on December 27, 1949, as a Supervisor-in-Training.

III. AREA ACTIVITIES

PRODUCTION PERFORMANCE

T and B Plants and 231 Building

Extraction Waste Losses

The throw-away waste losses (after rework) for the extraction step increased approximately 0.10 percent during December with the increase of LTD/T figure for exposed metal to the goal figure of 400. Although the data presently available for extraction losses for the high level material are limited, it can be stated that the throw-away losses from the extraction step have approximately doubled with the doubling of the LTD/T.

S Division

	T PLANT		B PLANT	
	December	November	December	November
Original analysis	1.30	1.16	1.23	1.02
Throw-away loss	0.88	0.74	0.83	0.71
Average LWD	396	353	400	375

Acid Wash Runs - B and T Plants

A regularly scheduled acid wash run was processed through one line of parallel equipment in each of the B and T Plant Canyon Buildings and through the process equipment of both Concentration Buildings. The only abnormal recovery of product occurred in the 12-8 tank in the B Plant Canyon where a pick-up of approximately 14 percent of a standard run was experienced. Since it is believed that this amount of product remaining in the 12-8 tank resulted from material draining back from the long trench line between the 12-8 and 16-1 tanks following a normal jetting which emptied the 12-8 tank but did not carry all the material from the line to the 16-1 precipitator, the technique of making a second jetting followed by a ten minute air blow of the line has been adopted.

Concentration Buildings Bismuth Phosphate By-Product Losses - B and T Plants

As reported last month, preliminary experiments conducted in November with controlled phosphoric acid addition rates for the strike in the bismuth phosphate by-product step in the Concentration Buildings, gave substantial reductions in waste losses for this step. During December it was established, after testing phosphoric addition rates of ten, five and two pounds per minute, that five pounds per minute is the optimum rate. The five pound rate gives an average loss of approximately 0.07 percent per run, against an average of approximately 0.14 percent for runs processed in recent months with the rapid addition of phosphoric acid. Since nine runs processed with a two pound per minute addition rate for the phosphoric acid gave an average loss of approximately 0.07 percent and a ten pound addition rate gave approximately 0.11 percent, the five pound phosphoric acid addition rate has been adopted as standard for A Cell in both T and B Plants.

Coating Waste Losses - B Plant

In B Plant, as part of a program for studying the product losses which occur with the metal coating wastes, the 2,500 pound water flush which is made of the metal heels in the dissolvers following each of the three cuts taken from each charging of the dissolver, has been reduced to 2,000 pounds. This procedure permits the making of an additional 1,500 pound flush of the dissolver to the metal solution storage tank prior to decoating of the next charging of metal and to still maintain the total dilution of three dissolvings at 7,500 pounds of water. It is hoped to determine from use of this procedure if the rather wide fluctuations which have recently been found in the product content for different coating wastes are a function of the coating dissolution, or if they are the result of small amounts of metal solution remaining in the dissolver from the last dissolving


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prior to decoating. Only two chargings of the dissolvers were handled in this manner in December. Although the losses (0.38 percent and 0.40 percent) from these two wastes were in very good agreement with each other and with losses which, in accordance to other work can be expected, the data are insufficient to draw any conclusions.

Reduced Metathesis Volumes - T Plant (Production Test 224-T-13)

As reported last month, Production Test 224-T-13 is for the purpose of developing procedure changes in the metathesis process at the Concentration Buildings which will shorten the time cycle through this step from fourteen hours to twelve hours. To date, it has been successfully demonstrated that it is feasible to reduce the metathesis volume to 80 percent of the former standard and to rework up to one-half of the metathesis wash effluent with the metathesis effluent rework. Subsequent phases of the test, which should near completion in January, will test the possibility of reworking all of the metathesis wash effluent with metathesis effluent while maintaining the reduced metathesis volume.

Cadmium-Lead Contamination of Final Product - Isolation Building

Spectrographic analysis of a precipitate which recently appeared in the final product tank in Cell 4 at the Isolation Building revealed the presence of lead as a main constituent. Following the completion of run B-911-F-18, which was in process in Cell 4 at the time the results of the analysis were received, processing of B Plant runs was transferred to Cell 3. An investigation of the concentrating still in Cell 4 disclosed that the stainless steel sheath for the cadmium-lead neutron absorber had corroded through at the welded seams and had exposed the lead shot to process solutions. This absorber has been replaced and, after it was established that lead is not entering the process from neutron absorbers of similar construction located in other tanks in the cell, the cell was placed back in operation.

At this writing, it has not been determined to what extent the cadmium-lead contamination has been carried into the sample cans and to what extent these impurities will be removed by subsequent processes. Material which is suspected of being grossly exposed to lead contamination is being withheld from subsequent processing until these questions are resolved. Samples will be obtained for lead determinations from possibly contaminated sample cans. There will be developed, also, a routine procedure for frequent checks of product solutions for the presence of lead. In the meantime, the neutron absorber in the Cell 3 still, which has been in operation for five years, will be replaced.

Process Deviation - Isolation Building

After the reactivation of Cell 3 in the Isolation Building for reasons described in the preceding paragraphs, and following the loading out of sample cans with run B-911-F-19, a precipitate was discovered in the final product tank of this cell. It was de-

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terminated that this precipitate was plutonium ammonium nitrate. It is assumed that this precipitate was a result of the inadvertent addition of ammonium sulfate to the second peroxide precipitator rather than six percent sulfuric acid called for by procedure. A procedure for the reworking of this material is being devised.

WASTE DISPOSAL

Second Decontamination Cycle Waste Supernatant Cribbing - B and T Plants

Cribbing of second decontamination cycle waste supernatant from X-112-B tank in the 200 East Area was resumed in December and will be continued until this tank is empty. Cribbing of 578,000 gallons of second cycle waste from X-112-T tank in the 200 West Area was concluded on December 19, for a total of 2,955,000 gallons of this type waste cribbed in the 200 West Area since cribbing of second cycle supernatant was first initiated.

Waste Status

The status of the Waste Storage Areas as of December 31, 1949, is shown in the following table:

B Plant

Plant		Percentage Full				Reserve Capacity in Batches to Process				
Bldg. 241 Tanks	Waste	B	C	BX	BY	B	C	BX	BY	Total
x101,2,3	Metal	100	100	100	0	0	0	0	564	564
x101,2,3,4	Metal	-	-	-	-	-	-	-	-	-
x104,5,6	Metal	-	100	96.6	0	-	0	13	564	564
x105,6,7,8	Metal	-	-	-	-	-	-	-	-	-
x201,2,3,4	Metal	-	100	-	-	0	-	-	-	-
x107,8,9	Metal	-	-	-	-	-	-	-	-	-
x111,12	Metal	-	-	-	0	-	-	-	376	376
x104,5,6	1st Cycle	-	-	-	-	-	-	-	-	-
x107,8,9	1st Cycle	100	100	66.7	0	0	0	147	632	779
x109,10,11, 12	1st Cycle	-	-	-	-	-	-	-	-	-
x110,111, 112	1st Cycle	-	100	26.4	-	-	0	325	-	325
x110	1st Cycle	-	-	-	0	-	-	-	210	210
x115,118	1st Cycle	-	-	-	-	-	-	-	-	-
x104,5,6	2nd Cycle	73.7	-	-	-	168	-	-	-	168
x110,11,12	2nd Cycle	100	-	-	-	0	-	-	-	0
x113,14,16, 17	2nd Cycle	-	-	-	-	-	-	-	-	-

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Bldg. 241 Tanks	Waste	Percentage Full			Reserve Capacity in Batches to Process			
		T	U	TX	T	U	TX	Total
x101,2,3	Metal	100	100	-	0	0	-	0
x101,2,3,4	Metal	-	-	22.2	-	-	713	713
x104,5,6	Metal	-	100	-	-	0	-	0
x105,6,7,8	Metal	-	-	0	-	-	896	896
x201,2,3,4	Metal	-	-	-	-	-	-	-
x107,8,9	Metal	-	100	-	-	0	-	0
x111,12	Metal	-	-	-	-	-	-	-
x104,5,6	1st Cycle	100	-	-	0	-	-	0
x107,8,9	1st Cycle	100	-	-	0	-	-	0
x109,10,11,12	1st Cycle	-	-	38.8	-	-	573	573
x110,111,112	1st Cycle	-	100	-	-	0	-	0
x110	1st Cycle	-	-	-	-	-	-	-
x115,118	1st Cycle	-	-	0	-	-	457	457
x104,5,6	2nd Cycle	-	-	-	-	-	-	-
x110,11,12	2nd Cycle	69.4	-	-	167	-	-	167
x113,14,16,17	2nd Cycle	-	-	0	-	-	1049	1049

MECHANICAL PERFORMANCEEquipment Failures - B and T Plants

Equipment failures which occurred in the B and T Plant Canyons are described below. In each instance, radiation levels accompanying the equipment made repairs impossible, and replacements were made by remote maintenance operations from the crane.

- The connector assembly for the Section 9 metal waste neutralizer weight-density instrument in the B Plant Canyon was replaced because of plugs, which could not be removed by normal flushing procedure, in the sensing lines.
- In B Plant Canyon, the connector assembly for the 3-5R dissolver thermohm was replaced due to failure of the thermohm.
- The Section 16 first decontamination cycle by-product precipitator agitator in T Plant Canyon failed and was replaced. Radiation levels involved made it impossible to make close examination of the agitator assembly for cause of the failure. This agitator was the original agitator that was installed.
- In T Plant Canyon, a leak developed in a gasket on the B jet assembly for the 6-1 metal solution storage tank, and the assembly was replaced.

Canyon Trench Jumper Installation - B and T Plants

In order to permit direct return to the process in the extraction pre-reduction step of cell drainage water containing excess

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amounts of product, a new trench jumper was installed at both B and T Plant Canyons between Section 5 and Section 6. The installation of these jumpers was accomplished by use of the cranes without incident.

Concentration Building Equipment - B and T Plants

In the Concentration Buildings the following mechanical items were handled during the month:

- 1) A small hole which developed in the B Plant Concentration Building final product tank (F-10) at a weld was repaired successfully by rewelding.
- 2) Erratic transfer rates between the lanthanum product precipitator in E Cell and the centrifuge at T Plant Concentration Building led to removal of the transfer jet suction tube for inspection. A pinhole leak was discovered approximately ten inches from the bottom of the tube and tube was replaced. Inspection was made of the suction tubes for the precipitator to centrifuge transfer jets in the other lanthanum fluoride cells at T Plant and all were found to be in good condition.

IV. SPECIAL HAZARDS

At the request of the Atomic Energy Commission, a special dissolving of one ton of 16 day cooled metal was made in T Plant between 8:00 PM, December 2, until 8:00 AM, December 3. General contamination of the ground at 500 to 1000 c/m levels resulted in the 200 Areas and environs. Since the average level of contamination was low and the half-life of the source brief, no health hazard resulted. There were a few cases of shoe and hand counts above the warning levels of personnel monitoring instruments detected the day following the completion of the dissolving.

V. EXPANSION AND CONTROL SECTION

Metal Recovery

Based upon the recent survey reported in Document EW-15369 to determine the most favorable process for the recovery of metal waste and upon recent development work by the Technical Divisions, a decision has been reached to adopt the Tributyl Phosphate Process originally developed at Oak Ridge National Laboratory for this production requirement. A committee composed of members of Design and Construction, Technical and Manufacturing Division representatives was appointed for the purpose of planning the necessary scope work for the design and construction of an eight ton per day capacity plant to be installed in the U Plant Buildings.

Redox

With the decision to adopt the Tributyl Phosphate Process for the recovery of uranium from stored metal wastes, the dual purpose feature of the Redox Process is no longer required.

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The IS column originally intended for processing prepared feed from stored metal wastes will be retained in the Redox Plant, however, for the reworking of possible off-standard process solutions. Concurrent with the decision to adopt the tributyl process which produces completely decontaminated uranium nitrate-hexahydrate solution, it was decided to defer the construction of the second Redox Plant to a later date, possibly indefinitely. A committee is now engaged, therefore, in an evaluation to determine the most advantageous location of the first Redox Plant on the assumption that only one plant may be built.

Other developments in the Redox Program are:

a) Kellex Design Effort

Study prints from the Kellex Corporation of the layout and process piping of the aqueous make-up portion of the 202-S Building have been received and reviewed by the Contact Engineer. Some scope architectural drawings have been received by the Separations Design Division.

b) 291-S Stack and Filter

Relocation of the 291-S Ventilation Stack has been made in accordance with the H. I. Division. Current planning calls for a 200 foot stack located northeast of the 202-S Building in a position which will minimize the effect of turbulence caused by the 202-S Building silo on the gases discharged from the stack under prevailing wind conditions.

c) 211-S Tank Farm

Engineering Flow Sketches have been received from the Design Division covering the 211-S Tank Farm and associated equipment. Review of these sketches has been completed and revisions are currently being made. At the suggestion of the Safety Division, this area will feature underground storage tanks for fresh solvent.

d) Aluminum Nitrate Survey

The market survey currently being carried out by the Purchasing Division for the Manufacturing Division to locate a suitable supply of aluminum nitrate is nearing completion. Informal bids from a number of vendors have been received with the price ranging from nine cents to fifteen cents per pound. Consideration is currently being given to the effect of freight rates and handling costs of the solid salt as a 72 percent solution in arriving at a design basis for the aluminum nitrate storage and handling facilities.

S Division

o) Pump Development

The development of a suitable submerged pump is continuing through the cooperative effort of the Separations Design Division and Separations Technology Division. It is expected that a selection can be made among several long shaft pumps by March 31, 1950. As a desirable alternate, authorization has been given to expend \$8,000 in the construction of a 5 HP submerged motor type similar to the 1/3 HP unit now operating successfully under life test in the 300 Area. Final evaluation of this unit will not be available until August of 1950.

Rala

Modification No. 3 of Directive HW-128 has been received, authorizing the expenditure of \$2,968,000 for the design and construction of Rala facilities in the Head End of T Plant along with associated laboratory, stack ventilation and mock-up facilities. The requested capacity is for ten batches of 10,000 curies each, per year. The construction completion date is set at October 1, 1950, with a subsequent three month allowance for adjustment of deferred design problems and plant run-in.

Other developments of interest in the Rala Program are:

a) Electrolytic Cell

A cost estimate for the design and development of the electrolytic cell was received from the General Engineering and Consulting Laboratory.

b) Analytical

Analytical development work is progressing in the 300 Area and the 101 Building at Hanford. It is necessary to establish the manipulations required for each cave, cubicle size, sample transport methods, and the necessary decontamination facilities. The first progress report (Document HW-15409) has been issued.

It has been indicated that the scope work for the Rala Laboratory addition to the 222-T Building should be completed by the Analytical Section on February 15, 1950. The Rala Laboratory building shell must be completed August 11, 1950 in order that equipment may be installed, checked, tested, etc., prior to to plant start-up.

c) Dissolver

A new intermediate size dissolver has been selected for Rala dissolvings. The new dissolver, plus the necessary caustic scrubbers will be installed in Cell 3-L of the 221-T Canyon.

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S Division

d) Design

A design schedule has been issued for study and comment. It is so arranged that construction may be completed on October 1, 1950 so that run-in and adaptations may be made before plant start-up on January 1, 1951.

e) Lines from Head End to Canyon

The underground lines from the head end of 221-T Canyon to various points in the canyon were pressure tested during the month. Since no leaks were indicated by the test, some of these lines will be used.

234-5 Building - Phases II and III

Reported under separate cover in Document HW-15641.

PROCESS CONTROL

241 BY Tank Farm - Project C-271

During the past month, Minor Construction's phase of this project was completed and the BY tank farm is now ready to receive waste from the 221-B Building.

Decontamination of Canyon Vessels

A procedure for the possible decontamination of canyon vessels to permit sufficient time limit for making necessary repairs to them was written and is now being circulated in the rough draft stage.

Metal Waste Supernatant Samples

Two 100-gallon samples of metal waste supernatant solution were obtained without incident from 103-U tank on 12-23-49. These samples were shipped to ORNL on 12-27-49. The maximum reading encountered during sampling was 3000 mrep-hr. The loaded casks read 4 mr/hr when shipped.

Metal Waste Sludge

Three unsuccessful attempts to obtain a 400 pound sample of metal waste sludge were made on 12-21-49 and 12-22-49. Mr. H. E. Goeller and Mr. E. O. Nurmi of ORNL were present during the sample operations. No unusual incidents occurred. It was concluded that the sludge was too soft or slippery to hold up in the cylindrical sampler. A damper device has been installed in the end of the sampler capsule and further attempts to secure a sample will be made.

Waste Study-Technical

On December 29, 1949, a 2 1/2 liter, 5-6W sample was delivered to the 300 Area Chemical Research Group. This is the first of a new series of samples intended to cover all wastes discarded to ground by the processing buildings.

S Division

The Research Group is studying methods of deactivating these wastes.

Dissolver Off-Gas Filters

The discovery of the formation of appreciable quantities of ammonium nitrate in the fiberglass filter bed in an experimental unit has given rise to questions of much shorter filter life due to plugging and of a possible explosion hazard. Further research and design work are being done on these points. As a result of a meeting held on December 30 which was attended by representatives of the Technical, Health Instrument, Project Engineering and S Divisions, it was decided that the Project Engineering Divisions would proceed with the design of a by-pass for the off-gas filter to be used during coating removal incorporating air or electrically operated valves. It was also decided that the Technical Divisions would investigate the feasibility of water and/or hot air purging of the filter in order to prevent ammonium nitrate accumulation.

Silver Nitrate Reactors

A preliminary design study for locating the silver nitrate reactors in the dissolver cells has been completed by the Project Engineering Divisions. Preliminary prints have been delivered to the Technical and S Divisions. Further work will depend upon the design of the off-gas filters.

First Cycle Waste Evaporator

Design prints for the 500 gallon per hour first cycle waste evaporator were reviewed by members of the S Division, Project Engineering Divisions and Health Instrument Divisions on December 29, 1949. Although several questionable points requiring further investigation were raised, agreement was reached on the majority of the design problems and every effort is being made to arrive at a completed design at an early date to permit the issuance of the project proposal.

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POWER DIVISION
DECEMBER 1949

GENERAL

The increase in raw water turbidity which started in November continued into December, reaching a peak of 55 ppm in the 100 B, D, and F Areas, and 78 ppm in the 100 H Area. Coagulant feeds, which were adjusted to treat the increased turbidity, reached a maximum of 35 ppm in the 100 B, D, and F Areas, and 45 ppm in the 100 H Area. Notwithstanding the unusual turbidity, the average coagulant feed was less than for any previous December since start-up. Minimum feeds as low as 4 ppm were reached on several occasions after the turbidity had receded.

PERSONNEL AND ORGANIZATION

No. of employees on payroll	December
Beginning of month	538
End of month	<u>542</u>
Net Increase	4

The indicated net increase is the result of the transfer into the Division of two coal handlers, one clerk, and one chlorinator serviceman.

100 AREAS

Electrical power surges which occurred at 6:52 a.m. on December 9, and 8:31 a.m. on December 11 resulted in process water pressure variations from normal of 8 to 30 psi. Operations were not otherwise effected.

The Grove automatic valve on the export water supply to the DR pile operated satisfactorily on a test basis under manual control, after the valve had been revamped by a Grove engineer. Pilot valve changes are apparently all that is necessary to make this valve acceptable for automatic operation.

In the 100-H Area, major attention was directed towards making adjustments and correcting minor difficulties to obtain conditions comparable to the B, D, and F Areas.

A bad leak occurred on the 10-inch Fire and Sanitary water line east of the 183 Filter Plant pump room in the 100 H Area on December 20, when a section of the line cracked. Repairs were successfully completed on December 29.

Power Division

In the 100 B Area, on December 27, tests were made simulating power failure conditions to observe condenser water system conditions when the electrical driven condenser pump was being operated alone. As a result, the operation of the steam turbine driven condenser pump in parallel with the motor driven unit was discontinued on December 29.

200 AREAS

On December 2 the outboard bearing of the No. 2 EM exhaust fan in the 291-Z Process Stack Fan House developed excessive vibration and required replacement.

The installation of automatic controls on the supply plenum relief damper on the 234-5 building ventilation system was completed on December 29, and the controls are operating satisfactorily.

The construction of a new sewage disposal tile field to serve the "T" Plant in West Area was completed on December 24.

The installation of a bar screen in the coal crusher intake was completed at the 284 Boiler House in the East Area on December 5.

300 AREA

On December 3, a planned interruption of steam service was effected to all 300 Area buildings from 8:15 a.m. to 4:45 p.m. This outage was necessary to repair steam leaks and repack valves.

On December 13, an electrical power outage was simulated for the purpose of obtaining information on emergency electrical loads.

The installation of pressure relief valves on the two recirculating boiler feed pumps was completed on December 19.

101 SHOPS

The chlorinator at the No. 7 well pump house was out of service for repairs from December 18 to December 22. Chlorination of the water supply was maintained by the addition of Perchloron at the water storage tank.

WHITE BLUFFS

No ice was manufactured during December, and the ice plant was operated only as required to control temperature in the ice storage room.

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Power Division

POWER ENGINEERING SECTION

Considerable progress was made during the month on the revision of the Power Operating Manual and revision of procedures for testing and inspecting pressure vessels and relief valves.

Information on the true cost and consumption of essential materials since September 1946 was developed and furnished to the Manufacturing Divisions Cost Analyst.

Water development activities consisted largely of the continuation of data collection on tests in progress, and periodic review of results obtained.

100-DR WATER PLANT

A directive dated December 1, 1949 from the Atomic Energy Commission has limited, until at least February 1, 1950, expenditure of funds for this project, to \$13,600,000.

No addition to the turbo-generator facilities in 184-D is required, by agreement between Design and Construction and Manufacturing Divisions.

Alteration of the easterly 230 KV electrical line was completed by plant forces during this month.

The Design Division and C. T. Main have not as yet completed their study of the 190-DR pump hydraulics.

Part II of C-342 criteria has been approved by P Division.

The Atkinson and Jones contract has been amended to designate this contractor as sub-contractor for C-342. The effective date, which is the official starting date for DR construction is December 19, 1949.

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POWER DIVISION STATISTICS

From December 1, 1949

Thru December 31, 1949

A R E A S

<u>RIVER PUMP HOUSE (Bldg. 181)</u>		<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>
	(max)	388.7	380.5	367.1	372.4
River state Feet above sea level	(min)	385.3	378.1	364.3	370.2
	(avg)	386.5	379.2	365.6	371.2
River temperature	avg. °F.	44.6	45.1	45.3	45.1
Water to Reservoir	gpm avg. rate	38,652	41,335	36,671	49,799

RESERVOIR (Bldg. 182)

Water to Filter Plant	gpm avg. rate	33,645	36,305	32,780	45,030
Water to Condenser System	gpm avg. rate	3,761	3,253	3,312	4,143
Water to Export System	gpm avg. rate	1,246	1,777	579	626
	gpm nor. rate	4,228	4,228	4,228	4,228
Chlorine added #1 inlet	pounds	10,620	14,083	8,110	5,000

FILTER PLANT (Bldg. 183)

Filtered water Power House	gpm avg. rate	247	296	274	231
Filtered water to Process	gpm avg. rate	30,945	31,962	30,685	39,935
Filtered water to Construction	gpm avg. rate	-	-	-	-
Filtered water to DR Process	gpm avg. rate	-	0	-	-
Filtered water Fire & San.	gpm avg. rate	156	194	140	134
Chlorine for Water Treatment	pounds	3,691	2,690	3,000	11,000
	gpm avg.	1.03	1.11	0.84	0.93
Lime for Water Treatment	pounds	38,281	43,002	33,650	84,000
	ppm avg.	3.1	3.2	2.8	5.0
Coagulant Water Treatment	pounds	96,352	121,738	87,140	211,360
	ppm avg.	7.7	9.0	7.1	12.6
Raw Water pH	pH avg.	7.90	7.98	8.0	8.0
Finished Water pH	pH avg.	7.75	7.77	7.74	7.72
Alkalinity, M.O. - Raw	ppm avg.	60	59	58	62
Finished	ppm avg.	55	55	56	58
Residual Chl. - Settled	ppm avg.	.25	.19	.21	.22
Finished	ppm avg.	.14	.11	.09	.12
Iron - Raw	ppm avg.	.23	.23	.20	.19
North Clearwell	ppm avg.	.01	.01	.02	.01
South Clearwell	ppm avg.	.01	.01	.02	.01
Hardness - Finished	ppm avg.	78	68	64	66
Turbidity - Raw	ppm avg.	7.5	7.8	7.0	6.0
Filtered	ppm avg.	0	0	0	0

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DECLASSIFIEDPower Division

From December 1, 1949

Thru December 31, 1949

		<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>
<u>POWER HOUSE (Bldg. 184)</u>					
Maximum Steam Generated	lbs/hr.	156,000	164,000	162,000	141,000
Steam generated - Total	M pounds	97,256	105,858	97,674	91,439
	Avg. rate lbs/hr.	130,720	142,282	131,292	122,900
225 psi Steam plant (est.)	M pounds	81,501	88,796	81,856	76,568
15 psi Steam plant (est.)	M pounds	972	972	972	972
Coal consumed	Tons	7,226	7,189	7,400	6,927
Coal in storage (est.)	Tons	26,345	27,539	26,387	26,677

DEAERATOR PLANT (Bldg. 185)
AND 190-H TANK ROOM

Water flow	gpm avg. rate	30,695	31,712	30,435	39,685
Chemicals consumed:					
Dichromate	pounds	23,200	23,100	21,800	32,000
Sodium Silicate	pounds	0	0	0	0
Chemical Analysis:					
pH	pH avg.	7.65	7.65	7.66	7.65
Dichromate	ppm avg.	1.8	1.8	1.8	2.0
Silica	ppm avg.	-	-	-	-
Dissolved Iron	ppm avg.	.01	.02	.02	-
Free Chlorine	ppm avg.	.12	.12	.17	-

PROCESS PUMP ROOM (Bldg. 190)

Total water pumped	gpm avg. rate	30,520	31,537	30,260	39,510
	gpm Nor. rate	31,920	32,678	31,440	40,500
Water Temperature	avg. °F.	46.7	47.1	46.9	47.1

VALVE PIT (Bldg. 105)

Chemicals consumed:					
Solids	pounds	1,550	0	1,900	0
Chemical analysis:					
A, B, C & D Headers					
	<u>Standard limits</u>				
pH	7.5-7.6	pH (max)	7.70	7.70	7.70
		(min)	7.60	7.60	7.60
		(avg)	7.65	7.65	7.67
S ₁ O ₂		ppm (max)	-	-	-
		(min)	-	-	-
		(avg)	-	-	-
Na ₂ Cr ₂ O ₇	1.8-2.2	ppm (max)	2.0	2.0	2.1
		(min)	1.8	1.8	1.8
		(avg)	1.9	1.9	1.9
Iron		ppm (max)	.03	.03	.03
		(min)	.01	.01	.01
		(avg)	.01	.01	.01
Chlorides	1225532	ppm avg.	1.5	1.5	1.3

Power Division

From December 1, 1949

To December 31, 1949

	<u>Unit</u>	<u>200 Areas</u>	
		<u>200-E</u>	<u>200-W</u>
<u>Reservoir (Building 282)</u>			
Raw Water Pumped	gpm avg. rate	2,028	2,199
<u>Filter Plant (Building 283)</u>			
Filtered Water Pumped	gpm avg. rate	309	659
Chlorine Consumed	lb.	146	223
Alum Consumed	lb.	1,589	3,759
Chlorine Residual - Sanitary Water	ppm	.7	.5
<u>Power House (Building 284)</u>			
Maximum Steam Generated	lb./hr.	49,000	104,000
Steam Generated - Total	M lb	23,176	54,233
Steam Generated - Avg. Rate	lb./hr.	31,150	72,894
Coal Consumed (Est.)	tons	1,886	4,165
Coal in Storage (Est.)	tons	8,337	9,506

300 Areas

	<u>300 Area</u>
<u>Power House (Building 384)</u>	
Maximum Steam Generated	31,276
Steam Generated - Total	M lb 18,060
Steam Generated - Avg. Rate	lb./hr 24,270
Coal Consumed - Total (Est.)	tons 1,505
Coal in Storage (Est.)	tons 2,650

<u>Sanitary and Fire System (300)</u>	
Sanitary Water (From 3000 Area)	gal 31,076,025
Well Water Pumped - Total	gal 707,475
Total Water Pumped	gal/day 1,025,274
Total Water	gpm avg. rate 712
Chlorine Residual	ppm .40

MISCELLANEOUS AREAS

White Bluffs

Ice Manufactured	lbs	0
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101 Shops

Coal Consumed	tons	1,496,000
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HW-15550 *del*

INSTRUMENT DIVISION

MONTHLY REPORT

DECEMBER, 1949

GENERAL

Activities in general remain fairly normal. The machine shop work load has not increased to previously estimated level and a reduction in manpower may result if backlog continues to decrease.

100 AREAS (Reference Report HW-15584)

Process Instrumentation

I.B.M. process tube temperature differential recorder installation at 100 H Area is essentially complete but not yet tested as a unit. Several corrections to wiring layout had to be made on units fabricated before delivery to 100 H.

Considerable fluctuations were noted in neutron sensitive thermopile galvanometer readings at 105 H. It could not be determined during operation whether this is due to true changes in temperature or wiring fault. Previously this unit has been performing satisfactorily and was being used in preference to the chamber galvanometer for operation guide.

Tests following the relocation of 114" butterfly valve to No. 1 tank in the 190 H tank room and the installation of straightening vanes have proven satisfactory with limitorque valve to tank inlet throttled. The Power Division has decided to duplicate the set up on remaining lines. Republic regulators operating the valves will be supplied with 90 p.s.i. air pressure to power cylinder for smoother operation.

Shutdown Experience

Unit was purposely shut down by "P" Division operators at 100 B Area at 4:01 A.M. on 12 1 49 following a failure to isolate the cause for Pressure Monitor alarm within the allotted 20 seconds time allowance. Cause for alarm was not determined.

At 3:09 P.M. on 12 2 49 the 105 F unit "scrammed" when No. 4 RXG annunciator tab fell. Beckman was thoroughly checked and put on test for 24 hours but no trouble could be found.

No. 4 RXG "scrammed" unit at 100-B Area at 3:20 A.M. on 12-29-49 when operator increased power load without requesting Instrument Division to make new trip settings.

Repeated upscale readings of extremely short duration caused many near "scrams" in 100 H Area between 12-1-49 and 12-16-49. External meter leads were shielded on 12-8-49 and shielded leads between RXGs and recorders installed on 12-16-49. Only two instances of erratic action occurred after 12-16-49 and both of those indicated that No. 2 unit was the cause of trouble. Insofar as possible it is planned to isolate recorder supply from amplifier supply lines and to separate signal and high voltage leads from all unshielded A.C. wiring during shutdown scheduled for January 5, 1950.

Reports and Studies

Mass Spectrometer analysis report was received on samples sent to the General Engineering & Consulting Laboratory in July. Data revealed little or no presence of O_2 in pile atmospheres with percent N_2 ranging from 3.3 to 5.5. This evidence discredits the theory that measurement of O_2 can be used in calculating the accurate amount of N_2 present.

200 AREAS (Reference Report HW-15585)

Production Instruments

A water seal chamber is used as a by-pass control to the sand filters on exhaust air from the T and B plant process buildings. To maintain proper water level it has been necessary to make observations daily through a sight glass at the seal. As the radiation level is increasing at this point it became desirable to have a remote indication of water level. A dip tube and purged manometer has been installed at 291-B to give this indication. A like installation is now under way at 291-T.

Project C-271

Design of the liquid level indicators for the 241-BY tanks was modified to make their usage more flexible and more easily maintained. Installation has been completed. They consist of cable on a reel with a heavy electrode that closes an electrical circuit upon contact with the liquid, giving a deflection on a plug-in meter. The cable is marked at one-foot intervals to give the depth indication.

Bldg. 234-5

H.F. diffusion in instrument air lines continues to be a major source of trouble on Hood 8. It is felt that upon receipt of monel rotameters with MFP-10 tubes and replacement of copper tubing with monel the trouble will decrease.

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Hood 25 has continued to give satisfactory operation, comparable to that of Hood 26 in the past. Hood 26 diffusion pump is now operating with DC-703 silicone oil and Hood 25 pump with DC-702 silicone oil. Shop tests on various oils indicate Octoil S to produce the lowest pressure in the least time, but also has the shortest life. Silicone DC-702 appears to be the superior silicone oil with DC-703 giving satisfactory performance.

Four-fold alpha hand counters continue to give trouble but over-all down time decreased during the past month.

Poppy probes with small dessicant holders have been undergoing tests to determine their merits under conditions of high humidity. No great difference was noted between them and the standard probes. It is possible that the dessicant capacity is too small.

Dew point of the instrument air supply was checked at the instruments and found to be -20°F . This exceeds performance of all other instrument air supply systems and continues to minimize control difficulties due to dirty or wet air. It is recommended that this type instrument air system be considered in planning of future installations.

300 AND 700 AREAS (Reference Report HW 15586)

Portable Instrument Shop

As a result of agreements reached in the Advisory Committee on Radiation Detection and Counting Instruments the following changes are being made on portable instruments.

1. Phosphor bronze springs are being placed under the zero-set knob of Juno and C.P. instruments to minimize the possibility of moving accidentally the zero position.
2. To permit more accurate reading in the range of 50 to 100 MR per hour, two C.P. meters have been altered to include a 0-250 MR per hour range. These units are now being tested in the field.
3. H.I. Calibrations Group is studying the feasibility of their personnel making the internal zero potentiometer adjustment on C.P. instruments. A hole was drilled through the case opposite the enclosed zero potentiometer, so that an external screw driver adjustment could be made. Routine calibration checks throughout the usable life of the filament cell will determine the merit of this experiment.

The Advisory Committee has, in a few months operation, been of considerable value in promoting general agreement on instruments problems.

303 Area

Daily checks are now being made on the Canning Pot temperature controllers to insure better operational results. Two thermocouples which gave satisfactory results during the week ending December 18 have been sent to the Bureau of Standards for calibration between 585 - 605° C. Accompanying metal samples were taken for future reference.

Maintaining the accuracy required for this process continues to be a major problem. Presently efforts are being directed toward establishing methods for improved calibration of thermocouples.

Temperature Mapping for 100 Area

Experimental work in determining the ultimate sensitivity of the proposed system indicates that temperature deviations of 2° C can be detected. A report describing the proposed system for mapping the process tube outlet water temperatures is being prepared.

Slug Detector

Demonstrations of the laboratory model Slug Detector were made as planned during the week of December 5. The adverse effect of large variations in local radiation background and the indicated problem of excessive maintenance requirements were cited specifically. A Work Order has been received from Security to proceed with the manufacture of a complete instrument installation in the badge house, 300 Area.

DESIGN & CONSTRUCTION (Reference Report HW-15583)

100-H Area

105 Building

Nine hundred and eighty-eight (988) pressure monitor gauges have been returned to the vendor for rework. Of these, 115 gauges have been repaired and returned to us. Vendor shipped 92 on 12-23, 92 on 12-27, and 92 more on 12-28. No definite return schedule has been set up for the balance (597) of the gauges. The vendor has been requested to submit a schedule. In the future only 200 will be allowed from the plant site at any one time. All of the gauges from 105-DR and 105-H are to be returned to the vendor for rework.

190 Building

Most of the vibration was eliminated from the 30 inch line on tank #1 after the 14 inch butterfly valve was moved upstream and straightening vanes were installed. The Design and Power Divisions are working up an alternate piping arrangement for tank #2.

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234-5 Building

Phase I.

Tests were made on the newly designed all weather barometric reference tip. The new tip is satisfactory for air approaching the tip at angles not in excess of 15° to the horizontal and velocities up to 30 miles per hour. A 2-1/2 inch plate spacing was used for best results.

Drawings have been started on the control system for the building ventilation supply plenum. The instrument equipment order for this job was to have been placed by 12 30 49 but to date has not been ordered. Best delivery promised is 60 days.

Phase III

The Working Committee has had under discussion the possibility of Instrument personnel making a trip to Schenectady for a two-way exchange of information on instrumentation. A letter was written to Mr. George Thayer, chairman of the committee, indicating the material which would be covered on such a trip.

Redox

Instrument Specifications and Application Sheets, HW-4309, which are supplementary to the Instrument Engineering Flow Diagrams, have been approved and transmitted to Kellex.

Hot Semi-Works

Instrument Division and the Design Division of Project Engineering will prepare an estimate of the cost of instrumentation for the Hot Semi Works. Some suggestions and recommendations have been made, one of which is the use of air-operated diaphragm valves instead of the conventional mechanical gang valves for jet control.

MAINTENANCE DIVISION

DECEMBER, 1949

GENERAL:

The Maintenance Division backlog of work at the close of the month was 5995 mandays, which represents a 3% increase over the past month.

The Maintenance Division Annual Safety Derby was started the first of the month and will continue on through to March 31, 1950. The contest rules this year appear to meet with very much favor by the employees and considerable enthusiasm appears to prevail.

100 AREAS

Special restrainers were fabricated and installed at the top and far side of the "F" and "D" Area piles, to restrict further movement of the shielding at that point.

Eighteen silicate pump units together with the mix and head tanks in Building 190-H were placed in "Lay-away" condition.

An engineering consultant from the Grove Regulator Company was brought to the plant site to aid in correcting improper operation of the emergency raw water supply control valve to 105 DR. Based on his recommendations, changes were made to the interior contour of the valve which is now operating satisfactorily. Also, a change in pilot valves is being designed by the Groves Company which will be forwarded for consideration at a later date.

200 AREAS

Special grit blasting equipment and a #33 hood were fabricated and installed with the necessary services in the 234-5 Building process line.

The glass lined cover to the evaporator vessel and a 4" tee in the service line to hood #30 of the 235 Building process line were replaced when the lining failed in service.

The caustic transfer pump in the "B" area tank farm was relocated because of movement of the foundations due to ground growth from caustic spillage.

The East Area shop completed for installation 10 canyon cell piping assemblies and 2 canyon trench piping assemblies.

300 AREA

The cause of a leak into the vacuum system of the "A" melt plant furnace was found to be a cracked turntable drive shaft. A new shaft and drive were installed.

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Maintenance Division

The Health Instrument Division dark room equipment was removed from the second floor of the gate house and installed in the 3705 Building.

In order to reduce the work load on the Cochran-Bly billet saw, a cutting blade with 64 teeth rather than 96 was put into service. This not only operates more smoothly but produces a larger chip which is desirable.

101 SHOPS

General - Installed bearing on one drill located on drill line No. 1 to steady drill bit at beginning of its cut. This eliminated oversizing of drill holes in graphite material.

Graphite stocks have been permanently located in the new storage area of the 101 Shops in accordance with grouping and zoning plans presented by Technical Division for permanent storage. An inventory of all graphite stocks has been completed and inventory lists have been turned over to the Stores Division. Stores Division representatives conducted an independent inventory at the time graphite stocks were placed in their permanent locations. A final report showing utilization of graphite stocks and stocks on hand will be written during the first part of January.

Test work is still being conducted on the ink facility installed in the former laundry area for the 101 shops.

Several special experimental jobs have been completed for the Technical Division including an automatic release mechanism for vertical rods and revisions to the powerstal test unit located in the former laundry area.

During the month special aluminum sleeves and plugs were fabricated and machined for a creep test being conducted by the Design and Construction Division. Fabricated test apparatus and graphite keys and blocks for a design stress concentration test. Remachined graphite for sheet rod test being conducted by the Design & Construction Division.

Commenced work on P-12 Project.

Scribed and identified all machined material on hand in the 101 Building for permanent storage in accordance with Technical Division instructions relative to classification.

Special machining work on graphite test dowels is being continued.

The responsibilities for the warehousing of graphite stocks will be transferred to the Stores & Purchasing Division on January 1, 1950 also the machining operations necessary for the development program on future graphite design for reactors will be transferred to the Technical Division on the same date.

ELECTRICAL DIVISION

DECEMBER, 1949

GENERAL

The backlog of scheduled work for the Division at month end was 9214.9 mandays, a decrease of 822.0 mandays during the month, of which 609.0 mandays reduction occurred within the Distribution Section.

Because of this reduction which is expected to continue, lay off notices effective at the month end were given to eight members of the Line Maintenance group, reducing line crews from five to four. These men were given opportunity for temporary employment in the Telephone Section, installation group.

The total divisional personnel at month end was 301, a net decrease of two.

The load chart for the peak day of the month, December 19, is attached, showing a peak of 78,600 KW for the entire system with coincidental demand of 27,200 KW for the combined 66 KV and 115 KV systems. This is a new all-time peak demand which would have been approximately 2000 KW greater except for the peak reduction resulting from off-peak pumping procedures established as described in last month's report. This reduction is clearly indicated by the depressions of the 220 KV load curve (attached chart) corresponding to peaks of the 115 KV system.

A comprehensive load survey and operating cost study of the Village of Richland distribution system has been started at the request of the Atomic Energy Commission.

Discussion was initiated with the Design and Construction Divisions relative to the necessity of installing a fourth 220 KV oil circuit breaker in the 151-D switchyard in order to permit maintenance of 230 KV switchgear and transformers in the 100-D Area without requiring simultaneous shut down of the 100-D and 100-DR piles after completion of the DR water plant. Studies developed by the Electrical Division led to the approval of an alternate 13.8 KV interconnection between the 100-D and 100-H Areas at a saving of \$38,000 in construction costs of the DR water plant project over the fourth breaker scheme.

In addition, either alternative will eliminate the necessity of two pile shutdowns in this area for electrical maintenance, and similarly single pile shutdown in H Area at an estimated savings of \$80,000 plus loss of production estimated at \$200,000 per annum.

Standards for cathodic protection of stainless steel pipe line were developed and accepted by the Electrical Standards Sub-Committee as well as the EW Standards Committee.

A request for appropriations was prepared at the request of the Atomic Energy Commission for metering of Richland schools.

AREA ACTIVITIES

Substation C237 (190-3) has been rebuilt after pole top fire reported last month. The cause was determined to be arcing of two cracked bus support insulators during

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Electrical Division

BT 15550 - del

rainy weather.

A survey has been made in all 100 Areas to assure that 25 foot clearance is maintained for all electrical lines over railroads, and work orders issued for correction as necessary.

Electrical work in the 100-F Area concerned with Projects C-184 (Animal Farm) and M-711 (Algae Filter Plant) is complete.

In the 200 Areas, permanent cathodic protection for the BY Tank Farm (C-271) is complete.

In the 300 Area, load checks were made on emergency generator circuits, resulting in rebalancing phase loads so as to provide emergency power supply to the auxiliaries of three boilers in the 384 Power House.

TRANSMISSION AND DISTRIBUTION

A field intensity study of the carrier system was made and reported separately using measuring equipment and services of an instrument man supplied by the Bonneville Power Administration.

Two cross arms were replaced in tangent structures of the new 115 KV line (Project C-177) because of possibly defective timber.

The 230 KV line at the east entry to 151-D station has been raised and two structures changed to provide clearance at this side for DP water plant construction.

Spot load checking of all distribution transformers during peak load period in Richland is under way. Twenty-four hour load recording is being taken on approximately 25 percent of the total determined to be overloaded by spot checks, and transformers changed out where necessary.

The new 230 KV 18,750 KVA spare transformer has arrived, was assembled at Midway, and moved to 251 Substation where final details of assembly are being completed.

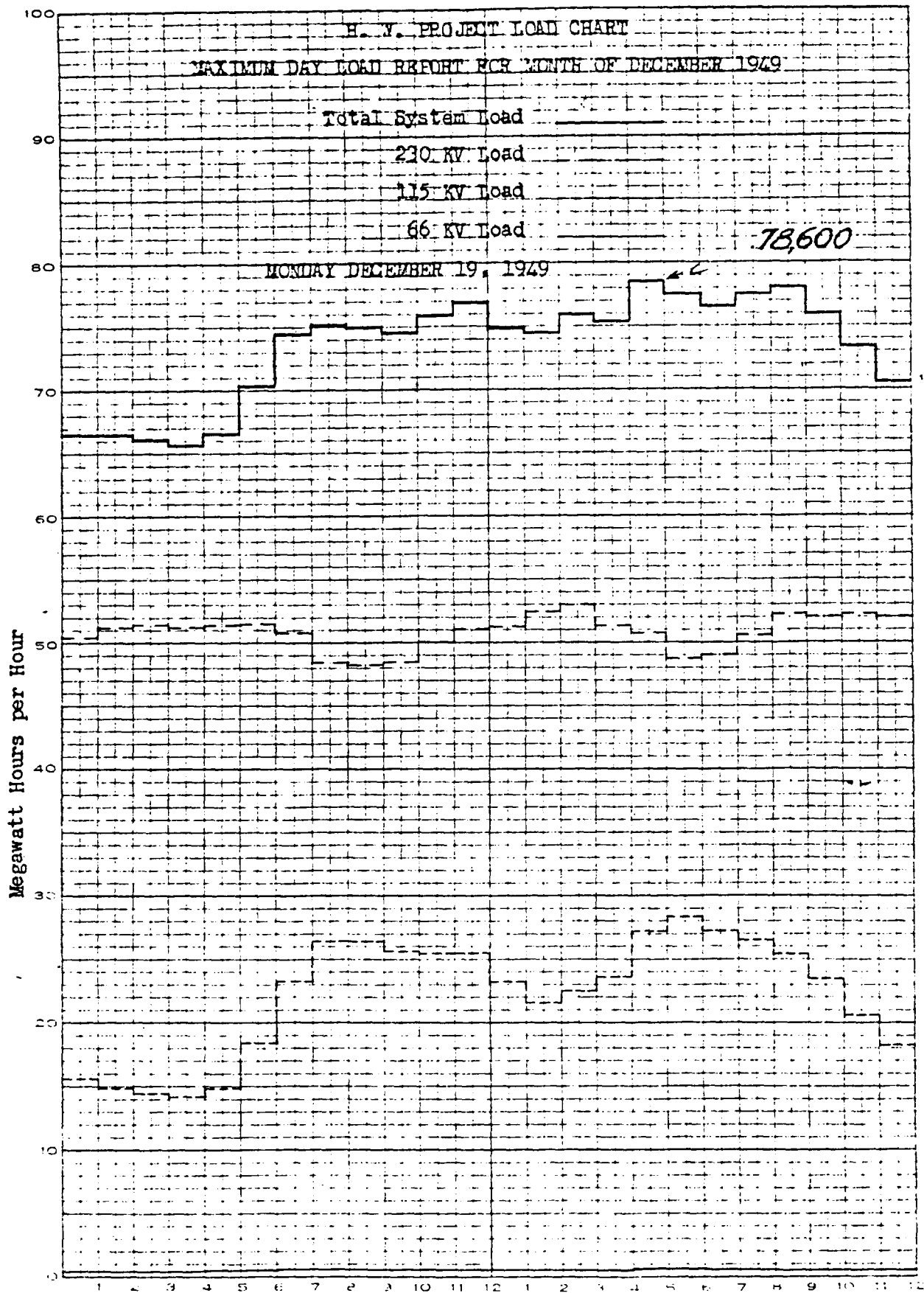
An unscheduled production interruption occurred at 8:42 a.m., December 11, when Critical "Y" conditions were established in all areas for 18 minutes because of disturbances on the Bonneville system.

TELEPHONE SECTION

Installation of customer service and instruments in the Village of Richland is proceeding at an accelerated rate. As of December 26, 831 installations had been made, with a remaining backlog of 1780 scheduled for completion in mid-April. The remaining cable in the south end of "F" Housing Area was completed and tested. Extensive cable changes in the Village continue, including provision for additional service to commercial areas.

Installations and testing of local equipment has been completed in the new 200 E-77 exchange.

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HW-1550-D

TEL 15550

TRANSPORTATION DIVISION
MONTHLY REPORT
DECEMBER 1949

GENERAL

Transportation Division personnel forces were decreased by 1 exempt and 9 non-exempt employees during the month, from 613 to 603 by 1 transfer in, 4 transfers out, 1 removal from roll - illness, 4 lack of work and 2 terminations for other reasons.

The Transportation Division function of handling graphite in the 101 Area was transferred to the Maintenance Division effective December 23, 1949.

RAILROAD ACTIVITIES

Commercial inbound tonnage decreased approximately 11% over November as coal receipts declined to a near normal volume during the month. Cars handled including process movements totaled 2,168 compared with 2,442 in November and 1,536 in October. Process service continued at a normal level with all movements being completed as scheduled.

Service to Richland was interrupted several times during the month by Construction activities for the Northern Pacific-Union Pacific Southern Connection.

A factory representative arrived December 3, 1949 to inspect 120-ton Alco Diesel electric locomotive 39-3732 which was removed from service for major repairs in November. Cause of failure was determined that of faulty workmanship at the factory. New replacement parts have been received, no charge, and reassembly was begun December 27, 1949.

Fabricated and installed new metal grating footboards on locomotive 39-3730 to eliminate a slipping hazard.

Railroad track maintenance continued on a normal basis throughout all five sections with the surfacing, lining, gauging, and inspection of all track-ages; replaced broken rail at Riverland; cleaned and adjusted switches in 200 East; replaced 70 defective cross-ties in the 100-D Area coal track; spread three cars of ballast and raised, lined, and dressed 1,000 feet of track to meet the grade of the Northern Pacific-Union Pacific connection opposite North Richland; spread four cars of ballast, raised and surfaced 700 feet of track to make a uniform vertical curve at Station 218 / 00 where the By-Pass Highway intersects the Northern Pacific-Union Pacific connection south of Richland; moved materials and prepared to relay the 1100 Area lead and oil spur.

AUTOMOTIVE ACTIVITIES

Area and Village Bus Systems transported a total of 177,420 passengers which is an increase of 2,880 over November.

A decrease in passenger traffic to Pasco resulted in a reduction of one of the two buses formerly dispatched to this location on the day shift.

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Transportation Division

Area mail service was expanded to include Building 11, North Richland, and the Administration Building, White Bluffs.

Five K-7 International buses were re-activated to be used for 300 Area service at peak periods.

Completed major overhaul of Northwest Crane 17-3019. Converted one G.E. 6x6 unit into a fire truck to be used in combating brush fires.

Wrecker service call was made to Connell, Washington to tow U. S. Army Air Force truck into the 1131 Garage for major engine repairs. All work was performed at the request of the Atomic Energy Commission.

LABOR ACTIVITIES

Crushed and stockpiled 332 cubic yards of 5/8" chips and 214 cubic yards of 3/4" chips. Placed ballast on approximately 10 miles of area roads. Delivered 214 tons of coal to the 101 Building. Striped approximately 7 miles of area roads. Expended 208 manhours in grading parking lots at P-11 requiring 14 tons of 3/4" premix and 270 cubic yards of 3/4" stone.

Routine Area Maintenance was performed in all operating areas with labor and transportation facilities being furnished for Projects C-287, C-323, C-330, C-331, C-340, C-346, M-721, and Well Drilling Operations.

(Statistical information is attached to the file copies of this report)

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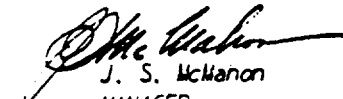
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December 15, 1949

C. N. GROSS
MANAGER
MANUFACTURING DIVISIONS

WID-MONTHLY STATUS REPORT

Attached is the monthly report for the period ending December 15, 1949, showing status of Projects, Engineering Studies, Designs and other work being performed under the jurisdiction of the Project Engineering Divisions.


J. S. McMahon
MANAGER
PROJ. ENG. DIVS.

JSM:ms

cc: FE Baker	WM Mathis
RS Bell	FK McCune
L Eergeson - A.E.C.	WD Norwood
JW Brands (4)	HM Parker
HA Carlberg	JR Rue
RT Cooke	SF Schure (3)
WF Cornelius - A.E.C.	Pink
AE Greninger (3)	Yellow
JF Heberer (4)	300 File
JW Heffner (3)	700 File
WE Johnson	PED Central Files
EP Lee	

PROJECT ENGINEERING DIVISIONS MID-MONTHLY STATUS REPORT

100 AREA PROJECTS

DATE 15 OCT 1969

WORK PROGRESS DURING PERIOD
WORK PREVIOUSLY DONE

ENG. REQ NO.	DATE RECEIVED	BLDG. OR AREA	DESCRIPTION OF WORK	DIVISION RESPONSIBLE	PROJECT NO.	ESTIMATED COST	ENGINEERING STATUS - PERCENT COMPLETE	PROJECT DATE	ROUTED FOR APPROVAL	APPROPRIATION REQUEST DATE	APPROVED A&B COMMITTEE	ROUTED TO GOVERNMENT	DIRECTIVE DATE	AUTHORIZATION RECEIVED	RELEASED TO FIELD	PHYSICAL COMP. & CLOSING NOTICE	FIELD WORK - PERCENT COMPLETE	REMARKS
AS32	1-7	108F	BIOLOGICAL LABORATORY	B-1	C-196	1,141,000	100	3-1-69	4-1	4-1	4-1	4-1	3-10	3-18	3-18	100	100	WORK PROGRESSING
911	11-15	100F	EXPERIMENTAL ANIMAL FARM	B-1	C-184	335,900	100	3-1-69	3-1	4-1	4-1	4-1	3-18	3-18	3-18	100	100	WORK PROGRESSING
103N	5-29	105AF	DISINTEGRATION OF EQUIPMENT IN THE CENTRALIZING AND DE-AGGREGATING PLANTS	POWER	C-172	486,000	100	7-1-67	7-1	7-1	7-1	7-1	6-19	6-19	6-19	100	100	HEAVY PROJECT IN PREPARATION. CERTAIN WORK IS BE SUBCONTRACTED.
11037	4-20	105BF	EFFICIENT DISINTEGRATION UNIT (105 - 107 B & F)	P	C-321	183,000	100	1-12-69	1-12	1-14	1-26	1-26	10-4	10-11	10-11	100	100	REPAIRED WITH FISCAL YEAR 1961.
11036	6-14	105 C	NEUTRON SPECIFICATIONS	TECH.	C-290	17,400	100	5-5	5-5	5-18	5-18	5-18	10-4	10-11	10-11	100	100	INSTRUMENT BEING CALIBRATED.
11036	6-14	105 C	INSTALL STEEL PROCESS STEEL 105-B - 107-B	P		(556,000)	100	10-4-69	12-6	10-11	11-10	11-10	11-6	11-6	11-6	100	100	PRESENT LINGERING CHECKED FOR LEAKS.
11036	7-29	105 D, F	INCREASE SHIELDING - FROM NUCLEAR CORE	P	C-306	79,500	100	5-16-69	5-16	5-16	5-27	5-27	7-19	7-22	7-22	100	100	TRIAL ORDER PLACED FOR 500 LBS.
11036	10-28	105	DEVELOPMENT OF FLEXIBLE METHOD WITH 445	P	C-323	280,600	100	7-16-69	7-16	7-16	7-16	7-16	7-16	7-16	7-16	100	100	USING PROGRESSING.
11036	1-7	105A, F, I	MODIFIED 105 & 445 IN 105 BLDG.	TECH.	C-334	246,000	100	4-1-69	4-1	4-1	4-1	4-1	5-10	5-16	5-16	100	100	WORK PROGRESSING.
11037	1-7	106	P-10 ALLOY PREPARATION FACILITIES	POWER		40,000	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	ONLY MINOR WORK REMAINS TO BE DONE.
11037	1-7	106	HIGH TANK CONTROL SYSTEM	TECH.	C-340	38,000	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	EXPANSION FILTER FOR WASTE WATERS	P	C-341	13,000	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK PROGRESSING.
11037	1-7	106	P-11 PROJECT	TECH.	C-346	21,200	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	NUCLEAR CRYSTALLIZING AND RECRYSTALLIZATION	P	C-347	775,000	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	100% INSULATION FOR INDIVIDUAL PILE LOAD ACCOUNTING	P	C-348	18,500	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REFRIGERATION TO 107 MAIN (IMPERFECT PROJECT ONLY)	P	C-349	18,100	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	ASBESTOS REMOVAL - PILE SHIELDING	P	C-350	15,000	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	PILE SHIELDING - 107 AND 108 PILES 105B/105C/105D	P	C-351	50,600	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	HEALTH MONITORING AND STORAGE FACILITIES FOR P-10	TECH.		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	CONCRETE REPAIRMENT	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	COAL MILLING FACILITIES	POWER		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.
11037	1-7	106	REPAIRMENT OF ELECTRICAL CONTROL AIDS	P		(50,000)	100	5-23-69	5-23	5-23	5-23	5-23	6-1	6-1	6-1	100	100	WORK BEING RUSHED.

WORK PROGRESS DURING PERIOD
WORK PREVIOUSLY DONE

PROJECT ENGINEERING DIVISIONS
MID-MONTHLY STATUS REPORT
300 AREA PROJECTS

DATE: DECEMBER 15, 1949

DECLASSIFIED

ENG. REQ. NO.	DATE RECEIVED	BLDG. OR AREA	DESCRIPTION OF WORK	DIVISION RESPONSIBLE	PROJECT NO.	ESTIMATED COST	ENGINEERING STATUS - PERCENT COMPLETE	PROJECT DATE	ROUTED FOR APPROVAL	APPROPRIATION REQUEST DATE	APPROVED DATE	ROUTED TO GOVERNMENT	DIRECTIVE DATE	AUTHORIZATION RECEIVED	RELEASED TO FIELD	PHYSICAL COMP & CLOSING NOTICE	FIELD WORK - PERCENT COMPLETE	REMARKS
A2024	11-10-2702		CONVERSION OF OFFICES TO LAB. & CONSTRUCTION OF BLDG. 2702-C	TECH.	C-222	\$57,000	100	3-1-46	2-1			2-3	2-15	2-1	2-12		100	WORK PROGRESSING
A2080	8-14	200	EXPERIMENTAL METALLURGICAL LABORATORY - BUILDING 2730	TECH.	C-287	146,000	100	11-5-46	11-5	11-5	11-7	11-7	12-2	12-2	12-6	12-7	100	WORK PROGRESSING
A2081	5-14	213-214	HEAVY METAL TREATMENT - BLDG. 213-214 (1500,000 ORIGINALLY AUTHORIZED)	P	C-230	200,000	100	4-6	4-6	4-6	4-10	4-13	5-2	5-2	5-3		100	SCOPE OF PROJECT EXTENDED TO INCLUDE ONLY ESSENTIALS & ESSENTIALS WORK AT PRESENT
A2082	2-9	314	WALLING MILLS (180,000 AUTHORIZED 12-13 FOR ENGINEERING) 331 TOTAL COST	P	C319	72,500,000	100	5-23-43	5-23	5-23	5-22	5-1	12-13				100	REMARKS: PROJECT TO BE REOPENED
A2071	12-10	275-4	NINE TON MOCK UP TO SIMULATE B. S. & F.	TECH.	C-230	24,500	100	5-17-43	5-17	5-16	5-17	5-13	7-15	8-2			100	WORK PROGRESSING
A2072	12-23	213	AUTOMATIC SCREW MACHINE INSTALLATION	P		(180,000)	100	12-14-45	12-14	12-10	12-14	12-31	1-3	1-6			100	PROJECT IN PREPARATION
A210	10-10	2701	200 AREA BASED HOUSE ACQUISITION (INFORMAL ACQUISITION)	SENA.		14,500	100	12-14-45	12-14	12-10	12-14	12-31	1-3	1-6			100	WORK PROGRESSING
A210	2-2	321	REHABILITATION, RECONSTRUCTION & INCREASED VENTILATION - BLDG. 321	TECH.	C-231	227,000	100	3-12-43	3-12	3-22	3-27	3-26	5-3	5-4	5-3		100	PROJECT IN PREPARATION
A2083	7-21	313	SEPARATION OF FLUORIDE STORAGE	P		(40,000)	100	12-14-45	12-14	12-10	12-14	12-31	1-3	1-6			100	PROJECT IN PREPARATION
A208	8-23	303	CYLINDER STORAGE CASE	TECH.		(25,000)	100	12-14-45	12-14	12-10	12-14	12-31	1-3	1-6			100	PROJECT IN PREPARATION
A208	8-19	300	SOLVENT STORAGE FACILITIES - BLDG. 3705	TECH.		(10,000)	100	12-14-45	12-14	12-10	12-14	12-31	1-3	1-6			100	PROJECT IN PREPARATION
A250	9-15	200	ACQUISITION TO BLDG. 3745	P.L.	C356	20,000	100	11-25-43	11-26	11-27	12-1	12-1					100	PROJECT IN PREPARATION

1225550

PROJECT ENGINEERING DIVISIONS MID-MONTHLY STATUS REPORT

DATE October 15, 1969

WORK PROGRESS DURING PILOT
WORK PREVIOUSLY DONE

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DECLASSIFIED

**PROJECT ENGINEERING DIVISIONS
ENGINEERING DESIGN
100 AREA**

DATE DECEMBER 15, 1949

WORK PROGRESS DURING PERIOD
FROM PREVIOUSLY DOTTED

E.R. NO	DATE RECD	BLDG. AREA	D E S C R I P T I O N	ENGINEERING COMPLETE		OR REPORT ISSUED DATE	P R E S E N T S T A T U S	ESTIMATED COMPLETION DATE
				9-1-49	9-1-49			
AI101	9-1	100	"AS-BUILT" DWGS. SINCE 9-1-46				WORK PROGRESSING	
AI101	2-1	105	G.E.C. STUDY				EXTENDED STUDY BY STANDING COMMITTEE	
AI104	9-2	105	EQUIPMENT DESIGNS FOR OXYGEN IN PILE ATMOSPHERE				POSTPONED BECAUSE OF HIGHER PRIORITY WORK	
AI107	11-2	1130F	DESIGN MOISTURE EXTRACTION EQUIPMENT FOR GAS SYSTEM				NOT STARTED	
AI107	12-10	100B	STUDY AND RECOMMEND ON LONG RANGE WARE- HOUSING - 100, 200 AND 300 AREAS				REPORT IN ROUGH DRAFT FORM POSTPONED UNTIL RESULTS OF OTHER WORK ARE AVAILABLE	2-1-50
AI108	1-24	100EF	THERMOCOUPLE FOR 105 PROCESS TUBE				FURTHER WORK BEING SCHEDULED	2-1-50
AI108	2-4	100F	STUDY PILE OPERATION WITH 100% CO ₂ ATMOSPHERE				PROGRAM BEING REVIEWED	2-1-50
AI108	4-7	105	STUDY LUBRICATION OF PROCESS TUBES DURING CHARGING				STUDY IN PROGRESS	2-30-50
AI117	10-13	100B	CAN OPENER IMPROVEMENTS			12-5-49	COMPLETED	12-30-49
AI117	11-9	100EF	GAS CYLINDER UNLOADING DOCK					
AI117	11-11	105F	TIE LINE - EFFLUENT VENT AND DOWNCOMER					

DECLASSIFIED

PROJECT ENGINEERING DIVISIONS
ENGINEERING DESIGN

200 AREA

DATE DECEMBER 15, 1949

WORK PROGRESS DURING PERIOD
WORK PREVIOUSLY DONE

E.R. NO.	DATE REC'D.	BLDG. & AREA	D E S C R I P T I O N	% ENGINEERING COMPLETE	DWGS. OR REPORT ISSUED DATE	P R E S E N T S T A T U S	ESTIMATED COMPLETION DATE
2266	10-28	200EN	"AS-BUILT" DWGS. SINCE SEPT. 1, 1946	92.5			12-31-49
2279	12-1	221TB	STUDY AND MAKE RECOMMENDATIONS FOR REMOTE CONTROL REGASKETING FACILITIES			ONLY MOST URGENT CORRECTIONS ARE BEING MADE TO DRAWINGS AT PRESENT	12-31-49
2467	1-25	200EW	ENGINEERING LIAISON ON NEW PROCESSES			NO WORK BEING DONE AT PRESENT	12-31-49
2493	6-2	291-B	CHECK ELEVATION OF INLET DUCT BLDG. 291-B			WORK WILL BE CONTINUOUS ASSIGNMENT FOR 1 YEAR	12-31-49
2498	11-18	222-T	DESIGN FISSION COUNTER BLDG. 222-T		12-15	SURVEYS COMPLETED	2-15-50
2502	6-13	234-5	RECOMMEND PORTABLE VENTILATION EQUIP. FOR DRY BOX HOODS			DESIGNS PROGRESSING	2-15-50
2515	9-6	221 224	PREPARE AN ENGR. REPORT ON THE USE OF A NEW TYPE STEAM JET			RECOMMENDATION REPORT IN PREPARATION	12-15-49

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1225553

DECLASSIFIED

PROJECT ENGINEERING DIVISIONS
ENGINEERING DESIGN

WORK PROGRESS DURING PERIOD
WORK PREVIOUSLY DONE

DATE DECEMBER 15, 1949

300 AREA

E. R. NO.	DATE REC'D.	BLDG. AREA	D E S C R I P T I O N	% ENGINEERING COMPLETE	DWGS. OR REPORT ISSUED DATE	P R E S E N T S T A T U S	ESTIMATED COMPLETION DATE
A3002	9-1	300	"AS-BUILT" DRAWINGS SINCE 9-1-46	98.8		ONLY MOST URGENT CORRECTIONS ARE TO BE MADE TO DRAWINGS AT PRESENT PRELIMINARY DESIGNS SUBMITTED - ALTERNATIVE METHODS BEING CONSIDERED WORK POSTPONED UNTIL ALL HOODS HAVE BEEN INSTALLED DESIGNS PROGRESSING RECOMMENDATIONS BEING PREPARED DRAWINGS SUBMITTED FOR APPROVAL	3-15-50
A3067	9-20	314	BILLET LIFTING TONGS	98.8			3-15-50
A3070	10-28	3706	STUDY VENTILATION REQUIREMENTS TO PROVIDE 40% HUMIDITY AND 2 MINUTE AIR CHANGE	98.8			3-1-50
A3087	7-8	3706	DESIGN AND PREPARE COST ESTIMATE FOR EXHAUST SYSTEM FOR GRAPHITE MACHINING IN ROOM 41A.	98.8			3-1-50
A3086	9-27	RIVER- LAND	STUDY HIGH WATER TANK - RIVERLAND	98.8		RECOMMENDATIONS BEING PREPARED DRAWINGS SUBMITTED FOR APPROVAL	2-15-50
A3086	11-4	3706	GAS CORROSION FACILITY	98.8			1-30-50

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ENGINEERING DESIGN

WORK PROGRESS DURING PERIOD
WORK PREVIOUSLY DONE

PLANT GENERAL

DATE DECEMBER 15, 1949

E.R. NO.	DATE RECD.	BLDG. AREA	D E S C R I P T I O N	% ENGINEERING COMPLETE	DWGS. OR ISSUED DATE	P R E S E N T S T A T U S	ESTIMATED COMPLETION DATE
AA20	12-5	ALL	"AS-BUILT" DRAWINGS OF PLANT RAILROAD		12-15-49	WORK COMPLETED	1-15-50
AS26	1-18	300	FIELD INFORMATION FOR CERTAIN 300 AREA "AS-BUILT" DWGS.			WORK PROGRESSING AS REQUIRED	
AS28	11-14	300	INSTRUMENT SHOP ADDITION ARCH., MECH., DESIGNS AND LAYOUT ONLY			INACTIVE	
AS37	4-8	ALL	SURVEY FOR MAINTENANCE OF ALL RAILROADS INSIDE RESTRICTED AREAS			WORK PROGRESSING AS REQUIRED	4-1-50
AS41R	6-14	200H	RAILROADS-REDOX PLANT CIVIL DESIGNS AND SPECIFICATIONS			WORK PROGRESSING	2-1-50
AS47	8-25	300	BURIAL GROUND - CIVIL DESIGNS AND SPECIFICATIONS			WORK PROGRESSING	1-1-50
AS53	9-7	ALL	ARCHITECTURAL STANDARDS		12-9-49	WORK PROGRESSING AS REQUIRED TO TECHNICAL DIVISION	
AS61	12-6	321	CHECK DESIGN FOR FLOOR PLATE			WORK PROGRESSING AS REQUIRED	
AS62L	2-17	1100	MAIN PLANT TELEPHONE SYSTEM - LAYOUT ONLY FOR PROJECT C-276			WORK PROGRESSING AS REQUIRED	
AI001L	5-26	100	AS-BUILTS - 100 AREAS - LAYOUT ONLY			WORK PROGRESSING AS REQUIRED	
AI03AS	6-29	100H	DISMANTLING OF DEAERATING PLANTS ARCH. AND MECH. DESIGNS AND SPECIFICATIONS ONLY			WORK PROGRESSING	1-15-49
AI092L	4-4		P-11 PROJECT - LAYOUT ONLY FOR PROJECT C-340			WORK PROGRESSING AS REQUIRED	
AS002L	12-7	300	AS-BUILTS - 300 AREA - LAYOUT ONLY			WORK PROGRESSING AS REQUIRED	
AS062L	2-3	3730	MELT AND FABRICATION BLDG.-LAYOUT ONLY FOR PROJECT C-287		12-1	WORK COMPLETED	
AS362A	5-17	314	ROLLING MILL - ARCH. DESIGN ONLY FOR PROJ. C-339			NOT STARTED	
AS41L	8-1	1100	ADDITIONS TO VILLAGE DIST.-LAYOUT ONLY FOR PROJ. C-341			WORK PROGRESSING AS REQUIRED	
AI01R	10-2		FIFTH. ALTERNATIONS FOR LEVELS - LAYOUT ONLY		12-1		

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PROJECT ENGINEERING DIVISION

ELECTRICAL DESIGN

PLANT GENERAL

WORK PROGRESS DURING PERIOD
WORK PREVIOUSLY DONE

DATE: DECEMBER 15, 1949

NO	DATE REC'D	BLDG AREA	D E S C R I P T I O N	% ENGINEERING COMPLETE	DWGS. OR REPORT DATE	P R E S E N T S T A T U S	ESTIMATED COMPLETION DATE
2491E	9-14	200EN	FIRST CYCLE EVAP. FAC. - 241 T-X			HELD UP FOR ADDITIONAL INFORMATION	12-20-49
434E	1-26	313	FURNACE STUDY - ELECTRICAL SKETCHES			TEMPORARILY POSTPONED	
450EE	8-19	ALL	ELECTRICAL STANDARDS			WORK PROGRESSING	4-1-50
4532E	3-4	106F	BIOLOGICAL BUILDING - ELECTRICAL DESIGNS ONLY			WORK PROGRESSING	12-31-49
4546E	8-19	200M	HOT SEMI-WORKS			WORK PROGRESSING	1-15-50
4110E	7-29	100F	GALVANIZING TANK - ELECTRICAL DESIGNS ONLY			HELD FOR ADDITIONAL INFORMATION	12-20-49
4366E	9-1	373U	TEMPORARY METAL FAB. AND MELT LAB. BLDG.			WORK PROGRESSING	12-20-49
4361E	12-10	314	INCREASED VENTILATION - ELECTRICAL DESIGNS ONLY			WORK PROGRESSING	12-21-49
4362E	8-1	314	ROLLING MILL FOR PROJECT C-339			NOT STARTED	1-15-50
4307E	1-7	313	AUTOMATIC MACHINING EGT. - ELECTRICAL DESIGNS ONLY			NOT STARTED	5-1-50
4405	2-15	ALL	ELECTRICAL AS-BUILT REVISIONS TO DWGS.			NOT STARTED	
4411	3-17	1100	SEWAGE LIFT STATION CUL FEED			WORK PROGRESSING	12-20-49
4416	6-1	ALL	POWER CONSERVATION STUDY			WORK PROGRESSING	12-20-49
4427	11-11	ALL	ADD'L. ELECTRICAL POLE REPLACEMENTS - FISCAL YEAR 1950			PRELIMINARY WORK STARTED	1-16-50
4428	11-11	11NF.	DISMANTLE DISTRIBUTION LINES AND TELEPHONE CABLE - MANFORD			PRELIMINARY WORK STARTED	1-20-50
4431	11-11	1100	EMERGENCY POWER PLANT - RICHLAND EXCHANGE (PRELIMINARY ENGINEERING)			PRELIMINARY WORK STARTED	2-1-50

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STUDIES

WORK PROGRESS DURING PERIOD
 WORK PREVIOUSLY DONE

ALL AREAS

DATE DECEMBER 15, 1949

I.R. NO	DATE RECD	BLDG. AREA	DESCRIPTION	% ENGINEERING COMPLETE	DWGS. OR REPORT ISSUED DATE	PRESENT STATUS	ESTIMATED COMPLETION DATE
1346	8-19	313	WELDING LINE ANALYSIS	100	11-15	REPORT COMPLETE	12-16-49
1347	8-19	313	IMPROVE FROST TEST LINE	100	11-15	REPORT COMPLETE	12-30-49
1363	3-21	ALL	PROJECT ENGINEERING DIV. PERSONNEL ANALYSIS	100		WORK DEFERRED	12-16-49
4365	4-15	300	METHODS STUDIES - "P" DIVISION ROD MACHINING BRONZE POT CYCLE CHANGES ECON. AXL.-MACHINING SCRAP REDUCTION ECON. AXL.-OWNED SLUG REJECT REDUCTION SLUG CANNING LINE ANALYSIS CHIP BRIQUETTING STUDY ECON. ANALYSIS - CANNING METHODS	100	12-9	WORK PROGRESSING WORK COMPLETED REPORT BEING REVIEWED REPORT BEING REVIEWED WORK PROGRESSING WORK INITIATED WORK PROGRESSING	12-16-49 12-16-49 12-16-49 12-16-49 12-16-49 12-16-49 12-16-49
4366	6-3	ALL	WELDER CLASSIFICATION TESTS	100		REPORT BEING REVIEWED	12-16-49
4368	8-23	3706	LUBRICATION SPECIFICATIONS	100		WORK DEFERRED	12-27-49
4369	9-29	ALL	PROJECT ENGINEERING DIVISION SAFETY MANUAL	100		REPORT BEING REVIEWED	12-16-49
4370	11-1	100	INDUSTRIAL ENGINEERING "P" DIVISION CHARGE - DISCHARGE EQUIPMENT 105 BLDG. MECHANIZATION	100		WORK PROGRESSING	4-1-50
4371	11-15	ALL	PROJECTS MANPOWER SURVEY	100		WORK PROGRESSING	6-1-50
4373	12-6	700	OFFICE SPACE REQUIREMENTS	100		WORK INITIATED	12-16-49
4562S	12-8	700	STORES WAREHOUSE ANALYSIS	100		NO WORK STARTED	2-3-50
4714	5-4	ALL	ELECTRICAL POWER CONSERVATION	100		WORK PROGRESSING	12-30-49

REFLECTED

PROVECT LINDING WORK SCHEDULE
COST ESTIMATING WORK RECEIVED AND COMPLETED

WORK PROGRESS DURING PERIOD
WORK PREVIOUSLY DONE

PERIOD ENDING DEC. 15, 1949

ALL AREAS

E. R. NO.	DATE REC'D.	BLDG. OR AREA	D E S C R I P T I O N	% ESTIMATING COMPLETE	SCHED. COMP. DATE	EST. COST	R E M A R K S	ACTUAL OR EST. COMP. DATE
2491	9-9	241TX	EVAPORATION FACILITIES				HOLD	
A1121	11-20	100	CO ₂ UNLOADING DOCK		11-30	5450	ESTIMATE TO F. A. BOWMAN	
A3062	11-28	300	ROLLING MILL		12-13	2,870.00	ESTIMATE TO E. S. BELL, JR.	12-13-
A543	10-29	ALL	ARSENAL, FIRE AND SANITARY FACILITIES - PISTOL RANGE		12-13	54,200	ESTIMATE TO H. F. PETERSON	
C-198	12-1	234-5	ROOMS 146-147		12-9	1400	ESTIMATE TO D. AND C. DIVS.	
C-271	12-5	241BY	COST BY MANUFACTURING DIVISION		12-13	61,360	ESTIMATE TO D. AND C. DIVS.	
C337R	12-12	221	DISSOLVER OFF-GAS FILTERS		12-12	158,000	ESTIMATE TO E. M. JOHNSTON	
C346	12-7	101	CONSTRUCTION PHASE		12-12	3,000	ESTIMATE TO H. P. SHAW	
---	12-9	ALL	COST OF WOOD PICKET FENCES		12-13	VARIOUS	ESTIMATE TO H. A. CARLBERG	12-13-
A536	11-15	1104	SEWAGE LIFT STATION - INCR. CAP.		11-16	47,500	ESTIMATE TO H. F. PETERSON	11-16-
---	12-13	3706	REVISIONS TO ROOM 17		12-16			12-16-

December 15, 1949

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RECAP - ALL AREAS
PROJECT COSTS

	<u>100</u>	<u>200</u>	<u>300</u>	<u>General</u>	<u>Total</u>
Authorized	\$3,358,900	\$ 516,000	\$1,563,300	\$4,500,100	\$9,938,300
Awaiting Approval	815,600	217,000	20,300	193,500	1,246,400
Work in Preparation	1,313,000	1,025,000	3,045,000	2,137,400	7,420,400
TOTALS	\$5,487,500	\$1,758,000	\$4,628,600	\$6,831,000	\$18,605,100
Last Month's Totals	\$5,137,500	\$1,511,000	\$3,285,600	\$5,261,700	\$15,196,000

PROJECTS COMPLETED DURING MONTH:

None

WORK CANCELLED DURING MONTH

E.R. 413 Telemetering and Remote Control of IIS and 230KV System \$33,000

TECHNICAL DIVISIONS

December 1949

SUMMARY

1/10/50

Pile Technology Division

Work began on devising a method of converting a Hanford pile in whole or major part to tritium production.

Satisfactory progress was made on the construction of the critical mass laboratory facilities.

Graphite machining was begun for the exponential experiments.

Information was developed and furnished to the Design Division on the control system for G Pile.

There has been a 0.07 inch downward movement of the center of the Top Biological Shield and a 0.08 inch inward movement of the Far Side of the B Pile during the last five months. This recovery is attributed to carbon dioxide which was increased from 40% to 80% during this period.

Restraining brackets were installed on the Far Side of the D Pile on December 22 and on the F Pile on December 29.

Separations Technology Division

Methods of reducing undesirably high coating waste product losses are being investigated in the Canyon Buildings. Continued progress of a production test in the Concentration Building metathesis has reduced the time cycle to ca. 12 hours without adversely affecting product losses. The extent and correction of bad contamination of Isolation Building final product solutions through corrosion failure of neutron-absorbing assemblies is under study. Temperature cycle changes have been made in Hood 14 of Building 234, in an effort to reduce plutonium metal impurities. Difficulties have been encountered with both tool design and operating procedure in Hood 19 operations on the Model 090 core fabrication in Building 235, as well as in Hood 26 operations, but corrective steps believed to be of promise are being taken.

In Redox and Metal Waste Recovery process development, thirty-eight additional column runs were made during the past month, primarily involving studies of packed and pulse columns in the T.B.P. process. Stage heights and throughput rangeability have been determined under admittedly less-than-optimum conditions in 3, 4, and 8-in. packed columns and a 5-in. pulse column. Semi-works studies of the diuranate metal waste feed preparation method were closed out with satisfactory phosphate purification but poor uranium yields and unsatisfactory cake handling properties.

The G.E. & C.L. Submerged Pump No. 2 was returned to life-test operation after a five-month inspection proved satisfactory. Process chemistry studies carried out have involved diuranate fines formation, distribution ratios in the T.B.P. process, T.B.P. process freezing points and saturation values, and hexone drying.

Continued improvements have been obtained in

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chemists and designers were assigned exclusively to this design effort, and were housed temporarily as a special unit in Bldg. 101. A "Remote Control Transport" system, based on a simpler system in use for radon work at the Cleveland Clinic, is under consideration for this extremely high-level work; the guide rail system would furnish the route for radio-controlled power units carrying samples to and from analytical stations, as well as apparatus for the analytical procedures. Analytical methods for Rahn continued under active development.

A statistical study of dimensional measurements on Group V uranium slugs exposed to 400 M.W.D. revealed no significant systematic dimensional changes. It was also found that the variability in dimensions of individual slugs had not increased significantly over that observed in canned slugs prior to exposure.

Instructions Letter No. 135, Section VI, authorized an Audit and Inventory Unit in the 700 Area Classified Files which will be responsible for a perpetual plant-wide inventory of classified documents. The nucleus of this new Unit was organized, and initial inventory operations were undertaken.

AEG:dg

A.B.G.

January 9, 1950

PILE TECHNOLOGY DIVISION

DECEMBER, 1949

VISITORS AND BUSINESS TRIPS

D. N. Dunning, Argonne National Laboratory, arrived December 27, 1949 for a visit to extend through January 17, 1950. He will work with P. E. Brown and J. R. Humphreys, (Argonne) who arrived in November. These three visitors are here in connection with the materials testing program.

Business trips of Pile Technology Division personnel during December were as follows:

M. W. Carbon attended a meeting of the American Society of Mechanical Engineers in New York City November 28 through December 2, 1949.

S. S. Jones attended a meeting of the American Institute of Chemical Engineers in Pittsburgh, Pa., December 5 through December 7, 1949.

P. M. Thompson visited in Schenectady November 29 through December 4, 1949. He attended an IBM Conference in Endicott, N. Y. December 5 through December 9, 1949.

J. B. Lambert visited Argonne National Laboratory December 12, 13, 14, 1949 for consultation on the Navy Test Channel.

A. B. Carson visited Los Alamos, New Mexico December 13, 14, 1949, for technical consultation.

D. F. Snoeberger visited Oak Ridge National Laboratory December 15 through December 20 and visited Argonne National Laboratory December 21 and 22, 1949 for consultation on the Naval Test Channel.

J. W. Flora visited Oak Ridge National Laboratory December 19 through December 23, 1949 for consultation on P-11 problems.

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Pile Technology Division

ORGANIZATION AND PERSONNEL

	<u>November</u>	<u>December</u>
File Physics Section	34	37
File Engineering	33	30
P-10 Project	9	10
Administrative	<u>3</u>	<u>3</u>
	79	80

A technical graduate was hired during the month. Within the Division a chemical engineer transferred from Pile Engineering Section to the P-10 project and a physicist and an engineer transferred from the Pile Engineering Section to the Pile Physics Section.

PHYSICS

Large Scale Tritium Production

We have been requested by the A.E.C. to consider the problem of conversion of one of the piles to the large scale production of tritium. The use of U²³⁵ alloyed with aluminum is contemplated as the fuel material. Since each fission produces 2.13 neutrons and one is required to continue the reaction, an excess of 1.13 neutrons is available. Absorption in the graphite, process tubes, cooling water, and leakage from the pile will further reduce this number but it seems reasonable to expect that about 0.9 neutrons per fission can be made available for absorption in lithium for the production of tritium. At a power of 250 MW, this will produce of tritium per day.

The conversion must be carried out within the limits imposed by the present lattice structure and cooling facilities. Broadly, the objective is to find the most efficient loading arrangement and thus to keep the investment of U²³⁵ to a minimum. Calculations are proceeding to find this optimum loading arrangement.

Critical Mass of Plutonium Solutions

Assistance has been given to the Chemical Development Section on critical mass problems which would arise if the batch size were doubled in the Redox process. Neutron absorbers in the form of cadmium sheets or rods will have to be added to several tanks before non-criticality can be guaranteed with the usual factors of safety.

The chief work remaining to be done in the construction of the critical mass experimental facilities is the assembly of the first test unit itself. The tamper tank has been mounted and aligned and assembly is in progress.

H. I. survey instrument requirements have been formulated and procurement has begun. Personnel from the Instrument and H. I. Divisions have been assigned to work with the P-11 group and are now familiarizing themselves with the program.

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Pile Technology Division

Lattice Design Program

Preparatory work is in progress at the 101 Building for the exponential experiment program.

The graphite for the sigma pile has been machined and the graphite for the base will be completed by January 11 when the subsidiary facilities will be completed. Because of the high cost of preparing flat concrete pads, it has been decided to stack the graphite for the sigma pile directly on the floor of the lay-up room using a quarter inch felt base to distribute the stresses caused by the unevenness of the floor.

Proportional counter development is progressing satisfactorily. The present goal is a one half inch diameter p.c. tube filled with enriched BF_3 and having good sensitivity and stability.

Shielding

The pile exposure of MO concrete to determine its stability under irradiation has been finished and qualitative results indicate appreciable quantities of chlorine liberated. This amount did not exceed the expected liberation. However, the seriousness of this effect has not been evaluated at present. Quantitative measurements are being made.

Special Request Program

The allocation of reactivity to be taken up in special irradiations has been revised so that there are specific limits for irradiations concerned with materials testing, isotope production, and general research, as well as the P-10 program (tritium). In the future, samples will have an identifying letter added to their designation to indicate the category to which they belong.

The first of ten samples to measure water decomposition and stress corrosion (ANL-141) was given a two week irradiation in the dry B Test Hole facility of the F Pile. Charging of the sample and effects during irradiation were normal, but some difficulty was encountered during discharge. Revisions are planned to prevent recurrence with later samples.

Seventy-five P-10 slugs and two other special requests were discharged during the month, while eighty P-10 slugs and three other special request pieces were charged. Twenty-seven additional special request pieces are on hand to be irradiated.

Assistance to Design

The control situation of the G Pile was examined and three possible control patterns submitted to the Design Division (HW-15553).

Pile Technology Division

An extended investigation has been made of the burnout of high neutron cross section absorbers (gadolinium) in control rods or sheets. One report (HW-15068) has been issued and a second one, covering more general conditions, is being prepared.

Reactivity

Observations indicate that the reactivity of the H Pile has passed through a minimum, and at the present time, reactivity is being gained at a rate comparable to that in other areas, as a result of the irradiation of the entire pile containing fresh metal.

A detailed calculation has been made by IBM punched cards of the dependence of equilibrium xenon poison on power level and flattening loading for ranges not previously known with accuracy. The deviation from values now in use will not be over 5%.

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

	<u>B Pile</u>	<u>D Pile</u>	<u>F Pile</u>	<u>H Pile</u>
In rods	49 ih	83 ih	110 ih	144 ih
In xenon poison	464	499	475	551
In Special Requests	426	397	370	0
In Lead Cadmium columns	0	0	0	162
In bismuth	123	114	114	0
In plant assistance	0	29	0	5
In dummy columns	9	6	37	0
In over-all coefficient	<u>-224</u>	<u>-228</u>	<u>-235</u>	<u>-55</u>
Total cold, clean reactivity	847	900	871	807

The B Pile lost 5 inhours and the D Pile 3 inhours during the month, while the F Pile gained 34 inhours and the H Pile 24 inhours. Variations in the cold, clean reactivity of the piles for the month can be accounted for by changes in effective product concentration in the piles.

ENGINEERING

Graphite Expansion

There has been a 0.07 inch downward movement of the center of the Top Biological Shield and a 0.08 inch inward movement of the top center of the Far Side of the B Pile during the past five months. This recovery of expansion is attributed to carbon dioxide which was increased from 40% to 80% during this period. No significant change of trends was observed during the past month at the D and F Piles.

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File Technology Division

Restraining brackets were installed on the Far Side of the D Pile on December 22 and on the F Pile December 29. These brackets tie the top edge of the Far Side to the Top Biological Shield with a yield strength equal to about one-half that of the original dowel pins. At both piles these brackets reduced the 1/4 inch normal thermal movement of the upper edge to about 0.05 inches. Measurements at the tight wire on the "X" Level showed some outward movement at the D Pile, however, the precision of the data is insufficient to determine how much the Far Side has been restrained at this point. Strain gauge measurements indicate that the tension members were stressed to about 1/4 of their yield point by the thermal expansion load.

Graphite temperature measurements in the H Pile indicate a decreasing thermal conductivity of the graphite. During the past month a tube block temperature increased 6° C. and an adjacent filler block 16° C.

An increase in the carbon dioxide in the B Pile atmosphere to 100% is planned for January. Studies of the effects at lower concentrations indicate that the minimum down time will be increased to 24 hours because of an estimated 40 ih gain in hot reactivity. The total gain as compared to 100% helium is expected to be between 100 and 130 ih. Although this results in an increased capacity for special irradiations such as P-10 it causes some loss in operating efficiency because "low level" or "poison push" start up will be required.

Investigations have been started of changes which can be made in the method of drying the pile gas so as to avoid the pressure surges caused by absorption of carbon dioxide by the present silica gel drying agent.

Methods of analysis and control of pile gas compositions are being investigated to improve operating control and also as an indication of possible graphite burn out which may become significant at higher operating temperatures.

Development was continued of tools for removing samples of filler block graphite from the piles and of instruments to be used inside the piles for measurements of graphite expansion.

Boiling Studies

Experimental studies of boiling in small diameter tubes were started in the 101 Building to obtain information on safe limits to heat loads and pressure-flow characteristics of process tubes. The initial tests demonstrated the "boiling disease" that had been postulated previously.

Power Level

Production tests have been prepared to increase the power level of the H Pile to 330 MW and the F Pile to 305 MW during January. A review of the safe operating limits shows that these power levels are entirely feasible for equilibrium operation.

Pile Technology Division

Effect of Transformation of Alpha Rolled Slugs - (P. T. No. 105-235-P)

This test has been completed and a final report is being written. A statistical analysis of the results has demonstrated that complete transformation is essential to insure the dimensional stability required for exposure levels to 400 MD/ton and above. For slugs in which the transformation occurred to a depth of about 0.06 inches the standard deviation of warp and dimensional measurements was about 6 times that for the completely transformed slugs. For a transformation depth of about 0.30 inches the standard deviation was about 4 times that of the completely transformed metal.

Group V Metal

Two tubes of Group V metal have been discharged at 475 MD/ton and thirty tons have been discharged at 440 MD/ton without difficulty. A statistical analysis of the results from more than 2000 Group V slugs exposed from 400 to 450 MD/ton show that this metal is remarkably stable. The length, diameter, and warp variations of the exposed metal are about the same as those observed for the unexposed metal.

Silica Elimination

Silica has been eliminated from the cooling water at F Area for more than seven months. No adverse effects have been detected, consequently it has been recommended that the silica addition equipment be omitted from the DR water plant.

Slug Corrosion at Elevated Temperatures

Slug corrosion rates have been raised by a factor of approximately three by increasing the outlet water temperature from 50° C. to 70° C. in P. T. No. 105-103-A. The maximum observed corrosion is 0.36 mils per month which is considerably less than the tolerable limit.

Tube Corrosion

A total of 19-25 process tubes have been borescoped to observe corrosion product deposition in the inlet end of the tubes. The results are confusing for two tubes appeared to have been very badly attacked while the remainder were in good condition.

Van Stone Flange Corrosion

Six inlet Van Stone flanges on which zinc gaskets had been used for two years were inspected and were all found to be in good condition. The gaskets showed signs of sacrificial attack but were in good enough condition for additional service.

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Pile Technology Division

Graphite Monitoring

A large volume of data have been obtained from exposures of expanded graphite in empty process tubes which suggests that nuclear annealing occurs. A program has been in progress to demonstrate and study this annealing effect because of its importance in pile behavior. Samples previously damaged by irradiation at low temperatures were thermally annealed at 375° C. for 4 days and then irradiated at a nominal 335° C. in an uncooled test hole. During a 25 day exposure, the physical expansion recovered from 25 - 30% of the initial expansion for all sets of samples. Comparable but less consistent results were obtained for the annealing of thermal conductivity. Preliminary measurements on control samples thermally annealed at 375° C. and held at the temperature of irradiation in a laboratory furnace, demonstrated that the recovery on pile irradiation was the result of nuclear rather than continued thermal annealing.

A program for evaluating the effects of higher temperature irradiation on the rate of damage has been started. During a 25 day exposure at 335° C. no measurable expansion occurred. The thermal conductivity decreased during this period at a rate about 10 percent that for comparable cold test hole exposures. Special slugs are being designed for exposures of graphite at controlled temperatures. Experiments on the effects of carbon dioxide and oxygen on graphite during irradiation in gas tubes at higher temperatures have been planned.

X-ray line broadening information has been compiled from spectrometer tracings of a large number of exposed and thermally annealed samples. The peak of the (00.2) reflection retains its shape to about 1400 MD/CT, while the base broadens toward the lower spacings. At exposures above 600 MD/CT broadening of the base to the high spacing side was noticed. The diffraction curve becomes more symmetrical during very long exposures. Samples with exposures less than 1400 MD/CT give diffraction curves on annealing similar to those obtained during exposure, but longer exposure samples appear to anneal in a different manner.

Beta Experiment

The exposure of three slugs, H-2, H-3, and H-4 was continued.

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Pile Technology Division

Navy Fuel Test Channel (ANL-140)

This test involves the irradiation of zirconium clad uranium-zirconium fuel test plates to determine dimensional stability and corrosion properties of the plates. The plates will be cooled by circulating water at 315° C. (600° F.) and 2000 psi. This test will be run in the A test hole of the H Pile.

Preliminary tests of the assembly have been made in the Oak Ridge Pile and design and construction of the equipment to be installed in H Pile is nearly complete at Argonne National Laboratory. Design work on modifying the X level and A test hole to accommodate the test equipment is in progress.

P-10 Project

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. 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.

WK Woods:bb

Signed W. K. Woods per P.F.S.
W. K. Woods
Division Head

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HW-15550-*del*

Richland, Wash.
January 10, 1950

SEPARATIONS TECHNOLOGY DIVISION

DECEMBER, 1949

VISITORS AND BUSINESS TRIPS

R. J. Sloat and L. L. Burger attended an A.C.S. Regional Meeting at Columbus, Ohio, on December 30.

R. J. Sloat and L. L. Burger also visited the Oak Ridge National Laboratory on December 28 and 29 for consultations on metal recovery.

ORGANIZATION AND PERSONNEL

Personnel totals in the Separations Technology Division are as follows:

	<u>November</u>	<u>December</u>
Administration	2	2
Special Assignment	3	3
Process Section	26	24
Development Section	92	92
Research Section	<u>33</u>	<u>35</u>
	156	156

Process Section: Two Chemical Engineers were transferred from this section, one to the "S" Division and one to the Technical Personnel Recruiting Section.

Research Section: One Chemist was added as a new employee. One Chemical Engineer was transferred to this section from the Technical General Division. One Steno-Typist B was transferred to the Instrument Division, and one Steno-Typist C was transferred from the Service Division.

Separations Technology Division

200 AREAS PLANT ASSISTANCE

Canyon Buildings

An attempt is being made at B Plant to lower the product loss in the coating waste by means of additional flushing of the dissolver prior to coating removal. Preliminary results indicate that the additional flushing has reduced the frequency of high losses in this waste. Continued sampling difficulties have precluded further work at T Plant.

A test charge of short-term "cooled" metal was dissolved at T Plant without incident. The material was dissolved over a period of approximately 11.5 hours. The metal solution from this test is being cooled further before processing.

Concentration Buildings

The third part of Production Test 224-T-13, aimed at shortening the metathesis time cycle, was completed at T Plant. Increased waste losses were first experienced under this part of the test but were found to be due to other causes. After these difficulties were corrected, a series of five runs was processed with metathesis at standard volume and with half of the metathesis wash effluent recycled to the metathesis of the run following and half to the routine metathesis waste rework. Waste losses of the test runs were identical to those of runs processed under standard procedure. A time cycle of approximately 12 hours was realized. The Production Test is continuing with all of the metathesis wash effluent recycled to the routine metathesis waste rework.

The activity of the Concentration Building final product solution was approximately four to five times greater than average for a period at both B and T Plants. The increased activity for one run at B Plant was traced to possible recontamination during the lanthanum fluoride by-product precipitation. The cause of the general decrease in decontamination, however, has not yet been determined.

Isolation Building

Analyses of sludge accumulations in the AT Tank of Cell 4 (processing B Plant runs) indicated, through high lead content, the possibility that a neutron-absorbing assembly had corroded. Examination of the still revealed the stainless steel-sheathed "spider" to have failed. Transfer of the B Plant runs from Cell 4 to Cell 3 resulted in a sludge of different appearance in the AT Tank of Cell 3. Although it was suspected that this sludge was the ammonium double nitrate, analyses indicated ammonia to be absent. No further clues to the identity of this precipitate have been obtained.

234-5 Building

Batch X-9-12-18 was subjected to an undetermined but excessive amount of HF during the oxidation cycle in Hood 8. A material resulted which had a color similar to plutonium trifluoride. Analyses of samples of this material for product content verified this assumption. This material was fluorinated in accordance with the standard refluorination procedures in Hood 8. The resulting material and the appearance of a normal tetrafluoride. It was processed by normal procedures through Hoods 9 and 10. A normal yield (98.3%) resulted in Hood 10.

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The furnace cycle in Hood 14 was changed to include a three-hour holding period at a charge temperature of 905°C., beginning with charge Z-9-12-10. This procedure has been used at Los Alamos on a similar type operation. It should reduce the concentration of light-element impurities which have been shown by recent analyses to be present in concentrations equivalent to 90% of their tolerances in some cases.

The first calcium ground in a new Wiley Mill was contaminated with grease from a shaft housing. A sample of this calcium contained 0.026% of material extractable in carbon tetrachloride. This could contribute undesirable amounts of carbon in the buttons and the calcium was rejected for use. The mill was cleaned, packed with heavier grease and placed back in operation. Calcium obtained then contained 0.007 to 0.009% extractable material. Calcium obtained from Los Alamos contained 0.007% extractable material. The last calcium ground has been accepted for use and a testing program has been established for calcium ground in the future.

Charges produced in Hood 19 have been on the low tolerance or below dimensionally. After cleaning, the dimensions on all charges are below tolerance. Improved cleaning equipment and methods have aided in approaching tolerance dimensions but at month's end charges were still too small in some important dimensions.

Hood 26 is to be made available to the Process Section early in January for experimental studies of this operation, aimed at correcting erratic performance to date.

REDOX AND METAL WASTE RECOVERY DEVELOPMENT

Solvent Extraction Studies

Thirty-eight solvent-extraction runs were completed during December. Of the 35 RA and RC Column studies carried out to evaluate the TBP metal waste recovery process, 11 runs were conducted in a 5-inch diameter pulse column. New information from these studies is summarized below:

1. Based on RA simple extraction column studies, using an 8.42-in. diameter column packed with 18.4 ft. of 1-in. by 1-in. stainless steel Raschig rings:
 - a. RAW waste losses have been as low as 3.3% of the feed uranium at 2.2 short tons of U processed/24 hr. These runs resulted in preliminary H.E.T.S. values of 7 to 10 ft. and H.T.U. values of approximately 5 ft. (Following the above report period, waste losses of approximately 0.2% were obtained at 1 to 1.5 short tons/24 hr.)
 - b. Flooding capacity with no ferrous sulfamate present was 3800 ± 200 gal./ (hr.)(sq.ft.), sum of both phases.
 - c. Using the above 1-in. rings, RAW uranium losses appear to be significantly lower at 6 M NO₃⁻ concentration in the aqueous phase than at 4.4 M NO₃⁻.
 - d. Assuming no significant loss of performance on scaling the above results up to an approximately 16-in. diameter plant column, an RA extraction section with 25 to 30 ft. of 1-in. rings should operate with 0.2% or less waste loss over at least a three-fold range of operating rates.

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2. Using the above 8.42-in. column and 18.4 ft. of 1-in. rings for RC Column studies:

- a. Uranium losses in the RCW have been approximately 1.3% of the feed uranium at processing rates up to 0.9 short ton/24 hr. This corresponds to preliminary H.E.T.S. and H.T.U. values of approximately 9 ft. and 3.7 ft., respectively.
- b. Assuming no significant loss of performance on scaling up to an approximately 20 to 24-in. diameter plant column, an RC Column packed with approximately 30 ft. of 1-in. rings should operate with 0.2% or less waste loss over at least a three-fold range of operating rates.

3. Shakedown runs using a 5-in. diameter 26-plate pulse column (2-in. plate spacing, 4.7 ft. "packed" height) as an RA simple extraction column resulted in the following new information:

- a. Using plates with 0.040-in. holes, the RA Column flooded (presumably due to severe emulsification) at all rates down as low as 300 gal./(hr.)(sq.ft.), sum of both phases.
- b. After changing to plates with 0.060-in. holes, the column operated over a range from 0.1 to 0.34 short ton of U/24 hr. with waste losses from 2.4 to 8% of the feed uranium. H.E.T.S. values were approximately 2.5 to 5 ft., with corresponding H.T.U. values from approximately 1.2 to 2.5 ft.
- c. The flooding capacity was 1800 ± 200 gal./(hr.)(sq.ft.), sum of both phases (pulse frequency 100 cycles/minute, pulse amplitude 0.45-inch movement in the column), corresponding to approximately 0.45 short ton of uranium/24 hr.

4. Using the above 5-in. diameter pulse unit as an RC Column resulted in the following information:

- a. Uranium loss was 0.3% at 0.07 short ton U/24 hr. (475 gal./(hr.)(sq.ft.) sum of both phases) using plates with 0.040-in. holes. With these plates and 0.45-in. amplitude, flooding capacities were approximately 900 and 700 gal./(hr.)(sq.ft.), respectively, for frequencies of 50 and 100 cycles/minute.
- b. Using plates with 0.060-in. holes, 0.45-in. amplitude, and 100 cycles/minute frequency, waste losses increased from 0.06% to 6.1% as the volume velocity increased from 350 to 1450 gal./(hr.)(sq.ft.), sum of both phases (i.e., processing rates up to 0.2 short ton of uranium/24 hr. The flooding capacity at these conditions was 1800 ± 200 gal./(hr.)(sq.ft.).
- c. Using plates with 0.060-in. holes, 0.45-in. amplitude, and 50 cycles/minute frequency, waste losses were approximately constant at 4 to 5% over a range of volume velocity from 350 to 1200 gal./(hr.)(sq.ft.), sum of both phases.

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5. As a general observation, based on the above RA and RC 5-in. pulse column studies, it appears that a 10-ft. "packed" height should be adequate for either the plant RA extraction section or RC column, assuming no significant scale-up factors on going from the 5-in. pulse column to plant-size pulse columns.
6. RA and RC studies in a 3-in. glass column and a 4-in. stainless steel column (1/2-in. Raschig rings) have been generally useful in piloting runs for the 5-in. diameter pulse column and the 8.42-in. diameter packed column and have contributed the following new information:
 - a. Uranium losses in either the RAW or the RCW are on the order of 0.02 to 0.5% of the feed uranium using 21 ft. of 1/2-in. by 1/2-in. stainless steel Raschig rings.
 - b. To attain RAW losses of 0.1% or lower, the uranium in the RAX should be no greater than approximately 0.1 g.UNE/l., and preferably less than 0.01 g.UNE/l.
 - c. As the NO_3^- concentration in the RA extraction section (aqueous phase) increases from 4.4 M to approximately 7 M the average organic globule size decreases from ca. 5/16-in. to less than 1/8-in., and the corresponding uranium loss in the RAW decreases on the order of 5 to 10-fold.
 - d. Using 0.1 M HNO_3 instead of plain water as RCX for one run resulted in a slightly higher rather than a lower loss of uranium to the RCW.

Metal Waste Recovery Studies

Twelve (sodium uranate process) semi-works scale studies were completed during December to prepare ISF solvent extraction feed from simulated underground metal extraction waste. Two of these runs were conducted with simulated sludge plus supernate, the remaining 10 studies being made with supernate alone. Because of the recent decision to use the TBP solvent extraction process for metal waste recovery, all sodium uranate process semi-works studies are being terminated as of the end of December. New information from the above studies is summarized below:

1. The outstanding process problem remaining unsolved is the reduction of uranium losses as fines in the first centrifugate and washes. This loss remains on the order of 20% of the feed uranium for the semi-works studies and probably could not be reduced below 5% on a plant scale without some as-yet-undemonstrated process improvement.
2. Loss as fines is not significantly greater at 1.3 minutes centrifuge hold-up time than at the 10 minutes hold-up used for earlier studies.
3. Although cake handling properties are not as good as desired, it is believed that all centrifuge cakes could be removed in the plant by means of 300 lb./sq.in. wash sprays and reslurrying by "plug-inching" the centrifuge bowl. The maximum demonstrated capacity of the ten 40-in. centrifuges in 221-U Building for this process is estimated to be approximately 0.75 short ton of uranium processed per 24 hours.

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4. Use of 0.01 wt. % "Igepon AP Extra" (surface-active agent) in the precipitation batch is recommended, based primarily on reduced fines and more rapid precipitate settling rates in laboratory tests. Tests on ISF prepared with and without the Igepon indicate no significant difference in phase "Disengaging Time".
5. Performance of the process with combined sludge plus supernate is approximately the same as with supernate alone.
6. The chemical performance of the sodium uranate process is well established on a semi-works scale, with a U/PO₄ mole ratio of 200 to 400 expected in ISF feed prepared on a plant scale.

A semi-works-scale test is in progress to dissolve the sludge in a 30-gal. drum of simulated metal extraction waste incubated 20 days at approximately 80°C. Approximately 75% of the original uranium in the sludge was dissolved in two successive charges of plain water under the influence of mild agitation at room temperature for 9 days.

Bldg. 321 Construction and Maintenance

The final acceptance of Project C-331, 321 Building Rehabilitation, Ventilation Revisions and Inert Gas Generator Installation, is being delayed pending a decision by Project Engineering on the correction of two rather fundamental parts of the Ventilation Project. These are inadequate temperature control in the maintenance shop and faulty design in use of large steam supply PRV's to the new air conditioning unit. All other parts of the project are either completed or nearly so. In connection with Project C-331, the new balcony water fog system was flushed and tested during the period.

New work of a process nature completed during the period included (1) installation and use of a transfer jet and after-cooler on the "B" Cell diuranate process metal waste recovery equipment, (2) installation of four small vane pumps in the Demonstration Unit to provide spare pumps for the cascade system pumping battery, and (3) removal of the 0.04-in. diameter hole pierced plate centrifuge from the 5-in. Scale-Up pulse column and replacement with a new cartridge having 0.06-in. holes.

Maintenance work worthy of note included (1) repair by welding of several leaks in the AQ-8 (concentrator) tank coils, (2) repair of controls to the turbine pump on the tank farm Rockwood sprinkler system, and (3) repair of weld leaks in the O-2 tank coils.

The section of Saran-lined black iron pipe in the hexone stripper supply piping was removed and inspected and showed no signs of failure. A 55-gallon floor sump was installed in B-Cell to improve accountability in A and B Cells. A continuous sewer water sampler was installed in the tank farm sewer line for the same purpose.

Bldg. 321 Operations

The diuranate precipitation process metal waste recovery studies in "B" Cell were completed during the month, and the equipment has been flushed and put in stand-by condition. Final studies with this equipment indicated that the

300-psig Worthington duplex pump was too large to permit effective use in cake removal via the high-pressure sprays, because of the small volumes of solution permissible at semi-works scale. The use of a jet and after-cooler in place of the centrifuge feed pump resulted in no significant improvement in the decrease of losses due to fines. Results of chemical variables studies are reported elsewhere in this report.

The Demonstration Unit columns were operated in cascade (3-inch RA, 4-inch RC) on TBP process metal waste recovery studies. Operation was generally uneventful with good control by the instruments and a minimum of mechanical difficulties. Immediately following changeover from Redox solutions, there were a few cases of sheared couplings on the rotary vane pumps. There were two instances of control instrument failure necessitating manual control, which was accomplished successfully. In one case, a tube in the recorder-controller burned out, and in the other the drive motor on the recorder jammed and failed. Interface crud during the runs varied from 1/4 inch to 8 inches in one case, with an average of 1 to 2 inches during most runs. Filter plugging of feed stream filters was noted on two runs, and in one case difficulties in feed makeup resulted in deposition of NaNO_3 in the head tank and feed lines, and required steaming out of the lines prior to start-up of the following run.

The 8-in. Scale-Up packed column (1-in. Raschig rings) and the 5-in. Scale-Up pulse column were operated throughout the month on TBP process metal waste recovery studies. Procurement difficulties made it necessary to use Shell "Stoddard" type solvent as a diluent for the TBP, whereas "Deobase" was used as diluent in Demonstration Unit studies.

Eight-in. packed column studies on both RA and RC systems were completed in a routine manner. Operation was generally uneventful, although in one case instrument difficulties made manual control of the run necessary.

Currently, preparations are under way to install and put into operation an 8-inch pulse column and a 3-inch pulse column to be operated in conjunction with TBP studies and to study the scale-up factor. A new pulse generator consisting of a variable-speed-and-stroke plunger pump has been fabricated for the 8-inch column pulse generator, and the present 5-inch column pulse generator will be used to pulse the 3-inch column. The 8-inch column will be fabricated from 8-inch IPS stainless steel pipe, and the 3-inch column from precision-bored glass tubing. It is anticipated that both columns will be in operation before the end of January, 1950.

Equipment Development

Submerged Pump No. 2 (G.E. & C.L. turbine pump suspended from a two-foot shaft supported on carbon-filled fluorothene bearings) was returned to operation at 3450 rev./min. following completion of 4.8-months operation at 1750 rev./min. The initial period at increased speed was terminated after 16 hours due to binding in the upper bearing. Following a run-in period at 2100 rev./min., operation at 3450 rev./min. was resumed for 11 days at 1.5 gal./min. and 50 lb./sq.in. and again terminated because of binding in the upper sleeve bearing. The pump will be dismantled for inspection.

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Submerged Pump No. 3 (Roth 147 turbine pump suspended from a torque tube containing two process fluid-lubricated graphitar sleeve bearings guiding a 10-ft. vertical drive shaft) has been on life-test with 1.5 M $\text{Al}(\text{NO}_3)_3$ solution for 14 days at 1750 rev./min., 5.0 gal./min. and 80 lb./sq.in. discharge pressure. The operation has been smooth and vibrationless. The shut-off pressure has remained constant at 90 lb./sq.in. subsequent to its initial decrease from 105 lb./sq.in. after the first 42-hr. operating period. Power consumption of the pump has been determined over the following range: 25 gal./min. - 0.75 H.P. to shut-off - 1.7 H.P. The relationship is essentially linear between these values. Bearing wear, as determined hydraulically, has been negligible.

Peerless 4" LA centrifugal pump with water-flooded double boron carbide seal has operated for 2.8 months on 1.3 M $\text{Al}(\text{NO}_3)_3$ solution at 1750 rev./min. 56 gal./min., and 5 lb./sq.in. discharge pressure. The present boron carbide seal has operated 53 days, which has been marked by a period of erratic behavior after about 30 days operation when leakage rates rose to 1440 ml./day. This was preceded by leakage rates of 83 ml./day and subsequent leakage has been quite constant at 50 to 75 ml./day. Back leakage (diffusion) of process fluid into the seal chamber has been followed by conductivity measurements. A dilution factor of a 1000 or greater of process fluid in seal fluid has been observed.

G.E. & C.L. Submerged Motor Pump with process fluid-lubricated (1.3 M $\text{Al}(\text{NO}_3)_3$ solution) graphitar guide and thrust bearings has operated uneventfully for 60 days at 1750 rev./min., 10 lb./sq.in. discharge pressure, and 0.35 gal./min.

The Moyno pump returned to Robbins and Meyers Company for mechanical correction is expected to go on test early in January with a 10-ft. shaft vs. the previous 6-ft. shaft. The Roth Co. prototype pump is expected to go on test in early January. Shipment has been deferred from the scheduled date of December 15 because of faulty workmanship found by the G.E. inspector. The design of Submerged Pump No. 4 employing water-lubricated bearings inserted in a 10-ft. torque tube is 30% complete. Orders for the seal elements are being prepared. All other elements of the pump are either on hand or standard stock items.

Performance comparison of Shutte & Koerting and Fischer & Porter recording-controlling rotameters under test in series arrangement on a hydraulic test stand circulating 2.0 M $\text{Al}(\text{NO}_3)_3$ solution has been in progress for two months. The principal difficulty encountered has been malfunctioning of the servo motor on the Fischer & Porter recorder-controller, which has stuck frequently and failed to follow the changes of inductance in the transmitter system. A similar condition has been observed with these units on the Demonstration Unit installation.

The Hammel-Dahl motor valve employed in the foregoing hydraulic test stand (5 months of essentially continuous operation) has been found to erode in the splined section of the plug. This could cause interference to the automatic flow control system and it appears that the Stellite used for the plug should be replaced with a stainless steel. Despite this erosion, the flow control system was performing satisfactorily at the end of the observed period.

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Properties of the "crud" floating on the organic-aqueous interface of the Redox IA system were qualitatively compared for IAFS streams prepared from centrifuged-scavenged dissolver metal solutions and straight-centrifuged solutions. It was found that the small amount of scavenger fines leaking through did not accumulate at the interface but were carried out in the organic stream, as were the majority of other "crud" components. It was not possible to determine whether there was a reduction in interface "crud" as a result of scavenger treatment.

The effect of hold-up time and centrifugal force when clarifying dissolver metal solution with a fixed 1.67% (wt.) addition of Super Filtrol FC has been determined at 1200, 1600, 1800, and 2000 times gravity and hold-up times of 10, 15, 20, 25, and 30 minutes in a batch type laboratory centrifuge. There was no significant spread in clarities (83-83.5%) below 1800 G's.

The preparation of 100-200 and 100-325-mesh Super Filtrol has been investigated in terms of yields and mechanical classification problems. Yields as low as 4.73% (retained on 200 mesh) have been obtained and significant variation in particle size distribution has been observed between lots.

A plunger-type pulse generator unit with a maximum displacement of 40 cu.in./stroke and frequency variation of 100-200 strokes/min. is progressing satisfactorily and the completion on or before January 1, 1950 appears certain. Design of a 125 cu.in./stroke unit as well as outside procurement are being pursued to determine availability and cost.

Process Chemistry

The heat of neutralization of a simulated Redox waste stream (65% ANN, 15% NaNO_3 , 1.2% HNO_3) by 50% NaOH was experimentally determined to be 116 cal./ml. or 83 cal./gm. of waste solution. The use of 73% NaOH instead of 50% NaOH for waste neutralization was examined. Several disadvantages, namely rapid corrosion of stainless steel and solid phase separation (25% by vol.) at 70°C., were detected. Details of the investigation are presented in a memorandum of December 13, 1949, by M. K. Harmon.

The physical properties of Soda Salt I (Diuranate Process) were examined and reported in a memorandum of December 12, 1949, by M. K. Harmon. The micro-crystalline nature and particle size distribution of the solid phase illustrate why this has been a troublesome separation problem. The conversion of sodium diuranate in the presence of phosphate to a water soluble carbonate compound (tricarboxate) was demonstrated with both 0.4 and 0.9 M NaHCO_3 solutions.

The distribution ratios of uranium under anticipated RA Column conditions, representative of the upper and lower sections only, were determined in a series of batch studies.

The effect on the distribution ratio E_D for the upper and lower sections of the RA extractor in the TBP process on varying the phosphate and sulfate concentration from zero to twice the flow sheet (HW-15186) value, as well as variations in the free nitric acid and sodium nitrate above and below the flow sheet values, has been determined to be insufficient (E_D range 0.54 to 0.90) to anticipate any limiting change in column performance as a result of these

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variations. Substitution of Deobase for Stoddard Solvent in some of the batch equilibration studies revealed no significant difference in E_a^0 . Inadvertently, the studies were made with 12.5 volume per cent (15 wt. per cent) TBP vs. 15% specified on the flow sheet. It appears tentatively that the equilibrium curve resulting is more favorable for the lesser TBP content since the curve is displaced upward from the operating line.

The effect of RAT composition on its freezing point is under study to determine the order of and composition of the solid phase formed. It appears that the NaNO_3 limits the f.p. to 10°C for total NO_3^- of 6 M, an f.p. of 20°C at 6.7 M NO_3^- and an f.p. of 30°C for 7.5 M NO_3^- .

Examination of the RAFS from pulse column Run 5"-1-RAU was made to determine if solids or solid phase formation could have been responsible for the low column throughput capacity encountered. It was found that the solids present were small (0.01 inch, largest dimension) and of insignificant amount (0.001%). It is believed, therefore, that the capacity condition encountered must relate to some surface condition rather than physical obstruction in the perforated plates.

The possibilities of drying stored hexone to reduce water content from its present 10 gm./l. value to 0.5 gm./l. by drying agents or freezing was investigated. In no case could the desired specification be satisfied with a reasonable addition (10%) of drying agent or reduction of system temperature to -60°C . It is recommended that distillation be employed and a rough check of the theoretical performance is under way in the laboratory.

The saturation concentration at 25° and 95°C of a composite Redox waste (IAW, 2DW, 3DW, 2AW) was determined to be 65-74 parts anhydrous salt components to 100 parts of water and 108 parts salt per 100 parts water at these respective temperatures.

Installation of the radiation shield and service lines, as well as procurement of auxiliaries, for the junior cave in Room 4-B of Building 3706 was active during the month.

SEPARATION PROCESSES RESEARCH

Ozonization of Dissolver Solution

In a single experiment, very poor over-all ruthenium removal was obtained when Filtrol scavenging was carried out prior to ozonization of dissolver solution and Column IA extraction, rather than after ozonization as specified in the Redox flow sheet.

Preliminary data indicate no decrease in cerium decontamination in the IA Column as a consequence of head-end ozone treatment. This had been regarded as possible through the mechanism of extensive oxidation of cerium to the extractable (IV) species by ozone.

Filtrol Scavenging in Redox

Three experiments on a five-ml. scale have resulted in an average of 99.5% of the zirconium being adsorbed after two contacts of 20 g. Filtrol per liter of

dissolver solution. Columbium adsorption was more erratic. In each of two of the tests, where the dissolver solution was 42 and 46 days old and at a pH of -0.2, 76.6% of the columbium was adsorbed after two contacts and 91.1 and 92.2% was adsorbed after three contacts. In the third test, employing eight-day old dissolver solution and at a pH of -0.12, accumulative columbium adsorption through three contacts with Filtrol was 70.2, 91.9 and 97.4%.

Methods of counting have been developed which should enable the demonstration of the improvement in zirconium decontamination through an extraction and two scrub stages. Previous attempts at this have failed because of the large decontamination factors of 10^4 to 10^5 (and, consequently, low residual counts) obtained on control runs.

Catalytic Decomposition of Hydrogen Peroxide in Peroxide Supernatants

The rate of decomposition of hydrogen peroxide in Plant P-1 supernatant solutions has been measured at elevated temperatures, with and without the use of platinized platinum gauze catalyst. In the absence of any platinum, the reaction is 95% complete in 34 minutes at 70°C and 95% complete in 12 minutes at 80°C. The increase in the rate of decomposition upon the addition of a platinum catalyst is not great, 16-18 minutes being required for 95% decomposition of the hydrogen peroxide at 70°C, using 0.08 cm² of platinum gauze per ml. of solution. The addition of 0.3 cm² of stainless steel per ml. of solution had little or no effect on the rate of decomposition in the presence or absence of platinum at these temperatures. No difficulty due to temperature rise from the heat of decomposition of peroxide should be encountered. The theoretical maximum temperature rise in Plant P-1 supernate would be about 40° based on a heat of reaction of ca. 20 K. Cal./mole H₂O₂, but the rise observed in plant operation would be much less due to heat transfer from the process vessel over an appreciable period of time.

Coupling of Separation Processes to Metal Reduction Processes

The feasibility of precipitating plutonium(IV) arsenate as a concentration and purification step in both the Bismuth Phosphate and Redox processes has been studied. In one experiment using a simulated F-10 solution, plutonium(IV) arsenate was precipitated with a 2.7% loss of plutonium and the precipitate contained less than 0.2% of the lanthanum after two washes. In another experiment under more ideal precipitation conditions, plutonium loss was only 0.34% in the precipitation step. Employing a synthetic Redox IIIBP solution (aluminum nitrate was absent), precipitation of plutonium (IV) arsenate was accomplished with a loss of 0.31%.

At least two crystalline modifications of plutonium(IV) arsenate appear to exist. Rapid precipitation at room temperature results in a very slightly pink compound. This material largely dissolves upon heating the solution, but upon standing at higher temperatures, a very crystalline, quite dense, fuchsia-colored solid comes down. This latter modification may also be formed at room temperature, if the plutonium (IV) arsenate is allowed to crystallize slowly.

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Plutonium Recovery from Slag and Crucible Pieces

It has been found possible to solubilize the slag from a UF_4 reduction by hydrochlorinating the slag at $700^\circ C$. Other methods thus far attacked have been less successful, with the possible exception of the dissolution of the slag in a solution 1.5 M in $Al(NO_3)_3$ and 1 M in HNO_3 .

Crucible fragments have been successfully dissolved in nitric acid using the Soxhlet extractor. A highly gelatinous residue of silica remains behind after this treatment. Alkaline fusion of the crucible fragments results in attacking the silica binder such that the pieces are broken up and readily dissolved in nitric acid.

Preparation of the Redox Solvent Extraction Feed from Metal Wastes

A study was made of the fate of Bi^{+++} and Fe^{+++} in the uranate process for metal feed preparation, employing simulated current metal waste. Near-quantitative carrying of both Bi^{+++} and Fe^{+++} by sodium uranate was observed. In the phosphate clean-up operation ca. 75% of the Bi^{+++} and ca. 25% of the Fe^{+++} were recycled with the uranyl phosphate, the remainder in each case going into the ISF.

TBP Process Equilibrium Data

Batch countercurrent studies with seven extraction, three scrub, and five strip stages were continued on acidified synthetic normal composite uranium waste solution with 15% TBP - 85% Deo Base as extractant and scrub concentrations of 3.0, 4.1, and 5.9 M HNO_3 . The feed composition was 0.188 M UNH, 0.18 M Na_2SO_4 , 0.16 M Na_3PO_4 , 1.81 M $NaNO_3$, and both 2.0 and 3.0 M HNO_3 . Flow ratios of 1/2/2.5/2 were used (scrub/feed/extractant/strip). Uranium losses in the CW stream were 0.42, 0.62, and 0.84% for the three runs completed. The losses in the AW streams were 0.01% or less. X-Y equilibrium data were calculated.

Pulse Column Operation with TBP Systems

The half-inch diameter pulse column has been set up for "hot" TBP Process runs. A preliminary run with cold normal composite feed and 15-volume per cent TBP in Deo Base showed satisfactory operability at 200 to 400 gal./sq.ft./hr. with stage heights of 5 to 10 inches for uranium extraction. Dri-filmed plates with interface at the bottom for the RA Column did not show an improvement over non-Dri-filmed plates and interface at the top. Extraction efficiency was at a maximum at a pulse frequency of 90/min. Stage heights increased with increased column throughput.

Work with the one-inch diameter x 69-inches cascade unit has continued and stage heights calculated. For normal composite feed containing 2.0 M HNO_3 , scrub with 3.0 M HNO_3 , and a scrub/feed/extractant/strip flow ratio of 1/2/3.5/3.5, the H.E.T.S. in the extraction section was found to be 17 inches, with uranium losses of about 1% in RAW and 0.5% in RCW. Runs with 6.0 M HNO_3 in the scrub showed poor reproducibility, but stage heights and operation were comparable to the above. The one-inch diameter column with its longer length gave a noticeably larger H.E.T.S. than does the half-inch column, a fact observed in studies in the Redox system. From this it may be concluded that the stage height may increase as the concentration of the extractable species decreases.

Density of TBP - Carbon Tetrachloride Solutions

The densities of TBP - carbon tetrachloride solutions containing $\text{UO}_2(\text{NO}_3)_2$ and HNO_3 have been measured and reported in HW-15457. The observed densities may be expressed as a linear function of the volume per cent TBP and molarity of $\text{UO}_2(\text{NO}_3)_2$ as follows:

$$\rho_{25^\circ\text{C}} = 1.5856 - 0.6069\% \text{ TBP} + 0.2658 \text{ M } \text{UO}_2(\text{NO}_3)_2.$$

In the range 10-25% TBP, the specific volume of HNO_3 was identical with that of the solvent within the limits of accuracy of the measurements. Accordingly, no HNO_3 term is required in the density equation.

Decontamination from Zr^{95} in the TBP Process

Preliminary results indicate a substantial reduction in the distribution ratio of Zr^{95} into 15% TBP - Deo Base on addition of fluosilicate to the aqueous phase. Quantitative results pending production of a Cb-free Zr^{95} solution of sufficient concentration to determine the activity content of the organic phase accurately.

Treatment of 200 Area Non-Uranium Wastes

Study was continued of ion-exchange decontamination of 221 Building - Section 5 crib waste. Following the passage of 160 resin bed volumes of this solution through a column packed with Dowex-50-E, the beta content was reduced 9-fold to ca. 20 microcuries/l.; and the alpha content, 70-fold to ca. 0.03 micrograms Pu/l. Alpha decontamination remained unchanged on passing an additional 80 resin bed volumes of waste solution; the beta decontamination factor reduced to ca. 6. Analysis indicated the following distribution of beta activity in the effluent from the first 80 resin bed volumes treated in this manner: I, 62%; Cs, 8%; Ru, 30%.

Partial neutralization of this 221 - Section 5 waste prior to ion-exchange treatment did not improve alpha or beta decontamination. The filtrate of another sample of 221 - Section 5 waste, which had already been neutralized to pH 10.5 in the 200 Area, was found to contain but 25 microcuries/l. beta and 0.03 micrograms Pu/l. This sample also contained ca. 0.05% by volume of a reddish precipitate which contained considerable beta activity and the equivalent of ca. 2.5 micrograms Pu per liter of total neutralized waste. In the immediate future, scavenging will be emphasized as a method for achieving plutonium decontamination of the various 200 Area crib wastes.

234-5 PROCESS DEVELOPMENT

Experiments on a 200 mg.-scale in the laboratory indicate that plutonium losses in the supernatant solution from peroxide precipitations are higher by 1.5% to 2.0% if the slurry is cooled to 6°C after the precipitate is struck instead of allowing the precipitate to settle at room temperature. The higher loss appears to be the result of the "fines" in the precipitate not settling as rapidly at the lower temperature.

The K-type hood in Room 42 of the 231 Building, which has been used for wet chemistry in the nominal ten gram-scale work, is being modified to a gloved

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dry box similar to the hoods in Rooms 38 and 41. It is felt that complete contamination control in this room can be achieved only by such modification.

Equipment to carry out the uranium reductions required for calcium testing has been installed in Room 44 of the 231 Building. The first reduction of uranium tetrafluoride in this equipment give a smooth, well-formed button with a yield of 99.4%, based on the fluoride. Samples of the calcium, uranium tetrafluoride and the button have been sent to the Technical Services Division for analysis.

A universal stand for use in the radiography of O90 units has been designed and built. The stand accommodates the O91 and O92 component at the same time. This will give a record of these components on a single standard 8" x 10" film. Experimental work is in progress to determine the optimum film loading and exposure time for radiographing the O90 components. Additional work will be required to improve the resolution in the center of the picture and through the thickest part of the piece.

The replacement of hydrochloric acid by a solution of 1 M sodium nitrate was tried in the electrolytic test. The trial was inconclusive because negative results were obtained in both cases. The test will be repeated with a piece that gives a positive result with hydrochloric acid.

STACK GAS DISPOSAL

Erratic pressure drop and efficiency values were obtained at the T Plant sand filter during the month. A pressure differential survey was taken throughout the ventilation system. This established that the erratic pressure drop readings were caused by condensate in the pressure lead lines and were not due to changes in the filter's operating characteristics. All recorded efficiencies at the T Plant filter have been low, ranging from 96.8 to 99.1%, since the special dissolving of December 3. In all instances the downstream monitoring filter has had an unusually high I^{131} concentration. The possibilities of errors in the monitoring equipment or iodine hold-up are being investigated.

The studies of the filtration efficiency and pressure drop characteristics at high linear velocities for the No. 55 Fiberglas, packed to densities of 3 and 6 lbs./cu.ft., and the "AA" Fiberglas, at a density of 1.2 lbs./cu.ft., have been completed. The results are well correlated and have made possible the establishing of accurate relationships between filtration efficiency, bed depth, and superficial velocity. The data confirm the prediction that a fiberglas filter can be designed to operate at superficial velocities several-fold greater than the present plant sand filters with a high efficiency and an acceptable pressure drop. A sample of fiberglas employed by A.D. Little in a series of experiments has been received. The filament diameter is 0.00115 inches. An evaluation of the material has been initiated.

A "AA" filter unit was operated on the off-gas stream during one metal dissolution and a coating removal. The fiber was washed with water and the solution analyzed for ammonium nitrate. The analysis showed that 0.29 grams of the salt had formed within the filter. A plant unit operating on the entire off-gas stream would have accumulated 10 to 15 grams of ammonium nitrate during this cycle. The study will be continued in an attempt to establish the amount of salt formation that can be expected.

Silver Reactor No. 9 was operated during the eighth and ninth metal dissolutions for the unit. The analytical results reveal that the I¹³¹ removal efficiency has remained in excess of 99.5%.

INVENTION AND DISCOVERY STATEMENT

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.

<u>Name</u>	<u>Title</u>
H. H. Hopkins	"Solubilization of Metal Reduction Slag by Hydrochlorination at High Temperatures."
H. H. Hopkins	"Break-Down of Reduction Crucible Pieces by Alkaline Fusion."
W. H. Reas	"Precipitation of Plutonium(IV) Arsenate as a Method of Plutonium Isolation and Purification in the Bismuth Phosphate and Redox Separations Processes."

R. H. Beaton

R. H. Beaton, Head
Separations Technology Division

Date: January 3, 1950

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METALLURGY & CONTROL DIVISION

DECEMBER 1949

VISITORS & BUSINESS TRIPS

1-10-50

C. G. Gieszl, of the Applied Research Laboratories, Glendale, Calif., spent December 12-15 with the Analytical Section, servicing instruments purchased from this concern.

Business trips of personnel in this Division were as follows:

D. W. Pearce spent December 5, 6, and 7 at Los Alamos Scientific Laboratory, attending an S.F. Standards Committee meeting of the Atomic Energy Commission. While there he spent some time discussing analytical and remote control problems with laboratory personnel.

J. A. Parodi spent December 13 with Baird Associates, of Cambridge, Mass., and December 14 at the Jarrell-Ash Company of Boston discussing spectrographic equipment. On December 15 and 16 he visited the Argonne National Laboratory to discuss spectrochemical analytical problems.

J. B. Burnham spent December 1, 2, and 3, attending a meeting of the American Society for X-ray and Electron Diffraction in Philadelphia. He spent December 5 discussing recent advances in the fabrication of uranium by powder metallurgy procedures with representatives of the Sylvania Electric Products Laboratories, at Bayside, N. Y. He visited KAPL and the Research Laboratory at Schenectady, on December 6 and 7 to discuss X-ray diffraction results and uranium metallurgy techniques.

B. F. Butler presented a paper entitled "Application of Statistical Techniques to Atomic Energy Programs" at a meeting of the American Statistical Association, New York City, on Dec. 27-29. He visited Schenectady on December 30 to discuss the application of mathematical statistics to experimental programs, and to inspect laboratory and other facilities.

ORGANIZATION AND PERSONNEL

Personnel totals in the several subdivisions are summarized below:

	<u>November 30</u>	<u>December 31</u>
Metallurgy Section	38	38
Analytical Section	341	346
Statistics Group	13	13
Information Group	57	58
Administrative	<u>3</u>	<u>3</u>
Totals	452	458

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The Analytical Section employed one non-exempt chemist, three laboratory assistants and one clerk. Two clerical personnel were transferred into this section from the Construction and Maintenance Divisions, respectively. One stenographer in the Analytical Section went on leave of absence. The Information Group employed one files clerk. There was only one termination, a non-exempt chemist in the Analytical Section.

METALLURGY

Uranium Billet Casting

Melt plant furnace pressures less than 100 microns have been obtained consistently during December for the first time since May 1949. All of the 165 billets required for evaluating the effect of furnace pressures upon billet quality (PT 314-59-M) have now been collected, and work on this test will be resumed.

The burned-out motor on one of the vacuum units of the crucible burn-out station air filter mock-up installation at the melt plant has been repaired, and the equipment used in several test runs. With #55 Fiberglas as the filter medium, removal of contamination ranging from 78.2 to 85.4% was indicated by alpha count determinations. Analytical verification of these results is not yet complete.

Melt plant tests to evaluate modified melting procedures directed toward improving billet density gave the following results. All billets were cast in furnace atmospheres at pressures ranging from 225 to 350 microns.

Procedure	No. Billets	Density	Average		Yield %
			C ppm	N ppm	
Heat 120 min.; pour	7	18.898	548	28	74.0
Heat 130 min.; pour	8	18.891	609	39	71.8
Heat 130 min.; hold 5 min.; pour	7	18.884	670	43	79.28

These data indicate that the carbon and nitrogen content of the metal tend to increase and the density to decrease with longer retention in the molten state. Yields appear to be improved by allowing a short quiescent holding period before pouring.

One of the cast iron molds previously prepared for trial use in the melt plant was employed in casting an uranium billet. Despite precautionary measures, the mold again became misaligned and the stream of molten uranium impinged against the mold wall. This action resulted in erosion of the zirconite mold wash, and consequent alloying of the uranium with the iron mold.

Uranium Rolling

Data on the roll pressure required to roll the 1.5 inch diameter cast uranium

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at 400 and 500° C were received from Battelle. This completes the roll pressure data at temperatures of 300 to 600° C, as originally requested. Battelle also completed a run in which cast material was rolled 40 percent at 600° C, and then rolled to 90 percent total reduction at 300° C. This material had a much better surface than cast material rolled entirely at 300° C. Two bars were rolled without observable surface checking while a third checked only slightly.

Slug Canning

In a study of the feasibility of combining remachined virgin slugs and recovered canned slugs under one category, it was indicated that slugs made from virgin alpha rolled metal, remachined to a minimum diameter of 1.343" (but which expand during canning to a minimum diameter of 1.348"), and recovered canned slugs of 1.348" diameter, are satisfactorily recanned by normal operating procedures. Frost test results indicate no increase in erroneous rejection of acceptable slugs, nor erroneous acceptance of rejectable slugs, when the frost test equipment is operated at power levels prescribed for "A" diameter slugs. Nearly all slugs meeting these dimension requirements weigh 3.82 lbs. or greater (the present minimum weight specified for "X" slugs). In view of these indications, it appears feasible to adopt the proposed classification change. Process revisions are in progress.

Continued work on the problem of removing tin from used Al-Si by means of molten lead included a semi-production scale test conducted in a 16" crucible. Results were similar to those obtained on a laboratory scale; the tin content of the Al-Si was reduced to approximately 25% of its original value by merely melting the Al-Si and lead and agitating the two liquids for intimate mixing. It now seems fairly evident that tin removal is effected by the simple process of extraction, and that this process would necessitate a large quantity of lead to treat the large volume of Al-Si involved. On this basis this method does not appear attractive for production use.

It had been suggested that a fluoroscopic method might be used to test canned slugs for aluminum-silicon penetration, if the x-ray density of the Al-Si could be increased with lead additions. In a rough determination it was found that Al-Si would dissolve only 0.12 percent lead; this amount is insufficient to make the suggested method practical.

Work was continued on the program to determine the time and temperature of alpha phase anneal required to stabilize the grain structure of uranium quenched from the beta phase. Samples of gamma extruded uranium were water quenched one and five times from 680° C. Considerable grain refinement resulted from the single quench, but no additional refinement was noted in the sample quenched five times. A four hour anneal at 640° C imparted a stabilized structure of equiaxed grains in both the one and five cycle samples. The grain size was estimated to be 0.175 mm. average grain diameter.

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Induction Heating Experiments (PT 313-109-II)

Because of the discovery, after the metal had been charged into the piles, that the alpha rolled slugs cut from the lead ends of the induction heated rods contained a core of untransformed metal, some consideration was given to discharging all tubes containing these defective slugs at a low level of irradiation. However, a decision was reached with the Pile Engineering Section to discharge one extra tube containing these slugs, at a low level, for further corroboration of their behavior, and thereafter to attempt to continue the test as originally planned. This means that the maximum exposure to be given this test metal will be 550 rather than 600 MD/ton.

Uranium Alloys

Due to the urgency for immediate data on low temperature rolling studies, little progress has been made at either Battelle or Hanford on the uranium alloying program.

Dilatometry

Dilatometric runs were made on a number of cast uranium samples, and for slowly cooled material, the expansion data indicated a random orientation. Data on chill cast samples were erratic, and additional work is being done to check the discrepancies noted.

X-Ray Diffraction Studies

Work was initiated on the determination of orientation in the uranium rods produced in recent rolling tests at Battelle. This work will relate the degree of orientation of alpha rolled metal in various conditions of heat treatment to the amount of reduction and rolling temperature.

In a study of the variation in orientation in production rod, it was found that in a single slug the degree of preferred orientation varied around the periphery, and that the type of peripheral variation was the same along the entire length of the slug. This study is continuing and will cover slugs from a number of rods and from various positions along one rod.

Radio-Metallurgy

Measurements of the effectiveness of various shielding materials using different irradiated materials as sources have shown much variation. An attempt has been made to remeasure the absorption coefficients of these shielding materials using a 1/2" collimated beam, and using a Lauritsen electroscope to measure the radiation. Present results indicate that leaded glasses supplied by the Penberthy Instrument Company (density 6.0 to 6.5) are as effective as steel (density 7.8) for shielding.

The universal type Rockwell hardness tester has been placed in a 2" thick lead cell. Construction of suitable manipulation and viewing mechanisms for its use in testing low radiation level metals and alloys is in progress.

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P-10 Alloy Preparation

Rods obtained from the November 11 extrusion of P-10 alloy billets have been completely converted into canned slugs. Because the gas analysis of some of these rods indicated an unacceptable amount of dissolved hydrogen, experimental efforts were made to reduce the dissolved hydrogen content of the cast billets through (a) holding the melt under vacuum for a longer period, and (b) pouring the charge at a somewhat higher temperature. These experimental heats were included in a 20-billet shipment to Detroit for extrusion on December 16. The rods from the latter extrusion were received at Hanford during the week of December 19, and their machining into slugs was begun immediately. Hydrogen gas analysis of these experimental heats has not yet been completed.

Production figures for December are summarized as follows:

	<u>Number</u>	<u>Weight (Lbs.)</u>
Total billets cast	9	344.3
Acceptable billets	9	344.3
Billets extruded (at Detroit)	20	792.5
Slugs machined	804	406
Slugs canned	804	406

Corrosion Testing

Welded stressed samples of SAE 1020 grade carbon steel completed the first three month exposure period on December 12 in waste and recovery solutions. Samples exposed to ANN recovery solution of pH 1.3 were coated with a dark brown adherent scale, while those exposed to an ANN recovery solution of pH 11.0 and to ORNL #1 IAW solution of pH 12.1 and 13.0 were in good condition. Samples exposed to a 200 Area waste solution of pH 10.0 and pH 11.0 showed local rust and scale which tends to concentrate in areas in contact with the supernate. All tests, including those referred to above, are currently in the course of the final three-month exposure period.

At the end of a one month exposure period, sufficient corrosion data on Al-Si samples containing different amounts of tin are available to warrant a request for additional samples in the tin concentration range of 1.75% and 2.0%. This request is based on the fact that the first 48-hour checks showed lower weight losses in the higher tin concentrations. This effect, which was quite marked at first is not quite as obvious on the basis of the latest check. However, it does persist, and is reflected in tests at 60° C and at 70° C. The Al-Si currently under test does not include samples containing over 1.3% tin; the downward trend of the weight loss curve becomes apparent at 0.90 to 1.00% tin.

It was reported previously that after fifteen days exposure in a humid atmosphere a potential difference of 120 to >400 millivolts had been detected between the vertical-safety-rod guide and the thimble. At the end of a one month exposure period, potentials detected ranged from 290 to 1000

millivolts and were not reproducible for any one couple. The inconsistencies are attributable to any one or all of at least three effects; namely, local cell action, variation of salt concentration in the water film between guide and thimble, and induced voltages in the leads to the Beckman pH meter used to measure the potentials. It is apparent that potential measurements now being made can be interpreted only on a qualitative basis and serve only to distinguish anode from cathode.

A.I.S.I. T-430 stainless steel has been exposed to 60% (by weight) Al (NO₃)₃ solutions, the free acid content of which ranged from 1.70 to 234.4 gm/L (pH 0.0 to 1.0). Test was at room temperatures, partial immersion and static. No significant effect was noted.

Miscellaneous

An intensive effort has been made to improve the system of accountability for SF material held by the Metallurgy Section. A rigid bookkeeping system was established, and improved storage facilities were requisitioned.

Creep data for 2S aluminum being obtained by Battelle indicated that at 450° C and 60 psi, the creep rate was less than 0.000014 percent per hour after 1500 hours under load. Four of the tests required to obtain design curves at 400 and 450° C have been completed, and additional tests are underway.

Hardness measurements were made on eight sections of new pile process tubing to determine the hardness at various points around the circumference. There was no regular variation in hardness around the circumference of the tubing, and the hardness of the various sections was nearly identical. The average hardness was VHN 48.41p (1 Kg-perinidal indenter).

Minor Construction estimates that Bldg. 3730 is 80 percent complete. The purchase of supplies and portable equipment for this building is proceeding.

ANALYTICAL CONTROL

Work Volume Statistics

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

	<u>November</u>		<u>December</u>	
	<u>Samples</u>	<u>Determinations</u>	<u>Samples</u>	<u>Determinations</u>
Routine Control - 200	3225	8586	3375	8384
Routine Control - 300	751	1598	590	1368
Water Control -100,700	692	2772	1118	3335
Redox Program Analyses	2786	5810	2634	5687
Process Reagents	1345	1866	1346	1664

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Essential Materials	191	1064	117	613
Special Samples	2316	5976	1710	6076
Stack Gas Filters	<u>43</u>	<u>48</u>	<u>43</u>	<u>58</u>
Totals	11,349	27,720	10,935	27,185

100 Areas Water Control

A study of the data resulting from the cotton plug filter test has shown a gradual increase in manganese content in the filters in the 183 Bldg. of all 100 Areas. This results in an increase in the manganese content in the water and may account for the gradual increase shown in the retention basin activity. An oxalic acid backwash of filter #3 at 100-B Area was made, and a program has been arranged whereby analyses of the water from this filter will be compared with analyses of the water from the new filters at 100-H and 100-D Areas.

200 Areas Control

The precision of the Analytical results of the canyon starting solution (6-3-MR), the Isolation Bldg. starting solution (P-1), and the final product solution (AT) may be summarized as follows:

Sample	Precision $\pm$ %		
	Expected	November Average	December Average
6-3-MR	1.58	2.15	1.76
P-1	2.39	2.16	3.14
AT	1.98	1.79	1.55

The cause for the poorer precision of the P-1 Assay is unknown.

To gather data indicating a specific gravity versus concentration relationship for the ferrous ammonium sulfate process reagent, the 222-B and 222-T Control Laboratories commenced routine determination of the specific gravity of this reagent.

300 Area and Essential Material Control

The Spectrochemical Laboratory received the first samples of materials involved in the "Calcium Use Test" procedure for Bldg. 234-5. Work has been started to improve the sensitivity of the analytical methods.

A sampling manual for use by the P Division in the 300 Area has been completed and will be issued in the near future.

The determination of TBP in various aqueous solutions is now being carried out on a routine basis. The method consists of hydrolysis of the TBP with nitric acid, followed by a colorimetric phosphate determination.

Investigations revealed that in UHM solutions of 100 g/L, phosphate ion concentrations up to 5 g/L did not interfere in method RUV-1a, and concentrations up to 15 g/L did not interfere in method RUV-1c. By making a double precipitation of the PO_4^{3-} it was possible to remove the interference, so that in a sample containing 50 g/L PO_4^{3-} the error was reduced to less than 1%.

A method suitable for the determination of fluorine in organic compounds was investigated for the Chemical Research Section. Samples were fused with Na_2O_2 in a Parr Bomb and the fluoride titrated with thorium nitrate. Results to date on known compounds have been 3-7% low.

A sample of the off-gas from the Stokes vacuum pump in the melt plant was analyzed for possible components causing the explosions in the stack. The H_2 content was reported as 9.68%, CO as 4.87%, CO_2 as 0.35%, O_2 as 16.56%, and unsaturated hydrocarbons as 0.61%.

During the month the Redox Development Section began submitting samples from a series of "scouting" runs designed for evaluation of the TBP uranium recovery Flow Sketch. Analytical methods are being further checked by the Methods Adaptation Group in cooperation with the Redox Control Laboratory.

Methods Adaptation

A multiple unit gloved box for use in the cupferron-copper spark and carrier concentration carbon arc spectrochemical methods has been devised by the Design Unit, and is undergoing final review. Its use should reduce the required time and minimize the hazards of handling plutonium materials since the heretofore necessary repeated transfers of plutonium between hoods and gloved boxes would be eliminated.

The present time-consuming analytical method for the determination of 40-8 in plutonium metal is based on volumetric titration of the 40-8 8-hydroxyquinolate after ether extraction. The efforts toward shortening this procedure by modification of the extraction technique, and elimination of the necessity for precipitation of the quinolate, have shown that a potentiometric titration with ferrocyanide using polarized platinum electrodes is feasible.

A detailed report of the status of Rala analytical methods was issued as Document HW-15409. In the study of coulometric and volumetric methods as means for the determination of nitric acid in Rala solutions, a modification of the coulometer electrode has improved the performance of the endpoint detection system. A method of filling a 100 lambda pipet without necessity of visual observation of the calibration mark was devised; a platinum electrode sealed into the pipet at the graduation mark is used with an ohmmeter to indicate when the pipet is filled. A study of the accuracy of the method indicated the error to be less than 1%.

The presence of tributyl phosphate in IAW type solutions adversely affects the polarographic determination of UHM; preliminary experiments have indicated that the sensitivity of the method is decreased about one-half.

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Past experience in the determination of uranium by measurement of the fluorescence of an NaF-fusion has indicated an enhancement of this fluorescence due to some unknown source. Tests with Hanford Works equipment have indicated that cerium present to one microgram in the fusion mixture had negligible effects, and that larger amounts quenched the fluorescence rather than enhanced it (contrary to statements in the literature).

Laboratory Equipment Design

Work on gloved boxes included the completion of design of a double unit for the Methods Adaptation Group and a single unit for the Analytical Research Groups.

During December the main effort of the Design Unit was spent on the Rala Laboratory. As a result of conferences between the Design Unit, various laboratory personnel in the Analytical Section, and the Design Division, modifications were made in the previous tentative layout of major laboratory equipment for Rala. A list of the required drawings and an estimated time schedule were developed so that improved design and drafting personnel requirements could be foreseen; 880 man days of design time and 789 man days of drafting time will be required.

Study of the problem of transporting material into, in, and from the primary cubicle in the Rala laboratory has resulted in the evaluation of a unique method employing modified electronically-controlled units available from the Lionel Company. This method, to be designated "Remote Control Transport" (R. C. T., for short) is based on a simpler system used in the Cleveland Clinic for radon handling. It will employ a network of rails fitted with remote-control switches, limit stops and automatic positioning and indicating units. This guide rail system will furnish the route for radio-controlled power units carrying samples to and from analytical stations, replacement apparatus for analytical set-ups, and receiving containers.

Machine Shop

The machine shop received 48 new requests for fabrication of experimental units; 59 requests were completed. It is estimated that incompleted work represents 250 man hours. The need for experimental machine work will increase as the design effort on Rala laboratory units progresses.

Units of special interest completed during the month included a glass marking lathe for ruling calibration marks on micro pipets, an X-ray diffraction sample holder and manipulator, an alteration of a Micro Sample Mill feed mechanism, and a twelve-place magnetic stirrer.

Glass Shop

A total of 93 work requests was completed by the Glass Shop. Incompleted requests represent approximately 120 man hours.

Provision of the gas mixing system to furnish a more satisfactory fuel for use in the fabrication of large and complex glass equipment is delayed until the necessary materials are received by the Maintenance Division.

Special Hazards Control

The revised procedure for "No Contamination Work" as set forth in Special Hazards Bulletin #4, Revision #3, dated 12/21/49, was placed into effect in all 200 Areas Control Laboratories on 12/27/49.

ANALYTICAL RESEARCH

Rala

In anticipation of the difficulties expected from radioiodine in stack gas during dissolving of Rala slugs, effort was extended on the development of an improved method for determining radioiodine. The method involves addition of a known quantity of inactive iodide carrier to the sample solution, conversion to iodine, extraction of iodine, and use of the Shonka Counter to determine the beta activity in solution. The subsequent titration of this solution provides a correction factor to account for the fraction of active iodine not recovered by the extraction. The method has its value in the fact that very little handling of the sample is required; the extraction is carried out in one container, and both the counting and titration in another.

In reply to the questions posed in HW-15286, "Special Rala Analyses," the probable nature of various trouble shooting analyses that might be required during start-up of the Rala process has been defined in HW-15382. This information will permit the Analytical Section to plan for and meet more satisfactorily such rush requests at start-up time.

Redox

Valuable results have been obtained from a study of the application of infrared absorption techniques to the determination of metal ions. One phase of this study involves the extraction of 8-hydroxyquinoline- or TTA-metal complexes into an inert organic solvent and the subsequent examination of absorption bands.

A method has been developed and standard curves prepared for the determination of nitrous oxide in nitrogen by infrared absorption techniques. This will permit the determination of nitrous oxide in the gaseous decomposition products of hexone.

An examination of data has shown that the nitric acid content of certain Redox solutions can be evaluated satisfactorily from the pH of the solution suitably diluted.

STATISTICAL STUDIES

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300 Area Operations

A routine accuracy control procedure was recommended to the P Division which

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should lead to increased accuracy of weighing, and to a reduction in the cost of maintaining the scales.

A statistical study was completed on X-ray diffraction data submitted by the Metallurgy Section covering the intensity of reflections from samples of alpha-rolled uranium to determine metal characteristics.

100 Area Operations

More consistent estimates of the xenon, iodine, and graphite coefficients in the xenon equations have been obtained by assuming the expected coefficients for the samarium and plutonium contributions. A re-evaluation of pile period data using least squares methods is also being performed for the Pile Physics Section.

A statistical study of dimensional measurements on Group V uranium slugs exposed to 400 H.W.D. revealed no significant systematic dimensional changes. It was also found that the variability in dimensions of individual slugs had not increased significantly over that observed in canned slugs prior to exposure.

A statistical study of the within-lot precision of P-10 alloy lots made possible a substantial reduction in the number of slugs from each lot to be checked in the Test Pile.

200 Area Operations

Results of further testing of alpha counting instruments indicated that, when an accurately known increment was counted with a larger sample of alpha-emitter, an unexpectedly high fraction of the counting rate of the increment was lost. A test involving the accurate dilution of a plutonium solution is now under way to determine whether the observed losses can be confirmed by this approach.

An equation relating density and UNH concentration in 20% TBP - 80% CCl₄ solutions was developed at the request of the Chemical Research Section. From additional data on densities of solutions consisting of TBP and CCl₄ in other proportions, this result was extended to apply to a range of TBP concentrations.

The survey of the 200 Area air sampling program for the H.I. Divisions continued with the determination of half-lives from air sample decay data. An effort was also made to discover a possible underlying distribution governing the incidence of radioactive specks in air samples, but no known distribution has been found so far to fit the data satisfactorily.

An evaluation of data from routine spectrographic analyses of a 234-5 control laboratory standard was performed for the Analytical Section.

LIBRARY AND FILESPlant Library

A periodicals clerk was added to the staff of the Plant Library for the handling of all records on approximately 250 titles in the bound periodical file and about 360 current subscriptions. These records will include checking in the periodicals, following up missing issues, placing subscription renewals, routing the periodicals, and responsibility for binding the completed volumes.

Technical reference work in the Library proceeded on a routine basis. The following is a representative sampling from the many literature searches made:

1. Properties of CO₂ at high pressures.
2. Methods of refacing valve seats.
3. Layout of distribution systems for natural or manufactured gas.
4. Spectrochemical analysis of lubricating oils.
5. Phase studies of the system nitric oxide-water-nitric acid.
6. Corrosion of welds in mild steel tanks by NaOH solution.

During the month a number of important additions were made to the Library's files of bound periodicals. Included were Volumes 1 - 13 (1929 - 1948) of the "Collection of Czechoslovak Chemical Communications." These famous papers contain Jaroslav Heyrovsky's basic work on polarography and polarographic methods. Also included were substantial runs of "Helvetica Chimica Acta," the important journal of the Swiss Chemical Society, "The Philosophical Transactions of the Royal Society of London," and "The Annual Review of Physics."

Library statistics were as follows:

	<u>November</u>	<u>December</u>
Number of books on order received	106	178
Number of books fully cataloged	137	87
Number of bound periodicals processed but not fully cataloged	222	85
Pamphlets added to pamphlet file	11	29
Miscellaneous material received, processed, and routed (Included maps, photostats, patents, etc.)	12	17
Books and periodicals circulated	1520	1272
Unclassified reports processed	120	59
Unclassified reports circulated	185	154
Reference services rendered	171	703

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Metallurgy & Control Division

	<u>Main Library</u>	<u>W-10 Branch</u>	<u>Total</u>
Number of Books	5197	2054	7251
Number of bound periodicals	3796	100	3896

Classified Files

Following discussions with G. E. Security, the establishment of an Audit and Inventory Unit in connection with the 700 Area Classified Files was undertaken. This Unit is intended to implement present Security regulations requiring periodic plant-wide inventories of classified documents, prints, etc. It is anticipated that the Unit will maintain the desired inventory on a continuous and perpetual basis. An Instructions Letter authorizing the work of this Unit was issued as Section VI of Instructions Letter No. 135.

Effective December 19, 1949, the personnel of the Duplicating Unit was assigned to form the nucleus of a Central Report Publications Unit. To date this Unit has processed 21 formal Research and Development reports, with 7 more in progress. Two IBM proportional spacing electric typewriters, equipped with special technical keyboards and documentary type, have been ordered as a further step to improve the appearance of the reports issued.

Work statistics for the Classified Files were as follows:

	<u>November</u>	<u>December</u>
Documents routed	13,605	14,280
Documents issued	5,442	6,317
Reference services rendered	3,360	3,376
Reports abstracted	419	469
Registered packages prepared for offsite	246	380
Inter-area mail sent via transmittal	18,821	15,720

Files Assistance Unit statistics were as follows:

Ditto masters run	802	745
Mimeograph stencils run	1,420	1,452
Ditto master copies prepared	27,336	31,987
Mimeograph copies prepared	46,430	60,049
Volume of mail handled	19,197	20,896

INVENTIONS

All Metallurgy & 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

Metallurgy & Control Division

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covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Inventor

R. O. Engh

R. O. Engh

Item

Pipet for Remote Sampling

Electro Mechanical Differentiation for
Detection of Endpoint in Potentiometric
Titrations

Signed

T. W. Hauff

T. W. Hauff
Division Head

TWH:ncs

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MEDICAL DIVISIONS

DECEMBER 1949

Summary

The Medical Divisions' roll continued to decrease with a drop of 6 from 371 to 365.

A meeting of our four medical consultants was held in Chicago and attended by a representative of the Medical Divisions. The subject of pre-payment medical coverage for project employees was considered and the group recommended that consideration be given to offering a more comprehensive plan than the present Metropolitan coverage for General Electric employees.

Formal request was made to the local Atomic Energy Commission management group for approval for private practice of medicine in Richland to become effective some time in 1950. This request has not been acted upon to date.

Clinic physicians voted to continue the specialty group practice of medicine with no members of the present group excluded; in the event that private practice is approved.

Dr. Lih attended a meeting of the State Cancer Association in Seattle.

Industrial

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

Employee physical examinations increased by 17% to 1,945 due largely to a resumption of construction sub-contractor employment. Dispensary treatments showed no change. Three sub-major injuries were treated. Two of these involved General Electric Company employees.

Recommendations were made to the Atomic Energy Commission that sub-contractor employees be allowed to work in health areas, pending completion of the laboratory phase of the pre-employment examination.

The health topic for the month was "colds". The present status of the Antihistamines in treatment of colds was reviewed.

Sickness absenteeism increased from 1.39% to 1.75% due to seasonal increase in respiratory infections. Total absenteeism reflected this by rising from 2.07% to 2.34%.

MEDICAL DIVISIONS

DECEMBER 1949

Summary (continued)

Communities - Hospital and Clinics

Minor construction changes, involving nursing stations, central supply, etc. were started. The changes will allow operation of medicine, surgery and pediatrics from one central nursing station instead of three separate ones as at present and will result in increased economy.

A coroner's inquest into the death of one of our patients, due to an overdose of local anesthetic, returned a verdict of negligence on the part of the general hospital staff. Additional safety checks should make the possibility of a re-occurrence extremely small.

The average daily hospital census increased by 27% from 54.2 to 68.8 but was 31% less than the figure for a year ago. The increase was due to seasonal increase in illness plus the change in December to the more liberal hospital insurance plan for employees.

Clinic visits decreased by 4.6% to 5,629 which was 30.9% below the December, 1948 figure.

Dental visits decreased by 4% to 2,259.

Public Health

Chickenpox continued to be the most prevalent contagious disease.

Costs (November)

The net cost of operating the medical divisions (before assessments of workman's compensations) and costs to other divisions was \$105,216.00, an increase of \$3,158.00 but \$8,430.00 below the budget estimate. The increase was due to increased transferred charges plus an increased write-off of bad debts.

The net cost of the Richland Community Medical Program was \$22,910.00, an increase of \$1,980.00 and \$12,023.00 above the budget figure.

Kadlec Hospital loss was \$13,728.00, an increase of \$6,219.00 due to decreased hospital census.

The clinic loss was \$9,182.00, a decrease of \$4,239.00 over the previous month, due largely to increased revenue.

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MEDICAL DIVISIONS

DECEMBER 1949

Plant Medical Division

General

The total number of examinations increased to 1,945 as compared to 1,653 done in November. First aid treatments remained approximately the same - 5,325 as compared to 5,300 in November. There were 3 sub-major injuries treated; 2 General Electric and 1 sub-contractor.

The subject of the Industrial Scientific meeting dealt with the "Diseases of the Blood". A review of the program recently offered at the University of Oregon Medical School was given and followed by general discussion.

Treatment of one employee who has deposited in his body more than the maximum permissible amount of plutonium has been completed, pending survey of the urine specimen analyses. Zirconium citrate was used in an effort to increase the excretion rate.

As of December 31, 1949 the Industrial Medical Section discontinued doing Food Handlers examinations. It is planned that the employer will in the future bear the expense of these examinations. They will be done by clinic physicians at a fixed fee.

As of December 31, 1949 Kahn tests will be discontinued routinely on the annual examination. They will be done if the Kahn has ever been positive previously, on single employees, when indicated on history or findings and on the request of the employee. It is anticipated that adequate control will be maintained by this method and by doing them every 5 years. This is in accord with the most recent Public Health thinking. This will result in an annual savings of about \$5,000.00 for laboratory work charged to the Industrial Medical Division.

Submitted for Atomic Energy Commission approval during the month was the recommendation that construction employees be permitted to go to work in so-called "health areas" prior to completion of the medical pre-placement examination. The medical-legal aspects were carefully considered and it is believed that the possibility of litigation expense does not justify a certain expense of an estimated \$200,000.00 in time loss.

The Health Activities Committee met on December 15, 1949 and the health topic on "colds" was presented. Material on this subject was prepared for distribution throughout the plant. The facts in regard to the recent widespread use of the new antihistaminic drugs for cold prevention were also presented and explanation given as to why these drugs are not now available at first aid stations.

The absenteeism for sickness only was 1.75% as compared to 1.39% in November.

There were no findings attributable to radiation or chemical injury to any employee during the month.

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MEDICAL DIVISIONS

DECEMBER 1949

<u>Physical Examinations</u>	<u>Nov. 1949</u>	<u>Dec. 1949</u>	<u>Year to date</u>
Pre-employment (G.E.).....	84	69	1489
Annual.....	553	652	5877
Food Handlers.....	33	22	651
Sub-contractors.....	181	396	18778
Rechecks.....	110	135	2526
Interval Rechecks (Area).....	505	597	6575
Terminations & Transfers (G.E.).....	141	67	2303
Government.....	46	7	198
Total.....	1653	1945	38397

Clinical Laboratory Examinations

Government.....	139	256	1523
Pre-employment, terminations, transfers....	1641	2987	42605
Annual.....	3327	3771	35317
Rechecks (Area).....	2521	3091	33564
First Aid.....	17	15	472
Plant Visitors.....	0	0	4
Clinic.....	2859	2330	40240
Hospital.....	1787	2647	33363
Public Health (Inc. food handlers).....	86	59	3892
Total.....	12377	15156	190980

X-ray Examinations

Government.....	14	18	154
Pre-employment, terminations, transfers....	180	422	5737
Annual.....	564	664	6037
First Aid.....	61	65	2274
Clinic.....	191	154	3637
Hospital.....	83	128	2208
Public Health (Inc. food handlers).....	4	25	706
Total.....	1097	1476	20753

Electrocardiographs

Industrial.....	54	50	1444
Clinic.....	3	8	137
Hospital.....	12	13	272
Total.....	69	71	1853

Allergy

Skin Tests.....	11	10	436
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MEDICAL DIVISIONS

DECEMBER 1949

<u>First Aid Treatments</u>	<u>Nov. 1949</u>	<u>Dec. 1949</u>	<u>Year to date</u>
Occupational Treatments.....	372	396	13328
Occupational Retreatments.....	1274	1212	49638
Non-occupational Treatments.....	3654	3717	53190
Total.....	<u>5300</u>	<u>5325</u>	<u>116156</u>
 <u>Major Injuries</u>			
General Electric.....	0	0	9
Sub-contractors.....	<u>0</u>	<u>0</u>	<u>86</u>
Total.....	0	0	95
 <u>Sub-major Injuries</u>			
General Electric.....	3	2	45
Sub-contractors.....	<u>1</u>	<u>1</u>	<u>234</u>
Total.....	4	3	279
 <u>Absenteeism</u>			
Weekly employees, all causes.....	2.07%	2.34%	2.25%
Weekly employees, sickness only.....	1.39%	1.75%	1.52%
Total days lost by males due to sickness...	1038	1280	14250
Total days lost by females due to sickness...	580	744	9491
Total days lost due to sickness.....	1618	2024	23741
Investigation:			
Total calls requested.....	17	36	241
Total calls made.....	17	36	241
No. absent due to illness in family.....	0	0	2
No. not at home when call was made.....	0	0	22

Village Medical Division

General

Medical Divisions' roll decreased from 371 to 365. The average daily hospital census, including newborn, increased from 54.2 to 68.8 as compared to 100.7 a year ago.

Clinic visits decreased from 5901 to 5629 which is a 4.6% decrease as compared to the previous month, and 30.9% below a year ago. North Richland Medical Center accounted for 3.6% of the total.

MEDICAL DIVISIONS

DECEMBER 1949

General (Continued)

The net expense of the Richland Community medical program for November was \$22,910.00 as compared to \$20,930.00 for October. Breakdown is as follows:

Kadlec Hospital net expenses \$ 13,728.00

This is an increase of \$6,219.00 over October due primarily to a decrease in revenue resulting from a lower patient census in November.

Clinic net expenses \$ 9,182.00

This is a decrease of \$4,239.00 over October due primarily to increased revenue.

<u>Clinic Visits</u>	<u>Nov. 1949</u>	<u>Dec. 1949</u>	<u>Year to date</u>
Medical.....	1069	1026	16575
Pediatrics.....	627	681	8828
Well Babies.....	125	164	1972
Surgical.....	547	598	8913
Gynecological.....	519	402	6710
Obstetrics (new).....	65	50	1004
Obstetrics (recheck).....	834	742	10174
Venereal disease.....	24	55	1509
Ear, Nose & Throat.....	318	135	5059
Eye.....	274	183	3037
Visits handled by nurses.....	939	821	17096
Night clinic visits.....	560	772	9580
Total.....	5901	5629	90457
Average clinic visits per day.....	227	217	289

Source of Richland Clinic Visits

Richland.....	92.4%	90.8%
North Richland.....	2.8%	3.5%
Other.....	4.8%	5.7%

Home Visits (Pay Cases)

Doctors.....	216	391	2930
Nurses.....	150	210	3512
Total.....	366	601	6442

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MEDICAL DIVISIONS

DECEMBER 1949

<u>Kadlec Hospital</u>	<u>Nov. 1949</u>	<u>Dec. 1949</u>	<u>Year to date</u>
<u>Census</u>			
Admissions.....	308	437	5619
Discharges:			
Surgical.....	52	87	1146
Medical.....	50	91	1043
Obstetric & gynecologic.....	90	105	1429
Eye, Ear, Nose & Throat.....	25	21	632
Pediatrics: Children.....	15	40	462
Newborn.....	64	69	922
Total Discharges.....	296	413	5634
Patient Days.....	1626	2133	28903
Average Stay.....	5.2	4.9	5.1
Average Daily Census: Adults.....	43.1	57.1	
Infants.....	11.1	11.7	
Total Average Daily Census.....	54.2	68.8	79.1
Discharged against advice.....	0	1	21
One-day cases.....	34	49	923
Occupancy Percentage: Adults.....	48.4%	64.0%	56.4%
Infants.....	138.8%	150.0%	159.9%
Admission Source: Richland.....	81.4%	84.1%	76.7%
North Richland.....	8.7%	5.3%	8.8%
Other.....	9.9%	10.6%	14.5%
<u>Operations</u>			
Transfusions.....	47	47	580
Eye, Ear, Nose, Throat.....	22	13	526
Dental.....	2	3	20
Casts.....	12	14	234
Minors.....	45	60	746
Majors.....	34	56	618
<u>Pathological Slides</u>			
Hospital.....	0	0	747
<u>Vital Statistics</u>			
Deaths.....	1	2	60
Deliveries.....	66	72	918
Stillborn.....	0	0	8

MEDICAL DIVISIONS

DECEMBER 1949

	Nov. 1949	Dec. 1949	Year to date
<u>Physiotherapy Treatments</u>			
Clinic.....	119	88	1295
Hospital.....	126	104	852
Industrial: Plant.....	116	119	2522
Personal.....	18	33	588
Total.....	379	344	5257
 <u>Pharmacy</u>			
No. of prescriptions filled.....	2615	2779	36977
 <u>Patient Meals</u>			
Regulars.....	1946	2769	38453
Lights.....	55	137	1418
Softs.....	756	1075	13411
Surgical Liquids.....	54	77	1046
Tonsils & Adenoids.....	38	31	1198
Specials.....	764	780	11615
Liquids.....	128	117	2205
Total.....	3741	4986	69346
 <u>Cafeteria Meals</u>			
Noon.....	2041	1833	27295
Night.....	248	266	3518
Total.....	2289	2099	30813
 <u>Nursing Personnel</u>			
First aid nurses.....	32	31	
Clinic nurses.....	14	14	
Public Health nurses.....	11	11	
Hospital general nurses.....	59	56	
Aides and Orderlies.....	34	34	
Total.....	150	146	

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MEDICAL DIVISIONS

DECEMBER 1949

Public Health Division

General

Chickenpox is the outstanding communicable disease reported.

Nursing home visits increased approximately fifty percent due to the increase in morbidity.

A mental health film discussion series "Mental Health for Today" is being sponsored by the Richland Health Council.

Food handlers' classes are being conducted.

The Benton County Restaurant Ordinance went into effect January 1, 1950 with the operators complying with all requirements except in one instance.

Service of a consultant in school room lighting has been obtained by the Richland School District to advise on lighting requirements in class rooms.

<u>Administration</u>	<u>Nov. 1949</u>	<u>Dec. 1949</u>	<u>Year to date</u>
Newspaper Articles.....	15	6	199
Committee Meetings.....	5	2	75
Attendance.....	55	10	815
Staff Meetings.....	3	4	32
Lectures & Talks.....	0	3	46
Attendance.....	0	150	3321
Conferences.....	22	46	355
Attendance.....	100	125	1520
Radio Broadcasts.....	0	0	3

Immunizations

Cholera.....	0	0	3
Diphtheria.....	4	462	3019
Influenza.....	66	8	302
Rocky Mt. Spotted Fever.....	0	0	86
Smallpox.....	1	106	1106
Tetanus.....	0	50	279
Typhoid.....	2	1	38
Whooping Cough.....	0	0	4
Vollmer Patch Test.....	4	0	18
Total.....	77	627	4855

MEDICAL DIVISIONS

DECEMBER 1949

<u>Social Service</u>	<u>Nov. 1949</u>	<u>Dec. 1949</u>	<u>Year to date</u>
Cases carried over.....	83	81	1021
New cases admitted.....	19	19	240
Total.....	102	100	1261
Cases closed.....	21	100	319
Remaining case load.....	81	0	942
Sources of referral:			
Public Health.....	1	3	41
Doctors.....	7	4	98
Hospital.....	0	0	4
Interested Person.....	3	2	22
School.....	0	0	5
Personnel Office.....	1	0	2
Personal Application.....	3	4	25
Housing.....	0	0	2
Other Agency.....	3	2	23
Miscellaneous.....	1	3	18
Total.....	19	18	240
<u>Sanitation</u>			
Inspections made.....	117	149	2926
<u>Bacteriological Laboratory</u>			
Treated Water Samples.....	167	162	2249
Milk Samples (Inc. cream & ice cream).....	114	68	1401
Other bacteriological tests.....	157	188	2826
Total.....	438	418	6476
<u>Communicable Diseases</u>			
Amoebic Dysentery.....	0	0	3
Chickenpox.....	73	83	801
Erysipelas.....	1	0	1
German Measles.....	9	9	209
Gonorrhea.....	1	1	32
Impetigo.....	1	1	10
Influenza.....	0	0	9
Measles.....	0	6	381
Meningococcic Meningitis.....	0	0	3
Mumps.....	2	0	30
Pediculosis.....	0	0	12
Pinkeye.....	3	2	38
Poliomyelitis.....	1	1	13

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MEDICAL DIVISIONS

DECEMBER 1949

<u>Communicable Diseases (Continued)</u>	<u>Nov. 1949</u>	<u>Dec. 1949</u>	<u>Year to date</u>
Ringworm.....	6	4	35
Scabies.....	6	2	17
Scarlet Fever.....	4	2	19
Syphilis.....	0	0	81
Tuberculosis.....	0	1	10
Vincent's Infection.....	0	0	3
Whooping Cough.....	0	0	6
Total.....	<u>107</u>	<u>112</u>	<u>1713</u>
 Total No. Nursing Field Visits.....	 865	 1156	 13678

Dental Division

Dental visits decreased 4% over the previous month and approximately 22% over a year ago.

Patients treated.....	2355	2259	32525
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MEDICAL DIVISIONS

PERSONNEL SUMMARY

December 31, 1949

	TOTAL	1100 Area				3000 Area		Outlying Areas							
		Administration	Industrial	Clinic	Hospital	Public Health	Clinic	Public Health	100-H	100-B	100-D	100-F	200-E	200-W	300
Physicians	30	2	5.8	17.6		1	1.4		.3	.3	.3	.2	.2	.5	.4
Dentists	10			9			1								
Nurses	112	2	10	13	54	10	1	1	1	1	4	4	4	5	2
Anesthetists	3				3										
Nurse Aides	28		1	2	24	1									
Ord. & Amb. Drs.	6				6										
Tech.-Dent.Hyg.	1			1											
Tech.-Clin.Lab.	15				11.4				.4	.4	.4	.4	.4	.8	.8
Tech.-X-ray Lab.	4				4										
Tech.-Bact. Lab.	1				1										
Tech.-Phy.Ther.	2*				2										
Secretary	2	2													
Cler. Wk. Leader	2	1			1										
Steno-Typist	9	3	2		2	2									
Off. Mch. Oper.	3	2	1												
Telephone Oper.	4	4													
General Clerk	60	20	18	9	8	1			.5	.5	.5	.5	.5	.5	1
Pharmacist	4				4										
Dietitian	2				2										
Cook	5				5										
Kitchen Worker	10				10										
Soc. Serv. Coun.	3					3									
Sanitarian	3					3									
Health Educator	1					1									
Dental Asst.	8			7			1								
Janitor	17	1	4.9	2.8	7.6	.7									
Bacteriologist	2				2										
Records, Supv.	2	2													
Acctg. Supv.	3	3													
Admin. & Assts.	3	3													
Others	10	1		3	6										
Total	365	46	42.7	64.4	152.5	22.7	4.4	1	2.2	2.2	5.2	5.1	5.1	6.8	4.2

* 1-Physiotherapist
Working half-days only.

Number of employees on payroll:
Beginning of month 371
End of month 365
Net decrease 6

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HEALTH INSTRUMENT DIVISIONS

DECEMBER, 1949

Summary

The force increased by four. Three Class I Special Hazards Incidents were investigated. None of these involved significant radiation exposure.

Survey findings in the Operational Division, with some exceptions, were normal. The "special dissolving" resulted in greater contamination spread than had been anticipated. Air and vegetation samples collected by Development Division personnel defined the resulting pattern and magnitude of I^{131} deposition. Other routine monitoring samples were consistent with past findings.

In Bicassay, urine samples showed no confirmed positive results for plutonium but disclosed consistently high tritium oxide content in the samples from two individuals.

In biological monitoring, specimens collected during the month showed thyroid activities ranging from 1 to 300 $\mu\text{c}/\text{kg}$. - the latter represents about 80 times the maximum permissible limit of permanently maintained radioiodine concentration. This resulted from the high deposition of I^{131} in the special dissolving, and is a temporary condition.

Phase I of the Animal Farm is being accepted as opposed to Phase II, the sewage disposal plant, which does not meet operating specifications.

Health Instrument Divisions

HEALTH INSTRUMENT DIVISIONS

DECEMBER 1949

Organization

The composition and distribution of the force as of 12/30/49 was as follows:

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200-W</u>	<u>200-E</u>	<u>300</u>	<u>700</u>	<u>P.G.</u>	<u>Total</u>
Supervisors	1	1	3	2	9	3	14	6	0	39
Engineers	3	3	15	2	16	10	9	4	0	62
Clerical	0	0	1	1	1	2	3	4	0	12
Others	10	13	35	13	69	26	56	9	8	239
Total	14	17	54	18	95	41	82	23	8	352

This represents an increase of 37 people or 12 percent during the year. The increment is far below that projected because of

- (1) inability to hire key specialists in soil science and meteorology
- (2) delay in expected completion of laboratory facilities.

<u>Number of Employees on Payroll</u>	<u>December 1949</u>
Beginning of month	348
End of month	<u>352</u>
Net increase	4

Additions to the roll were one engineer, 6 laboratory assistants, one badge worker, 4 general clerks and a steno-typist. Removed from the roll were an assistant to the manager, a senior supervisor, 4 engineers, 2 laboratory assistants, and a general clerk.

General

Widespread contamination by I¹³¹ occurred as a result of a specially requested dissolving at short cooling time. The prediction that this could be accomplished once with negligible risk to personnel was supported by the experimental observations. However, the resultant activity came close enough to significant levels, and its distribution differed enough from simple meteorological predictions that the H.I. Divisions would resist a proposed repetition of the test.

Three Class I Special Hazards Incidents were investigated. Two involved failure to follow standard procedure, and the other failure to follow special work permit instructions. As the Special Hazards Committee is in no way a disciplinary body, it has been decided that such incidents will in future be reported

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Health Instrument Divisions

informally, with a record copy to the committee. This change will be incorporated in a revision to Special Hazards Bulletin #6.

The following trips were reported:

1. HM Parker - Radiological Society of North America, Cleveland, Ohio.
2. ML Mickelson and GH Whipple, Jr. - read papers at Reed College, Portland, Oregon.
3. FG Tabb and RF Foster, U. of Wash. Fisheries Dept., Seattle, Washington.
4. LK Bustad - Washington State College.

Four members of the Los Alamos organization visited for discussions on plutonium hazards. Dr. WD Urry was here in connection with the "green run".

During the period covered by this report, all persons in the Health Instrument Divisions engaged in work which might reasonably be expected to result in inventions, or discoveries, advised 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 advised 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.

<u>Inventor</u>	<u>Title</u>
None	None

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Annual Summary

Thirty seven Class I Special Hazards Incidents were investigated during the year. There was no formal Class II investigation.

In 1949, a record total of 1,708,976 pencil readings was made. Included were 22 significant readings between 100 and 280 mr. None was confirmed by a badge result. Thirty three readings above 280 mr were reported, again with no badge confirmation. These spurious readings are within statistical limits of coincidental pairing of defective pencils, and the total is in fact much lower than in previous years. Sixty three pairs of readings were lost. In those cases, investigation indicated no probability of significant exposure.

Badge processing fell to a total of 240,805 for operating personnel, and 63,388 in construction. The two-week schedule was maintained except in the 300 Area, which stayed on a weekly basis. The expected regulations of the National Committee on Radiation Protection have not yet appeared. The "legality" of the Hanford method, which is technically superior as well as more economical, will be tested when contrary recommendations are published.

For operations personnel, there were 2,836 badge readings between 100 and 500 mrep. Of these, 1,999 occurred in the weekly scheduled 300 Area. Twenty-eight readings above 500 mr were recorded. Of these, 16 were presumed due to defective film and one to heat. Four were traced to X-radiation which modified the calibration to give low residual readings. Four were legitimately produced in work on stack fans, and were confirmed by pencil readings. The remaining three occurred in the 300 Area and may have been true overexposures, properly subject to Class II investigation. The gamma-ray component was in each case less than 100 mr, and there is an uncertainty in the beta calibration in such cases. Informal investigation showed that in one case the badge was trapped in the straightener for two hours, and in another case the badge itself was contaminated. The third case was presumably real, although others on the same work were not overexposed. One hundred sixty-nine readings were lost.

For construction forces, 209 readings between 100 and 500 mrep in two weeks were recorded. Although none of these is an overexposure, the readings are higher than should occur with subcontractor forces. Nineteen readings exceeded 500 mrep. Of these, 18 were ascribed to X-radiation, and one to defective film. Fifty six readings were lost.

There were 446,409 alpha hand scores and 491,827 beta hand scores recorded. About one in 665 of the alpha, and about one in 985 of the beta scores were high. No attempt at reduction was recorded in 10% of the high alpha scores, and 19% of the high beta scores. Although all these figures show improvement from 1948, the educational process in this field is still incomplete.

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Thyroid checks for accumulation of I^{131} fell again to 2,599. Significant readings occurred only in connection with the special test.

The record of progress on the radioactive particle problem, the major concern of 1948, is disappointing. It must be accepted that the easy work in this field has been done, and significant further advances will be slow. At this review period, the major problems are plutonium hazards, emphasized by the Chalk River deliberations, the tritium hazard, waste disposal, and the perennial question of the necessary amount of improvement in the uranium metal fabrication.

To the best knowledge of the H.I. Divisions, another year has been completed without significant general body exposure or local external exposure to any individual. No serious case of ingestion or percutaneous transmission of active material is known. As in 1948, the divisions cannot be sure of the position with respect to inhalation of relatively insoluble active material. The consensus is that no unwarranted hazards have been encountered in this field.

Service work of the operational division, as estimated by total surveys again increased by 40%. The survey personnel was forced to increase 24%. This was offset by a reduction of 17% in personnel meter force for an unchanged work total, which was more economically consolidated.

In the Control and Development division, 16,736 laboratory samples mainly of water and vegetation were analyzed. There were 2,836 observations of active particle data. Instrument readings for air monitoring and the like totaled 44,600. Urine analyses totaled 16,206. Of those for plutonium, only one was proved positive. It was demonstrated that this resulted from a prior exposure at Los Alamos, and a useful check on W.Langham's elimination formula at a long-time interval was obtained.

The Biology division has accumulated the basic research staff during the year. Actual experimentation was strictly limited by successive postponements of the building program. At the year end, the experimental animal farm was completed and stocked. The main biology laboratory was about half finished.

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OPERATIONAL DIVISION100 AreasGeneral Statistics

	<u>November</u>					<u>December</u>					<u>1949</u>
	<u>B</u>	<u>D</u>	<u>F</u>	<u>H</u>	<u>Total</u>	<u>B</u>	<u>D</u>	<u>F</u>	<u>H</u>	<u>Total</u>	<u>Total</u>
Special Work Permits	714	610	797	589	2710	784	622	893	486	2785	25,762
Routine & Special Surveys	456	393	442	411	1702	518	397	474	360	1749	19,511
107 Effluent Surveys	92	90	89	142	413	91	95	96	153	435	3,656
Air Monitoring Samples	84	106	101	70	361	108	85	100	132	425	4,952

Retention Basin Effluent

The activity of the water leaving the retention basin was as follows:

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>
Power Level (MW)	275	305	275	275
Average beta dosage-rate (mrep/hr)	1.2	1.0	1.1	0.7
Average gamma dosage-rate (mr/hr)	1.9	2.4	2.3	1.4
Average total dosage-rate (mrep/hr)	3.1	3.4	3.4	2.1
Average integrated dose in 24 hrs. (mrep)	74	82	82	50
Maximum integrated dose in 24 hrs. (mrep)	96	101	96	58
Maximum integrated dose in 24 hrs. (mrep)	1949	108	132	77

100-B AreaPile and Associated Buildings

High level airborne contamination was discovered in the storage area, transfer area, monitor room and water sample rooms after several high hand counts were reported. The condition was corrected when the discharge area drain relief riser valve leading to the process sewer was closed, when a new water seal was installed in the #4 storage area drain, and water seals installed in the drains in the water sample rooms. All air samples showed the usual short half-lives.

Special material testing equipment was installed in the "B" Experimental Hole and gas samples collected from the system at intervals. No appreciable hazard was encountered.

The lead shielding for P.C. tube #0453 was not replaced after a shutdown and

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a beam of about 110 mr/hr was observed at the end of the tube as a result. Two grooved steel pieces were added to the front dummy train for this tube to prevent a recurrence.

The radiation beam at the top, far edge of the pile was unchanged at about 10 mr/hr (gamma).

P-10 Operations - 108 Building

Two damaged furnace tube caps were salvaged without undue exposure to personnel. Previously caps were discarded, but the incidence of loss increased to such a point that salvage was attempted.

Air samples drawn through calcium chloride at the building fresh air intake duct all showed no evidence of tritium oxide present. Calcium chloride samples placed 150 feet S.E. of the building also showed no contamination, but samples placed 150 feet N.E. of the building showed evidence of tritium oxide present. These were exploratory tests, not yet quantitative.

100-D Area

Four instances of personnel contamination occurred during maintenance work in various portions of the building. In all cases, the contaminated skin areas were successfully cleaned.

High background counts on the Five-fold checker led to the discovery of contaminated air in the work area corridor. The source was traced to the "A" sample room drain and the condition was corrected when the door to the sample room was closed. Several high hand and shoe counts were recorded by personnel working in the sample room and a piece of filter paper suspended in the room for twenty minutes, free from touching any object, became contaminated to a maximum of 7,300 c/m.

Restrainer brackets were installed on the top, far side of the pile without contamination spread. The area was cleaned prior to the start of the job and control measures proved adequate.

Survey of express car (Milwaukee #1000) returned by the consignee with empty special request casks disclosed six pairs of contaminated cotton gloves, a contaminated mattress and a contaminated newspaper. An incomplete survey of the floor of the car revealed six spots of contamination present.

The radiation beam at the top, far edge of the pile showed a gamma intensity of about 2.3 roentgens per hour.

100-H Area

Evidence of a gas leak from the pile through porous or faulty concrete was

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evident in the minus 12 foot near reactor development room. Increase in this activity was noticed during regeneration of the gas in the purification drier rooms at which time the pile gas was under pressure.

Active gas was still prevalent on the top, the front face, and the far side of the pile. Trapped gas in the third safety headers on top of the pile showed dosage-rates up to 1.1 r/hr at 2 inches. All high airborne contamination samples were traced to back-up from the 1608 building sump through floor drains, or to the effluent line. Traces of airborne contamination were still observed around the Maintenance and Electrical shops in the form of vapor from the retention basin. Radiographs of air filter samples showed no particulate contamination.

Neutron surveys in the outer rod room showed no significant fluxes. Further investigation of the vertical T-seams at the #1 Experimental Level using fast neutron film and a proton recoil counter substantiated the presence of fast neutron beams from the seams, although in neither survey were the flux densities as great as previously indicated with a Neut and moderated BF₃ counter.

100-F Area

Maintenance work to the "A" regulating rod and the installation of a restraining bracket at the top, far edge of the pile were completed without undue personnel exposure. Extensive decontamination was done on top of the pile prior to work at that location.

Manipulation of samples in the "B" Experimental Hole was attempted at the same time the restraining brackets were being welded into place on the top, far side of the pile. Rags used to swab the manipulating rod were ignited by a spark from the welding. All personnel in the vicinity of the minor fire were wearing assault masks and an air sample being taken within a few feet of the fire showed 2.2×10^{-5} $\mu\text{c/liter}$ for beta emitters. No personnel contamination was detected.

Three cases of hand contamination were reported following work in the discharge area and were easily reduced. The gamma dosage-rate in the radiation beam at the top, far edge of the pile was about 4 roentgens per hour.

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200 Areas, T and B Plants

General Statistics

	<u>November</u>			<u>December</u>			<u>1949</u>
	<u>T</u>	<u>B</u>	<u>Total</u>	<u>T</u>	<u>B</u>	<u>Total</u>	<u>Total</u>
Special Work Permits	273	356	629	287	380	667	8,727
Routine & Special Surveys	440	521	961	493	472	965	12,245
Air Monitoring Samples	555	874	1429	572	670	1242	14,632
Thyroid Checks	167	94	261	122	77	199	2,599

Canyon Buildings

In the T Plant, monitoring assistance was required while taking four routine samples and one special sample. Personnel contamination was reported on two persons after leaving the crane cab and follow-up surveys of the cab revealed general floor and equipment contamination, most likely tracked in from the craneway. The crane way was reported generally contaminated and mops used in its decontamination showed surface dosage-rates up to 920 mrep/hr. When routine air samples showed excessively high fission product concentrations, it was discovered that a process run had been jettied into 17-1 tank from 16-3 tank with the cell blocks inadvertently off 17 L. The maximum air sample during this period showed 10^{-5} μ c f.p./L and 5.5×10^{-10} μ g Pu/cc. Twenty-six of the canyon air samples jammed the beta counters with a maximum surface dosage-rate of 170 mrep/hr being reported, which represented about 10^{-4} μ c f.p./liter.

In the B plant, all Canyon Extended Special Work Permits were voided for the major part of the month due to excessive contamination on the deck. A great deal of decontamination work was done and it was possible to reinstate the Extended Special Work Permits. No personnel contamination occurred. The 17-3 sampler was repaired and the 18-4 agitator removed, welded and replaced without undue exposure to personnel. An "A" frame and adapter ring were found contaminated in the 272 B Maintenance Shop and follow-up surveys of personnel and equipment used showed the only contamination to be on the gloves worn. A "Regulated Flat Car" will be used for this equipment in the future to prevent recurrence.

Control Laboratories

In the T Plant, a total of 187 items, not regulated with respect to handling, was found contaminated on surveys by H.I. and Technical personnel. Two instances of product skin contamination and three of fission product contamination were reported and successfully decontaminated. Fifty-seven contaminated floor locations were reported and cleaned. A potentially serious minor

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injury occurred when a laceration of the palmar surfaces of the hand resulted from glass tubing manipulations with a rubber stopper. There was no contamination detected in the wound.

In the B Plant, a total of 192 items, not regulated with respect to handling, was found contaminated by Technical and H. I. personnel. Three cases of product and three cases of fission product hand contamination were reported and successfully cleaned. Forty-one contaminated floor locations were reported and cleaned. High level protective clothing contamination resulted when a laboratorian tipped over a cone holder. No overexposure or skin contamination resulted.

Concentration Buildings

In the T Plant, routine cell surveys revealed an estimated total of 225 μg Pu with 120 μg reported on a flange in a pan under the E balcony. No contamination spread occurred on five inspection jobs and three maintenance repair jobs.

In the B Plant, with G.E. Cocoon placed on all tanks equipped with a shaft, the following table, based on 165 air samples, shows the estimated Pu discharge from roof vents.

	<u>November</u>	<u>December</u>
	<u>μg Pu/24 hours</u>	<u>μg Pu/24 hours</u>
A-cell vent	2.6	13.0
B-cell vent	3.8	7.9
D-cell vent	10.5	13.5

The cause of a tenfold increase during the period from December 1 to December 9, was not determined despite extensive, joint efforts of "S" and H. I. Divisions.

Stack Area

In the T Plant, a maximum dosage-rate of 500 mr/hr at 2 inches from the sand filter inlet duct, was reported the day following the special dissolving. (December 3, 1949). At month end the reading at this point was back to the normal level of about 30 mr/hr.

Waste Disposal Areas

In the T Plant, two 100 gallon metal waste samples were taken from the 103-U tank without incident. Sandblasting of well car casks was continued when

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weather permitted. Attempts to obtain a 400 pound sludge sample from the 101-U tank failed when difficulty was experienced with the sampling equipment. Some high level contamination spread occurred but was confined to the equipment and paper surrounding the equipment. Decontamination is in progress.

In the B Plant, "S" Division routine surveys of the waste areas led to the eventual discovery of what appeared to be mouse feces in the vicinity of the 153-C diversion box. Uncorrected surface dosage-rates up to 7 rep/hr were reported. Samples were obtained for radio-chemical analysis by the H. I. Development Division and traps were set out in an effort to capture small animals in the vicinity by the H. I. Biology Division.

Special Dissolving

In the T Plant, a special run was dissolved the night December 2-3, 1949. Air samples taken on the roofs of the 271-T and 224-T Buildings during this period showed a maximum concentration of 1.3×10^{-6} $\mu\text{c f.p./L}$ and below 1×10^{-11} $\mu\text{g Pu/cc}$. No increase in activity was found in building air filter samples. Ground contamination was general and numerous positive shoe counts were obtained with a maximum of 78 registers in 24 seconds reported. An announcement was prepared by "S" Division and H. I. to explain to personnel in the 200 Areas the nature, extent and reason for this increase in contamination.

Plant Laundry

Seventeen of the 102 spot and continuous air samples taken showed positive results with a maximum of 9×10^{-5} $\mu\text{g U/cc}$ obtained. The maximum fission product concentration indicated was 1.4×10^{-7} $\mu\text{c/liter}$.

General

Three thyroid checks all for H. I. Divisions personnel showed iodine concentrations in the thyroid gland approximately equal to or slightly below the recommended tolerance levels. These were all obtained in connection with the Special Dissolving. All other thyroid checks were below the warning level.

The Isolation Building

<u>General Statistics</u>	<u>November</u>	<u>December</u>	<u>1949 Total</u>
Special Work Permits	20	30	354
Routine & Special Surveys	321	311	3,614
Air Monitoring Samples	486	408	5,196

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Air Sample Results

<u>Location</u>	<u>No. Taken</u>	<u>No. above</u>		<u>Maximum</u>	<u>Remarks</u>
		<u>10^{-11}</u>	<u>$\mu\text{g Pu/cc}$</u>		
Operating Cells	206	5		8×10^{-10}	SWP work, cell 3.
Control Laboratory	169	1		4.3×10^{-11}	Changing RC Can, Room 31.
Development Laboratory	16	0		--	
Duct	13	--		2.3×10^{-12}	

Operating Cells

Fifteen items, not regulated with respect to handling, were found contaminated by H. I. personnel. Two were above 20,000 d/m and one was above 80,000 d/m. Four instances of skin contamination occurred and were cleaned and two floor spots were found in cell 3 and cleaned. Some contamination spread occurred during maintenance work in cell 4 but was easily cleaned. The maximum levels of gamma radiation encountered were 48 mr/hr on PR containers; 2 mr/hr at the process hoods and 7 mr/hr on SC.

Control Laboratories

A total of 52 items, not regulated with respect to handling, was found contaminated on surveys by H.I. and Technical personnel. All were below 20,000 d/m. Two cases of product skin contamination were reported and successfully cleaned. Considerable floor contamination occurred in room 33 when 7 cartons of packaged contaminated waste ready for burial were returned and opened. About $4 \mu\text{g Pu}$ was spilled on the floor in room 36 when a standard disc was dropped. In addition, three other contaminated floor locations were found in laboratory rooms.

Technical Development Laboratories

During the reassembly of a modified hood in room 42, protective clothing contamination on one person led to the discovery of about $3 \mu\text{g Pu}$ on the floor. No further spread of contamination was found and air samples taken during subsequent cleanup all showed below $10^{-11} \mu\text{g Pu/cc}$.

234-5 Building

<u>General Statistics</u>	<u>November</u>	<u>December</u>	<u>1949 Total</u>
Special Work Permits	165	152	1,088
Routine & Special Surveys	349	339	2,094
Air Monitoring Samples	1,086	1,118	8,878

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Air Sample Results

<u>Location</u>	<u>No. Taken</u>	<u>No. above 10⁻¹² μg Pu/cc</u>	<u>Maximum μg Pu/cc</u>	<u>Remarks</u>
234 OP.	256	101	3×10^{-8}	Waste removal, room 228.
235 OP.	173	17	7.9×10^{-11}	Panel removed, hood 21.
Technical	256	53	8.9×10^{-11}	Sample vial dropped, room 134.
General	287	20	7×10^{-12}	Laundry room.
Ducts after pri- mary filter	63	39	1.9×10^{-10}	234 Section.
26 inch Vacuum line	21	16	3.8×10^{-11}	
10 inch Vacuum line	18	--	--	
Stack breech	44	1	2.7×10^{-12}	

234 Building - Operating Section

Nineteen incidents of contamination spread, attributed to process leaks, maintenance work or process operations, occurred within the process rooms and an associated 6 floor spots were found in adjacent corridors and rooms. Seventeen major maintenance jobs involving work in Zone IV or on process lines were completed with contamination confined to work areas and protective apparel. The incident previously reported (November) as due to leaking flanges was later attributed to a faulty valve. Three cases of skin contamination were reported and successfully cleaned.

235 Building - Operating Section

Two incidents of contamination spread occurred within process rooms, both attributed to rubber glove changes. Two cases of skin contamination were reported and successfully cleaned. A cleaning hood was installed directly behind hood 21 without incident. This installation should result in a reduction in hand exposure since employment of an inert gas and powdered abrasive replaced a manual operation.

Technical Section

A total of 188 items, not regulated with respect to handling, was found contaminated and outside of hoods; 11 items read above 20,000 d/m and 5 were above 40,000 d/m. There were 28 contaminated floor locations reported in laboratory rooms and 13 contaminated floor locations reported in adjacent corridors. It is noteworthy to report no cases of skin contamination. An

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incident of contamination spread occurred during sample inventory, when a vial was dropped on the floor. About 10 μg of Pu were involved and some personnel protective clothing contamination occurred.

General Building

Five items, not regulated with respect to handling, were found contaminated; 2 were above 20,000 d/m and 1 above 40,000 d/m. The latter was a box of waste ready for the burial ground but stored in room 170 and showed approximately 50 μg Pu on the outside.

The 300 Area

<u>General Statistics</u>	<u>November</u>	<u>December</u>	<u>1949 Total</u>
Special Work Permits	146	166	2,344
Routine & Special Surveys	154	236	2,146
Air Monitoring Samples	177	178	1,774

Metal Fabrication Plant

Sixty-three of seventy-seven air samples taken were above $5 \times 10^{-5} \mu\text{g U/cc}$ as follows:

<u>Location</u>	<u>Number Taken</u>	<u>Number Above $5 \times 10^{-5} \mu\text{g U/cc}$</u>	<u>Maximum Conc. $\mu\text{g U/cc}$</u>	<u>Conditions</u>
<u>313 Building</u>				
Canning & Dipping	3	0	--	--
Chip Recovery	17	16	3.3×10^{-3}	Operator's position at press.
Machining	9	5	8.1×10^{-5}	Roller turner lathes West of operators.
<u>314 Building</u>				
Melt Plant	5	5	2.6×10^{-3}	Sweeping in progress.
Main Room	40	35	4.4×10^{-4}	Routine operations, central sample.
Outside	3	2	1.6×10^{-4}	12 feet from burning table.

Air sample results indicate the major source of air contamination to building 314 is the transfer of oxide from trays removed from the outgassing furnace to drums. Other significant sources of air contamination are loading of these trays, screening free metal from the open hearth burning table, and cleaning

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out of crucibles in the burnout room. A resurvey of the chip recovery operation served to verify time limits previously imposed.

Burial Ground

Another spontaneous fire occurred (see November report) in the burial pit. Full protective clothing including chemox masks was worn by fire fighters and no contamination of equipment or personnel was found. Investigation revealed that rags used in cleaning the chip recovery press were the probable cause. Procedures for the disposal of these rags were changed in order to eliminate recurrence of such fires.

Technical Building

Product contamination was found inside duct work removed during the installation of hood filters in rooms 96 and 98. The duct work was sealed as removed and no spread of contamination was found. An air sample result of 2×10^{-11} $\mu\text{g Pu/cc}$ was obtained during this work. One instance of high level contamination occurred in room 98 due to a spill of fission products. Decontamination was successful. Continuous monitoring was provided during removal of dry waste in room 19 and during the opening of a sample in room 57. There were 18 high hand counts recorded for the period.

Cold Semi-Works Building

Some contamination spread resulted when an agitator and shaft were brought into the canyon from the underground storage area, without release. Readings up to 20,000 d/m were reported on the equipment; 4,000 d/m on gloves, but no skin contamination was found. Approximately 1,396 pounds of uranium have been discharged to the waste ponds. The total uranium in the 300 N crib was increased from about 96 to 157 pounds during the month. A total of six high hand scores were recorded and all successfully reduced.

Hand Score Summary

A total of 38,496 alpha and 38,401 beta hand scores were reported. About 0.1% of the alpha and about 0.16% of the beta scores were high. No attempted reduction was recorded for 7 high alpha scores, all in the 300 Area.

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PERSONNEL METERS

Pencils

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>E&N</u> <u>200</u>	<u>200-W</u>	<u>300</u>	<u>Total</u>	<u>1949 Total</u>
Pencils read	9,200	10,226	14,782	10,490	17,235	26,958	35,563	124,454	1,708,976
Single readings (100 to 280 mr)	13	5	22	13	19	53	36	161	2,693
Paired readings (100 to 280 mr)	0	0	1	0	0	0	1	2	22
Single readings (Over 280 mr)	16	20	26	23	28	67	71	251	3,434
Paired readings (Over 280 mr)	0	0	0	0	0	0	0	0	33
Paired readings Lost	0	1	0	0	1	2	0	4	63

Neither of the two significant pencil results were confirmed by the badge result. Investigation of lost readings showed no possibility of an overexposure.

Badge Resume, Construction Areas

	<u>190-D</u>	<u>Total</u>	<u>1949 Total</u>
Badges Processed	202	202	63,388
No. of Readings: (100 to 500 mrep)	0	0	209
No. of Readings: (Over 500 mrep)	0	0	19
Lost Readings:	0	0	56

Badges

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200-E</u>	<u>R.R.T.</u> <u>200-N</u>	<u>200-W</u>	<u>300</u>	<u>Total</u>	<u>1949</u> <u>Total</u>
Badges Processed	2336	1822	2374	1872	1956	501	3338	7227	21,426	240,805
Number readings (100 to 500 mrep)	5	3	4	10	25	1	36	149	233	2,836
Number readings (Over 500 mrep)	0	0	0	0	0	0	0	1	1	28
Lost Readings	2	1	1	1	1	0	0	2	8	169

The investigation of the result over 500 mrep showed no possibility of radiation exposure. Pencil results were zero and examination of the film showed it was not a radiation darkening.

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Lost readings were accounted for as follows:

Badges lost in area	5
Light struck	2
Overdeveloped	1

Investigation of lost readings showed no possibility of an overexposure.

Total badges processed 1949, Operations	240,805
Construction	<u>63,388</u>
Total,	304,193

In addition, 2,285 items of non-routine nature were processed bringing the 1949 total to 27,981.

On December 5, 1949, the Personnel Meters Section moved to the new Personnel Meter Building. The central accumulation of all permanent records now stored in various parts of the Plant will be completed at an early date.

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CONTROL AND DEVELOPMENT DIVISION

Site Survey

The number of routine samples processed this month was curtailed to allow full coverage of the "green run." The activities found in various water sources were consistent with past findings.

A series of small very active pieces of material (up to 3 rep/hour at a distance of about 3 inches with a C.P.) was found by the Survey Group near the "C" diversion box in the 200 East Area. Analyses of these particles indicated the presence of rare earths and strontium but no ruthenium. The particles are about the size of weed seeds or mouse feces. Further analysis and investigation is being carried out by the Biology Division, the Survey Group, and Site Survey.

On the night of December 2, 1949, one ton of metal with 16 days cooling was dissolved in the 200 West Area. At the time of the run Site Survey measured I131 air concentrations as high as 3×10^{-6} $\mu\text{c/liter}$ averaged over a 24 hour period in the areas and 3.4×10^{-8} $\mu\text{c/liter}$ over a four day period at Benton City. The cloud apparently blew back over the area the day after the run since scrubbers started on the 3rd at Benton City and Richland showed more activity than the one operating during the run. Pans of water at various locations near the areas picked up as much as 90 μc of I131 on a one square foot area of water.

Thirteen hundred and sixty-five vegetation samples were taken in an area extending from Klamath Falls to Kettle Falls and from Lewiston, Idaho to Portland, Oregon. The most active sample from the area within the 200 West fence contained 28 $\mu\text{c/kg}$. Activity exceeding 10 $\mu\text{c/kg}$ was not uncommon inside the separation areas and along route 3 between the areas. The pattern of deposition is elongated in a northeast and southwest direction. The average activity in the Horse Heaven Hills near Kiona was on the order of 1.0 $\mu\text{c/kg}$ with a maximum of 4.3 $\mu\text{c/kg}$ at Kiona. Wahluke Slope deposition was in the range of 0.1 - 0.5 $\mu\text{c/kg}$ with two small isolated areas on the order of 0.5 - 1.0 $\mu\text{c/kg}$. A long narrow strip of deposition between 0.1 and 0.5 $\mu\text{c/kg}$ included the communities of Goldendale, Arlington, Plymouth, Walla Walla, Odessa and Moses Lake. A complete report on the data from this run will be issued.

For comparison, the permissible permanent concentration on vegetation is taken as 0.01 $\mu\text{c/kg}$. Where the concentration is not maintained, the initial permissible limit is at least 12.5 times higher, and is more probably about 50 times higher. The observed deposition is higher than was anticipated. The direct hazard to man depends on the atmospheric concentration, and this remained at acceptable levels.

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DECLASSIFIEDGeology

Water samples from wells 361-B-1, 361-B-9, and 241-T-361 had essentially the same activity levels that have been maintained for the last several months. The alpha activity in the 303 wells outside the 300 Area was below the significant level for the first time since the initial sampling in December 1948. A soil sample from the test hole #2 in the 200 East Area 5-6 tile field was heavily contaminated with both fission products and plutonium. Concentration factors in this soil sample were 2700 for the fission products, and 1900 for plutonium. Fission product activity in the sediments 20 feet beneath the 241-T second cycle crib increased from 50 milli-microcuries per kilograms to 350 milli-microcuries per kilogram due to jetting from the 112-T tank to the crib.

The water level in 5 wells all within the 200 West Area ground water mound have shown a sharp rise. The greatest change was in well 244-T-4, which has risen 3 5 feet in the last 3 months.

Meteorology

Forecasting:

	<u>December, 1949</u>		<u>Year, 1949</u>	
	<u>Number Made</u>	<u>Reliability</u>	<u>Number Made</u>	<u>Reliability</u>
Production Forecasts	93	80.5%	1094	84.9%
24-hour forecasts	62	81.5%	730	82.7%
Special forecasts	19	78.9%	134	84.3%

The weather for December was featured by above normal temperatures, much below normal precipitation, and much above normal wind speeds.

Temperatures averaged 35.1 with a lowest reading of 10 on the 19th and a high of 60 on the 29th. Total precipitation was only 0.16 inch including only 0.7 inch of snow. Normal precipitation is about 0.86 inch of precipitation. Wind speeds were much above average, the highest speeds being recorded on the 17th, 25th, and 27th. The period from the 23rd to the 29th was one of almost continuous wind with a dust storm occurring on the 27th.

Bioassay

There were 511 urine samples analyzed for plutonium during the month. The blank samples and samples averaged 0.04 d/m with a 92% yield on the spiked samples. Three resamples were necessitated by high values during the month. Three

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groups of samples were reanalyzed because of low yields. Three resamples from previous high results were all less than 0.33 d/m.

One hundred and eighteen urine samples were analyzed for uranium on the fluorophotometer. The maximum individual result was 36 $\mu\text{g/liter}$.

Thirty-three urine samples were analyzed for tritium oxide at the 222-U laboratory. Of these samples seven were greater than the detectable limit of 1.2 $\mu\text{c/liter}$. Four successive samples from one man from the beginning to the end of the month gave readings of 1.7, 4.5, 10, and 4.8 $\mu\text{c/liter}$. Two other samples from one man about two weeks apart gave 4.4 and 4.8 $\mu\text{c/liter}$. The maximum permissible permanently maintained concentration is currently said to be 10 $\mu\text{c/liter}$.

Methods Development

The series of 12 urine samples spiked with Pu and analyzed in the Bioassay laboratory were measured by the use of alpha film this month. They indicated about 85% efficiency as compared to the alpha counters. The overall efficiency of the analytical and film techniques was about 67% indicating on the order of 0.33 tracks per minute in the emulsion for each dis/min in the sample. The background of the film was about 0.01 tracks per minute over the exposed area of 38.5 square millimeters, after a one week exposure.

At the request of the Survey Group sections of CWS filter paper believed to have low level plutonium activity as specks were exposed to NTA slides for 210 hours. Examination under the microscope indicated numerous points of alpha tracks ranging from complete fogging to groups of 50 - 100 tracks from a given center. A second film which caused darkening of X-Ray film at points was exposed with no appreciable centers of alpha activity present.

The effect of iron in the plating bath on the electrodeposition of plutonium was investigated in more detail. An apparent loss in yield occurs when more than 0.6 mg of iron is added. The average yield of 25 electrodeposited discs without iron added was 89.0% with a standard deviation of 3.9%. A successful electropolishing method for stainless steel discs has been developed and the effect of depositing on this disc is being investigated.

A standard sample of C-14, used for a half-life determination at Argonne, was sent by Dr. C. R. Hennig. Analyses of this sample by present techniques, using the correction factors for the counters as measured in this laboratory, check Dr. Hennig's value within 8.2%.

A successful operation of the resin columns intended for the separation of fission products from urine was reported. Good separations were obtained, but the volume of eluant was too great for routine operations.

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An attempt was made to obtain an evolution curve from the 200 West Area stack during the "green run" of December 2-3, 1949. A good xenon curve was obtained but the I^{131} curve was poor due to unexpected removal of the iodine in the sample line from the 50 foot level. Data was also obtained on the solubility of xenon in olive oil and the efficiency of small hand scrubbers used by Site Survey. An analysis of the condensate drained from the sampling line indicated that about 50% of the iodine was present as free iodine, about 50% as iodide and 1% as iodate.

Work was initiated on investigations of procedures for extracting plutonium from the CWS filter paper used by the Operational Division for air measurements. Preliminary results obtained by placing a known amount of plutonium nitrate solution on a filter paper, drying, digesting in aluminum nitrate solution, and extracting with ethyl ether indicate a possible 90% yield. Further work to evaluate the effect of radon daughters and the chemical form of the plutonium is planned.

Methods Control

A summary of counting time on the low background Alpha Counters indicates that about 60 - 65 hours of counting time are available per day with eight sets in operation and one held as spare for maintenance. Consistent yields of 80 - 90% on the extraction of plutonium from water using nitric acid as the salting out agent and the stirrer pump for mixing have been obtained. More equipment is to be ordered so that a large number of routine evaluation tests may be made on the procedure.

A summation of the number of samples analyzed in December is as follows:

<u>Laboratory</u>	
Vegetation	1,775
Water	645
Solids	190
Fluorophotometer	134
Tritium Oxide	67
Miscellaneous	40
Total	<u>2,851</u>

<u>Counting Room</u>	
Beta Measurements	4,452
Alpha Measurements	2,278
Control Points	2,119
Decay Curve Points	517
Absorption Curves	17
Total	<u>9,383</u>

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The following summaries represent annual summations of routine work loads in the various groups:

Bioassay Group - 1949

Total urine analyses for plutonium.....	6,062
blank analyses.....	728
spike analyses.....	1,317
Total urine for fission product.....	4,089
blank analyses.....	692
spike analyses.....	676
Fluorophotometer analyses.....	<u>2,182</u>
Total number analyses.....	15,746

Counting Room - 222-U - 1949

Total alpha counts for samples.....	37,327
Total beta counts for samples.....	54,133
Total counts taken for control alpha sets.....	13,044
Total counts taken for control beta sets.....	<u>5,630</u>
Total number counts taken.....	111,134

Site Survey Group - 1949

Total Water Samples Taken.....	7,026
Drinking water.....	3,612
Test Wells.....	677
River water.....	1,252
Waste water.....	1,169
Rain water.....	316
Air filter samples.....	2,006
Detachable chambers (paired readings).....	7,243
Handpump air samples.....	58
Film packets.....	1,711
Vegetation On-Area.....	6,276
Vegetation Off-Area.....	1,551
Solids.....	1,529
Mobile instrument surveys.....	31
Portable instrument surveys.....	314
Miscellaneous - Special surveys.....	<u>30</u>
Total number Surveys and Samples.....	27,775

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Physics

Some more experimental work was required with the extrapolation chamber to obtain data for some corrections to the calculations on the dose rates from uranium and thorium. Measurements with the high pressure methane chamber indicate considerable difficulty in obtaining saturation conditions for recoil protons when the pressure is 300 psi.

The training for the personnel neutron monitoring program is well underway. Four girls were trained now and four more should be ready by the end of the first week in January.

Several Eastman NTA slides were exposed to the 100-H pile on the X-level and showed the existence of a beam one centimeter or less wide with a peak intensity of about 60 n/sec/cm² at the #4 T-seam.

Industrial Hygiene

A considerable portion of the time this month was used in study of non radioactive problems in conjunction with the Safety and Medical Divisions. This included studies of the use of nickel carbonyl in the 234-5 Building, ammonia exposures arising from the operation of two Ozalid machines in Reproduction Section, and the exposures to solvent vapors which would be encountered in the painting of the interior of a long pipe. The size distribution of the particulate material resulting from the machining of graphite was studied for Project Engineering.

Work was continued on the study of atmospheric contamination of the 314 Building including some restudy of particle size where previous sampling was inadequate.

Instrument Development

An alpha scintillation probe was placed in experimental service in Building 234 after laboratory tests had shown its stability and uniformity of response to be acceptable. As submitted for field test, 18% geometry with negligible background and no microphony could be obtained using a standard poppy altered for the purpose. The greatest foreseeable difficulty with this probe is to obtain a light tight screen which transmits a good fraction of the incident alpha particles. Techniques for making such screens are being investigated.

A pressure ion chamber for monitoring highly active sheep thyroids has been obtained. This detector in combination with a stable D.C. amplifier is intended for use at activity levels which block G.M. counters. In addition, a fast quench circuit has been built to extend the useful range of the Geiger counter instrument. These steps will provide a fairly wide range of activities with which to obtain cross calibrations between the two detectors.

Health Instrument Divisions

Experimental pulse analyzer runs were made to determine the characteristics and difficulties with the present instrument. These were preliminary tests and may be taken only as a rough indication of performance. Curium, Americium and Plutonium, each present to the order of 1000 d/m were separated easily. However, there was evidence of instability in amplifier gain. This effect, that of chamber gas and pressure, and means for increasing resolution (best obtained so far was about 0.1 KeV at half maximum counting rate) still needs to be investigated.

Work on a portable BF₃ neutron counter has been started. Most of the work has been concerned with a suitable "subminiature" amplifier, pulse equalizer and counting rate meter. With a medium sized (3/4" x 3 1/2") BF₃ tube, 1 nv gives about 3 c/m, with no significant background.

A proportional counting system intended for counting alpha and beta particles simultaneously has been designed and tested in bread-board form. Separate alpha and beta amplifiers are used, but an alpha pulse is made to block the beta amplifier output until the multiple pulses produced have died out. A dead time of about 15 micro sec is required. This system sacrifices high speed operation to cancel the effect of overdriving the beta amplifier and does not give spurious pulses when the blocking gate is actuated.

Calibrations

The routine calibrations were:

<u>RADIUM CALIBRATIONS</u>	<u>Number of Calibrations</u>		
	<u>November</u>	<u>December</u>	<u>1949 Total</u>
Fixed Instruments:			
Gamma	340	394	4,902
Portable Instruments:			
Alpha	251	251	2,385
Beta	484	503	4,959
Gamma (Radium)	896	775	13,258
X-Ray Scanning	10	6	309
Neutron	7	43	378
Total	1,648	1,578	21,289
Personnel Meters:			
Beta	315	665	8,818
Gamma (Radium)	8,122	8,235	101,357
X-Ray	6,251	6,258	72,067
Neutron	--	--	13
Total	14,688	15,158	182,255
GRAND TOTAL.	16,676	17,130	208,446

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Health Instrument Divisions

BIOLOGY DIVISION

Analyses Group

1. Plutonium Analyses in Tissue

It has been found that the efficiency of the lanthanum fluoride method for extracting plutonium decreases with increasing quantities of calcium and phosphorous. A bismuth phosphate coprecipitation followed by TTA extraction is presently giving yields up to 70% using spiked rat ash.

2. Adsorption of Plutonium on Surfaces

Apparatus and methods being used by biochemistry in their work on plutonium adsorption through the gut have been assayed for residual activities. Losses inherent have not been found significant.

3. Analyses of Active Particles

Other work necessitated a delay in the active particle analyses, and no progress was made in this problem other than a preliminary TTA analysis for plutonium.

4. Assistance to Zoology is being continued and included the preparation of radiiodine solutions and of a thyroid phantom.

Aquatic Biology Group

1. Effect of Pile Effluent on Aquatic Life

Chinook salmon eggs of the monitoring tests which hatched early this month in water containing 5 percent effluent that had been refrigerated, showed no increase in mortality, while eggs held in a like concentration of effluent which was not refrigerated (about 1°C higher) showed mortalities significantly above normal. In other groups, mortalities among the young fry has been normal except in the highest concentration of effluent water (10 percent).

Specific activity of the young salmon fry is from 12 to 25 times that of the water in which they are being held.

2. Biological Chains

The amount of activity in trout being held in a 5 percent concentration of area effluent water decreased during the month due to colder water temperatures. The group which is also being fed food containing algae from the 107 basin has nearly 5 times as much activity as the groups not receiving the active food.

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The addition of 15 p.p.m. of disodium phosphate to pile effluent water has consistently reduced the amount of activity accumulated in small carp by about 50 percent. At the end of 49 days, the amount of activity accumulated in the fish was not appreciably different than that accumulated at the end of the first 24 hours.

Trout which have been fed the carp reared in the effluent containing the disodium phosphate are slightly less active than those feeding on carp reared in straight effluent water. Trout held in river water containing 15 p.p.m. disodium phosphate have accumulated slightly less activity from radioactive carp than have trout held in straight river water. This test is being somewhat handicapped by the slow feeding rate of the trout resulting from the cold temperature of the water.

3. Radiobiological Survey of the Columbia River

An abnormally high level of the water in the Columbia River prevented sampling of the bottom organisms during the first half of the month and permitted only restricted collecting during the latter half.

Although the activity of the water in the river remains at about the same level as last month (2×10^{-3} beta $\mu\text{c/liter}$ at Hanford), the activity of the aquatic organisms with the exception of the plankton continues to decline with the water temperature. In most forms, including the fish, the specific activity was only about half that found during November.

Biochemistry Group

1. Performing blood chemistry procedures for the animal farm is continuing on a routine basis until the unit can be turned over to the Zoology group.

2. Deposition in Lungs of Active Particles

Specific activities in lungs of rabbits exposed to stack gases for periods from 50 - 70 hours were about 0.7 beta $\mu\text{c/kg}$ wet tissue.

3. Gastro-intestinal absorption of plutonium

The experiment to determine whether any differences exist in the rate of gastro-intestinal absorption and in the rate of deposition of Pu^{239} in male and female rats was started on December 5, 1949. Five male and five female rats are presently receiving daily doses of 400 lambda of a plutonium (+ 4) nitrate solution at a pH of 2.0. One gavage outfit consisting of a 1 ml. syringe, a graduated lambda pipette and a rubber catheter, all coated with silicone to prevent adsorption of the plutonium solution, is used for all 10 rats and also to deliver 400 lambda of the plutonium solution on several counting plates which are dried overnight. The number of d/m found on these plates is assumed to be equal to the number of d/m of plutonium administered to the rats. An average

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daily dose of 9,000 d/m has been counted on the plates. Four rats, two males, and two females are receiving oral daily doses of 400 lambda of water using a similar gavage outfit; these will serve as controls. It is planned to continue the daily administration of plutonium for an additional 10 weeks. The carcasses will then be analyzed for the presence of plutonium.

Botany Group

1. Separations Area Control Plot

A summary report of findings in Russian thistle growing in the 200-East R-3 Danger Zone is being prepared. Additional data on soil contamination is being collected and germination rates of seeds collected from contaminated plants are being observed.

2. Agricultural Field Station

Soil samples from the treatment area averaged 0.02 beta $\mu\text{c}/\text{kg}$. All trees infested with Western Virus have been pulled and piled for burning.

3. Translocation of Radioelements in Plants

Work, preliminary to a study of the absorption and translocation of iodine by plant tops, has shown that almost all of the beta activity on artemisia tri-dentata (sage) from 200 West Area can be extracted by cold alkali and sodium metabisulfite. Contamination of plants by airborne radioiodine appears to be caused by adsorption rather than translocation.

4. Peas and wheat plants placed inside and outside the 614 buildings in 200-E and 200-W on December 2 showed increased activity above those placed in 100-F, 100-B, and 3000 Areas.

	<u>Average beta activities ($\mu\text{c}/\text{kg}$)</u>			
	<u>200-West</u>		<u>200-East</u>	<u>Others</u>
	<u>Outside</u>	<u>Inside</u>	<u>Outside</u>	
Peas	1.0	0.1	2.1	0.01
Wheat tops	1.7	0.1	2.2	0.01

Physiology Group

1. In service to other groups, photomicrographs and radioautographs have been prepared for botany.

2. Like biochemistry, this group is operating the blood morphology unit for the animal farm until a satisfactory routine procedure is set up.

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Zoology Group

1. Toxicology of I^{131}

Arrangements have been made for final acceptance of Phase I of the Experimental Animal farm.. Phase II has been inspected and cannot be accepted until numerous deficiencies are corrected. Preliminary tests of filtered effluent by the Public Health Section of the Medical Division indicate it is unsafe to empty into the river at the present time due to high chlorine demand and settleable solids.

The training, breeding, and conditioning of the sheep are progressing satisfactorily.

2. Biological Monitoring

Emphasis was placed upon the collection of birds and mammals from arbitrary locations on and near the reservation during the month. A total of 68 animals were assayed for I^{131} in the thyroids. For birds and mammals the maximum activity was about 300 beta $\mu\text{c}/\text{kg}$, with respective averages of 87 and 160 $\mu\text{c}/\text{kg}$ thyroid. These animals were taken from the north slope of Rattlesnake Butte, including Benson and Snively Ranches and Rattlesnake Springs. Lowest activities on the reservation were found in animals collected from the 300 Area. In the region from Benton City to Prosser, birds sampled showed an average of 12 $\mu\text{c}/\text{kg}$. Mallard ducks from LaCrosse and Kennewick had less than 0.5 μc deposited/kg thyroid. Maximum activities observed in specimens collected occurred during the week of December 18.

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GENERAL ACCOUNTING DIVISION

DECEMBER 1949

GENERAL

Considerable work was done in preparing Unit Costs reports for Patrol, 200 Area and 700 Area Laundries, Janitor Service and Purchasing and Stores Divisions.

Revisions were made in the Research and Development Budget Summary per agreements reached with divisional and AEC representatives. Also, fiscal year 1950 mid-year budget estimates were revised for certain divisions and distributed on December 15, 1949.

During the month of December, additional Employees and Payroll Statistics were prepared in chart form for information of Management.

In connection with preparation of the Weekly Payroll, routines have been revised which have resulted in completion of the Payroll each week approximately four hours earlier than in the past, without additional cost. The effect of this change is reflected in increased employee efficiency within the Division due to the alleviation of the "pressure" in meeting the deadline for the payoff each week.

Hanford Works and Nucleonics Department Financial Statements for the month of November were completed and distributed on December 16, and December 20, 1949 respectively. General Divisions Operating Reports covering November operating costs were completed on December 15, 1949.

Advances from AEC were increased from \$3,000,000 at the beginning of the month to \$4,000,000 at the month end. Items comprising the balance in the advance account as of December 31 compared with those of November 30 are detailed below:

	<u>November 30</u>	<u>December 31</u>
Cash in Bank - Contract Accounts	\$ 2,416,198	\$ 3,199,012
Salary Accounts	55,000	55,000
Travel Advance Funds	50,000	50,000
Unliquidated portion of Advances prior to June 1, 1949	2,117	-0-
Advances to Subcontractors	300,000	300,000
Cash in Transit	176,685	395,983
Total	<u>\$ 3,000,000</u>	<u>\$ 4,000,000</u>

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<u>Employees and Payroll</u>	<u>Total</u>	<u>Monthly Payroll</u>	<u>Weekly Payroll</u>
Employees on Payroll at beginning of month	7 434	1 606	5 528
Additions and transfers in	51	9	42
Removals and transfers out	(84)	(6)	(73)
Transfers from Weekly to Monthly Payroll	--	9	(9)
Transfers from Monthly to Weekly Payroll	--	(1)	1
Employees on Payroll at end of month	<u>7 401</u>	<u>1 617</u>	<u>5 564</u>

<u>Employees on Payroll at end of month</u>	<u>November</u>	<u>December</u>
Manufacturing	3 213	3 158
Design and Construction	520	529
Community	735	734
Other	2 966	2 947
Total	<u>7 434</u>	<u>7 401</u>

<u>Overtime Payments</u>		
Weekly Paid Employees	\$25 456	\$32 164
Monthly Paid Employees (1)	3 541	1 623
Total	<u>\$28 997</u>	<u>\$33 787</u>

<u>Number of changes in Salary Rates and Job Classifications</u>		
	647	773

<u>Gross Amount of Payroll</u>		
Manufacturing	\$1 241 688	\$1 332 785
Design and Construction	189 221	204 356
Community	242 960	267 450
Other	1 003 732	1 084 689
Total	<u>\$2 677 601(2)</u>	<u>\$2 889 280(3)</u>

<u>Annual Going Rate of Payroll</u>		
Manufacturing	\$14 223 230	\$14 155 486
Design and Construction	2 222 245	2 259 890
Community	2 876 202	2 875 378
Other	11 692 271	11 694 017
Total	<u>\$31 013 948</u>	<u>\$30 984 771</u>

<u>Average Salary Rate Per Hour (4)</u>	<u>November</u>			<u>December</u>		
	<u>Weekly</u>	<u>Monthly</u>	<u>Total</u>	<u>Weekly</u>	<u>Monthly</u>	<u>Total</u>
Manufacturing	\$2.000	\$2.635	\$2.107	\$1.999	\$2.650	\$2.109
Design and Construction	1.569	2.657	2.030	1.563	2.701	2.041
Community	1.755	2.311	1.866	1.762	2.323	1.873
Other	1.634	2.509	1.835	1.638	2.526	1.847
Total	<u>\$1.810</u>	<u>\$2.554</u>	<u>\$1.963</u>	<u>\$1.812</u>	<u>\$2.574</u>	<u>\$1.975</u>

- (1) Payments cover period from 16th of previous month to 15th of current month
 (2) Includes 4 weeks in case of weekly paid employees
 (3) Includes 5 weeks in case of weekly paid employees. December gross payroll also includes \$1 595.00 adjustment retroactive to April 11, 1949, resulting from Agreement between F.A.M.T.C. and General Electric Company
 (4) Includes shift differential and isolation pay. Excludes overtime premiums, commissions, Suggestion Awards, etc

General Accounting Division

Employee Plans

Pension Plan

	November	December
Number participating at beginning of month	6 569	6 567
New participants and transfers in	55	41
Removals and transfers out	(57)	(46)
Number participating at end of month	<u>6 567</u>	<u>6 562</u>
% of eligible employees participating	91.9%	91.8%
Employees Retired	December	Total to Date
Number	2	108
Aggregate Annual Pensions Including Supplemental Payments	\$873	\$25 680*
Amounts contributed by employees retired	\$451	9 751
*Amount before commutation of pensions in those cases of employees who received lump sum settlement		

Group Life Insurance

	November	December
Number participating at beginning of month	5 789	5 821
New participants and transfers in	102	76
Cancellations	(9)	(25)
Removals and transfers out	(61)	(64)
Number participating at end of month	<u>5 821</u>	<u>5 803</u>
% of eligible employees participating	79.9%	78.3%

Group Life Insurance Claims

	December	Total to Date
Number of claims	2	35
Amount of insurance	\$11 655	\$177 617

Group Disability Insurance (1)

Personal Coverage

	November	December
Number participating at beginning of month	6 465	6 446
New participants and transfers in	87	-0-
Cancellations	(0)	(6 421)
Removals and transfers out	(106)	-0-
Number participating at end of month	<u>6 446</u>	<u>25</u>
% of eligible employees participating	88.1%	---

Dependent Coverage

Number participating at beginning of month	4 085	4 084
Additions and transfers in	42	-0-
Cancellations	(0)	(4 076)
Removals and transfers out	(47)	-0-
Number participating at end of month	<u>4 084</u>	<u>8</u>

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General Accounting Division

Group Disability Insurance (1) (continued)

<u>Claims (2)</u>	<u>November</u>	<u>December</u>
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	72	45
Daily Hospital Expense Benefits	73	67
Special Hospital Services	81	76
Surgical Operations Benefits	68	52
Dependent Benefits Paid		
Daily Hospital Expense Benefits	84	62
Special Hospital Services	91	69
Amount of claims paid by insurance company:		
Employee Benefits	\$10 489	\$7 418
Dependent Benefits	2 915	2 521
Total	<u>\$13 404</u>	<u>\$9 939</u>

<u>Premiums</u>		
Personal - Employee Portion	\$11 297	\$ 75
- Company Portion	6 563	4
- Total	<u>\$17 860</u>	<u>\$ 79</u>
Dependent- Employee Portion	3 789	12
- Company Portion	322	1
- Total	<u>4 111</u>	<u>13</u>
Grand Total	<u>\$21 971</u>	<u>\$ 92</u>

- (1) Group Disability Insurance Plan was discontinued November 30, 1949. December statistics cover employees who were participating in the Group Disability Insurance Plan but who were not actively at work on December 1, 1949, and therefore were not eligible to participate in the new Group Health Insurance Plan.
- (2) Statistics are for claims paid during the month and do not necessarily indicate that claims were incurred during the month.

Group Health Insurance (1)

<u>Personal Coverage</u>	<u>December</u>
Number participating at beginning of month	6 855
New participants and transfers in	139
Cancellations	(7)
Removals and transfers out	(35)
Number participating at end of month	<u>6 942</u>
% of eligible employees participating	94.1%

<u>Dependent Coverage</u>	
Number participating at beginning of month	4 573
Additions and transfers in	71
Cancellations	(11)
Removals and transfers out	(15)
Number participating at end of month	<u>4 618</u>

General Accounting Division

Group Health Insurance (1) (continued)

<u>Claims (3)</u>	<u>December</u>
Number of claims paid by insurance company:	
Employee Benefits	
Weekly Sickness and Accident	1
Daily Hospital Expense Benefits	2
Special Hospital Services	2
Surgical Operations Benefits	2
Dependent Benefits Paid	
Daily Hospital Expense Benefits	2
Special Hospital Services	4
Surgical Operation Benefits	4
Amount of claims paid by insurance company:	
Employee Benefits	\$109
Dependent Benefits	120
Total	<u>\$229</u>

Premiums

Personal - Employee Portion	\$14 925
- Company Portion	7 192 (2)
- Total	<u>\$22 117</u>
Dependent- Employee Portion	12 931
- Company Portion	10 298 (2)
- Total	<u>\$23 229</u>
Grand Total	<u>\$45 346</u>

- (1) Group Health Insurance Plan was made effective December 1, 1949
 (2) Gross company cost before dividend. Increase in company cost of Group Health Insurance over Group Disability Insurance is due to increased benefits under the new Group Health Insurance Plan.
 (3) Statistics cover only claims paid and not all claims incurred in December

Vacation Plan

Number of employees granted permission to defer one week of their 1949 vacation to 1950

	<u>December</u>			<u>Total to Date</u>		
	<u>Weekly</u>	<u>Monthly</u>	<u>Total</u>	<u>Weekly</u>	<u>Monthly</u>	<u>Total</u>
Manufacturing	6	7	13	25	24	49
Design and Construction	0	8	8	5	14	19
Community	1	3	4	4	6	10
Technical	1	13	14	11	22	33
Health Instrument	0	0	0	0	1	1
Employee & Community Relations	0	1	1	2	4	6
Plant Security & Services	1	1	2	8	6	14
Purchasing and Stores	1	1	2	2	1	3
Medical	1	0	1	1	0	1
General Accounting	0	1	1	4	2	6
Total	<u>11</u>	<u>35</u>	<u>46</u>	<u>62</u>	<u>80</u>	<u>142</u>

Annuity Certificates (For duPont Service)

Number issued

<u>December</u>	<u>Total to Date</u>
0	66

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General Accounting Division

Employee Plans (continued)

<u>U. S. Savings Bonds</u>	<u>Mfg.</u>	<u>L&C</u>	<u>Comm'y</u>	<u>Other</u>	<u>Total</u>
Number participating at beginning of month	1 755	276	345	1 455	3 831
New Authorizations	28	2	3	33	66
Voluntary Cancellations	(52)	(7)	(6)	(35)	(100)
Removals and Transfers out	(7)	(33)	(3)	(15)	(58)
Transfers In	<u>31</u>	<u>1</u>	<u>—</u>	<u>1</u>	<u>33</u>
Number participating at month end	<u>1 755</u>	<u>239</u>	<u>339</u>	<u>1 430</u>	<u>3 772</u>
% participating	54.9%	45.3%	46.2%	48.9%	51.0%
Bonds issued					
Maturity value	\$134 300	\$ 19 275	\$24 050	\$103 425	\$291 050
Number	2 284	307	433	1 802	4 826
Refunds issued	47	6	4	42	99
Revisions in authorizations	58	12	15	75	160
Annual going rate of deductions					
G.E. Employees Savings and Stock Bonus Plan	\$747 999	\$ 98 426	\$132 770	\$578 093	\$1 557 288
General Electric Savings Plan	217 825	32 881	37 623	137 420	425 749
Total	<u>\$965 824</u>	<u>\$131 307</u>	<u>\$170 393</u>	<u>\$715 513</u>	<u>\$1 983 037</u>

Suggestion Awards

	<u>December</u>	<u>Total to Date</u>
Number of awards	23	458
Total amount of awards	\$440	\$6 590

Employee Sales Plan

	<u>December</u>		
	<u>Total</u>	<u>Major Appliances</u>	<u>Traffic Appliances</u>
Certificates issued	713	59	654
Certificates voided	31	3	28

Salary Checks Deposited

	<u>November</u>		<u>December</u>	
	<u>Weekly</u>	<u>Monthly</u>	<u>Weekly</u>	<u>Monthly</u>
Richland Branch-Seattle First National Bank	796	829	775	816
North Richland Area Office-Seattle First National Bank	12	7	11	7
Richland Branch-National Bank of Commerce	57	36	61	52
Out of state banks (Schenectady staff)	-	3	-	3
Total	<u>865*</u>	<u>875</u>	<u>847**</u>	<u>878</u>

Special Absence Allowance Requests

	<u>November</u>	<u>December</u>
Number submitted to Pension Board	9	4

Absenteeism (Weekly Paid Employees)

	<u>1948</u>	<u>1949</u>
January 1 to December 25	2.22%	2.35%

* Week ended 11-27-49

** Week ended 12-25-49

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General Accounting Division

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING

	<u>November</u>	<u>December</u>
Number of Employees		
On Payroll at beginning of month	133	179
Removals and transfers out	(8)	(7)
Additions and transfers in	4	1
Number at end of month	<u>179</u>	<u>173</u>
Net increase (or decrease) during month	(4)	(6)
% of terminations and transfers out	4.4%	3.9%
% of absenteeism	3.19%	3.97%

Changes by division in number of Accounting Division employees during December were as follows:

General Accounting - General: No Change

Accounts Payable: No Change

Cost: Increase of one employee

One transfer from General Accounts

General Accounts: Decrease of one employee

One transfer to Cost

Plant Accounting: Decrease of two employees

Two terminations

Weekly Payroll: Decrease of six employees (made possible due to completion of retroactive adjustment)

Three transfers to Construction Accounting

Two transfers to Monthly Payroll

One removal due to illness

Monthly Payroll: Increase of two employees

Two transfers from Weekly Payroll

Special Assignments: Decrease of three employees

One transfer to General Administrative

Two transfers to Budgets

Budgets: Increase of three employees

One new hire

Two transfers from Special Assignments

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PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING (continued)

<u>Injuries</u>	<u>November</u>	<u>December</u>
Major	0	0
Sub-major	0	0
Minor	0	2

Number of Accounting Division employees as of December 31, 1949 were as follows:

	<u>Number of Employees</u>		
	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Total</u>
General Accounting - General	3	3	6
Accounts Payable	15	1	16
Cost	9	1	10
General Accounting	14	1	15
Plant Accounting	22	3	25
Weekly Payroll	72	5	77
Monthly Payroll	16	1	17
Special Assignments	1	3	4
Budgets	2	1	3
Total	<u>154</u>	<u>19</u>	<u>173</u>

Non-Exempt employees may be summarized as follows:

<u>Classification</u>	<u>Number as of</u>	
	<u>11-30-49</u>	<u>12-31-49</u>
Accounting A	1	1
Accounting B	2	2
Accounting C	-	1
Accounting D	6	6
Business Graduate	4	4
Clerical Working Leader	6	7
Cost Clerk A	1	1
Cost Clerk B	1	1
Cost Clerk D	2	2
Field Clerk C	3	3
General Clerk A	26	24
General Clerk B	47	44
General Clerk C	18	19
General Clerk D	12	10
General Clerk E	1	1
Office Machine Operator B	15	15
Secretary B	1	1
Steno-Typist A	2	2
Steno-Typist B	4	3
Steno-Typist C	3	3
Steno-Typist D	4	4
Total	<u>159</u>	<u>154</u>

Open employment requests as of December 31, 1949, were as follows:

Business Graduate	9
General Clerk C	1
	<u>10</u>

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General Accounting Divisions

	<u>November</u>	<u>December</u>
<u>Accounts Payable *</u>		
Balance at Beginning of Month	\$ 63 731	\$ 55 079
Vouchers Entered	751 717	869 921
Cash Disbursements	760 756 Dr.	850 933 Dr.
Cash Receipts	235	252
Miscellaneous Credits	152	-0-
Balance at end of month	<u>\$ 55 079</u>	<u>\$ 74 319</u>
Number of Vouchers Entered	1 768	1 829
Number of Checks Issued	1 175	1 314
Number of Freight Bills Paid	257	261
Amount of Freight Bills Paid	\$ 4 743	\$ 5 172
Number of Purchase Orders Received	1 066	1 041
Value of Purchase Orders Received	\$ 166 333	\$ 138 036
<u>Cash Disbursements</u>		
Community	\$ 51 171	\$ 26 636
Design & Construction	1 433 527	1 106 937
General	2 830 349	2 994 731
Manufacturing	708 275	602 881
Total	<u>\$5 028 322</u>	<u>\$4 731 185</u>
Material and Freight	\$1 060 730	\$ 798 787
Lump Sum and Unit Price Subcontracts	535 949	415 659
CPFF Subcontracts		
Labor	489 081	370 260
Others	245 762	296 323
Payrolls (Net)	1 910 604	2 035 726
Payroll Taxes	240 480	242 119
U. S. Savings Bonds	158 990	108 071
General & Administrative Expenses	200 000	200 000
Miscellaneous	186 726	264 240
Total	<u>\$5 028 322</u>	<u>\$4 731 185</u>
<u>Cash Receipts</u>		
Community	\$ 86 745	\$ 87 785
Design & Construction	214 590	26 864
General	4 462 864	5 242 543
Manufacturing	13 248	12 662
Total	<u>\$4 777 447</u>	<u>\$5 369 854</u>

* General Divisions Only.

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General Accounting Divisions

	<u>November</u>	<u>December</u>
<u>Detail of Cash Receipts</u>		
Hospital	\$ 45 649	\$ 43 501
Scrap Sales	9 400	10 499
Miscellaneous Accounts Receivable	4 290	-2 210
Educational Program	635	519
Employee Sales	836	744
Refunds from Vendors	3 482	2 362
Rents	89 091	97 002
Telephone	8 154	9 624
Income From Special Funds	-0-	-0-
Bus Fares	10 593	10 802
Sales of Plant & Equipment	-0-	26
Refund of Advances by Subcontractors	180	-0-
Advances from A.E.C.	4 402 510	5 176 635
Equipment Sales to Great Lakes Carbon Co.	200 000	-0-
All Other	2 627	15 880
	<u>\$4 777 447</u>	<u>\$5 369 854</u>
<u>Number of Checks Written</u>		
Community	236	163
Design & Construction	243	154
General	1 175	1 314
Manufacturing	517	550
Total	<u>2 171</u>	<u>2 181</u>
<u>Bank Balances at End of Month</u>		
Chemical Bank & Trust Company - New York		
Contract Account	\$ 766 234	\$1 137 297
Seattle First National Bank - Richland		
Contract Account	1 409 410	1 891 233
U. S. Savings Bond Account	64 425	168 789
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	29 891
Travel Advance Account	24 629	30 015
Seattle First National Bank - Seattle		
Escrow Account	59 806	59 806
Salary Account No. 3	5 000	5 000
National Bank of Commerce - Richland		
Contract Account - Manufacturing	191 725	97 119
Contract Account - Community	48 829	73 334
	<u>\$2 620 058</u>	<u>\$3 512 514</u>
<u>Travel Advances and Expense Accounts</u>		
Cash Advance balance at end of month*	\$ 13 151	\$ 8 645
Cash Advance balance outstanding over one month*	405	801
Traveling and Living Expenses:		
Paid Employees	15 293	19 898
Billed to Government	14 734	18 595
Balance in Variation Account at end of month	1 872 Dr.	3 174 Dr.

* General Divisions Only.

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General Accounting Divisions

	<u>November</u>	<u>December</u>
<u>Hospital Accounting</u>		
Accounts Receivable		
Balance at Beginning of Month	\$ 129 823	\$ 132 463
Invoices Issued	75 134	85 785
Refunds	623	12 008
Cash Receipts	(46 085)	(43 500)
Payroll Deductions	(25 876)	(24 786)
Bad Debts Written Off	<u>(1 156)</u>	<u>(538)</u>
Balance at End of Month	<u>\$ 132 463</u>	<u>\$ 161 432</u>

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General Accounting Divisions

ACCOUNTS PAYABLE

The number of Accounts Payable vouchers and Freight Bills entered in December increased slightly over November. This continues the steady increase which started in August, 1949. The number of new purchase orders received decreased from 1,066 in November to 1,041 in December.

Vouchers on hand at the end of December requiring additional supporting data before they could be considered complete decreased from 1,030 in November to 997 in December.

The number of open purchase orders applying to General Divisions decreased from 1,725 in November to 1,111 in December.

The number of vouchers over 60 days old increased from 18 as of November 30 to 31 as of December 31. This increase is due to the overall increase in activity in this section during the past few months.

The audit of old completed purchase orders is continuing. Approximately 2,000 orders were completed during December, leaving 4,500 yet to be audited dated prior to March, 1949.

COST

General Divisions Operating Reports were issued on December 15, 1949. The detailed report of Research and Development Costs was issued on December 22, 1949.

Items in Stores inventories which were received during 1947 and which were not yet billed by the Government were tabulated and referred to the AEC cost section for action.

Considerable work was done in connection with Unit Cost figures, and summaries of unit costs were prepared for Patrol, 200 Area and 700 Area Laundries, Janitor Services and for the Purchasing and Stores Divisions.

Units, upon which costs are applied are arrived at by study of functions of various divisions as follows:

- Patrol - Average cost per patrolman and number of Posts served.
- Laundries - Number of pieces processed.
- Janitors - 700 Area - Number of sq. ft. of floor space serviced.
All other areas - Cost per employees performing service.
- Purchasing - Number of orders placed and average value per order,
divided into Essential Materials and Other.
- Stores - Rate of Inventory turnover and number of store orders issued.

Assessment studies were again reviewed and revised. Assessments to Design and Construction, Community and Medical Divisions were carefully analyzed in order to eliminate charges for fixed expenses to Design and Construction and to charge Community and Medical only for such charges as they would normally receive if they were part of a normal community.

General Accounting Divisions

BUDGETARY CONTROL

During the forepart of the month revisions were made to fiscal year 1950 mid-year budget estimates. Revisions were made in budgets of the following divisions:

General Administrative
Accountability Division
Plant Security & Services Division
Technical Division
(Incorporating 101 Shops)
Medical Division

Revised detail budgets of the above divisions together with consolidations and summaries were distributed to individuals concerned on December 15, 1949.

A few minor revisions were made in the General Division Construction Budgets and distributed on December 12, 1949 for submission to AEC.

The Balance Sheet Budget for Fiscal Year 1950 together with supporting detailed schedules was completed and distributed on December 16, 1949.

During the latter part of the month revisions were made in the Research and Development Budget Summary per agreements reached with divisional representatives and AEC. Details are in the process of being revised for distribution.

In order to have monthly budget amounts available for the General Division Cost Section for monthly operating reports, work was begun on breaking down quarterly estimates to monthly estimates.

GENERAL ACCOUNTS

General Ledger Trial Balances were received from all Accounting Divisions on December 15. Hanford Works Financial Statements were completed on December 16 and Consolidated Financial Statements on December 20.

Advances from AEC were increased from \$3,000,000 at the beginning of the month to \$4,000,000 at the month end. During December the unbilled balance of \$2,117 of the Advance Prior to June 1, 1949, were liquidated.

General Ledger has assumed the responsibility for journalization of stores withdrawals from Construction MS Accounts from the Cost Section to further consolidate duties.

Considerable time has been devoted to completing a study on Inventories - Graphite. A study of the manufacturing cost at the 101 Area was made and this report was turned over to the Design and Construction Divisions for consolidation of costs and computation of unit costs of Graphite.

A Completed Project Report as of November 30, 1949 is being prepared. This Completed Project Report will give Management the costs as of November 30, 1949 and the distribution of these costs to Property In Service, Major Construction Program Facilities, and Expense.

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General Accounting Divisions

GENERAL ACCOUNTS (Continued)

Preparation is being made to transfer September APV's to the Atomic Energy Commission. Including this September transfer, General Division has 3 incomplete APV's, Manufacturing Division 2, Design and Construction Division 3, and Community Division none.

MEDICAL ACCOUNTING

The marked increase in the accounts receivable balance from \$132,463 November 30 to \$161,432 December 31 resulted from the following:

- (1) A payment of \$11,388 was refunded to Guy F. Atkinson and J. A. Jones Construction Company to reimburse them for uncollectible hospital accounts of former employees.
- (2) A decrease in payroll deductions
- (3) An increase of In-Patient Sales from \$33,824 in November to \$46,785 in December.
- (4) The new insurance plan, which benefits are being assigned to Kadlec Hospital for payment of In-Patient care, has not made any payment toward these accounts.

Out-Patient invoices numbering 9,312 amounting to \$39,553; cash invoices numbering 5,211 amounting to \$16,915, and charge invoices numbering 4,101 amounting to \$22,638. In-Patient sales totaled \$46,233 in December, an increase of approximately \$12,500 over November.

During the past month the fiscal year budget was reviewed and reworked bringing it into line with the latest forecast of future plant and construction personnel. These new budget figures will be used in our December cost report.

Additional statistical reports which are now being made up and which will be submitted monthly are as follows:

- (1) Kadlec Hospital Costs, Revenue and Net Cost per Occupied Bed per day in comparison with Oak Ridge and National Average
- (2) Kadlec Hospital Average Occupancy; Costs and Revenue per bed (Based on total beds) per day in comparison with National Average.
- (3) Public Health Costs per capita.
- (4) Industrial Medical costs per employee.

PLANT ACCOUNTING

Work connected with transcribing information contained in the appraisal inventory books to continuing Property Record is now approximately 34% complete. It is expected that this will be completed by January 31. Information concerning total valuation of the Electrical Distribution System in the village of Richland was furnished to the Electrical Division.

All entries for the month of November have been posted and Plant Ledger Control group is preparing the Trial Balance of November 30, figures. We are also currently working on scheduling December entries prior to formal entry in the ledgers. Preliminary work on December 31 statement is under way and should be completed shortly.

General Accounting Divisions

PLANT ACCOUNTING (Continued)

Posting of entries to the detail record is on a current basis. In addition to the request for information regarding the Electrical Distribution System in the village of Richland, the Plant Accounting Section has been called upon for an estimate of the total valuation of Plant Assets protected by the Fire Division.

SPECIAL ASSIGNMENTS

1. Completed work on Design and Construction Major Equipment Study.
2. Verified graphite charges from 3-31-49 to 12-31-49 on D. & C. Ledgers and now completing determination of final costs of graphite.
3. Made recommendations on the following:
 - a. Distribution of Stores Freight
 - b. Journalization of Property Transfers
 - c. Stationery Sub-Stores
4. Prepared report of activity to date on study of Surplus, Salvage and Scrap.
5. Continuation of preparing revised account classification for recording Design and Construction costs.

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General Accounting Divisions

PAYROLLS

During the month of December there were 84 removals from payroll of which 37 were removals due to lack of work, and there were 51 additions to the payroll, including 1 transfer from another unit of the Company, resulting in a net decrease of 33 employees on the payroll.

* * * * *

Monday, December 26, 1949 was an observed holiday at Hanford Works and weekly salary checks for employees of the Outer Areas for week ended December 25, 1949 were delivered to the Areas on Thursday, December 29, 1949 between the hours of 8:00 P.M. and 11:00 P.M. Salary checks for employees in Richland, North Richland, and Pasco were delivered to the division representatives in the usual manner on Friday, December 30, 1949.

* * * * *

Under the General Electric Employee Savings and Stock Bonus Plan, 119 participating employees withdrew from the Plan 613 U. S. Savings Bonds having a maturity value of \$29,675. U. S. Savings Bonds and Custody Receipts covering purchases by employees through payroll deductions in November were delivered to employees on December 30, 1949. There were 729 U. S. Savings Bonds and 2,738 Custody Receipts distributed to employees.

* * * * *

The Addressograph Section of Weekly Payroll addressographed approximately 43,200 items for other divisions during the month of December in addition to regular routine addressograph work.

* * * * *

There were 46 time cards received late in Weekly Payroll during the month of December as follows:

<u>Week Ended</u>	<u>Number of Time Cards Received Late</u>
12-4-49	20
12-11-49	6
12-18-49	8
12-25-49	12
Total	<u>46</u>

* * * * *

In connection with the administration of employee claims, it is our practice to audit all payments received for employees from Metropolitan Life Insurance Company in settlement of claims under the Group Health Insurance Plan. It was discovered in December that payments by the Insurance Company were not being made in accordance with the provisions of the Plan. This was called to the attention of the Insurance Company and the checks were returned for correction.

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General Accounting Divisions

PAYROLLS (CONT.)

Permission to defer one week of their 1949 vacations until 1950 was granted by Division Managers during December to 11 weekly paid employees and 35 monthly paid employees. To date permission to defer one week of 1949 vacations until 1950 has been granted to 62 weekly paid employees and 80 monthly paid employees.

* * * * *

In order to facilitate the work of the Payroll Divisions in connection with year-end work, a schedule was prepared listing all jobs to be done and scheduling the flow of work between the various sections so that each job will be completed on or before the due date. Overtime was scheduled for three Saturdays; December 31, 1949, January 7, and January 14, 1950.

* * * * *

During the month of December, additional employees and payroll statistics were prepared in chart form for information of Management as follows:

- (a - Total number of G. E. employees, number of weekly paid employees, number of monthly paid employees, and percentage of monthly paid employees to total of G. E. employees.
- (b - Average hourly rates - monthly paid employees, weekly paid employees, and total.
- (c - Total number of employees - number of accessions, number of removals, and net increase or decrease in number of employees during each month.
- (d - Percent of eligible employees participating in employee benefit plans.

* * * * *

In connection with preparation of the Weekly Payroll, routines have been revised which have resulted in completion of the Payroll each week approximately four hours earlier than in the past, without additional cost. The effect of this change is reflected in increased employee efficiency within the Division due to the alleviation of the "pressure" in meeting the deadline for the payoff each week.

* * * * *

Continued effort has been expended to improve the routine for issuing Employee Sales Certificates and Traffic Appliance Forms. Sale Certificates may now be obtained from twenty-two representatives in convenient locations throughout the outer areas and the 700 and 1100 areas. The names and locations of these representatives have been published in the Works News for information of employees.

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PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - DECEMBER 1949

SUMMARY

The year 1949 was completed with eleven major injuries and a frequency rate of 0.714 - the lowest frequency achieved under General Electric operation.

There were four minor fires in the industrial areas with a loss of \$723.00.

There was a slight increase in laundry volume in both the 700 and 200 Area laundries.

Mail volume has increased to the point where it was necessary to secure an additional employee to aid in distribution.

Responsibility for handling the 250, 700 Area General, Account was placed with the Office Services Division.

Records inventories of all divisions except Accounting General, Health Instrument and Technical have been completed.

A group of five employees has been set up to conduct continuous inventories of classified documents throughout the Project. It is expected that this group will begin operation in January.

PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - DECEMBER 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	<u>Beginning of Month</u>	<u>End of Month</u>	<u>Increase</u>	<u>Decrease</u>
Staff	3	3		
Patrol and Security	579	578		1 (a)
Safety and Fire Protection	149	150	1 (b)	
Office Services (General Services, Clerical Services, and Records Control)	208	205		3 (c)
	<u> </u>	<u> </u>	<u> </u>	<u> </u>
TOTALS	939	936	1	4

NET DECREASE: 3

(a) - Patrol and Security

- 1 - Returned from Leave of Absence (Patrol)
- 1 - Removed from Roll due to Leave of Absence (Patrol)
- 1 - Termination (Patrol)

(b) - Safety and Fire Protection

- 1 - Rehire

(c) General Services

- 2 - Rehired
- 2 - Terminations
- 1 - Removed from roll due to Leave of Absence

Clerical Services

- 2 - New Hires
- 1 - Transferred from Purchasing and Stores Division
- 6 - Transferred to other Divisions

Records Control

- 1 - New Hire

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~~DECLASSIFIED~~SAFETY AND FIRE PROTECTIONInjury Statistics

Days since last Major Injury	12
Accumulated exposure hours since last Major Injury	491,410
Major Injury Frequency Rate (start-up to date)	0.84

	<u>November</u>	<u>December</u>	<u>Year to Date</u>
Major Injuries	0	1	11
Sub-Major Injuries	3	1	38
Minor Injuries	279	294	4095
Exposure Hours	1,220,183	1,269,476	15,388,038
Major Injury Frequency Rate	0.0	0.79	0.71
Major Injury Severity Rate	0.0	0.095	0.03
Minor Injury Frequency Rate	2.29	2.32	2.66

Major Injury No. 67

On December 19, at approximately 3:00 A.M., a patrolman assigned to the Patrol Tower over the 181 Building, 100-F Area, received a fracture of the right leg and dislocation of the ankle. It appears that while in a sitting position on an elevated stool, the injured's leg became numb due to the lack of proper circulation. When he attempted to stand up he collapsed.

Sub-Major Injury No. 164

On December 14, at approximately 2:30 A.M., a patrolman working in the 100-H Area sustained a chip fracture of the left index finger when his finger was pinched between the edge of a door and an electrical switch panel.

100 Areas Activities

The P-10 Technical group requested some advise on safety requirements for night work for the group. Additional lights on the work truck used at the burial ground were recommended. Also outside lights around work area and dock were suggested.

The Power Division is scheduling gas mask demonstrations for the coming month for all Power personnel.

The procedure for servicing respirators was investigated in the 105-D Building after finding two defective that were supposed to be ready for use. Corrective action is being taken by the "P" Division supervision to rectify this problem.

A plan to improve quality of safety meetings in the H. I. Division has been in progress and is showing good results. Various members of supervision attend the safety meetings and grade the group on several points. The plan seems to foster better planning. It was also interesting to note that the majority of minor injuries occurring in the H. I. Division were to the thumbs, and the Area Accident Prevention Committee is concentrating on that problem.

It was found that S.W.P. clothing issued welders for 105 work was not being fire-proofed. Correction has been made.

Plant Security and Services Divisions

Acceptance inspections were made of the animal laboratory, 100-F Area. A discussion of a safety program for the employees of the new animal laboratory group was held with the supervisor.

A meeting for standardization of safety rules on freight elevators was held with P. Division supervisors in the 100-H Area and safety engineers of other areas.

200 Areas Activities

The 200-East Area completed one year without a major injury at midnight, December 28, to make a total of four years (not consecutive). The area finished with a minor injury frequency rate for 1949 of approximately 3.90.

Experiment is being continued with Chemox revision in cooperation with the Maintenance Division. There is a possibility that the problems of several years may be solved in the near future.

Considerable time has been devoted to the study of maintenance and electrical maintenance problems in working on cranes in buildings. A committee is being formed to study the problems and improve working conditions.

A study is being made on compressed gas equipment at the request of the Maintenance Division. It is intended to present information pertaining to all types of gases, gauges, manifolds, etc.

Plans are being made to get under way in the first part of February with a light publicity campaign in the 200-West Area to create sufficient interest toward the approaching end of a no lost-time year. The 200-West area has 97 days to go at the present time.

300 Area Activities

The new H. I. Records and Personnel Meters building was occupied during the month. Inspection revealed no major hazards to be corrected.

700 - 1100 Areas Activities

A committee was appointed to study the feasibility of establishing a Hanford Works policy covering employees who have serious personal physical conditions that interfere with their normal job performance.

The substandard condition of stairs in Division One is in the hands of the Community Division. Any activity on this subject by them will be referred to the 700 Area Council.

The Safety Engineer for 700-1100 Areas reviewed a set of rules with Village Labor for sanding icy streets. These rules are to be in effect until mechanical sand spreaders can be procured.

FIRE PROTECTION

Fire protection of the 101 Area was reviewed and several recommendations made.

The surface water line from old Hanford wells to the 101 Area was taken out of service and drained. This was a secondary supply.

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Plant Security and Services Divisions

Six warehouses in the White Bluffs Area are now being operated by Stores. They are being inspected to see if they meet Plant standards of fire protection.

Several safety cans have been found without flash screens in the 100-B Area. This will be given special attention in all Areas.

Fire hazards found on Minor Construction jobs in the 100-F Area are being reported in writing to immediate supervisors and copies sent to higher supervision.

Additional plans for the 108-F Building were reviewed and approved.

Plans for experiments in the 101 Building were approved.

Industrial Fires

<u>Division</u>	<u>Area</u>	<u>No. of Fires</u>	<u>Cause</u>	<u>Loss</u>
Technical & P.	300	1	Spontaneous Ignition	None
"S" Division	200-W	1	Cigarette	None
Not chargeable to a Division	Plant	1	Spontaneous Ignition	None
Atomic Energy Com.	Outer	1	Undetermined	\$ 723.00
Total Fires		4	Total Loss	\$ 723.00

Industrial Investigations

<u>Division</u>	<u>Area</u>	<u>No. of Fires</u>	<u>Cause</u>	<u>Loss</u>
"S" Division	200-W	1	Cigarettes & Matches	None
TOTAL NUMBER OF FIRES		5	TOTAL LOSS	\$ 723.00

OFFICE SERVICES DIVISIONS

General Services

Laundrying volumes were as follows:

Plant Laundry (Building 2723)

	<u>November</u>	<u>December</u>
Coveralls - Pieces	28,870	29,308
Towels - Pieces	7,824	7,855
Miscellaneous - Pieces	61,196	67,589
Total Pieces	97,890	104,752
Total Dry Weight - Lbs.	141,206	150,775

DECLASSIFIEDRichland Laundry (Building 723)

	<u>November</u>	<u>December</u>
Flatwork - Pieces	52,599	50,805
Rough Dry - Pieces	21,289	28,351
Finished - Pieces	<u>3,075</u>	<u>3,305</u>
Total Pieces	76,963	82,461
Total Dry Weight - Lbs.	50,026	53,600

Monitoring Section (Building 2723-W)

	<u>November</u>	<u>December</u>
Poppy Check - Pieces	75,463	81,735
Scaler Check - Pieces	<u>93,116</u>	<u>94,901</u>
Total Pieces	168,579	176,636

Clerical ServicesMail Room

Mail volume increased to a point that it was necessary to secure an additional employee during the month. A great percentage of this increase can be contributed to the number of special types of mailing which we now handle, examples: Supervisory Handbooks, Safety Handbooks, Supervisory Letters, etc.

	<u>November</u>	<u>December</u>
Pieces of Internal Mail Handled	340,167	368,561
Pieces of Postal Mail Handled	61,428	59,055
Pieces of Registered Mail Handled	1,064	861
Pieces of Insured Mail Handled	361	467
Pieces of Special Delivery Mail Handled	<u>203</u>	<u>224</u>
Total Mail Handled	403,223	429,168
Total Amount Postage Used	\$ 1,467.20	\$1,390.48
Teletypes Sent Out	712	929
Teletypes Received	<u>735</u>	<u>833</u>
Total Teletypes Handled	1,447	1,762
Total number of Store Orders filled	1,364	2,021

Office Equipment

The first shipment of repaired and refinished furniture was received from McNeil Island prison and the work was satisfactory.

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Plant Security and Services Divisions

	<u>November</u>	<u>December</u>
Office Machines repaired in shop	134	185
Office Machines service calls	<u>323</u>	<u>259</u>
Total Machines Services	366	444

Printing

A study was made by the Wage Rates Division of job classifications in the Printing Section, and we will be advised as soon as possible whether any changes can be made in these rates.

	<u>November</u>	<u>December</u>
Multilith Orders Received	265	235
Multilith Orders Completed	255	249
Multilith Orders on Hand at month end	76	62
Mimeograph Orders Received	2048	2088
Mimeograph Orders Completed	2048	1993
Mimeograph Orders on hand at month end	0	95
Ditto Orders Received	1294	1079
Ditto Orders Completed	1294	1029
Ditto Orders on hand at month end	0	50

Stenographic Services

	<u>November</u>		<u>December</u>	
	<u>Hours</u>	<u>Quantity</u>	<u>Hours</u>	<u>Quantity</u>
Dictation and Transcription	0	0	0	0
Machine Transcription	6:8	10	7:45	14
Letters	76:5	120	57:00	103
Manual and Procedures	4:5	25	25:20	40
Duplicating - Stencils, Ditto	282:6	458	197:45	305
Special	741:9	1,513	406:00	504
Training	105:50	6	102:4	8
Unassigned time during month	79:00	8	25:0	4
Termination	4:00	1	---	---
Safety & Security Meetings	7:30	---	15:1	---
Accident & Health Ins. Meeting	4:00	---	---	---
Illness	68:50	---	---	---
Assembling	29:20	---	---	---
Total Hours	1,409:8		836:3	
Employees loaned to other Divisions	1,161:20		855:00	
Total Hours Available	2,571:00		1,691:30	

General

Responsibility of handling the No. 250, 700 Area General Account was given to this division during the month and procedures were established for handling.

Plant Security and Services Divisions

Three Engineering Service Requests have been issued to secure estimates on work in the 700 Area:

1. Necessary work to be done on roofs and exteriors of permanent buildings in the 700 Area.
2. Covering of floors of offices in Building 703 with linoleum.
3. Interior painting required in permanent buildings in the 700 Area.

Records Control Division

Quantity of records received and processed:

Accounting Division	25 #13 Oxford Files		
" "	21 # 5 " "		
" "	2	Standard Records	Cartons
Construction Division	112	" "	" "
Design Division	2	" "	" "
Employee & Community Relations	60	" "	" "
Plant Security and Services	113	" "	" "
Power Division	44	" "	" "
Purchasing & Stores Div.	57	" "	" "

Sub-Contractors:

Giffels & Vallet	4 # 1 Oxford Files		
Transportation Division	20	Standard Records	Cartons

TOTAL 460 Cartons

Total Records reprocessed into new system: 291 Standard Records Cartons

Total persons furnished records service: 101 Persons

Total Cartons of Records destroyed by
burning per authority of the A.E.C.: 235 Cartons

Cartons issued to Divisions for Records Storage:	496
Cartons used in Records Center for re-processing:	291

TOTAL 787 Cartons

Records received in Records Center during December represented the contents of 51 file cabinets.

Records Inventory has been completed in all Divisions except Accounting General, Health Instrument and the Technical Division.

The A. and B. Committee approved the Project Proposal for a new Records Center.

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PATROL AND SECURITY

General

Effective December 1, a continuous check will be maintained of inactive personnel clearances at all "exclusion" areas by the Security Patrol Division.

Beginning at 12:01 A.M., December 5, the 100-H Area Security Patrol assumed the responsibility for operating the Area Fire Truck.

The practice of detail stripping of machine guns for cleaning in the field was discontinued December 16.

Effective December 20, construction work started on the 100-DR Water Treatment Project. A notice of this new construction area was distributed to all Division Heads.

Two new patrol posts were established to handle sub-contractor personnel and consisted of a temporary badge house and an additional vehicle gate.

Prior to the start of construction, Security representatives contacted all Power Division employees in the 100-D Area, described the credentials that would be worn by construction employees and requested that an intensive challenging program be initiated.

A roving foot patrol post was established on a 24-hour basis among the Power and Water Treatment Buildings for the purpose of controlling sub-contractor personnel.

Signs restricting sub-contractor personnel from certain areas were conspicuously posted. A letter covering this construction program was forwarded to the Atomic Energy Commission on December 7, 1949.

All H.W. Instructions Letters pertaining to security regulations and procedures are being revised and combined under one unit "H.W. Instructions Letter No. 135". An index giving the subject and title of each section is contained therein. Additional sections will be forthcoming. The following sections were issued December 20:

- I Responsibility for Security
- II Division Security Meetings
- III Security Clearance Requirements for Project Work
- IV Security Orientation of New Employees
- V Top Secret Clearance Procedure

On December 30, Sections VI and VII were issued to all Operations personnel as follows:

VI Inventory of Classified Documents

A group of five Classified File employees have been assigned the duties of conducting a perpetual inventory throughout the Project. They will inventory classified documents and classified blueprints, sketches, etc. It is possible that during the initial inventory, that a number of documents previously reported missing may be located.

Plant Security and Services Divisions

VII Accountability for Classified Material withdrawn from Classified Files or the Blueprint Reproduction Section.

Two new instruction procedures were issued in the above listings - Sections V and VII.

In conformance with Section V, Top Secret Procedure, a survey was made of all Top Secret Clearance of General Electric personnel, and the completed survey showing such categories was submitted to the Atomic Energy Commission Security Office. As a result of the survey, 43 Top Secret Clearances were cancelled.

On December 23, 1949, a representative of the Security Division started a series of security lectures at the Patrol Training School. The lectures which are of three hours duration will last for two months and cover security investigation techniques, combination files' operation and construction, proper method of searching for security storage violations, the uses of Material and Package Passes and general security topics.

Supervisory registers were established at all permanent patrol posts to assure that the posts were visited regularly.

Test photographs were taken by members of the Atomic Energy Commission and General Electric Security Offices to determine if some type of security photographic slide program could not be developed locally. As a result of the test, arrangements have been made to purchase an Explainette Model No. 14A90, "30-50" Automatic Sound Slidefilm Projector and to secure the professional assistance of Mr. M. F. Pipes of Portland, Oregon. It is hoped that one thirteen-minute security slide film can be produced every two months through the coordinated efforts of the Atomic Energy Commission and General Electric Security Offices. These films will then be shown at monthly security meetings.

Arrangements have been made to change the design of the sub-contractor identification photo passes. The new pass will be laminated and will have color symbols for various security and accounting needs.

On December 27, the 300 Area Patrol established a spot check procedure for Building 11 in the 3000 Area. It was learned that this building housed considerable classified property records.

There were 40 "Q" orientation talks given by the Security Division to employees who received their "Q" clearance during the month.

Notification Procedure to Industrial Areas by the Security Patrol Emergency Officer for actual or Military test blackouts was issued by the Security Division on December 28.

On December 22, at 6:48 P.M., Mobilization Plan A was placed in effect by the Division Supervisor of the 100 Areas, from 100-B, 100-D, 100-H and 200-E and 200-W Areas. These cars and men were dispatched to the Hanford Area to investigate a reported prowler.

PATROL

The 200 Areas handled 93 process escorts between the areas.

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Requests handled totaled 644 consisting mainly of opening doors, gates and providing escorts for employees of other departments.

A total of 49 Unusual Incident Reports were received consisting mainly of lost badges, pencils, contraband picked up at barricades, traffic accidents and fires.

Patrol supervision handled no First Aid cases during the month.

Classified escorts totaling 37 were handled during the month.

Practice Plan A held as follows:

100-B Area	12-16-49	1:43 P.M.
100-D Area	12-16-49	9:07 A.M.

Practice Evacuations were held as follows:

100-F Area	12-27-49	10:06 A.M.
100-D Area	12-29-49	1:36 P.M.
100-B Area	12-30-49	10:06 A.M.

Practice Black-outs were held as follows:

100-H Area	12-19-49	9:01 P.M.
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Arrest Summary

	<u>November</u>	<u>December</u>
Warning tickets issued	0	0
Verbal warning given	29	0
Citation tickets issued (traffic only)	0	0

Accident Summary

Total accidents	5	7
Government permits revoked	0	0

Training

Training courses held during the month were as follows:

	<u>Hours</u>
Pistol	2
Security	1
Operation of Badge House	1
Safety	1/2
Health	1/2
Security Patrol Policies	1 1/2
Proper Display of Uniform	1
First Aid	1/2

The Safety Bulletin Board which was constructed during the month of May was also used during the month of December.

Plant Security and Services Divisions

The competitive Safety Program is being continued.

Testing of all area hand guns was completed December 2.

The Training Lieutenant continued taking pictures to be used in the Security Division Training Program.

An inspection and tabulation was completed for the Patrol Safety Contest for the month of December.

The Safety Plaque was delivered December 5 to 100-B Area for winning the Safety Hurdle Race for November.

The arsenal at 100-H was stocked with ammunition and gas December 20. Later in the month additional ammunition was delivered to the arsenal to insure that a supply of all types would be available at that location.

A special session of a normal day at the Range was held for members of supervision December 22.

SECURITY

There were 278 Security Meetings held and attended by 3,961 General Electric employees during the month.

G. E. Security Bulletin No. 48 entitled "Official Use Only" was issued December 6.

A security sign was posted in 81 of the Industrial Area busses on December 15 bearing the following inscription - "Rumors Are Like Rabbits --- Rumors Multiply Too!! Keep Classified Information to Yourself - Security....It's Up to You".

Employee Clearance

Class "Q" clearances received on old employees this month	0
Class "Q" clearances received on old employees to date	4,457
Class "Q" clearances received on new employees this month	20
Class "Q" clearances received on new employees to date	6,229
Class "Q" clearances received on both old and new employees since February 17, 1947	10,686
Formal "P" clearances awaiting change to "Q"	16
Authorization clearances issued this month	43

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Statistical Summary of Outstanding Area Badges

November					December				
	<u>A</u>	<u>B</u>	<u>C</u>	<u>Total</u>		<u>A</u>	<u>B</u>	<u>C</u>	<u>Total</u>
100-B	1736	560	473	2769	100-B	1717	553	466	2736
100-D	708	934	523	2165	100-D	704	926	518	2148
100-F	768	1627	487	2832	100-F	704	1047	405	2156
100-H	713	1039	410	2162	100-H	754	1606	474	2834
200-E	910	1768	360	3038*	200-E	881	1766	366	3013*
200-W	1401	1676	364	3441	200-W	1395	1633	360	3438
200-N	35	883	134	1052	200-N	25	877	134	1036
300	1341	1609	239	3189	300	1340	1613	235	3188
					100-DR	194	2		196

*Includes 37 "A" badges at Riverland Yards *Includes 37 "A" badges at Riverland Yards.

Visitor or Temporary Badges

Area	November	December
100-B	462	487
100-D	898	926
100-F	781	833
100-H	210	293
200-E	691	714
200-W	630	1000
200-N	992	673
300	1350	1407
100-DR		1
Total	6014	6434

Special Clearance Section

Following is a statistical summary of clearance status of vendor and consultant vendor companies:

Total companies forwarded to AEC this month: 2 Personnel: 5
Consultant Personnel: 3

Total companies forwarded to AEC last month: Three medical consultants
Total companies forwarded to AEC to date: 214 Personnel: 2,368

New companies cleared for "restricted data" this month: 10 Personnel: 40
Consultants 2
Total Personnel 42

Total companies cleared for "restricted data" last month: 7 Personnel: 82

Plant Security and Services Divisions

New companies forwarded to Atomic Energy Commission this month:

Sheldon Dunning Company
1106 Smith Tower
Seattle, Washington

Number and type of clearance granted by the Atomic Energy Commission this month to vendors and consultants:

Formal "CQ"	42
Formal "P"	2
"P" Only	25

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HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING DECEMBER 31, 1949

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Class	Unclass Areas
DESIGN AND CONSTRUCTION DIVISIONS						
I. Visitors to this Works						
G. M. Clifton Apparatus Division General Electric Company Pasco, Washington	Consultation	J. H. Julien	12-13-49	12-13-49	X	
II. Visits to other Installations						
W. A. Ross to: Air Reduction Pacific Co. process Seattle, Washington	Discussion on welding	- -	12-14-49	12-15-49	X	
J. H. Carlin to: Air Reduction Pacific Co. process Seattle, Washington	Discussion on welding	- -	12-14-49	12-15-49	X	
I. Visitors to this Works (cont'd)						
A. U. Bryant Grove Regulator Company	Service equipment and design and maintenance	P. E. Lowe R. R. Meyers	12-14-49	12-28-49	X	100-D 105 100-II 105
HEALTH INSTRUMENT DIVISIONS						
III. Visitors to this Works						
D. Meyer Los Alamos Scientific Laboratory Los Alamos, New Mexico	Health physics problems	H. M. Parker C. M. Patterson	12-12-49	12-16-49	X	300 XXX

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data		Areas
					Class	Unclass	
M. F. Milligan Los Alamos Scientific Laboratory Los Alamos, New Mexico	Health physics problems	H. M. Parker C. M. Patterson	12-12-49	12-16-49	X		300 XXX
H. F. Schulte Los Alamos Scientific Laboratory Los Alamos, New Mexico	Health physics problems	H. M. Parker C. M. Patterson	12-12-49	12-16-49	X		300 XXX
T. N. White Los Alamos, Scientific Laboratory Los Alamos, New Mexico	Health physics problems	H. M. Parker C. M. Patterson	12-12-49	12-16-49	X		300 XXX
W. D. Urry United States Air Force Base Washington, D. C.	Consultation	W. Singleovich	12-3-49	12-7-49	X		200-W 222-U
P. E. Church University of Washington Seattle, Washington	Meteorological consul- tation	D. E. Jenne H. M. Parker	12-19-49	12-20-49	X		200-W XXX
II. Visits to other Installations							
H. M. Parker to: Cleveland, Ohio	Attend Radiological Society Meeting	- -	12-1-49	12-12-49		X	
F. G. Tabb to: University of Washington Seattle, Washington	Visit Fisheries Department for biological purposes	- -	12-8-49	12-9-49		X	
PROJECT ENGINEERING DIVISIONS							
I. Visits to other Installations							
J. T. Lloyd to: Argonne National Laboratory Chicago, Illinois	Consultation on navy test channels	G. A. Anderson A. Amoroui H. Etherington	12-12-49	12-14-49		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Class	Unclass

II. Visitors to this Works

H. J. Foye Link Belt Company Chicago, Illinois	Instruct personnel in operation of equipment furnished by his firm	H. F. Peterson D. M. Brown	12-21-49	12-23-49	X	100-F
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MANAGEMENT

I. Visits to other Installations

G. R. Prout to: Atomic Energy Commission Washington, D. C.	Attend conference on separations processes	W. J. Williams	12-14-49	12-17-49	X	
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MANUFACTURING DIVISIONS' MANAGEMENT

I. Visits to other Installations

C. N. Gross to: Atomic Energy Commission Washington, D. C.	Attend conference on separations processes	W. J. Williams	12-14-49	12-17-49	X	
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W. K. MacCready to: Atomic Energy Commission Washington, D. C.	Attend conference on separations processes	W. J. Williams	12-14-49	12-17-49	X	
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"P" DIVISION

I. Visitors to this Works

C. G. Kruse International Business Machines Seattle, Washington	Installation of IBM machines in 105-H control room	J. R. Young	12-15-49 12-20-49	12-15-49 12-24-49	X X	100-H 105
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A. Burvee International Business Machines Seattle, Washington	Installation of IBM machines in 105-H control room	J. R. Young	12-27-49	12-27-49	X	100-H 105
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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Class	Unclass
					Areas	
II. Visits to other Installations						
W. P. McCue to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on reactor program	R. S. Neblett K. H. Kingdon L. Ferguson	12-13-49	12-16-49	X	
POWER DIVISION						
I. Visits to other Installations						
J. P. Langan to: Charles T. Main Company Boston, Massachusetts	Consultation with Architect Engineer regarding design of 100-DR waterworks	R. A. Moncrieff	11-28-49	12-5-49	X	
P. H. Klute to: Salem Oregon	National Board Examination for boiler inspector	- -	12-7-49	12-8-49	X	
J. A. Todd to: General Electric Company Schenectady, New York	Survey of coal handling equipment	- -	12-2-49	12-12-49	X	
J. A. Todd to: General Electric Company Pittsfield, Massachusetts	Survey of coal handling equipment	- -	12-2-49	12-12-49	X	
PURCHASING AND STORES DIVISION						
I. Visitors to this Works						
H. G. Adams E. I. du Pont de Nemours & Co. Wilmington, Delaware	Check Dental X-ray film	R. M. Brennan	12-1-49	12-1-49	X	300 3746
C. G. Geiszl Allied Research Laboratories Glendale, California	Inspection of equipment furnished on order HW-54763-G	H. A. Hauner	12-12-49	12-14-49	X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data		Areas
					Class	Unclass	
A. G. Bryant Grove Regulator Company Oakland, California	Inspection of equipment H. A. Hauser furnished on order HW-55355-M	H. A. Hauser	12-15-49	12-17-49	X		100-D 105
L. E. Byrd General Electric Company Seattle, Washington	Inspection of equipment H. A. Hauser furnished on order HW67910	H. A. Hauser	12-19-49	12-20-49		X	
R. Anderson Inland Motor Freight Pasco, Washington	Haul one lot of duct work	H. O. Monson	11-30-49	11-30-49		X	100-F XXX
S. A. Johnson Inland Motor Freight Pasco, Washington	Inspect damaged aluminum duct work	H. O. Monson	12-5-49	12-5-49		X	100-F XXX
D. A. Westermeyer Consolidated Freight Ways Pasco, Washington	Deliver load of machinery parts from Oak Ridge	H. O. Monson	12-5-49	12-5-49		X	200-W XXX
C. Freauff Lee & Estes Pasco, Washington	Deliver chemicals from H. O. Monson American Agriculture Chemical Company	H. O. Monson	12-13-49	12-13-49		X	200-E XXX
C. Freauff Lee & Estes Pasco, Washington	Deliver chemicals and an A.K.D. cooler	H. O. Monson	12-14-49	12-14-49		X	200-W XXX 100-F XXX
J. P. Janecek Lay-Rite Concrete Products Co. Yakima, Washington	Deliver load of pumous blocks	H. O. Monson	12-19-49	12-19-49		X	100-F XXX
M. K. Kahl Propane Gas & Equipment Company Pasco, Washington	Deliver propane gas	H. O. Monson	12-21-49	12-21-49		X	300 3706area

Name - Organization

Purpose of Visit

Person Contacted

Departure

Restricted Data
Class Unclass

Areas

"S" DIVISION

I. Visitors to this Works

H. E. Goeller
Oak Ridge National Laboratory
Oak Ridge, Tennessee

Assist in operation of R. S. Bell
slug samples designed and
constructed at ORNL

12-13-49 12-22-49

X

200-W
221-T
300
321

E. O. Nurmi
Oak Ridge National Laboratory
Oak Ridge, Tennessee

Assist in operation of R. S. Bell
slug samples design and
constructed at ORNL

12-13-49 12-22-49

X

200-W
221-T
300
321

TRANSPORTATION DIVISION

I. Visitors to this Works

J. P. Sullivan
American Locomotive Company
San Francisco, California

Inspect engines at
Riverland Yards

12-2-49 12-2-49
12-5-49 12-6-49

X
X

TECHNICAL DIVISIONS

I. Visitors to this Works

P. E. Brown
Argonne National Laboratory
Chicago, Illinois

Special request
SR ANL-141

11-23-49 12-23-49
12-23-49 1-17-50

X
X

300-3706
100-F 105
100-D 105
100-B 105

J. R. Humphreys
Argonne National Laboratory
Chicago, Illinois

Special request
SR ANL-141

11-23-49 12-23-49
12-23-49 1-17-50

X

300-3706
100-F 105
100-D 105
100-B 105

D. Froman
Los Alamos Scientific Laboratory
Los Alamos, New Mexico

Discuss P-10 project

11-30-49 12-1-49

X

300-3706, 303
100-B 105
200-W-234, 235

UNCLASSIFIED

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Class	Restricted Data Unclass	Areas
M. Golblatt Los Alamos Scientific Laboratory Los Alamos, New Mexico	Discuss P-10 project	W. K. Woods	11-30-49	12-1-49	X		300-3706, 303 100-B 105 200-W-234, 235
R. W. Coyle Nuclear Energy for the Propulsion of Aircraft Fairchild Engine & Airplane Corp. Oak Ridge, Tennessee	Discuss proposed irradiation experiments	J. B. Lambert	11-29-49	12-1-49	X		300-3706 100-B 105 100-D 105 100-F 105 100-H 105
R. E. Githens Nuclear Energy for the Propulsion of Aircraft Fairchild Engine & Airplane Corp. Oak Ridge, Tennessee	Discuss proposed irradiation experiments	J. B. Lambert	11-29-49 12-9-49	12-9-49 12-17-49	X X		300-3706 100-B 105 100-D 105 100-F 105 100-H 105
C. E. Stevenson Argonne National Laboratory Chicago, Illinois	Discuss P-10 project	W. K. Woods A. A. Johnson	11-30-49	12-1-49	X		300-3706 100-B 105 100-H 105
C. G. Gieszl Applied Research Laboratories Glendale, California	Service his company's instruments	P. R. Anderson W. W. Marshall L. F. Kendall H. W. Murray	12-12-49	12-15-49			300-3706 200-W-234

II. Visits to other Installations

A. B. Greninger to: Argonne National Laboratory Chicago, Illinois	Attend meeting of Laboratory Directors with Commissioners, Washington Staff and Managers of Operations	W. H. Zinn	12-12-49	12-15-49	X	
A. B. Greninger to: Atomic Energy Commission Washington, D. C.	Attend conference on separations processes	W. J. Williams	12-16-49	12-17-49	X	

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Name - Organization

Purpose of Visit

Person Contacted

Departure

Class

Restricted Data

Areas

O. H. Greager
to: Atomic Energy Commission
Washington, D. C.

Attend conference on
separations processes

12-16-49 12-17-49 X

R. H. Beaton
to: Gen. Eng. & Consulting Lab
Schenectady, New York

Redox consultations

11-29-49 12-3-49 X

R. H. Beaton
General Electric Company
Schenectady, New York

Redox consultations

11-29-49 12-3-49 X

J. B. Lambert
to: Argonne National Lab.
Chicago, Illinois

Consultation on Navy
Test Channel

12-12-49 12-14-49 X

A. B. Carson
to: Los Alamos Scientific Lab
Los Alamos, New Mexico

Technical consultation

12-13-49 12-14-49 X

D. F. Snoeberger
to: Oak Ridge National Lab.
Oak Ridge, Tennessee

Consultation on Navy
Test Channel

12-15-49 12-20-49 X

D. F. Snoeberger
to: Argonne National Lab.
Chicago, Illinois

Consultation on Navy
Test Channel

12-20-49 12-22-49 X

J. W. Flora
to: Oak Ridge National Lab
Oak Ridge, Tennessee

Consultation on P-11
problems

12-19-49 12-23-49 X

R. J. Sloat
to: Oak Ridge National Lab
Oak Ridge, Tennessee

Metal Recovery consul-
tations

12-28-49 12-29-49 X

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- 9 -

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>	
					<u>Class</u>	<u>Unclass Areas</u>
R. J. Sloat to: Columbus, Ohio	ACS Regional Meeting	- -	12-30-49	12-30-49		X
L. L. Burger to: Oak Ridge National Lab. Oak Ridge, Tennessee	Metal Recovery consul- tation	F. L. Steahly	12-28-49	12-28-49	X	
L. L. Burger to: Columbus, Ohio	ACS Regional Meeting	- -	12-30-49	12-30-49		X
D. W. Pearco to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Discussion on analytical chemistry	C. F. Metz C. D. W. Thornton	12-5-49	12-7-49	X	
J. A. Parodi to: Baird Associates Cambridge, Massachusetts	Discuss spectrographic equipment	S. H. Walters	12-13-49	12-13-49		X
J. A. Parodi to: Jarrell-Ash Company Boston, Massachusetts	Discuss spectrographic equipment	R. F. Jarrell	12-14-49	12-14-49		X
J. A. Parodi to: Argonne National Lab Chicago, Illinois	Discuss problems of spectrographic analysis	F. S. ¹ omkins	12-15-49	12-16-49	X	
B. F. Butler to: Knolls Atomic Power Lab Schonectady, New York	Inspect facilities and dis- cuss application of matemati- cal statistics in experimental program	R. S. Neblett	12-30-49	12-30-49	X	
B.F. Butler to: New York City, New York	American Statistical Associa- tion meeting	- -	12-27-49	12-29-49		X
J. B. Burnham, Jr. to: Philadelphia, Ponnsylvania	Attend meeting of American Society of X-ray and Electron Diffraction	- -	12-1-49	12-3-49		X

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data	
					Class	Unclass Areas
J. B. Burnham, Jr. to: Sylvania Electric Products Bayside, New York	Metallurgical consultation	B. H. Alexander	12-5-49	12-5-49		X
J. B. Burnham, Jr. to: Knolls Atomic Power Lab Schenectady, New York	Metallurgical consultation	C. W. Tucker D. Harker G. R. Fonda	12-6-49	12-7-49	X	
I. Visitors to this Works (cont'd)						
D. N. Dunning Argonne National Laboratory Chicago, Illinois	Special Request ANL-141	R. E. Nather	12-27-49	1-17-50	X	300-3706 100-B 105 100-D 105 100-F 105 1-H 105

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PURCHASING AND STORES DIVISIONS
SUMMARY
DECEMBER, 1949

	<u>Total Personnel as of 11-30-49</u>	<u>Total Personnel as of 12-31-49</u>	<u>Net Change</u>
Exempt	49	53	Plus 4
Non-Exempt	262	232	Minus 30
TOTALS	311	285	Minus 26

The above tabulation indicates a decrease of 26 people. This decrease is due principally to the completion of Surplus, Salvage and Scrap inventories.

The work load of the Purchasing Division decreased during the month of December. This decrease was due principally to delays in receiving requisitions for the DR Water Plant and the Redox construction.

The initial purchase requisitions covering materials for the DR Water Plant were received during the month. These requisitions represented a minor portion of those scheduled for December.

On December 5, 1949 the coal mines supplying the Project resumed operation on a three-day work week basis. By increasing our daily shipments, we were able to maintain our inventory position of three months' supply on hand at month's end.

The efforts of our Inspection and Purchasing Sections through review of specifications and developing new sources of supply resulted in savings amounting to approximately \$81,000 during December.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of December amounting to \$2,825.16. Total savings from September 1, 1946 to date equal \$1,133,061.70.

Stores active inventories were reduced approximately \$50,000 during the month.

The control of graphite stored in the 101 Building was taken over by the Stores Division and inventory of this material has been completed.

Scrap valued at \$10,173.45 was sold.

Inventories of subcontractor-held materials were completed and control of these materials were taken over by General Electric Stores.

977 items were furnished against purchase requisitions from plant sources thus obviating the necessity of purchasing from outside sources.

An agreement was entered into between the Commission and the Bureau of Federal Supply whereby the Bureau will undertake the disposal by sale of surplus property.

Arrangements for a simplified method for the handling of excess materials were made which will result in a saving of approximately \$15,000 annually.

PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION
DECEMBER, 1949

GENERAL

A decrease in the work load was experienced during the month of December. 1,432 purchase orders were placed as compared to 1,638 placed in November. 2,079 purchase requisitions were received and assigned as compared with 2,688 during November. Requisitions on hand at month end totaled 462 as compared with 687 at the end of the previous month.

The first purchase requisitions for material to be used in the construction of the DR Water Plant were received in the Purchasing Division this month. However, only a very minor portion of those scheduled to arrive during December were actually received, and on the basis of the delivery required dates established by the construction contractor, failure to receive the requisitions on schedule means that the Purchasing Division will not have sufficient time to purchase the material using normal procedures.

Virginia-Carolina Chemical Corporation was awarded an annual contract to supply our requirements of phosphoric acid for the period of January 1, 1950 through December 31, 1950.

Preliminary proposals were received from various chemical companies relative to our future requirements of aluminum nitrate. The preliminary proposals indicated that this material can be supplied in accordance with our basic specifications and in the quantities which we will require. Since additional production facilities are necessary a three year contract will be considered.

On December 5, 1949 the coal mines supplying coal to the Project resumed operation on a three-day work week basis. By stepping up daily shipments for the three working days, total receipts during the month of December approximately equaled our consumption. Inventory level at the end of the month showed an approximate three months' supply on hand.

During the inspection review of requisition G-113770, it was found that the field was specifying 'heat treatment' of tanks to be manufactured from Columbian stabilized stainless steel. As this was an unusual requirement, the originator was contacted and, upon review of his specifications, conceded that heat treatment was not necessary. The savings realized by the omission of the heat treating specification amounted to approximately \$3,000.00 on this order.

A purchase order was placed for additional aluminum nozzles for the production piles at a price of approximately \$10.00 each as compared with a price of approximately \$34.00 each on a previous purchase. This reduction in price was the result of continued effort on the part of the Purchasing Division to secure new and better sources of supply. Total savings on this order were approximately \$78,000.00

Two requisitions were received from Project Engineering on which unapproved cost codes were used. This matter was taken up with the Manager of the Project Engineering Division and assurance was given that a reoccurrence of this procedure would not take place in the future.

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PURCHASING AND STORES DIVISIONS PURCHASING DIVISION

PERSONNEL

	<u>Total Personnel as of 11-30-49</u>	<u>Total Personnel as of 12-31-49</u>	<u>Net Change</u>
Exempt	21	25	Plus 4
Non-Exempt	23	27	Plus 4
TOTALS	<u>44</u>	<u>52</u>	<u>Plus 8</u>

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	1
Safety and Security Meetings Held	0
Minor Injuries	0

STATISTICS

	<u>G</u>	<u>D</u>	<u>Total</u>
Requisitions on hand 12-1-49 (includes 91 assigned to Govt.)	654	33	687
Requisitions assigned during December	1,980	99	2,079
Requisitions placed during December	2,206	98	2,304
Requisitions on hand 12-31-49 (includes 44 assigned to Govt.)	428	34	462

	<u>Number</u>	<u>Value</u>
HW Orders placed	1,376	\$553,180.42
HW Alterations placed	107	2,216.84
Total	<u>1,483</u>	<u>\$555,397.26</u>

HWC Orders placed	56	\$ 87,387.16
HWC Alterations placed	14	20,212.54
Total	<u>70</u>	<u>\$ 67,174.62</u>

AEC Orders placed	174	\$ 52,336.00
DC Orders placed	11	51,779.60

	<u>OR</u>	<u>ORC</u>	<u>Total</u>
Government Transfers	8	2	10

Open Orders

HW Orders	1,091
HWC Orders	121
Govt. Orders	16

Number of new orders requiring inspection during month	16
Number of orders requiring inspection completed during month	8
Number of orders outstanding requiring inspection at month end	51
HW Orders expedited (Special Request)	430
HW Orders expedited (Routine)	590
HWC Orders expedited (Routine)	121

PURCHASING AND STORES DIVISIONS
STORES DIVISION
DECEMBER, 1949

GENERAL

During December, Stores active inventories were reduced approximately \$50,000. This reduction was accomplished even though material valued at approximately \$35,000.00 was absorbed into Stores inventories from the Manufacturing Divisions.

The various divisions are cooperating in our joint effort to control and reduce the over-all project inventories.

The physical movement and tabulation of the special material in the 101 Building, Hanford, was approximately complete at month end. Valuations will be established by the Accounting Division within the next few weeks. Control of the special material, however, is entirely under Stores' jurisdiction.

Formal excess lists valued at \$284,370.75 were turned over to the Commission during the month and 26 shipping orders were processed in disposing of materials so authorized.

Scrap sales continued to attract buyer attention and scrap valued at \$10,173.45 was sold during December.

Receipts of incoming shipments increased 25% reflecting a total of 4,137 receiving reports being issued while disbursements remained relatively high.

Inventories of subcontractor held material, with the exception of small tools, were complete and physical custody of same was assumed by the Stores Division. The inventory of small tools is complete except for posting and pricing.

A reduction in Stores personnel of approximately 13% was effected during the month.

1106 purchase requisitions were screened during December with 977 items furnished from plant sources.

A streamlined procedure has been approved whereby the Commission will submit government shipping documents on obsolete materials valued at less than \$25.00 per line item. This maneuver eliminates the necessity of compiling formal excess lists of such materials and likewise does away with the physical handling of such items in our excess accounts. It is estimated that this procedure may eliminate the work performed by three clerks and two warehousemen, resulting in an annual savings of \$14,400.00 per year.

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PURCHASING AND STORES DIVISIONS STORES DIVISION

A selling agent for the disposal of government owned material was established by the Commission, namely the Bureau of Federal Supply. They will conduct sales in the Pasco Warehouses starting after the first of the year. This will permit movement of much material that heretofore has been dormant.

PERSONNEL

	<u>Total Personnel as of 11-30-49</u>	<u>Total Personnel as of 12-31-49</u>	<u>Net Change</u>
Exempt	24	23	Minus 1
Non-Exempt	231	197	Minus 34
TOTAL	<u>255</u>	<u>220</u>	Minus 35

SAFETY AND SECURITY

Inventory Control

Safety and Security Meetings Scheduled	1
Number of Employees Attending	30
Minor Injuries	0

Receiving, Storing and Disbursing

Safety and Security Meetings Scheduled	5
Number of Employees Attending	55
Minor Injuries	0

Surplus, Salvage & Scrap

Safety and Security Meetings Scheduled	4
Number of Employees Attending	101
Minor Injuries	1

STATISTICS

Inventory Control

Number of items added to Stores stock	1,029
Number of items deleted from Stores stock	263
Items in Stores stock at month end	47,927
Store orders filled	18,968
Number of requisitions screened this month	1,106
Number of items furnished from plant sources this month	977
Inventory valuation (903-all captions, 906 & 912)	\$1,989,430.68
Inventory valuation (Spare Parts) at month end	1,544,156.10
Total value inventories at month end, including Spare parts	3,533,586.78
Value of Disbursements, not including cash sale items	150,257.08*
Value of Cash Sales	633.66
Value of Materials Declared Excess	104,500.97
Value of materials returned to Stores stock for credit	6,278.47

*Includes \$3,336.56 disbursed to Construction & CPFF subcontractors.

PURCHASING AND STORES DIVISIONS
STORES DIVISION

STATISTICS (Continued)

Receiving, Warehousing and Disbursing

Receiving Reports Issued	4,137
Emergency Store Orders Filled	-- 2
Returnable Containers on Hand at Month End	6,355
Returnable Containers on Hand over Six Months	1,495
Shipments Processed (Containers and Materials)	157

Surplus, Salvage & Scrap

Excess Account No. 10.10 Balance 11-25-49	\$18,450,522.55
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Receipts 11-25-49 to 12-25-49

Material and Supplies	1,587,553.84	
Automotive Equipment	257,905.44	
Miscellaneous Equipment	139,804.02	
Household Furniture, etc.	2,710.23	
Office Furniture, Machines	6,495.55	
Machine Tools and Equipment	80,069.60	
Suspense(Equipment Adjustments Not Yet Processed)		
	(36,710.18) credit	
	\$2,037,828.50	2,037,828.50
		\$20,488,351.05

Disbursements 11-25-49 to 12-25-49

On Project

Material and Supplies	\$ 21,916.15	
Automotive Equipment	8,814.81	
Miscellaneous Equipment	5,592.04	
Household Furniture, etc.	63.00	
Office Furniture, Machines	62.50	
Machine Tools and Equipment	20,295.03	

Off Project

Material and Supplies	219,312.44	
Automotive Equipment	108,708.67	
Miscellaneous Equipment	18,295.15	
Household Furniture, etc.	31.04	
Office Furniture, Machines	1,691.92	
Machine Tools and Equipment	31,503.16	
	\$ 436,285.91	

Balance of Account No. 10.10 as of 12-25-49

(See attached list for breakdown of materials
in this account by classification)

Total Receipts to Date	\$28,478,054.71
Total Disbursements to Date	8,425,989.57

	436,285.91
	\$20,052,065.14

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PURCHASING AND STORES DIVISIONS STORES DIVISION

Scrap and Salvage Disbursed	
Scrap Sales Completed	8
Scrap Sales in Process	7
Scrap Sale Revenue for the month	\$10,173.45
Total Scrap Sale Revenue to Date	\$147,195.72

RECAPITULATION BY CLASSIFICATION OF ACCOUNT #10.10

<u>Class</u>	<u>Description</u>	<u>Monetary Value</u>
1	Gun Emplacements, Fire Control Instruments	1.25
2	Small Arms	1,429.02
3	Lethal Device Equipment	10.00
4	Ammunition	83.62
5	Flags, Bunting, Pennants, etc.	201.71
7	Fuel	665.82
8	Motor Vehicles: Electric Trucks, Tires, Tubes	655,818.50
9	Boats	62.00
10	Outboard Motors and all Accessories	3,702.18
11	Pumps and Pump Parts	162,411.97
12	Marine Hardware	2,317.88
13	Engine and Fireroom Fittings	6,015.53
14	Lubricants	29,350.33
15	Electric Cable and Insulated Wire	53,109.85
16	Radio and Sound Signal Apparatus	27,165.05
17	Electric Apparatus	1,692,973.31
18	Instruments of Precision and Photographic Equipment	78,162.40
19	Blocks	36,314.09
21	Cordage: Hemp, Jute, Oakum, Twine, etc.	10,595.19
22	Wire Rope, Bare Wire, etc.	52,908.57
24	Canvas, Duck, Tentage, etc.	24,423.23
26	Furniture	281,167.15
27	Textiles: Thread, Findings, Floor Coverings	440,070.82
29	Toilet Articles	7,751.69
30	Bathroom and Toilet Fixtures	60,377.27
31	Non-Electric Lighting Apparatus	2,025.22
32	Fire-Surfacing and Heat Insulating Materials	58,552.76
33	Gaskets, Hose, Packing, Sheet and Strip Rubber, Hose Fittings, Flexible Tubing	136,238.21
34	Belting, Harness, (Leather), etc	2,459.65
36	Music and Musical Instruments	8.50
37	Special Wearing Apparel and Athletic Equipment	131,202.55
38	Brooms and Brushes	5,719.31
39	Lumber	1,067,832.49
40	Machine Tools	789,359.30
41	Hand Tools	462,371.22

PURCHASING AND STORES DIVISIONS
STORE DIVISION

RECAPITULATION BY CLASSIFICATION OF ACCOUNT #10.10 (Cont.)

<u>Class</u>	<u>Description</u>	<u>Monetary Value</u>
42	Builders and General Hardware	250,332.04
43	Bolts, Nuts, Rivets, Screws, Washers, etc.	378,149.43
44	Pipe and Non-Flexible Tubes and Tubing	1,078,497.02
45	Pipe Fittings	2,515,223.58
46	Metal in Bars: Including Flat, Hexagon, etc.	169,649.16
47	Metal in Plates and Sheets	42,782.36
48	Metal Shapes and Structural	40,638.11
51	Acids, Chemicals, etc.	89,695.81
52	Paints and Paint Ingredients	164,119.87
53	Pens, Pencils, Paper, Drafting Room & Printers' Supplies	35,227.90
54	Office Equipment	96,227.61
55	Clothing	6,244.14
57	Laboratory Equipment	49,130.35
58	Fire Fighting Apparatus: Railway Equipment, Prefabricating Buildings, etc.	455,285.34
59	Building Materials: Asphalt, Brick, etc.	174,424.39
60	Boilers and Power Plants	127,754.95
63	Tableware	7,013.03
64	Kitchen Utensils and Apparatus	66,600.20
65	Ovens, Ranges, Stoves, etc.	35,635.79
66	Machinery: Pneumatic Tools, etc.	658,457.47
69	Animal and Hand-Drawn Vehicles	15,956.08
70	Agricultural Implements	1,647.14
71	Badges, Insignia and Medals	1,600.00
72	Leather Boots & Shoes, Leather Clothing, etc.	7,237.72
73	Caps, Hats, Gloves, etc.	32.99
74	Infantry and Landing Force Equipment	796.83
78	Motorized Equipment & Heavy Construction Equipment	7,248,417.79
83	Airplane Accessories, Equipment & Parts	130.33
	Suspense (Equipment Adjustments not yet processed)	52,290.07
	Total of Account 10.10 as of December 25, 1949	20,052,065.14

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PURCHASING AND STORES DIVISIONS TRAFFIC SECTION DECEMBER, 1949

GENERAL

Extended negotiations between this Section and the North Coast-California Rail lines have finally resulted in substantial reductions in freight rates on Iron or Steel articles, as follows:

From San Francisco Group to Hanford

	<u>Structural Steel, etc.</u>	<u>Steel Pipe or Fittings</u>	<u>Cast Iron Pipe or Fittings</u>
Former Rate	\$.85 per cwt	\$.85 per cwt.	\$.82 per cwt.
Approved Rate	.67 per cwt.	.67 per cwt.	.69 per cwt.
Savings	<u>.18 per cwt.</u>	<u>.18 per cwt.</u>	<u>.13 per cwt.</u>

From Los Angeles Group to Hanford

Former Rate	\$ 1.11 per cwt	\$ 1.27 per cwt.	\$.97 per cwt.
Approved Rate	.77 per cwt.	.77 per cwt.	.84 per cwt.
Savings	<u>.34 per cwt.</u>	<u>.50 per cwt.</u>	<u>.13 per cwt.</u>

The rates outlined above are to become effective on statutory notice, and should open up new markets and effect substantial savings in freight charges during future expansion programs.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of December amounting to \$2,825.16. This makes a total savings from September 1, 1946 to date of \$1,133,061.70.

PERSONNEL

	<u>Total Personnel as of 11-30-49</u>	<u>Total Personnel as of 12-31-49</u>	<u>Net Change</u>
Exempt	2	2	0
Non-Exempt	7	7	0
Totals	<u>9</u>	<u>9</u>	<u>0</u>

SAFETY AND SECURITY

Safety and Security Meetings scheduled	1
Safety and Security Meetings held	0
Minor Injuries	0

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PURCHASING AND STORES DIVISIONS TRAFFIC SECTION

STATISTICS

Savings Report

1. Rate Reductions obtained from the carriers:

<u>Commodity</u>	<u>Origin</u>	<u>Savings for December</u>	<u>Savings 9-1-46 thru November</u>	<u>Total Savings 9-1-46 to date</u>
Acid, Nitric	Dupont, Wash.	\$ 912.03		
Gas, Chlorine	Tacoma, Wash.	90.00		
Gas, Nitrogen	Philadelphia, Pa.	74.59		
Soda, Caustic	Tacoma, Wash.	768.26		
Ferric Sulphate	Stege, Calif.	980.28		
		<u>\$2,825.16</u>	<u>\$1,130,236.54</u>	<u>\$1,133,061.70</u>
2. Freight Bill Audit		147.87*	45,128.12	45,275.99**
3. Loss & Damage, and Overcharge Claims		2,122.82	89,094.08	91,216.90
4. Ticket Refund Claims		193.35	6,976.18	7,169.53
5. Household Goods Claims		156.80	13,663.54	13,820.34
		<u>\$5,446.00</u>	<u>\$1,285,098.46</u>	<u>\$1,290,544.46</u>

* Includes \$37.23 for the AEC

** Includes \$19,495.23 for the AEC

Work Volume Report

Reservations Made	Rail	62
	Air	54
	Hotel	54
Expense Accounts Checked		85
Household Goods and Automobiles	Movements arranged inbound	11
	Movements arranged outbound	7
	Shipments traced	3
	Insurance riders issued	4
	Insurance bills approved	12
	Furniture repair orders	2
	Requests for claim billing	3
	Claims filed	5
	Claims collected - Number	7
	Claims collected - Amount	\$156.80
Ticket Refund Claims	Filed	16
	Collected - Number	16
	Collected - Amount	\$193.35
Freight Claims	Filed	8
	Collected - Number	23
	Collected - Amount	\$2,122.82

PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION

STATISTICS (Cont.)

Work Volume Report (Cont.)

Freight Bill Audit Savings	GE	\$110.64	
	AEC	37.23	
Freight Shipments Traced			13
Quotations	Freight Rates		153
	Route		117
Bills Approved	Air Freight - GE		2
	Air Express - GE		9
	AEC		18
	Carloading - GE		69
	Express - GE		125
	AEC		7
	Rail - GE		841
	AEC		3
	Truck - GE		158
	AEC		18
Carload Shipments	Inbound		875
	Outbound		27
<u>Report of Carloads Received</u>			
Latter Day Saints Church	Flooring		1
McCorkle Construction Company	Asphalt		1
Richland Concrete Company	Cement		1
Richland Transportation Company	Coal		12
J. A. Troxell	Steel		<u>1</u> 16
General Electric Company	Caustic Soda		9
	Chlorine		2
	Coal	808	
	Equipment		5
	Express		2
	Ferric Sulphate		4
	Ketone		1
	Lime		2
	Merchandise		4
	Nitrate of Soda		1
	Nitric Acid		7
	Oil		2
	Phosphoric Acid		2
	Plumbing Goods		1
	Presses		1
	Salt		3
	Shovel Parts		1
	Soda Ash		2
	Sodium Bichromate		1
	Sulphuric Acid		<u>1</u>
Total Entire Project			859
			<u>875</u>

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EMPLOYEE AND COMMUNITY RELATIONS DIVISION

SUMMARY -- DECEMBER, 1949

Open requisitions increased from 86 at the beginning of the month to 94 at the end of December. Total plant personnel decreased from 7, 429 to 7, 405. Turnover rate, including terminations due to lack of work, was 1.04 % during December. Turnover rate exclusive of terminations due to lack of work was .55 %. 656 employees are in lack of work status. Seniority dates in 15 seniority groups were brought up-to-date and reissued. Shortage of stenographers and typists necessitated advertising in newspapers in nearby communities.

A draft of a procedure for disciplinary action was prepared during December. 167 visits were made to employees off work because of illness. One employee optionally retired during December. Three employee deaths occurred during the month. Six awards, totalling \$ 85, representing an estimated savings of \$ 771, were granted during the month.

34 supervisors participated in the 40-Hour Supervisors Training Program in December. Supervisory Management Cost Control Program was presented during 37 meetings in December, with a total of 532 supervisors participating. 86 meetings were held for nonexempt employees for the presentation of an economics film, entitled "This Is Our Problem", with 3, 983 employee attending. Three revisions and two additions for the Supervisors Employee Relations Handbook were distributed during the month.

One monthly employee has been added to the payroll of Community Relations to act as the representative of the Division Head, Community Relations. This monthly payroll employee was assigned specifically to handle all public information matters concerned with the Richland Community Divisions. He attends the Community Manager's staff meetings, as well as those of the Division Head, Community Relations, in carrying out his responsibilities which include advising the Community Manager and members of his staff on community and public information matters; the release of information to residents in the form of letters, newspaper articles, and radio releases.

A total of 28 releases were distributed to the "Local List" of newspapers during the month of December, including releases to radio stations in the vicinity. Six releases were sent during the month to the 72 daily newspapers, radio stations and wire services in the Northwest.

"You and General Electric at Hanford Works" was distributed to those on the Richland Community Thought Leaders list as a means of further acquainting them with the efforts of General Electric to keep its employees informed concerning matters affecting them, their jobs, and their Company.

Employee and Community Relations Division
Summary

As a community service, Community Relations assisted in publicizing the Christmas Seal sale campaign during the month. In addition, assistance was given to the Community Safety Supervisor in publicizing the formation of the Richland Safety Council to replace the former Village Safety Committee.

Hanford WORKS NEWS played an important role in publicizing special campaigns within individual divisions of the Nucleonics Department during the month. The newspaper was also active in community service through assistance given to the League of Women Voters in publicizing the precinct map, and in urging Hanford Works people to register and to vote.

A readership survey questionnaire was distributed as an insert in Hanford WORKS NEWS during the month. This project was undertaken as a means of obtaining suggestions from employee readers of Hanford WORKS NEWS on how the paper might be improved as a medium for furnishing them with the information they desire about their jobs, and other information important to them in the course of the employment.

Four special Women's Pages were prepared during the month for Hanford WORKS NEWS by the Women's Feature Writer. Other features prepared by this writer were published in Hanford WORKS NEWS as a means of further stimulating the interest of women employees in the various recreation activities available to them in the course of their work at this plant.

A formal hearing was held by the NLRB in regard to the bargaining rights petition filed by the Building Service Employees International Union. The petition filed by the Hanford Industrial Firemen's Union was withdrawn and resubmitted by the HAMTC. A hearing was scheduled by the NLRB for February 8, 1950, in the case of the Technical Engineers and Architects Association. Conferences were held between representatives of the Metal Trades Department, the HAMTC and General Electric Company for the purpose of discussing mutual problems. Two meetings were held with the Council Grievance Committee. Work was continued on the Northwest Community Rate Survey. A study of rates for Draftsmen and Designers was made. The method of computing the retroactive pay adjustments was explained to the supervisors.

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EMPLOYEE AND COMMUNITY RELATIONS DIVISION

DECEMBER, 1949

ORGANIZATION AND PERSONNEL

Employee Relations

Employment:

Effective December 12, 1949, one General Clerk "D" was upgraded to Clerical Working Leader, for a temporary period to replace the individual assigned to that position, who will be absent for a period of 6 to 8 weeks due to illness.

Employee Services:

There were no organizational changes in this Group during the month.

Training and Program Development:

There were no organizational changes in this Group during the month.

Community Relations

Effective December 13, 1949, one Photographic and Reproduction "D" was hired to assist the Supervisor of the HW Photo House.

Effective December 27, 1949, one Supervisor was added to handle Community Relations Public Information.

Labor Relations and Wage Rates

There were no organizational changes in this Division during the month.

Number of Employees on Payroll	<u>December, 1949</u>
Beginning of Month	80
End of Month	<u>82</u>
Net Increase	2

This addition of two employees was due to increased activities in the Community Relations Division.

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Employee and Community Relations Division

ACTIVITIES

Employee Relations:

Employment:

Due to the reduced work load in the Employment Group during December, one Stenographer-Typist "D" was loaned to the Purchasing and Stores Division for the week of December 19. In addition, another Stenographer-Typist "D" was loaned to the Project Engineering Division, effective December 1. This employee has been on loan during the entire month of December.

	<u>November, 1949</u>	<u>December, 1949</u>
Applicants interviewed	1, 194	1, 048

256 of the above applicants, interviewed in December, were individuals who had applied for employment with the G.E. Company for the first time. 121 applications were received through the mail.

	<u>November, 1949</u>	<u>December, 1949</u>
Open Requisitions:		
Exempt	0	3
Nonexempt	86	94

Of the 86 open requisitions for nonexempt people at the beginning of the month, 41 were covered by interim commitments. Of the 94 open nonexempt requisitions at the end of the month, 35 were covered by interim commitments.

	<u>November, 1949</u>	<u>December, 1949</u>
Employees added to the roll	77	53
Employees removed from the roll	<u>160</u>	<u>77</u>
Net gain or loss	- 83	- 24

Of the 77 employees removed from the rolls during the month, 36 were terminated due to lack of work, 34 of which were in the bargaining unit.

Turnover:	<u>November, 1949</u>		<u>December, 1949</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
Including employees laid off for lack of work	1.81%	2.33%	.9 %	1.62%
Excluding employees laid off for lack of work	.6 %	1.75%	.33%	1.48%
	<u>November, 1949</u>		<u>December, 1949</u>	
Including employees laid off for lack of work	2.14%		1.04%	
Excluding employees laid off for lack of work	1.06%		.55%	

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Employee and Community Relations Division

At the end of December there were 656 employees in lack of work status, divided into the following categories:

Nonbargaining unit employees	245
Bargaining unit employees	411

During the past month, 54 new requests for inter-Divisional transfers were received and reviewed by the Employment Office. As a result of those requests, 5 transfers were effected. In addition, 6 were effected for employees who had received notice of termination due to lack of work.

A review of H.W. Instructions Letter No. 118 was prepared and issued during the month, in order to conform with the issuance of requisitions based upon forecasts approved by the Appropriations and Budget Committee.

A total of 15 seniority groups were brought up-to-date, and reissued to all groups concerned during the month of December.

A program initiated during November to transfer all of the inactive personnel records to the Records Storage Center was approximately 85% complete by the end of December.

A shortage of stenographers and typists in the local labor market continues to prevail. In view of the increased demand by the various Divisions, arrangements were made for advertisements to be inserted for such employees in newspapers in Pasco and Yakima, Washington, and Lewiston, Idaho, in their issues of December 30 and 31, 1949, and January 1, 1950.

Employment Statistics:

<u>Number of Employees on Rolls</u>	<u>11-30-1949</u>	<u>12-31-1949</u>
Exempt	1, 603	1, 622
Nonexempt	<u>5, 826</u>	<u>5, 783</u>
TOTALS	7, 429	7, 405

ADDITIONS

	<u>Exempt</u>	<u>Nonexempt</u>	<u>Total</u>
New Hires	6	26	32
Re-engaged	3	12	15
Reactivations	0	6	6
Transfers (from other plants)	<u>0</u>	<u>0</u>	<u>0</u>
Actual Additions	9	44	53
Payroll Exchanges	<u>18*</u>	<u>1**</u>	<u>19</u>
Gross Additions	27	45	72

* Transferred from Weekly Salary Roll

** Transferred from Monthly Salary Roll

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Employee and Community Relations Division

TERMINATIONS

	<u>Exempt</u>	<u>Nonexempt</u>	<u>Total</u>
Actual Terminations	7	53	60
Removals from Roll	0	17	17
Payroll Exchanges	1*	18**	19
Gross Terminations	8	88	96

Approximately 32% of all terminations were on a voluntary basis, and most of these were for the following reasons: (a) Another Job (b) Personal Reasons (c) Back to school.

GENERAL

	<u>November, 1949</u>	<u>December, 1949</u>
Applicants interviewed	1, 194	1, 048
Fingerprint impressions taken (in duplicate)	223	160
Procurement letters written	541	391

ABSENTEEISM STATISTICS (Weekly Salary Roll)***

Male	2.04 %	1.82 %
Female	8.	3.31
Total Plant Average	2.32	2.17

INVESTIGATION STATISTICS

Cases pending at beginning of month	1, 036	835
Cases received during the month	120	117
Cases closed	321	195
Cases pending at month end	835	523
Cases found satisfactory for employment	59	116
Cases found unsatisfactory for employment	3	2
Cases closed before investigation completed	4	3
Special investigations conducted	24	66

* Transferred to the Weekly Salary Roll

** Transferred to the Monthly Salary Roll

*** Statistics furnished by Weekly Payroll Division

Employee Services:

During the month of December the final draft on a proposed H. W. Instructions Letter, entitled "Procedure for Disciplinary Action", was prepared and circulated to a number of supervisors in the various Divisions for their suggestions and comments.

The New G.E. Group Health Insurance Plan became effective the first day of December for all employees at the Hanford Works. As of that date 93.7 % of the employees at the Hanford Works were participating.

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PRIVACY ACT MATERIAL REMOVED

Employee and Community Relations Division

During the past month a study has been made of the various community services funds that are being installed at other plants of the Company in an effort to determine the advisability of the installation of such a plant at the Hanford Works. Some difficulty is being experienced obtaining the agreement of all agencies who would be included in such a fund due to their objection to participating in allocation under a federated fund program. This plan, if adopted, would permit payroll deduction of contributions made by employees to welfare agencies thus eliminating a plant drive for each campaign.

During December a study has been made of possible revisions of the H. W. Instructions Letter, No. 111, entitled "Ratings -- Exempt Employees".

The following visits with absent employees were made during the month of December by representatives of the Employee Services Group:

Kadlec Hospital	117
Employee at home	10
Weekly salary checks delivered to employees	40

The following trips were made to the Areas by representatives of the Employee Services Group:

Union notices posted in all areas	5
Suggestion System posters	1
U.S. Savings Bonds posters	1
Christmas and New Year's Holidays notices	1

During the past month two Area Council meetings were attended by members of this Division.

The following employee retired during the month:

Wilbur D. Gray, Medical Division, (Optional).

Three employee deaths occurred during December, namely:

_____, Stores Division;
_____, Medical Division; and
_____, Minor Construction Division.

Assistance was rendered to members of the families in each instance.

Composite rating charts for all nonexempt employees, based on the 1949 ratings were prepared and distributed to all Divisions. These charts included a composite rating chart for each Division, together with a composite rating chart for the entire Hanford Works.

During the month of December, 7 employees in lack of work status requested that their separation be changed to resignation, in order that their pension contributions might be refunded to them.

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PRIVACY ACT MATERIAL REMOVED

Employee and Community Relations Division

Five publications of information on employee benefit plans were prepared and submitted for release in the Works News during the month.

A total of 37 certificates for Company appliances were issued by the Employee Services Group during December.

During the past month arrangements were made for space to accomodate the Internal Revenue agents during their period at this Works to assist employees in completing their 1949 Income Tax Returns.

Suggestion System

At the end of December the volume of work in the Office of the Secretary of the Suggestion System was as follows:

	<u>11-1949</u>	<u>12-1949</u>	<u>Total since 7-15-1947</u>
Suggestions Received	165	156	4, 268
Investigation reports completed	15	141	3, 831
Awards granted by Suggestion committee	17	6	501
Cash Awards	\$ 730	\$ 85	\$ 6, 660

In addition to the above one award, in the amount of \$ 1, 000.00, was approved by the Suggestion Committee and forwarded to A.E.C. A. E. C. approval had not been received at the end of the month.

The savings during the month of December as a result of the suggestions submitted were estimated at \$ 771.00. This does not include savings for the \$ 1, 000.00 award mentioned above.

The December 16, 23, and 30 issues of the Hanford Works News included information and photographs concerning the suggestion awards to C. D. Kirkwood and H. S. Robertson, Purchasing and Stores Division, in the amount of \$ 50.00; J. M. Lee, Design Division, in the amount of \$ 20.00; and R. B. Shoen, Employee and Community Relations Division, in the amount of \$ 35.00.

Insurance and Compensation

Public Liability

----- -- On December 9, 1949, Mrs. _____ employed as a Dental Assistant in the Clinic, Kadlec Hospital, underwent a tonsillectomy operation. A local anesthetic was administered and shortly thereafter death occurred. Investigation revealed that a different type of anesthetic than that normally used had been inadvertently administered. In view of the possibility of negligence being involved, this matter was referred to the Travelers Insurance Company on the same date for investigation and handling.

Compensation

----- -- On May 3, 1948, the claimant sustained a lumbar strain while employed by the Atkinson-Jones Company. Claim for compensation was filed at that time with the _____ opposing

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Employee and Community Relations Division

allowance of the claim since it was determined that the claimant had a congenital condition of the lower lumbar scoliosis. The objection was sustained by the Washington State Department of Labor and Industries, and the claimant appealed this decision. On December 20, 1949, a hearing was held at Tacoma, Washington, which was attended by a representative of the Insurance Section and D. S. Cameron of the Law Division. At this hearing the claimant presented medical testimony by his physician who stated that in his opinion the disability resulted from the original injury. At that time the representative of the Company requested that the continuance be granted in order that they might present testimony at a later date of the Company physicians who examined this claimant.

On November 22, 1949, the Washington State Department of Labor and Industries entered a final award order for the above claimant in the amount of \$ 850.00, which consists of \$ 290.00 for 10% partial permanent disability of the right hand which is alleged to have resulted from an injury received by the claimant while an employee of the Company on this Project, and time loss from December 5, 1948, to May 31, 1949, in the amount of \$ 560.00. On December 23, 1949, the General Electric Company filed an appeal to this order on the grounds that the claimant's condition was not the result of any industrial injury since two unbiased physicians in a medical report indicated that the ganglion cyst for which the award was granted had no relationship whatsoever to the injury which occurred in September, 1948.

- On November 22, 1949, the Washington State Department of Labor and Industries entered an order allowing the claim of the above claimant for a condition which is alleged to have been incurred by the claimant while working with office machinery. The claimant alleged that a lump developed on the right forearm, which was caused by the work with office machinery. The Medical Division believes that the condition was not job connected because there was no history of any definite injury, and for this reason the claim was originally opposed. On December 23, 1949, an appeal was entered to the order rendered by the Department of Labor and Industries on the grounds that there was no report or complaint of injuries, nor has any injury been verified as the result of the claimant's employment. In addition the claimant was employed at a local drug store outside of her normal working hours, and there is a possibility that a disabling injury could have occurred while in this employment. It was also pointed out that the report of accident did not specify any cause for this condition.

Life Insurance

Code information for use by insurance companies in issuing insurance to employees of this Works was furnished to 29 insurance and investigation agencies during the month of December.

	<u>11-1949</u>	<u>12-1949</u>	<u>Total since 9-1-1946</u>
Claims reported to the Department of Labor and Industries	39	22	3, 191
Claims reported to Travelers Insurance Co	9	8*	389

Employee and Community Relations Division

Training and Program Development:

During the week December 12-16, the 40-Hour Supervisors Training Program was again presented on a plantwide basis, with a total of 34 supervisors in attendance.

In accordance with the objectives set forth for the last four months of 1949 by the Training and Program Development Group, a Supervisory Management Cost Control Program was prepared. This program was developed for the purpose of presenting to supervisors methods of eliminating waste in minutes, manpower, machines and materials. Notices of the meeting dates on which this Program was to be presented was furnished to all Superintendents and Division Heads on December 1, 1949. Together with this notice was attached an outline of the Program to be presented. Meetings were scheduled in all Arcas on December 5, 12, 19, and 26. The meetings lasted one hour and a total of 532 members of management attended. Comments received from those participating in these programs indicated that this type of information was desired. In addition, a number of suggestions were received requesting additional information on this subject of elimination of waste be prepared.

In order to present nonexempt employees some information on economics, a film, entitled "This is Our Problem", prepared by the Joint Committee of A.N.A.-A.A.A.A. on Economics, was exhibited during the month of December. Information relative to this Program was forwarded to all Superintendents and Division Heads on December 1, 1949, and the meetings for the presentation of this film were held on December 5, 12, 19, and 26. A total of 86 meetings were held during these days, with 3,983 employees attending. It is interesting to note that approximately 20% of those employees attending were exempt employees who had not had the opportunity of seeing this film at previous presentations.

During the past month 35 additional supervisors Handbooks on Employee Relations were issued by the Training and Program Development Group to supervisors in various Divisions at the request of their Division Head or Superintendent. Total number of Handbooks distributed to date has been 1,175. During the past month the following revisions were mailed to all supervisors who possess the Supervisors Handbook:

1. Payroll Procedures
2. Classified Matter
3. Group Life Insurance

Also the following additions were distributed during December:

1. Rating of employee -- Nonexempt
2. Cross index between Supervisors Handbooks and H.W. Instructions Letters

At the present time a number of revisions, as well as a few additions, are in the hands of the printers.

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Employee and Community Relations Division

During the month of December a total of 33 new employees were given orientation. Of this number 58% elected to participate in the Group Life Insurance Plan, and 93% elected to participate in the G.E. Health Insurance Plan. In addition to the above, 11 re-engaged employees were given orientation, of which 63% elected to participate in the Group Life Insurance Plan, and 90% elected to participate in the G.E. Health Insurance Plan.

During the month of December considerable time has been spent on the preparation of a 1949 report for the Training and Program Development Group. At the same time a prospectus for the year 1950 is also being prepared.

During the month of December a study was made for the purpose of preparing a program on the subject, "Accountability of Fissionable Materials".

A summary of the results of the questionnaire on the Company's Employee Relations News Letter was forwarded to all individuals on the supervisor's mailing list on December 21. Of the 1, 161 questionnaires distributed, 493 were returned, which resulted in a comparatively good cross section of the opinion of those supervisors receiving this publication. The results of this survey clearly indicated that the vast majority of those supervisors receiving the News Letter read it thoroughly and were very much in agreement with having information in it concerning companies other than their own. It was also obvious that there was a little disagreement with respect to the manner in which the information was presented. A majority of the persons receiving this publication felt that the information presented was of value to them both as supervisors as well as individuals. Many interesting comments were received which are being forwarded to those responsible for this publication.

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Employee and Community Relations Division

Labor Relations and Wage Rates

Labor Relations:

In a formal hearing held by the NLRB on December 6, 1949, the Company and the Building Service Employees International Union stated their cases in regard to the pending petition requesting bargaining rights for certain employees engaged in building service work. The testimony given in this hearing was referred to the National Labor Relations Board in Washington, D. C. for their decision in the matter.

On December 28, we were notified by the NLRB that the petition submitted by the Hanford Industrial Firemen's Union No. 37 had been withdrawn without prejudice and that the HAMTC had filed a petition covering the same employees. This petition includes only firemen and inspectors assigned to the outer areas.

A hearing was scheduled for January 17, 1950 by the NLRB in the case of the Technical Engineers and Architects Assn. and one week after receiving the original notice, we were informed by the NLRB that the hearing had been postponed until February 8, 1950.

Conferences were held on December 5, 7, 9, 12 and 13 between representatives of the Metal Trades Department of the AFL, the HAMTC and General Electric Company. These conferences were for the purpose of discussing matters of mutual interest and were intended to improve present procedures for more effective relations between the Company and the Union. The chief topic under discussion was the grievance procedure. Other subjects discussed included seniority, jurisdiction and shift schedules.

Grievance Statistics:

Thirteen grievance reports were received during the month, bringing the total received since the grievance procedure was established to 175:

Health Instrument	1
Manufacturing - Power	3
Manufacturing "S"	2
Manufacturing - Transportation	3
Manufacturing "P"	1
Plant Security & Services	1
Village Labor	1
Village Power	<u>1</u>
Total	13

Employee grievance reports were regarding the following subjects:

Jurisdictional	2
Holidays	2

Employee and Community Relations Division

Sick Leave and Days Off	1
Vacations	1
Seniority	2
Information to Council & Employees	1
Grievance Procedure	1
Wage Rates	<u>3</u>
Total	13

The status of all grievances received to date is as follows:

Settled satisfactorily, Step I	53
Not Settled Satisfactorily, Step I	122

Of the 122 grievances not settled at the Step I level, 57 have been satisfactorily processed at the Step II level and were settled. Only 6% of the total grievances received to date have been submitted by employees outside the bargaining unit. Forty-eight per cent of all grievances were submitted by employees in only 9% of the divisions.

Meetings:

The Council Grievance Committee and the Company Negotiating Committee met twice during the month for the purpose of processing grievances at the Step II level. All supervisors were informed regarding the disposition of the grievances discussed at these meetings.

Wage Rates:

Work was continued on the Northwest Community Rate Survey during the month of December.

A study of rates for Draftsmen and Designers, together with progression schedules, automatic and merit, for employees of these classifications was made. Charts were prepared and data accumulated and comparisons made with other General Electric works rates and schedules. These, in turn, were reviewed with supervisors in the divisions concerned.

Supervisors who had questioned retroactive pay adjustments made to their employees for the period April 11 to August 15, 1949 were contacted and the rate schedules and method of computation were explained to the supervisors by a representative of the Wage Rate Division. The immediate supervisor then was in a position to explain the retroactive adjustment to the individual employee and to answer pertinent questions.

Individual jobs were studied and classifications and rates determined. Individual supervisors were contacted relative to the job content and write-ups were prepared where job content had been changed or new jobs were established.

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On December 8, 1949 a Reimbursement Authorization Request was submitted to the Atomic Energy Commission for approval. This request covered "call-in time" which was inadvertently omitted from reimbursement request of June 23, 1949.

Statistics

Transfer Monthly to Weekly	1
Transfers Approved	33
Job reclassifications approved	131
Automatic increases	335
Merit increases	2

Employee and Community Relations Divisions

Community Relations

"Public Information" - Community

Informative newspaper releases made during the month to the "Local List" of newspapers and radio stations served, which includes the VILLAGER, Tri-City HERALD, Spokane CHRONICLE, Hanford Works NEWS, Walla Walla UNION-BULLETIN, Pasco NEWS, Pasco HERALD, Kennewick COURIER-REPORTER, Yakima MORNING HERALD, Lind LEADER, radio stations KPKW, KWIE, and KIT, including release dates were as follows: (A large number of both local and general news releases are being sent out for immediate release. In such cases the date on which the release was sent from this office is indicated below).

- 12/1 It was explained that an employee was found in his dormitory room dead from a gun shot wound. The death was later confirmed as Richland's first suicide. This information was made available to newspapers through the News Bureau so that reporters wouldn't contact hospital, patrol and other sources of information.
- 12/4 A release describing the adult education program to be completed this winter by Community Activities Division was sent to local media.
- 12/4 The Community Safety Supervisor announced the formation of a Richland Safety Council which will replace the present Village Safety Council on January 1.
- 12/5 A Community Patrol captain suggested methods by which residents can guard against daytime burglaries.
- 12/5 Another local release by the patrol captain reported that the incidence of stolen bicycles is increasing and he suggested preventive measures.
- 12/6 The Richland seal sale chairman for the Benton-Franklin County Anti-Tuberculosis League said that approximately \$2,000 worth of Christmas seals had been sold in the two counties to the date of the story.
- 12/6 Precautions that should be taken against the fire hazards presented by Christmas trees and their decorations were pointed out by the Richland Fire Marshal.
- 12/7 A coming power outage was announced.
- 12/8 It was announced that Richland's First Candle Lighting would be presented December 17 by the Richland Youth Council. Photographs taken at rehearsals were distributed with cut lines to local papers.
- 12/13 It was announced that a new parking lot being constructed in Richland's downtown business district would have a capacity of approximately 50 cars.

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Employee and Community Relations Divisions

- 12/13 At the request of Richland's Community Council a statement was released by the Community Fire Marshal calling attention to methods of effectively fireproofing Christmas trees.
- 12/13 An electrical outage was announced.
- 12/20 Three power outages scheduled for December 28, 29 and 30 because of the replacing of poles and transfer of primary lines were revealed.
- 12/28 A report of a fire starting in a Christmas tree by Christmas tree lights was distributed. The blaze was put out by a fire extinguisher which the resident kept near the tree for that purpose.

VILLAGER only

- 12/1 An outline of information about North Richland to be used as source material for a feature story was presented to the VILLAGER at their request. The outline explained the administration of the town, listed businesses still open and those that have closed, reported Representative Jackson's prediction of numbers of construction workers required, told the history of North Richland hospital, the size of cafeteria number 3, and gave other information about housing, trailer lots, rents, school facilities and population.
- 12/9 In response to another request, a story was given to the VILLAGER outlining inhalator--resuscitator--aspirator equipment that patrol keeps available in case of emergency.
- 12/14 Following the appearance on December 12 of a story in the Tri-City HERALD which stated that the operating budget for Richland during the present fiscal year amounts to approximately 7 times the operating budget for Walla Walla, a request was received from the VILLAGER for a statement on this matter. The statement, quoting the Richland Community Manager, said that if the Walla Walla and Richland budgets are placed on a comparable basis, Richland's budget amounts to approximately one and one half times the budget for Walla Walla. A copy of this story was given to the Tri-City HERALD and they published it on the front page.
- 12/16 The VILLAGER obtained from United Press a number of facts concerning traffic safety, arrests, health, and vital statistics from Oak Ridge. They requested similar information to be used in a story comparing Richland with Oak Ridge. They received the information, but it has not appeared in the VILLAGER to date.
- 12/20 The showing of the film "This Is Our Problem" to all Hanford Works employees as part of a program to keep them aware of the American system of free enterprise was announced in this release. The story resulted from a question from the VILLAGER prompted by the right of employees attending the Villager Theater on week day mornings.

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Employee and Community Relations Divisions

- 12/22 The Richland Patrol Chief urged residents not to park in front of private driveways when attending evening functions at schools and churches.
- 12/22 Charges made to tenants by tenant relations for repair work done in homes were released and given to the VILLAGER at their request. That paper will include the charges in a story that explains the services that are available to tenants.
- 12/28 The VILLAGER requested and was given a story explaining what is being done at North Richland to get ready for the expected increase in population. A copy of this release was also given to the WORKS NEWS.

Tri-City HERALD only

- 12/7 A statement was dictated to the Tri-City HERALD in response to a request concerning G.E.'s alleged violation of the Davis-Bacon Act. It was stated that there had been no violation of the Act.
- 12/9 A statement was given to the HERALD concerning the death that occurred at Kadlec Hospital due to an overdose of anesthesia.
- 12/20 A statement of the present status of Richland merchants' request for a street through the Greenway was given to the HERALD. The number of parking spaces in uptown and downtown Richland were included in this story.
- 12/28 A HERALD representative was given a statement concerning plans to control the large pile of sand just south of the Elm and Swift intersections. Plans for the control of dust that blows from an open space west of Wright Avenue were also given to the HERALD.
- 12/30 A statement by the General Manager of the Nucleonics Department concerning accomplishments of 1949 and objectives of 1950 at Hanford Works and Richland was given to the HERALD. The statement was used in a special New Years Day story along with statements from other prominent figures in the three cities.

Spokane CHRONICLE only

- An outline of facts concerning certain projects completed in Richland in 1949 was given to the CHRONICLE representative. The facts concerned the new railroad spur, sewage plant, uptown business district, shelter belts and the paving contract.

Films

The following G.E. films were shown to the Richland groups in December:

- | | | |
|----------|-------------------------------|-------------------|
| 12/23/49 | "The Light in Your Life" | Community Patrol |
| 12/29/49 | "Excursions in Science No. 1" | Triple -Teen Club |
| 12/29/49 | "Magic of Fluorescence" | Triple-Teen Club |

Employee and Community Relations Divisions

Special Stories

12//8 A 1500 word feature story on the churches of Richland was sent to the Yakima Morning HERALD at their request. The story explained that a million dollars is being spent here by churches in a construction program. The reason for this construction is the recent decision of the AEC to permit churches to build their own church buildings. Eight photographs of new churches and churches under construction were sent with cut lines to the Yakima paper. Copies of this story and photographs have been given to the Walla Walla BULLETIN, WORKS NEWS, and the VILLAGER for release after the story appears in the Yakima Morning HERALD.

G.E. Publications

A man from 300 Area picked up 3 copies of each of approximately 25 G.E. booklets. He will distribute them in 300 Area where he sees there has been a demand for the booklets. A later contact will be made with him and if the survey seems to warrant it, an attempt will be made to make a stock of the booklets available in 300 Area and other Areas.

A dozen copies of each of the six G.E. comic books were given to a Richland grade school teacher for distribution to her class and to be placed in two other classes.

During the month 1000 copies of a new G.E. comic book "Adventures Into the Past" and 1000 copies of another new booklet "Edison and Electricity" were ordered from the East on a no-charge basis.

"Public Information" -- General

Informative newspaper releases were sent to 72 of the leading daily newspapers, wire services and radio stations in the Pacific Northwest during the month. The release date is given for each story, and they are as follows:

12/12 A description of a railroad classification yard under construction west of North Richland was distributed in a general release.

12/14 The appointment of a new manager of Hanford Works Design and Construction Divisions, effective December 15, was made to daily newspapers.

12/15 Appointment of E. F. Charette as assistant accountant at Hanford Works was announced.

12/16 A 1000 word feature story about Lt. L. C. McGwinn, one of the nation's top pistol marksmen was sent to daily papers. He operates the firing range for Richland and Hanford Works patrolmen. Photographs of McGwinn were sent to selected daily papers. A copy of the story was sent to R. W. Jackson, representative of the Advertising and Publicity Department in San Francisco, far enough ahead of the release date so that he could distribute the story as he saw fit.

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Employee and Community Relations Divisions

- 12/16 G.E.'s Design and Construction Divisions Manager announced that Atkinson-Jones was awarded a contract for the major portion of work to be done in 1950 on the coming two-year construction program.
- 12/24 The intention to invite bids for painting and applying asbestos siding to the exterior of the Hanford Works administration building was announced.

Other Activities

The story on Richland churches, a complete list of ministers or other church representatives, and photographs of the General Manager, his assistant, and the Assistant to the General Manager in charge of Technical and Educational Matters were sent to the Walla Walla UNION-BULLETIN for use in their annual edition.

Photographs were taken for the Richland Lions Club and the Richland Jaycees during the month. The subject of one photograph was the Community Manager buying an 8-Ball Club membership from a Jaycee. The Community Manager also posed for the Lions Club buying the first ticket for a stag banquet scheduled in January. The photographs were distributed to local newspapers by representatives of the two organizations.

A photograph of a Princeton graduate, who works at Hanford Works, was taken and sent to the General News Bureau for a story they are planning for the Princeton alumni periodical.

"Employee Information" -- Special Programs

Publicity for Richland's first Christmas Tree Lightning, which was sponsored by the Richland Youth Council and the Community Activities Division, was handled by Special Programs. Publicity included posters, news stories and pictures which were released to local newspapers through the News Bureau, and a picture published in the WORKS NEWS. The Christmas ceremony was produced especially for children, and approximately 250 children and parents attended. Script for the production was edited by Special Programs.

Assistance was rendered by Special Programs to the Community Safety Supervisor in publicizing in local newspapers the formation of a Richland Safety Council to replace the former Village Safety Committee. Purpose of the new community safety organization is to educate residents of Richland in community safety matters, rather than to make specific recommendations to various Community Divisions concerning installation of safety devices within the town. The new organization is composed of members of local community service organizations, rather than of having a membership consisting only of G.E. personnel.

Newspaper publicity was prepared by Special Programs to assist in the Christmas Seal sale campaign during December. Publicity released to local, daily and weekly newspapers through the News Bureau included pictures of representatives of the personnel of two Richland schools presenting checks to the local drive chairman, and a news story which presented the need for responding to the drive.

Employee and Community Relations Divisions

Copies of the new employees' handbook, "You and General Electric at Hanford Works", were sent to community thought leaders with a letter from the Community Relations Division Head. As in previous communications with thought leaders, the letter pointed out that the handbook was being sent to all Richland spiritual and educational leaders with the thought that it would be of interest and value to them in their work in the community.

Considerable time was spent by Special Programs during December in compiling lists of technical publications prepared in other Departments of the Company. Compilation was started during the last part of October, and additional letters were mailed during December to those Departments and affiliates from which replies were not received. Purpose of the compilation is to make available to selected personnel within the Nucleonics Department reports of technical advancements made elsewhere within the Company.

A nine-minute interview-type radio script covering the G.E. Educational Assistance Program was prepared by Special Programs during December and broadcast over a local radio station by the Employee Services supervisor. The script was broadcast in conjunction with the December 19 broadcast of the "Headlines in Chemistry" program which is sponsored by the Richland section of the American Chemical Society.

In line with Special Programs publicity activities in promoting the presentation of health topic of the month material during safety meetings and in achieving as wide publicity of the health topics as possible, the December meeting of the Health Activities Committee was attended by a member of the Special Programs who acted in an advisory capacity. Arrangements were made at the meeting for the presentation of an employees' health topic meeting which would provide suitable picture subjects for publication in the WORKS NEWS.

A suitable Christmas display was prepared through Special Programs by the Community Relations commercial artist for the display case in front of the Municipal Building.

A list of rules and regulations covering the use of the Richland Community House, a portion of the Recreation Hall which is maintained by the Community Activities Division for recreational use by various Richland organizations, was revised from a community relations standpoint by Special Programs.

Final report of publicity and promotion activities carried out by the Employee and Community Relations Divisions in presenting the new G.E. Group Health Insurance Plan to employees was prepared by Special Programs. The report included an explanation of the steps carried out in promoting the new Plan, a copy of the basic promotion plan, and copies of publicity materials.

Printing page proofs of the Nucleonics Department section of the G.E. Organization Directory were received during December, and were returned to the Advertising and Publicity Department in Schenectady after corrections were made and approvals obtained from the various Division managers by Special Programs.

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Employee and Community Relations Division

At the request of the Health Instrument Divisions, a technical report cover was designed through Special Programs by the Community Relations Division commercial artist.

Special Programs assisted in the formulation of a basic promotion plan for impressing employees with the urgent need for accounting for all fissionable materials at all times. In line with this objective, two copies of part #9 of the Congressional Investigation Report on the Atomic Energy Program were obtained for use in preparing the accountability program.

A Suggestion System poster based on the theme, "Better Use of Materials", was produced by Special Programs during December. It was the fourth in a series of four posters designed to stimulate participation in the Suggestion System at Hanford Works during the Wilson 50th Anniversary Celebration. A significant increase in the number of suggestions submitted was recorded. During the first eight months of the year an average of 94 suggestions were submitted each month. During the last four months of 1949 when the Suggestion System promotion campaign was carried out, suggestions averaged 136 per month.

Classified advertisements for recruiting of stenographers and typists were prepared by Special Programs for the Employment group and scheduled to appear in the following newspapers on the dates indicated:

Yakima HERALD	Dec. 30, 31 and Jan. 1
Yakima REPUBLIC	Dec. 30, 31 and Jan. 2
Tri-City HERALD	Dec. 30, 31 and Jan. 1
Lewiston TRIBUNE	Decm 30, 31 and Jan. 1

A record of Richland's vital statistics and some facts about Kadlec Hospital's facilities and Public Health Activities was compiled for use by a local newspaper at the request of the News Bureau. The report included such information as the number of babies born at Kadlec Hospital, number of deaths, number of hospital beds, and comparison of communicable disease rates with the State averages.

"Employee Information" -- WORKS NEWS

During the month of December five issues of the WORKS NEWS were published. In each of these issues the listing of new telephone numbers was carried for the convenience of Hanford Works telephone subscribers with the monthly supplement being inserted in the last issue. "Candid Camera" for the previous month was inserted in the first issue of December.

In the issue of December 2 publicity was given to the safety quiz contest being conducted by the Transportation Division.

At the request of the League of Women Voters a precinct map was reproduced showing new voting districts with a story accompanying the map asking H.W. people to vote in the election. Continuing cooperation was given to the Richland Post Office in urging early mailing of Christmas cards and packages.

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Employee and Community Relations Divisions

The Maintenance Division Safety Derby was given publicity in the issue of December 9 with a more detailed explanation governing the derby rules. Employee Sales Plan representatives were relisted for the convenience of H.W. people. Advance publicity was given to the WORKS NEWS Survey acquainting readers with the fact that their opinions would soon be asked. A final article was included relative to early Christmas mailing.

In keeping with the objectives outlined for the WORKS NEWS for the year of 1949 a readership survey questionnaire was inserted in the issue of December 16 asking for the opinions of the WORKS NEWS readers regarding the paper. The purpose and nature of the questionnaire was explained in an editorial box on the front page. The full-page questionnaire is designed to obtain suggestions for improvement of future issues of the WORKS NEWS based on trends indicated. The questions were formulated to accomplish the above purpose.

As a service to the employees an article was run regarding social security deductions being increased as of the first of the year.

In the issue of December 23 reference was made to the fact that the returns to date on the WORKS NEWS questionnaire have been most encouraging. It is estimated that approximately 500 questionnaires have been returned and more are still coming in. An editorial Christmas message to all Hanford Works people was prepared for the signature of the Hanford Works General Manager and the A. E. C. Hanford Manager. A special effort was made to give an effective appearance to the Christmas issue. It was printed in green ink with a "Merry Christmas" banner.

Due to the short holiday week the issue of December 30 was reduced to four pages. An editorial message stressing the aims for the coming year at Hanford Works was prepared for insertion in a front page box over the signatures of the Hanford Works General Manager and the A. E. C. Hanford Manager. Recognition of the excellent safety achievement of Hanford Works during the past four months was given in a front page article announcing that the goal would be reached midnight December 31. This issue was also printed in green ink in observance of the New Years holiday.

During the month a program was submitted for approval regarding the proposed selection of Associate Editors representing reporter groups. This plan is intended to give closer association between the WORKS NEWS staff and its contributors with the over-all aim of improving reporter copy.

"Employee Information" -- Women's Features

Four women's pages were prepared by the women's feature writer during the month of December for the Hanford Works NEWS.

The first appeared on December 2 and featured file clerks under the heading "G-E Suzies Keep Order in Hanford Works Files". A write-up and accompanying photographs gave publicity and prestige to career possibilities for Hanford Works Women with General Electric. A second feature on the page offered 16 mm. sound and color films for the use of Hanford Works social and professional organizations.

Employee and Community Relations Divisions

The Community Activities Division Recreation program was promoted on the women's page which appeared December 9. Called "Suzies Spends Her Leisure at Spalding", the article and accompanying photographs featured Women's Recreation Nights, Co-Rec nights for men and women and the fencing club.

"Pretty Parcels Add Glamour to your Christmas" was the title of a feature listing tips and ideas for gift wrapping which appeared December 16. An H.I. Divisions employee who specializes in gift wrapping and teaches a class during the pre-holiday season, was shown as the authority for the article.

A Christmas editorial shared the women's page with a G.E. Consumer's Institute article on how to take care of small Christmas gift appliances in the December 23 WORKS NEWS.

Twenty-five booklets, "It's Lunchtime," were distributed at the request of readers during the month of December. This booklet was offered in an article on packing lunches which appeared the last week in November. The booklet was furnished by the National Dairy Council.

Recreation features in the WORKS NEWS during the month of December were as follows: Square Dance Club inviting any Hanford Works adults for Friday night sessions at Lewis and Clark School at no charge; a Treble Clef benefit concert for the Kadlec Auxiliary - December 2; Treble Clef was publicized again in the December 9 issue for its December 12 concert; "The Messiah" traditional Christmas Concert was promoted on December 16 for December 18 concert with Hanford Works people taking part in chorus, solos and orchestra.

Every week a feature appears in the WORKS NEWS as a service to persons seeking rides or riders to nearby week end or vacation spots. During the month of December, 185 requests were received for the following destinations: Boise, Los Angeles, Seattle, Portland, Spokane, Casper, Wyo., San Francisco, Pocatello, Denver, Medford, Fort Worth, Lewiston, Ida., Wenatchee, Yakima, Colorado, Pullman, Oak Ridge, Tenn., North Carolina, The Dalles, and Hood River.

Skiers were invited to use Share a Ride service in the December 9 WORKS NEWS. However, it was the opinion that snow was not yet ready and a second notice will be printed in a later issue of the NEWS.

Hanford Works Photo House

The efforts of the Hanford Works Photo House during December were directed at providing complete photographic services for all divisions of the Nucleonics Department.

Classified work included making photographs necessary to complete a graphic record of the manufacturing processes involved in the production of plutonium at Hanford Works.

Color slides were prepared for the Medical Divisions to record several unusual medical cases.

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Employee and Community Relations Divisions

Technical Divisions, Safety and Fire Protection Division, Community Relations, Purchasing Division, Health Instrument Divisions, Employment and Electrical Division all requested the services of the Photo House. In addition, assistance was given the AEC in the production of classified photographs.

As a result of such requests, the number of photographic assignments was increased from 39 in November to 56 in December. It is evident that requests for photographic services will continue to increase as the availability of the facilities of the Hanford Works Photo House become known throughout the Department.

Hanford Works Photo House

DIVISIONS	8"x10"				5"x7"				2"x4"				2" x2"				Classif. Prints				TYPE OF PRINTS				Negatives				Negs. Classif.				Color Slides				Prefab. "A" Bad.				PH-28			
	24				27																5				14				20															
Medical	24				27																5				14				20															
Technical																	10																											
A.E.C.																	108																											
Telephone	65																24								14																			
Design. & Constr.																																												
Safety	11																				11																							
Purchasing	20																94				12																							
Manuf. Gen.																					4				96																			
H.I.	12																																											
Emp. & Comm. Rel.																																												
Employment									239				2143								135												221				208							
Community. del.																																												
Special Progr.	64																				41																							
News Bureau	116																				23																							
WORKS NEWS	203																				132																							
TOTAL	515				27				239				2143				236				358				124				20				221				208							
Total Prints - 3160																																												
Total Neg. 482																																												
Photo Appointments - 56																																												

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PHOTO HOUSE

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COMMUNITY DIVISIONS

SUMMARY-DECEMBER, 1949

ORGANIZATION AND PERSONNEL

Number of employees on roll:	<u>Beg. of Month</u>	<u>End of Month</u>
Community Administration	5	5
Community Accounting	28	28
Community Public Works	421	420
Community Safety	3	3
Community Commercial Facilities	16	16
Community Housing	40	40
Community Fire	129	128
Community Patrol	83	83
Community Activities	12	12
	<u>737</u>	<u>735</u>

Changes in the force of the Community Divisions during the month of December, 1949, were as follows:

	<u>Reduced</u>	<u>Increased</u>
Community Administration	-	-
Community Accounting	-	-
Community Public Works	1	-
Community Safety	-	-
Community Commercial Facilities	-	-
Community Housing	-	-
Community Fire	1	-
Community Patrol	-	-
Community Activities	-	-
	<u>2</u>	<u>0</u>

TOTAL DECREASE, December, 1949 = 2

GENERAL

The Charter under which the Richland Community Council will operate was officially adopted and approved by representatives of the Atomic Energy Commission, the General Electric Company, and members of the Community Council.

Five new commercial enterprises opened for business.

There was no significant change in the number of housing applications.

The usual activities, programs, etc., related to the Christmas and New Year holiday season was evident.

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COMMUNITY DIVISIONS
PUBLIC WORKS DIVISIONS
DECEMBER 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll	<u>EXEMPT</u>	<u>NON EXEMPT</u>	<u>TOTAL</u>
November 30 1949	59	362	421
December 31 1949	59	361	420

Personnel changes made during the month:

New Employees	1
Transfers from Minor Construction	1
Transfers from Electrical	2
Transfers from Housing	1
Transfers to Minor Construction	1
Transfers to Maintenance	1
Transfers to Power	1
Leave of Absence	1
Terminations	3

NOTE: One employee reported on leave of absence last month is included in terminations for December.

GENERAL

A method of compiling backlog reports on IBM machines has been put into operation. This report is prepared weekly and is segregated into a backlog for each of the Maintenance Section foremen. This report is valuable for a review of manpower requirements, type of jobs on hand and to indicate type of work remaining undone.

Some comparisons are being made in manpower required for present Community Public Works functions with requirements during January, 1948. For example, 339 people were required for 700-1100 Area maintenance work in January, 1948 and 213, including 50% of Public Works administration, were required in November of 1949. This decrease in personnel has been made in spite of an increase of 1857 in the number of housing units in the Community, requiring maintenance. One factor in the decrease is the reduction of furniture and fixture repair work. This work involved approximately twenty people. The balance of the reduction was due to greater efficiency of operation.

PROJECTS

C-203-Part III - Water Supply and Sewage Facilities for Richland Village and North Richland Construction Camp - General Field Release made to field 12-16-49. Three work orders were issued to maintenance for the installation of guard rails around structures.

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PROJECTS (CONTD)

Drawings for water lines 90% complete. Specifications are completed in rough draft and cost estimate is approximately 60% complete.

Design for outside stairs for digestors is complete. Drawings are 95% complete and cost estimate is 60% complete.

Work orders are being released to the field as soon as design can be completed and drawings prepared.

C-282-R - Richland Community Dust and Pollen Control Program - High winds during the latter part of the month eroded many of the areas seeded to the extent that some reseeding will be necessary in the spring.

Work is progressing satisfactorily on the construction of the By-Pass Shelter-belt. The job is approximately 20% complete, with a substantial part of the planting completed to the sand hill south of Swift Boulevard extended. Every effort is being made to control the dust situation arising from the construction of this belt.

During the month of December, 643 street trees have been planted on 15 streets. Streets started during the month are Cedar Elm, Chestnut, Duportail, Basswood, Swift, Ash, and North George Washington. The work has been retarded some by shallow frost and by limited manpower. This gives a total of 1450 street trees planted this season. Field release No. 5 issued 12-13-49.

C-345-R - Attic Duct Insulation - Precut Houses - Field release No. 1 issued 12-8-49. 190 completed by December 30, 1949. 42 precut completed.

C-348 - Installation of Asbestos Siding - 703 Building - Modification of Directive was received and issued 12-2-49. Specifications for siding and painting trim revised 12-9-49 and issued 12-13-49. Advertised for bids on 12-24-49. Bid opening to be on or about 1-17 50.

C-351 - Installation of Irrigation System - Public Grounds - Final draft reason sheet was prepared and issued 12-5-49.

The following work was done on streets and storm sewers:

- Referenced in monument near park that was to be removed.
- Traffic light was moved from Van Giesen and By-Pass to Williams & Goethals.
- Parking lot was designed for Hospital.
- Parking problems at Swift and Wright shopping areas were corrected.
- Scope of work was revised to fit into new 1951 budget approvals.
- The procurement of asphalt tank from surplus is being processed.

Work done on irrigation is as follows:

Very little work was done on general maintenance with the exception of repair of irrigation equipment for the coming year and ordering of necessary new parts for sprinklers.

Community Public Works Divisions

PROJECTS (CONTD)

Report on emergency irrigation of blow areas is as follows:

During the month a tour was participated with AEC Mangement to look over all of the areas in town that were eroding badly and causing considerable damage to buildings lawns, and creating irritation to tenants.

Where water cannot be obtained, brush will be placed or area stabilized with rock. Large areas in west part of town were left torn up by Construction with no provisions to tie down blowing sand which will require approximately \$42,000 to care for these areas at this time.

It was decided that the portable agricultural lines would be used as far as available pipe would go in these areas; water to be taken from fire hydrants. The balance of the work is to be covered with invasion pipe with attached sprinklers. The general area involved is that area extended from Spalding School south in the general vicinity of the old railroad right-of-way.

A second area begins south of the intersection of Duportail and Sanford, extending to the vicinity of the irrigation canal and thence Northeast across the playground at Carmichael School. A map will be prepared to show the areas of work and locations of these irrigation installations.

Follow-up on Unit Price Contractor is being made and reports submitted weekly by members of the Community Engineering Division.

"S" PROJECTS

S-216 - Rehabilitation of Irrigation Ditch West of Columbia High - Specifications in rough draft form prepared. Letter out 12-27-49 on Electrical Division's requirements.

S-229 - Furnace Cleaning - Conventional Houses - Bid opening 12-14-49. Request for approval of award submitted to AEC 12-28-49.

S-86 - Water Shut-off Valves and Sewer Cleanouts in U and V Type Houses - Request for funds approved by Appropriations and Budget Committee 12-13-49.

S-240 - Roof Repair and Maintenance Prefabs - Bid awarded to Holaday and Edworthy of Yakima, Washington. Contractor to start work early in January.

S-269 - Fence Around Water Recharge Basins - Rough draft reason sheet and estimate prepared. Comparison estimate being prepared. Approximately 80% complete.

S-290 - Automatic Traffic Signals - Final reason sheet for informal approval prepared 12-5-49. Reason sheet revised 12-15-49. Approved by A&B Committee 12-21-49 and forwarded to AEC.

DECLASSIFIEDENGINEERING DIVISIONOrganization and Personnel

Number of employees on payroll	<u>EXEMPT</u>	<u>NON-EXEMPT</u>	<u>TOTAL</u>
November 30, 1949	17	11	28
December 31, 1949	17	12	29

Personnel changes made during the month:

New employees	1
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General

The following routine items were processed during the month:

Requisitions	65
Store Stock Requests	7
Store Stock Adjustment Requests	4
Purchase Orders Expedited	17

Approximately 25 vendor contacts were made during the month for the purpose of obtaining information on materials for Engineer's Estimates and maintenance work.

A trip was made by two employees to Olympia Washington to attend a meeting of the Washington chapter of Pacific Coast Building Officials' Conference which was held December 17, 1949.

The following number of jobs were completed on continuous Engineering Service Requests:

ESR # 97-CH - Electrical and Structural Inspections	19
ESR # 98-CH - Alteration Inspections	2
ESR #100-CH - Back Charge Estimates	7
ESR #118-CF - Approved Alteration Permits	3
ESR #134-CA - Back Charge Estimates	1

The following Engineering Service Requests were completed:

<u>Job No.</u>	<u>Description</u>	<u>Date Completed</u>
95-CA	High School Area Improvement	12-22-49
119-CF	Anderson's Motor Company	12-19-49
135-CF	Fountain Lunch - Sowell's	12-19-49
137-CA	Engineering Inspection of Southside U.P. and Richland Baptist Church	12-13-49
145-CF	Morning Sun Dairy	12-14-49
152-CF	Angerman Company, Inc.	12-14-49
156-CF	Davis Furniture	12-19-49
157-CF	House Dry Cleaners	12-14-49
167-CF	Washington Investment Building	12-15-49

Community Public Works Divisions

<u>Job No.</u>	<u>Description</u>	<u>Date Completed</u>
175-CA	Richland Lutheran Church	12-15-49
201-CF	Northwestern Fuel and American Lumber Co.	12-15-49
212-CF	Richland Auto Parts & Accessories, Davis and Walker	12-14-49
213-CA	Electric connection to desert cooler American Legion Hall	12-15-49
218-CF	Mickey's Shoe Renewing	12-19-49
225-CA	Service Costs for Organizations	12-19-49
233-CA	Number of Acres assigned to Jr. Rider's Club	12-28-49
256-CA	Deepening of Well - Sacajawea Rifle & Pistol Club	12-19-49
259-CF	Scott Publishing Company	12-14-49
275-CF	Parker's Hardware Store	12-14-49
205-MD	Perking Lot SW corner of Hospital	12-8-49
308-CA	Plot Plan and Legal Description, Extension of Rose Garden	12-20-49

Technical information and instructions were furnished the following prospective facility operators, clubs, churches and schools:

New Catholic School - Mr. Whitney
Addition to Anderson Motors - Mr. Anderson

The status of Commercial Facility Division sponsored construction is as follows:

Morning Sun Dairy - Construction started 9-8-49 - 100% complete
Theater - Construction started 12-14-49 - 1% complete
Angerman's Women's Apparel - Construction 8-29-49 - 100% complete
House Dry Cleaners - Construction started 8-29-49 - 100% complete
Davis Furniture - Construction started 6-8-49 - 100% complete
Washington Investment - Construction started 5-24-49 - 100% complete
National Bank of Commerce - Construction started 10-31-49 - 50% complete
Deymonaz - Construction started 9-16-49 - 80% complete
American Lumber Company - Construction started 10-14-49 - 100% complete
Davis & Walker Auto Parts - Construction started 8-17-49 - 100% complete
Diettrich Food Store - Construction started 11-3-49 - 65% complete
Bernhart's Bakery - Awaiting revised plans
Kaiser and Johnson Food and Drug - Construction started 10-17-49 - 90% complete
The Scott Publishing Co. - Construction started 10-13-49 - 100% complete

DECLASSIFIEDConstruction Status (Contd)

Cascade Radio Station - Still awaiting information

Parker's Hardware - Construction started 10-13-49 - 100% complete

Multiple Business Building - Construction started 11-2-49 - 75% complete

Drugstore, Morgan & Oldberg - Awaiting detailed plans

Ellis Photographic Studio - Awaiting revised plans

Stone & Garmo Food Store - Awaiting preliminary plans

The status of Community Activities Division sponsored construction is as follows:

Latter Day Saints Church - Construction started 2-5-49 - 60% complete

South Side United Protestant Church - Construction started 11-5-48 - 99% complete

Richland Baptist Church - Construction started 11-27-48 - 99% complete

Assembly of God Church - Awaiting start of construction

Church of Nazarene - Construction started 4-12-49 - 92% complete

Church of Christ - Construction started 12-19-49 - 1% complete

Richland Lutheran Church - Construction started 4-8-49 - 100% complete

Junior High School - Awaiting detailed plans

New Elementary School - Awaiting preliminary plans

Swimming Pool Association - Awaiting detailed plans

Sacajawea Grade School Cafeteria - Construction started 9-16-49 - 98% complete

Reorganized Latter Day Saints Church - Construction started 8-22-49 - 13% complete

Christian Science Society - Awaiting preliminary plans

Alteration Permits progress report is as follows:

<u>Facility</u>	<u>Description</u>	<u>Approved</u>	<u>Remarks</u>
Robley L. Johnson Studio	Extend front porch	3-23-49	95% complete
Richland Laundry	Construct small box	3-15-49	10% complete
Robley L. Johnston Studio	Alteration to dark room	9-20-49	90% complete
The Mart, Cafeteria	General Alterations	10-3-49	80% complete

Community Public Works Divisions

Alteration Permits (Contd)

<u>Facility</u>	<u>Description</u>	<u>Approved</u>	<u>Remarks</u>
New City Cleaners	Install gas pump and storage tank	11-23-49	90% complete
Desert Inn	Install neon sign	12-19-49	Awaiting start of construction
Union Oil	Install neon sign		99% complete
Desert Inn	Install fluorescent light	12-8-49	100% complete

The following work was done on leased areas:

Lots were staked for the following facilities:

Kaiser-Johnson - Restaked
Church of Christ
Richland Lutheran Church

Leased areas were surveyed and plot plans prepared for the following:

Rose Garden
Midstate Amusement Corporation
Redeemer Lutheran Church - Site 2
Photographic Studio
Masonic Temple
Redeemer Lutheran Church - Site 1
Morgan & Olberg Drug Store

OPERATION AND MAINTENANCE DIVISION
MAINTENANCE SECTION

Organization and Personnel

Number of employees on payroll:	<u>EXEMPT</u>	<u>NON-EXEMPT</u>	<u>TOTAL</u>
November 30, 1949	19	190	209
December 31, 1949	19	189	208

Personnel changes made during the month:

Transfers from Electrical	2
Transfers to Maintenance	1
Transfers to Minor Construction	1
Terminations	1

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Community Public Works Divisions

General

A total of 57 house renovations were completed in vacant residences, 36 of these being permanent type houses and the remainder (21) prefabs. The work involved included 21 complete interior paint jobs, 31 partial paint jobs, and miscellaneous repairs of all types and cleaning as needed to bring the houses up to accepted standards. There are 21 outstanding renovation orders on hand at close of month.

The interior paint program in Divisions IV and V, which was started in November, was continued in December, and a total of 84 living units were completed this month, this work including all carpentry repairs necessary to prepare the houses for painting. A grand total of 117 units have now been completed in this program. Painters were not assigned to start work in any houses which would have been in an incomplete condition over Christmas holidays, and this available time was utilized to perform interior painting in dormitories M-5, M-6 and W-7, which are complete as of the end of the month.

Miscellaneous paint work done during December included enameling of 26 bathrooms following installation of "Tyle-Bord", re-finishing of floors in 12 houses, road-striping in 200-E, 100-F and Hanford, taping and painting of several partitions in 703 and 720 Buildings, and other routine paint and sign work. Experimental house marker numbers were fabricated in our shops, using a reflectorized material, and these have been installed in the 1300 blocks of Farrell, Stevens, Mahan and Marshall Avenues.

A total of 239 ranch house coal bin walls were anchored this month, making a grand total of 969 now complete. The remainder of 31 to be done are locations where the mechanic has been unable to gain entrance to the house.

The utility closets in 93 two bedroom prefabs were lined with celotex to control a condensation problem.

Leveling and re-enforcing of floor joists was completed in approximately 115 houses, this work being necessary to correct binding doors and sash, caused by deflection and shrinkage of lumber.

Damaged concrete bath tubs were replaced with metal tubs in 34 homes, and "Tyle-Bord" was installed at the same time in these locations, in addition to necessary floor linoleum repair or replacement.

In addition to the 34 "Tyle-Bord" installations made in conjunction with bath tub replacements, 65 other "Tyle-Bord" installations were made, or a total of 99.

Roof repairs were performed on 333 buildings during December, approximately 20% of this work being on precuts, prefabs, conventional houses, and 700 Area buildings. The remaining 80% of this work was done on ranch type houses where the wind has raised or broken "3 in 1" shingles that either were not properly sealed down when originally laid, or were not sealed down at all. Inspection of these roofs indicates the sealing material was not applied in many instances, and was applied so sparsely in other cases that a good seal was not obtained.

Community Public Works Divisions

General (Contd)

Repetitive calls to open a lateral sewer line to American Legion Building resulted in a decision to dig out this line and make permanent repairs. Approximately 150 feet of line was excavated and a reverse grade found in several spots, in addition to lower portion of joints being open, which resulted in a loss of liquid, and settling of solids in the line. The line was re-laid with proper fall per foot and complete sealing of joints.

Radiator valves and traps in Buildings 760 761 and 762 were checked and repaired or replaced as necessary. Various types of old traps and valves were replaced with Dunham and Trane which are standards for replacement. This work was done on swing shift, when these buildings are vacant and men could work more efficiently.

Installation of a Sunbeam oil furnace, duct work and new chimney at 1007 Gillespie is approximately 65% complete.

Fabrication and installation of a coal chute and separating screen at 784 Building was completed according to design, but present indications are that some revisions will be necessary for satisfactory operation.

Water and sewer service were completed to the second commercial operator at the Central Fuel Yard, and water service was run to Rod and Gun Club, and House J-708. Installation of a septic tank and drain field is in progress at J-708.

An adaptor plate was made to permit use of a "Lennox" oil burner motor on the two Roscoe oil burners for which we are responsible, this later adaption making it possible to use the Lennox motor on Sunbeam, Roscow and Lennox oil burners.

Approximately 262 feet of 14 inch water main was replaced on Lee Street east of Stevens and the French drain for the steam condensate at the corner of Lee and Stevens was raised approximately 18 inches.

All work on the air conditioning unit at Kadlec Hospital is in the final stages of completion and the room is to be painted soon. Complete operation and acceptance is expected next month.

The repair of the fire doors in the Pasco Warehouses is approximately 50% complete. This work is progressing and completion is expected by January 20th.

One fuel oil tank to a precut house was found to be rusted through and required replacement. From all indications this tank was of standard specifications but may have had the protective coating damaged in handling before installation, as rust spots were more severe in some places than others. If this condition is widespread, a great deal of annoyance and expense may be expected from this source.

Pipefitter labor has been supplied as necessary to assist in laying of "Rainmaker" pipe at Spalding School grounds and an area on West side of Wright Avenue for dust control purposes.

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Community Public Works Divisions

General (Contd)

A record of miscellaneous work completed during December also includes the replacement of 5 water heaters, 20 laundry trays, 1 wash basin, 9 stop-and-waste valves, 1 toilet, 14 kitchen sinks, 8 refrigerator units, linoleum on 82 sink boards; replacement or repair of linoleum in 99 bathroom or kitchen floors; repair of 6 refrigerators, 40 screen doors, 8 water heaters, 68 chairs, 23 chests, 5 tables; upholstery of 5 chairs; and the rebuilding of 14 ranges and 20 electric space heaters.

The Service Order Group completed a total of 2775 Service Orders during the month. 94.5% of this work being done for Housing Division, 1.8% for General, 1.8% for Concessions, 1.0% for Public Works and the remainder for various other Divisions.

The following is a status report of service orders:

On hand at beginning of month	290 orders
Received during month	2930 orders
Completed during month	2775 orders
On hand at end of month	452 orders

Economies Effected

A method of replacing gaskets on Frigidaire household refrigerators is being used which cuts labor on this job from $2\frac{1}{2}$ hours to 1 hour. Although the number of times this job is done per month is indefinite, there is a saving of approximately \$5.25 on each unit.

UTILITIES SECTION

Organization and Personnel

Number of employees on payroll	<u>EXEMPT</u>	<u>NON-EXEMPT</u>	<u>TOTAL</u>
November 30, 1949	9	58	67
December 31, 1949	9	56	65

Personnel changes made during the month:

Transfers to Power Division	1
Terminations	1

Steam

Due to the increase in steam load, it was necessary to put a third boiler into operation at the Central Steam Plant on December 5, 1949. Only routine and normal repair work was necessary.

Steam Production

Steam Generated	35,597 M lbs.
Steam sent out	31,012 M. lbs.
Coal consumed	5,476 M. lbs.

Community Public Works Divisions

Domestic Water

The Taylor Flowmeter on the water supply to 3000 Area and the 300 Area was out of calibration. This resulted in an error of approximately 30 percent. The instrument was removed, re-calibrated and returned to service. A Volumetric test indicates at present an error of less than 5 percent.

The million gallon reservoir at 3000 Area was drained and cleaned during the month. Approximately 15 cubic yards of sand were removed from the reservoir.

Domestic Water System

	<u>Well Production</u> <u>Million Gallons</u>	<u>Avg. Daily</u> <u>Production</u>	<u>Total Consumption</u> <u>Million Gallons</u>	<u>Avg. Daily</u> <u>Consumption</u>
Richland	87.5333	2.8237	79.8682	2.5764
North Richland			23.0332	0.7430
Columbia Field	47.5742	1.5347		
300 Area			31.4252	1.0137
	<u>135.1075</u>	<u>4.3584</u>	<u>134.3266</u>	<u>4.3331</u>

Sewerage

We have been able to maintain desired temperatures in the digestors at the sewage treatment plant using only gas produced from digestion as fuel.

Sewerage

	<u>Total Sewage</u> <u>Flow</u> <u>Million Gallons</u>	<u>Average Daily</u> <u>Flow</u> <u>Million G.P.D.</u>	<u>Average Rate</u> <u>Flow</u> <u>Gals.Per Min.</u>
Plant 1	21.600	0.6968	484
Plant 2	44.300	1.4290	992
Total	65.900	2.1258	1476

LABOR SECTION

Organization and Personnel

Number of employees on payroll:	<u>EXEMPT</u>	<u>NON-EXEMPT</u>	<u>TOTAL</u>
November 30, 1949	10	101	111
December 31, 1949	10	102	112

Personnel changes made during the month:

Transfers from Housing	1
Transfers from Minor Construction	1
Terminations	1

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Three men used during the month on dust control.

Leveling and planting of shrubs and trees on the By-Pass Highway shelterbelt area began during December.

Tree surgery, maintenance, and planting of Village street trees continued during the month.

Six shipments of personal furniture were handled. Two men were required on handling government furniture and fixtures during the month.

Approximately 35 Work Orders have been completed by miscellaneous labor on excavations for repair of utilities and installation of new sewer and water lines. These included installation of septic system at K-718, also excavation for 1500 feet of water line to K-700 and K-708 Tract Houses.

Filling and installing pipe to abandoned wells on the project is complete.

Irrigation

Burning the vegetation along the main canal and the side ditches is 75% complete. Removal of silt from the fish screens to Richland is in progress. This work has been delayed due to various excavation jobs requiring our crane operator.

The rock levee along the sea wall at the Horn Rapids Dam is complete.

Roads and Streets

The removal of 1300 yards of sand from Thayer Drive at intersection of the By-Pass Highway has been completed. This sand was deposited by the recent high winds.

Materials used on Road and Street Maintenance during the month:

Pre-mix used on streets	12	Tons
Pre-mix used on steps	.5	"
Pre-mix used on sidewalks	24	"
Pre-mix used on miscellaneous work orders	4.5	"
3/4 Minus Gravel used on streets and roads	564	"
Pit Run Gravel	404	"

Delivery of Coal

Coal delivered from the 700 Area storage:

#2 Fire Station	3	Tons
1182 Pump Station	6	"
1131 Garage	128	"
Pasco T-131	24	"
	<u>161</u>	Tons

COMMUNITY COMMERCIAL FACILITIES DIVISION

December, 1949

ORGANIZATION AND PERSONNEL

DECEMBER

Number of employees on payroll:

Beginning of month	16
End of month	16

COMMERCIAL FACILITIES:

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

	<u>November</u>	<u>December</u>
Cafeteria meal customers	41,779	39,876
Percent of room day occupancy - Desert Inn	60%	45%
Gallons of ice cream sold	2,698	2,649
Carnation milk & cream deliveries	63,434	65,883
Darigold milk & cream deliveries	2,892	2,841
Morning Sun Dairy milk & cream deliveries	12,939	15,059
Theater customer count	46,504	45,415
Gallons of gasoline sold	168,917	188,560

Total number of Commercial Facility Operators' employees, full- and part-time as of December 31: 1,080 (This shows a net increase of 49 over last month's 1,031.)

International & Domestic Travel Service opened for business December 1 in the lobby of the Desert Inn.

A corset and lingerie shop, officially known as The Marian Shop, opened for business December 1 in the space formerly occupied by the Arctic Fur shop off the lobby of the Desert Inn.

Parker's Hardware, located in the Uptown business district, opened for business December 2.

Auto Supply & Machine, Inc. held a formal opening December 3 in their new building located on Stevens Drive.

Hughes of Richland, Inc. opened a women's apparel store in its new building located in the Uptown business district on December 7.

Tri-City Herald moved into its new modern offices, located on The Greenway, on December 9.

Wilmot's Morning Sun Dairy, Inc. moved into its new building, located on Stevens Drive, on December 10.

Midstate Amusement Company started construction December 13 on a large building to house a theater and small shops in the Uptown business district.

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COMMUNITY COMMERCIAL FACILITIES DIVISION

December, 1949

An Alteration Permit was issued December 7 authorizing the Desert Inn to install one fluorescent light fixture in the northeast corner of the lobby in the space now occupied by International & Domestic Travel Service.

An Alteration Permit was issued December 12 authorizing the Desert Inn to install additional neon signs for the Barber Shop and Dent's Chocolate Shop.

An Alteration Permit was issued December 12 authorizing Johnny's Minute Man Service Station to install a neon sign.

An Alteration Permit was issued December 28 authorizing Tri-City Herald to install electric signs on its new building.

The following routine items were processed:

Work Orders	38
Back Charges	19
Patrol Orders	28

Current inventories were taken of Government-owned equipment located in the Richland Laundry & Dry Cleaners and the Richland Recreation Hall.

CONTRACTS AND NEGOTIATIONS:

Virgil O. McVicker was authorized to sublet space in the McVicker Building to Earl Hutson and Richard Watson for a delicatessen.

C. D. Joseph and Hugh S. Cannon were authorized to sublet space in their building, which they are constructing in the Uptown business area, to Dale Kubik for the operation of a sewing machine sales, service and repair store.

Angerman Company, Inc. assigned their lease, dated March 11, 1949, to Hughes of Richland, Inc.

The facility formerly known as Valley Auto Parts, Inc. has changed its name to Auto Supply & Machine, Inc.

Curtis Gravel Company is to be known as Richland Concrete Company.

Commercial Facility Leases were entered into with the following firms for the construction of building and operation of businesses as outlined below:

Automatic Laundry Company - lease dated October 21, 1949 - for construction, operation and maintenance of an investment building in which the lessee will operate a self-service laundry.

COMMERCIAL FACILITIES EXPANSION PROGRAM:

Number of businesses operating as of November, 1949	85
New facilities opened for business this month	<u>5</u>
* Total Commercial Facilities in operation	90

COMMUNITY COMMERCIAL FACILITIES DIVISION

December, 1949

COMMERCIAL FACILITIES EXPANSION PROGRAM - Cont'd:

New facility buildings under construction 5

New ground leases awarded 0

* 1 Business operating in temporary quarters

REQUESTS FOR ESTABLISHMENT OF BUSINESSES IN RICHLAND:

A number of individuals and firms, the majority of which were not interested in constructing their own buildings, expressed a desire during the month to establish and operate businesses in Richland. The types of establishments desired are shown in the following list:

- Automobile Agency
- Bakery
- Coin Operated Machines
- Concession (Doughnut & Coffee Shop)
- Department Store
- Funeral Home
- Investment Building
- Laundry (Shirt)
- Landscaping
- Multiple Business Building
- Newspaper
- Paint Store
- Prescription Pharmacy
- Restaurant (Drive-In)
- Skating Rink (Ice)

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COMMUNITY DIVISIONS

COMMUNITY HOUSING DIVISION

December 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll	<u>December</u>
Beginning of month	40
End of month	40

RICHLAND HOUSING

Housing Utilization as of Month End

Houses Occupied by Family Groups	Conven- tional	Block	T	Pre- Cut	Ranch	Pre- Fab	Apt.	Tract	Total
Operations	2215	268		380	840	1145	61	42	4951
Commercial Facilities	97	6		26	69	63		4	265
Community Activities	11			1	6	6	1	2	27
Post Office	5				3	14		3	25
Government	103	34		12	31	25	3	4	212
Schools	41			5	14	48	1		109
Keller Corporation		5		3		1	1		10
Morrison-Knudsen	1			1					2
Atkinson-Jones	9	16		5	12	3	2		47
J. G. Turnbull	1	2		4	5	7	1		20
Giffels and Vallet					1				1
J. A. Terteling			10	1	2				13
Newberry Neon	2	1		1					4
Urban-Smythe & Warren					1				1
Vernita Orchards								5	5
TOTAL HOUSES OCCUPIED	2485	332	10	439	984	1312	70	60	5692
Houses assigned - awaiting tenants	7	1		8	13	15	4	1	49
Houses assigned - (leases written)	8			3	3	5			19
TOTAL HOUSES	2500	333	10	450	1000	1332	74	61	5760

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COMMUNITY HOUSING DIVISION

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Diff- erence
Conventional Type	2478	40	33	2485	Plus 7
Block Type	329	3	0	332	Plus 3
T Type	10	0	0	10	None
Precut Type	443	12	16	439	Minus 4
Ranch Type	983	30	29	984	Plus 1
Prefab Type	1311	43	42	1312	Plus 1
Apartments	74	0	4	70	Minus 4
Tract	58	2	0	60	Plus 2
Total	5686	130	124	5692	Plus 6

Dormitory Statistics

	Occupants	Vacancies	Total Beds
Dormitories			
Men - Occupied 13	462	54	516
Men - Unoccupied			
Women - Occupied 13	*435	197	628
Women - Unoccupied 2			

Women's Dormitories occupied by:

G. E. Office	1
Education	1
Apartments	1
	<u>31</u>

*This includes space of 4 beds used for supply rooms and dormitory offices.

GENERAL

Allocation Section Statistics

Total houses allocated to new tenants	55
Exchanged houses	40
Moves (within the Village)	39
Total new leases signed	130
Turnovers	6
Houses sent to renovation	60
Houses assigned "As Is"	24
Terminations	57
Total cancellations	124
Applications pending	176

2.

TENANT RELATIONS

Processing of Service Orders, Work Orders and Service Charges

	<u>Issued from Nov.30 to December 31</u>	<u>Incomplete December 30</u>	<u>Issued Previous Month</u>
Service Orders	2542	452	2635
Work Orders	1017	1078	896
Service Charges	285	5	204

84 Conventional houses were painted on the interior by project forces as compared to 33 the previous month.

26 Bathrooms were repaired and painted as compared to 19 the previous month.

Items of Interest

	<u>Total Outstanding</u>	<u>Outstanding Prev. Month</u>
Laundry Tubs	29	39
Bathtubs	76	71
Sink Linoleum	99	80
Bathroom tileboard	165	142
Bathroom Linoleum	95	96
Kitchen Floor Linoleum	12	20

Alteration permits issued during the month of December totaled 36 as compared to 64 the month of November.

Automatic Washers	8	Electric Dryers	1
Electric Wiring	3	Driveways	1
Fences	4	Remove Broom Closet	2
Enclose Attic Area	1	Sand Floors	1
Dog Houses	1	Basement Excavation	4
Install Cupboards	1	Clothes Poles	1
Partitions	1	Change Position of Water Heater	1
Green House	1	Change position of Range & Refer	1
General Alteration to Tract House	1	Void or Cancelled Permits	3

808 Inspections were made during the month of December, 1949. A breakdown of the inspections shows the following distribution:

Window shades	120	General House Inspections	133
Alteration permits	80	Lot Lines	6
Top soil	3	Recaulk & paint bathroom	35
Floor boards	18	Sidewalks	33
Leaking basements	4	Linoleum	71
Walls	70	Miscellaneous	235

In addition to the above tenants have been contacted in regard to the precut duct insulation project. Loose shingles on precut and ranch houses have been checked.

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TENANT RELATIONS

DORMITORIES

Due to extreme high winds some extra repairs were necessary to building roofs especially the B. O. Q. Dorms. Breakage of glass was considerably above normal during the month because of the wind.

Additional accommodations were installed in women's dorm M-13 as follows: Extensions to shower stalls, installation of additional shelving and the conversion of one room to an ironing and drying room for laundry.

Orders were issued for moving electrical panels in Dorms W-15,16,17,20 and 21 from their present location to the main hallways, upper and lower floors.

Arrangements were made with the Telephone Section to move all telephones on second floor walls into service closets, with new shelves to accommodate phones being installed in the B. O. Q. dorm service closets.

M. S. WAREHOUSE

	ITEMS	AMOUNT	
Received Inventory Items	974	2512.85	
Received on Store Order	3823	2441.04	
Received on Purchase Req.	174	335.44	
Received from Plant Items	10	3483.00	
			Inv. Items Total 103,637.94
			Total rec'd 8,772.33
			112,410.27
Disbursed Inventory Items			
Dorm Furniture	10	104.51	
Free Issue	1338	2489.26	
Cash	25	41.31	
Dorm Supplies	3176	760.83	
Warehouse Supplies	31	15.98	
Dorm Linens	27	44.31	
Dorm Shades	73	72.93	
Items Excessed		38472.65	
INVENTORY ITEMS BALANCE			Total Disb. 42,001.78
Plant Inventory Items			70,408.49
			40,196.92
Received	15	1616.41	
Disbursed	17	4982.23	
TOTAL PLANT INVENTORY ITEMS			36,831.10
GRAND TOTAL INVENTORY			107,239.59

COMMUNITY SAFETY DIVISION
DECEMBER 1950

ORGANIZATION AND PERSONNEL

Number of employees on Payroll	December
Beginning of month	3
End of month	3

GENERAL

Richland's Fire Prevention entry for 1949 was judged and Richland received twenty-seventh place in the nation's National Fire Prevention Activities.

The two twenty-four sheet highway bulletins mentioned in the November report have been completed, with the exception of painting, which will be done within the next ten days. The first poster, procured from the Mass Marketing Association in Chicago for these boards, will appear around January the 10th.

The Fire Department has submitted work sheets for the preliminary entries in the Fire Prevention Survey to the Safety Engineers office for estimates, etc.

The bicycle campaign mentioned in last month's report, in which the Patrol Section is taking an active part, is being furthered by a Student Body Council and Parent Teacher group. This group is planning a very definite bicycle program which will influence the children of all Richland schools. This program will involve the parents as well as the children.

The majority of the civic organizations have submitted to this office the names of their representatives who will act on the Richland Safety Council. The organization of this group has not been completed to this date, but will be in the near future.

The Tri-City Herald received the National Safety Council Service Award during the past month, as recommended by this office.

The Highway Users Association of Washington, D.C., has requested publicity material and pictures used by this office in the "Motor Manners" program of October, 1949, for the purpose of publishing in a Washington paper.

The new parking lot, just south of C.C. Anderson's, which will carry fifty cars, is near completion. The new parking lot just north of the Post Office, which will handle approximately thirty cars, was also completed this month. This will relieve parking restrictions in the down-town business area.

The Anderson Motor Co. is in the process of purchasing six trailer films which previously have been purchased by this office. They will use the last frame of the film for their add, and will be given a reduced fee by the theaters for a one weeks showing. This arrangement will relieve this office from the cost of purchasing public safety films of this type. Each film will be used in conjunction with the Community Program.

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COMMUNITY FIRE DIVISION

December 1949

Organization and Personnel

December

Number of employees on payroll	129
Terminations	<u>1</u>
End of the month	128

	<u>Richland</u>	<u>North Richland</u>
Response to alarms	21	1
Fire Loss (Estimated)		
Hanford Works	\$114.11	0.00
Personal	42.00	\$255.62
Investigation of minor fires and incidents	7	6
Safety meetings held	16	8
Inside drills	91	43
Outside drills	1	8
Alarm Boxes tested	173	74

Miscellaneous Fire Department Activities:

1. Old fire hose and firemen's clothing submitted for excess and salvage.
2. Conducted two instruction courses in artificial respiration for health classes in Carmichael Junior High School.
3. As a precautionary measure, fire apparatus maintained stand-by for three instances of controlled burning and two cutting torch operations in hazardous areas.

Fire Prevention

Inspections

Extinguishers

700 Area Buildings	69	Inspected	1517
1100 Area Buildings	31	Recharged	125
Commercial Facility Buildings		Replaced	142
(Gov't owned)	148	Salvaged	50
Government Airport Buildings	10		
Schools, Churches and Clubs	19		
Dormitories	<u>30</u>		
Total	307		

COMMUNITY FIRE DIVISION

December 1949

Miscellaneous Activities:

1. Fire extinguishers in service and reserve storage inventoried. Request submitted to excess 242 surplus extinguishers.
2. Public school authorities were requested to assume responsibility of inspecting and servicing fire extinguishers in school buildings. This is in addition to periodic inspection by Fire Marshal.
3. Installation of fire stop walls in attic of The Mart to comply with Uniform Building Code was approved and work scheduled for near future.
4. All smokepipes and roof jacks in the 1100 Area were inspected. Where defects were noted or where sub-standard installations existed, necessary corrections were recommended to supervision of these buildings.
5. Fire Prevention Engineer, N. R. Hayes, was assigned for the entire month to make fire prevention surveys of government-owned buildings thereby determining what modifications would be required for fire safety compliance with the Uniform Building Code. The surveys, as requested by the Atomic Energy Commission, are 97.1% complete and include 10 school structures, 5 churches, 29 dormitories, 11 club and lodge buildings, the post office and 42 commercial facilities. A total of 98 surveys have been completed and submitted to the Community Safety Division.

General

1. The Fire Prevention Week Committee and members of the Richland Chamber of Commerce, in cooperation with the Community Fire Department submitted a report of the 1949 Fire Prevention Week Campaign to the National Fire Waste Contest. While official notice has not been received to date, press dispatches reported Richland's campaign was awarded first place in the State of Washington and 27th out of the 3606 cities over the nation who submitted reports. This compares favorably with Richland's 1948 campaign which was awarded third place in the state and 35th in the nation.
2. Substantial improvement in the annual fire loss for 1949 was achieved compared to the previous year. The 1949 loss was \$7.553, resulting in a per capita figure of 32.8 cents as against \$2.37 per capita loss for 1948.

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COMMUNITY DIVISIONS

COMMUNITY PATROL

DECEMBER 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	<u>December</u>
Beginning of month	83
End of month	83

GENERAL

On December 2, 1949, Capt. A. E. Barron was appointed to serve on the Richland Safety Council.

On December 3, 1949, Chief H. W. Strock attended the quarterly meeting of the Washington State Chiefs of Police Association.

On December 5, 1949, a routine check was begun of the pipe yard located between the By-Pass and Abbott Street on Goethals extended.

On December 12, 1949, the routine dormitory to dormitory check with the house-mother, made daily on the graveyard shift and twice on Saturdays, was discontinued.

Sgt. A. L. Reil of the Crime Prevention Section has been appointed to represent the Community Patrol in the formation of a Supervisor's Association, now in the process of organization. He was also appointed to represent the 1100 Area on the temporary committee.

Commendation was received from Halls Jewelry on December 23, 1949, commending Community Patrol for the excellent service rendered facilities during the past year and especially his own establishment.

During the month, a total of 20 children were conducted on a tour through Headquarters and the jail.

During the month, 20 prisoners were processed through the Richland Jail.

During the month, 23 gun registrations were taken by Richland Patrol.

During the month, 130 Unusual Incident Reports were received, which consisted mainly of Larcenies, Stolen Bicycles, Public Intoxications, Burglaries, and Malicious Mischief. Regular traffic violation and offense statistics are presented in separate tables attached to this report.

Community Patrol Division - Continued

TRAFFIC

Due to congestion at the intersection of Goethals Drive and Williams Boulevard, the traffic semaphore signal at the intersection of Van Giesen Street and the By-Pass Highway was relocated to Goethals and Williams. Traffic counts taken at Van Giesen and the By-Pass showed less than 3,000 cars every 24 hours entering the intersection, compared to over 8,000 at Williams and Goethals. Congestion and accidents were eliminated as a result of the change.

Thirteen traffic safety lectures were given to plant and civic groups by Patrol members during December. A new film, "The Careless Driver", was shown to each of the groups. Causes of local accidents were emphasized and caution urged while driving during winter months. The pedestrian problem and apparent lack of cooperation on the part of Richland residents was also a subject used in lectures.

A letter of commendation was received from David F. Shaw, Deputy Manager for AEC, commending Patrol for their part in achieving the excellent traffic safety record for the village of Richland for the year 1948.

TRAINING

Subjects covered in the lieutenant's training classes for the month of December were as follows:

- Rules of Evidence
- Public Relations and the Traffic Violator
- Finding and Preservation of Evidence
- Checking of Buildings
- Methods of Patrolling
- Motor Patrol
- U. I. Report Writing

Advance training for Community Patrol members at the small arms range for the month of December was divided into field instruction as follows:

Pistol	2 hours
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The 38 caliber revolver was used in double action firing. No score was kept.

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Community Patrol Division - Continued

ACTIVITIES AND SERVICES (RICHLAND)

	<u>October</u>	<u>November</u>	<u>December</u>
Check on absentees	4	8	6
Persons assisted*	181	145	186
Doors & windows found open in commercial facilities	55	33	30
Lost children found	29	11	8
Ambulance runs	33	23	29
Lost dogs reported	4	7	8
Dog, cat, loose stock complaints	32	70	56
Persons injured by dogs	9	6	4
Bank escorts & details	40	33	40
Fires investigated	26	17	23
Miscellaneous escorts	158	15	16
Complaints investigated	171	153	126
Missing persons reported	4	2	4
Deaths reported			3
Suicide investigated			1
Totals	746	523	540

*Includes: Delivery of messages to residents who have no telephone; relay of messages; handling requests of out of town police; miscellaneous aids to private parties; assisting other departments; etc.

ACTIVITIES AND SERVICES (NORTH RICHLAND)

	<u>October</u>	<u>November</u>	<u>December</u>
Check on absentees	0	0	0
Persons assisted*	98	63	64
Doors & windows found open in commercial facilities	9	17	19
Lost children found	1	0	1
Ambulance runs	2	0	0
Lost dogs reported	0	0	0
Persons injured by dogs	1	1	0
Dog & cat complaints	1	2	1
Bank escorts & details	16	16	20
Fires investigated	3	1	3
Miscellaneous escorts	16	8	10
Complaints investigated	5	23	33
Missing persons reported	0	0	0
Deaths reported			0
Totals	152	131	151

*Includes: Contacting parties on long distance calls; locating persons wanted for various reasons; relaying messages; assisting outside police agencies; assisting other departments; aiding private persons; etc.

COMMUNITY PATROL DIVISION

FORCE REPORT

DECEMBER 1949

<u>Patrol</u>	<u>Entire Patrol 11-30-49</u>	<u>Entire Patrol 12-31-49</u>
Patrol Supervisor	1	1
Captains	5	5
Lieutenants	8	8
Sergeants	11	11
Patrolmen	<u>54</u>	<u>54</u>
Totals	79	79
 <u>Clerical</u>		
Steno-Typists	2	2
Clerks	<u>2</u>	<u>2</u>
Totals	4	4
Grand Totals	83	83

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PATROL DIVISION - TRAFFIC CONTROL STATISTICS
December - 1949

MOTOR VEHICLE ACCIDENTS:

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.
Richland	20	16	0	0	1	0	4	1
North Richland	0	0	0	0	0	0	0	0
Totals	20	16	0	0	1	0	4	1

ACCIDENT CAUSES:

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Causes	
	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.
Richland	2	2	7	4	1	1	10	9
North Richland	0	0	0	0	0	0	0	0
Totals	2	2	7	4	1	1	10	9

PLANT WARNING TRAFFIC TICKETS ISSUED:

	Speeding		"Stop" Sign		Parking		Imp. License		Def. Equipment		Other Violations		Totals	
	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.
Richland	1	0	0	0	105	89	0	0	5	2	0	0	111	91
North Richland	0	0	0	0	7	23	1	0	4	4	1	0	13	27
Totals	1	0	0	0	112	112	1	0	9	6	1	0	124	118

COURT CITATION TRAFFIC TICKETS ISSUED:

	Speeding		"Stop" Sign		Reckless Dr.		Right of Way V.		Neg. Dr.		Parking V.		Other V.		Totals	
	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.
Richland	20	22	13	9	6	5	7	4	7	10	14	20	13	7	86	83
N. Rich.	4	5	2	0	1	0	0	0	1	4	0	0	1	2	9	13
Totals	24	27	15	9	7	5	7	4	8	14	14	20	14	9	95	96

TRAFFIC VOLUME: Average 24-hour Traffic Volume Count for week ending on December 29, 1949, on Van Giesen Street, west of By-Pass Highway - 1,889 Cars.

COMMUNITY PATROL DIVISION
RICHLAND JUSTICE COURT CASES
DECEMBER, 1949

VIOLATION	NO. OF CASES	NO. OF CONV.	TOTAL FINES	TOTAL SUSP.	SENT. JAIL	LICENSE REVOKED	AVERAGE FINES PD.	CASES DISMISSED	WARRANTS ISSUED
1 Drunken Driving * x.....	5	5	\$262.50	0	0	5	\$52.50	0	0
2 Reckless Driving ** xx. 1	1	0	0	0	0	0	0	1	0
2 Negligent Driving.....16	13	13	299.50	\$17.50	0	0	23.03	0	4
1 Speeding.....21	19	19	202.50	12.50	0	0	10.65	1	1
5 Stop Sign.....4	4	4	29.00	0	0	0	7.25	0	0
No Driver's License***. 7	7	7	43.00	22.50	0	0	6.14	0	0
Failure to YROW.....4	4	4	65.00	0	0	0	16.25	0	0
Parking.....16	12	12	46.00	17.50	0	0	3.83	0	4
Defective Brakes.....1	1	1	7.50	7.50	0	0	7.50	0	0
Failure to Stop & Iden. 2	2	2	52.50	25.00	0	0	26.25	0	0
Failure to Obey Traffic									
Officer.....1	1	1	7.50	0	0	0	7.50	0	0
Improper Passing.....2	2	2	15.00	0	0	0	7.50	0	0
Driving While License									
is Revoked ***.....1	1	1	0	0	0	0	0	0	0
Defective Muffler.....1	1	1	17.50	0	1	0	8.75	0	0
Petit Larceny.....2	2	2	142.50	0	0	0	12.95	0	0
Public Intoxication.....11	11	11	25.00	0	0	0	12.50	1	0
Public Nuisance.....3	2	2	\$1215.00	\$102.50	1	5		3	9
TOTALS.....97	86								

* 1 Case Bound Over to Superior Court.
 ** 1 Case Not Processed due to mistaken identity.
 *** 1 Case Included with other Charge.
 **** 1 Case Included with other Charge.
 ***** 1 Case Bound Over to Superior Court.
 x 2 Cases Amended to Negligent Driving.
 xx 1 Case Amended to Negligent Driving.

Total Fines.....\$1215.00
 Less Suspensions..... 102.50
 Total Fines Paid.....\$1112.50

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COMMUNITY PATROL DIVISION
CRIME PREVENTION SECTION

MONTHLY REPORT

DECEMBER, 1949

Classification of Offenses	Offenses Known or Reported to Patrol	Offenses Unfounded	Actual Offenses November	December	Arrest	Offenses Cleared by Other Action	Perpetrators Involved
Assault.....	2	0	0	2	1	0	1
Burglary.....	3	1	1	2	0	0	u
Breaking & Entering.....	2	1	6	1	0	0	u
Attempted Breaking & Entering.....	0	0	1	0	0	0	0
Larceny (Except Auto & Bike)							
Over \$50.00.....	10	2	3	8	0	3	2 (a)
Under \$50.00.....	27	0	42	27	2	6	8 (b)
Forgery.....	2	0	1	2	0	1	1 (c)
Bike Theft.....	20	0	36	20	0	30	1 (d)
Dest. of Personal Property.....	3	0	2	3	0	1	1 (e)
Dest. of Government Property.....	2	0	4	2	0	1	3 (f)
Loss or Theft of Gov't. Prop.....	1	0	3	1	0	1	2 (g)
Investigation.....	6	0	10	6	0	4	5
Attempted Suicide.....	0	0	1	0	0	0	0
Suicide.....	1	0	0	1	0	1	1 (h)
Disturbance.....	7	0	6	7	0	7	11
Drunkness.....	5	0	4	5	5	0	5
Public Nuisance.....	4	0	2	4	4	0	4
Offense Against Family & Children.....	3	0	3	3	0	2	2 (i)
Missing Persons.....	4	2	3	2	0	2	0
Indecent Exposure.....	0	0	1	0	0	0	1
Indecent Liberties With a Minor.....	1	0	0	1	1	0	5 (j)
Vandalism.....	6	0	11	6	0	4	3 (k)
Malicious Mischief.....	4	0	4	4	0	2	0
Pickup for Outside Agency.....	0	0	2	0	0	0	0
Auto Theft.....	0	0	1	0	0	0	0
Prowlers.....	5	0	3	5	0	0	u
Obtaining MUFF.....	0	0	1	0	0	0	0
TOTALS.....	118	6	151	112	13	65	57

(Continued on Page Two)

COMMUNITY PATROL DIVISION
 Page Two--CRIME PREVENTION MONTHLY REPORT, DECEMBER, 1949

Drunkness--4 Cases Occurred in North Richland.
 Assault--1 Case Occurred in North Richland
 Off. Against Family & Children--1 Case Occurred in North Richland.
 Petit Larceny--1 Case Occurred in North Richland.

Property Recovered During Month--\$1607.50
 (30 bikes)

u Represents Unknown
 No Colored Persons Involved

(a)	1 Case Perpetrated by 1 Juv. Age 16.
(b)	1 Case " by 1 Juv. Age 13.
	1 Case " by 2 Juv. Ages 12 & 14.
	1 Case " by 2 Juv. Ages 15 & 17.
	1 Case " by 2 Juv. Ages 13 & 14.
	1 Case " by 1 Juv. Age 15.
	1 Case " by 1 Juv. Age 13.
	1 Case " by 1 Juv. Age 13.
(c)	1 Case " by 1 Juv. Age 6.
(d)	1 Case " by 3 Juv. Ages 12, 13 & 13.
(e)	1 Case " by 2 Juv. Ages 16 & 17.
(f)	1 Case " by 6 Juv. Ages 18 & 19.
(g)	1 Case " by 1 Juv. Age 13.
(h)	1 Case " by 1 Juv. Age 12.
	1 Case " by 1 Juv. Age 13.
(i)	1 Case " by 1 Juv. Age 13.
(j)	2 Cases " by 1 Juv. Age 16.
	1 Case " by 1 Juv. Age 14.
	1 Case " by 1 Juv. Age 16.
(k)	1 Case " by 2 Juv. Ages 12 & 13.

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COMMUNITY PATROL DIVISION
CRIME PREVENTION SECTION
MONTHLY REPORT
DECEMBER, 1949

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

Classification	Wash. Oregon & Calif.		Richland and North Richland		
	Six Months	One Month	Six Months	November	December
	(Jan-June 1948)	Average	(Jan-June 1948)	1949	1949
Murder.....	.181	.031	0	0	0
Robbery.....	3.47	.58	1.00	0	0
Aggravated Assault...	1.75	.29	6.66	0	1.33
Burglary.....	35.69	5.95	4.63	.66	3.33
Larceny.....	127.06	21.18	47.16	54.00	38.00
Auto Theft.....	15.56	2.59	3.10	.66	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		Richland and North Richland		
	Six Months	One Month	Six Months	November	December
	(Jan-June 1948)	Average	(Jan-June 1948)	1949	1949
Murder.....	.140	.023	0	0	0
Robbery.....	4.70	.82	0	0	0
Aggravated Assault..	.78	.13	6.66	0	1.33
Burglary.....	36.91	6.15	4.63	.66	3.33
Larceny.....	92.22	15.37	47.16	54.00	38.00
Auto Theft.....	18.15	3.03	3.10	.66	0

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

Classification	National Average		Richland and North Richland		
	Six Months		Six Months	November	December
	(Jan-June 1948)		(Jan-June 1948)	1949	1949
Robbery.....	55.5		0	0	0
Burglary.....	59.9		8%	100%	0
Larceny.....	45.2		13%	13%	18%
Auto Theft.....	71.6		0	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 arrests recorded is doubtless incomplete in the lower age groups because of the practice of some jurisdictions not to fingerprint youthful offenders."

COMMUNITY DIVISIONS
COMMUNITY - ACTIVITIES DIVISION
December

ORGANIZATION AND PERSONNEL

Number of employees on roll

Beginning of month		12
Additions	0	
Terminations	<u>0</u>	
End of month		12

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of December 30, 1949:

Administration	6
Principals & Supervisors	18
Clerical	16
Teachers	245
Health Audiometer	1
Building Custodians	52
Cooks	37
Nursery School & Ex. Day Care	11
Bus Drivers	<u>2</u>
	388

CLUBS AND ORGANIZATIONS

As on December 30, 1959, organization's personnel include:

Villagers, Inc.	7
American Legion	2
Coordinate Club	1
Youth Council	1
Boy Scouts	1
Camp Fire Girls	2
Hi-Spot Club	1
Red Cross	3
Castle Club	1
Post Office	52
Veterans Administration	2
Girl Scouts	2
Masonic Lodge	<u>1</u>
	76

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Community - Activities Division

On December 13, 1949, the regular monthly meeting of the Recreation Advisory Committee was held. Approval to hold organization meetings was recommended for the Hi-Spot Advisory Board, Whitman Alumni Association, and the Richland Ramblers. The minutes of the November 15, 1949, meeting were approved by the Atomic Energy Commission on December 9, 1959, with final approval given to the Sacajawea Model Railroad Club, Richland Calf Roper and Rodeo Association, Nu Phi Mu, and Womens Auxiliary of Kadlec Hospital.

"Toby Tyler", produced by the Clair Tree Major Touring Theatre, was presented December 1 and 2, in the Carmichael Junior High School auditorium. Afternoon and evening performances were given on both days.

The Boys Choir Concert was presented on December 3, in the Carmichael Junior High School before a near capacity crowd. A Minstrel Show was the feature of the concert.

On December 3, the Roving Bowman Archery Club staged a novelty shoot under the lights in the Bomber Bowl. Over 30 archery enthusiasts participated in this event.

The American Legion sponsored a School Boy Patrol Christmas Movie Party on Saturday, December 3. Over 250 grade school pupils were honored at this affair. Two door prizes were presented.

Work was completed at the Legion Building on the replacing of approximately 100 ft. of sewer on December 5. The replacement was made necessary by erosion between the building and main sewer line.

It was announced on December 15, that the golf committee of the Chamber of Commerce has withdrawn their application for a site to locate a local Golf Course. The site desired was immediately west of the Riding Academy and north of Van Gieson.

The Carmichael Junior High School auditorium was filled to capacity on December 9, and 10, for the Meistersinger Concerts; the first of two programs to be presented in Richland by this male choral group.

The Kadlec Hospital Auxiliary sponsored Treble Clef Benefit Concert was presented in the Carmichael Junior High School on December 12, 1949. Guest artists presented several numbers during the program. All funds from the concert will be used for the welfare work of the Kadlec Hospital.

The Richland Rotary Club was chartered on Saturday evening December 17, at a banquet held in Carmichael Junior High School cafeteria with guest Rotarians coming from the surrounding area as delegates to the charter night celebration.

An "Eight Ball Club" was formed in Richland to aid the Junior Chamber of Commerce in raising funds to pay off the deficit for the 1948 Atomic Frontier Days Celebration. Membership in the club will be \$1.00 and as soon as sufficient funds are raised to meet the deficit the Eight Ball Club will be disbanded.

Community - Activities Division

Mrs. Betty Watts resigned as Girl Scout Professional Executive on December 31. She has held the position since October, 1947.

The Triple-Toeners were hosts to 400 at a Christmas party held in the Carmichael Junior High School on Saturday, December 24. The entertaining program consisted of several outstanding solos and duets.

The resignation of Mr. Ted Best, Editor-Manager of the Villager for the past 21 months was announced in the December 22 issue of the paper. Mr. James W. Phillips was appointed acting editor by the Board of Directors of Villagers, Inc.

The Richland American Legion Post #71 and the Atomic Aerie of the Fraternal Order of Eagles combined efforts to present a Theatre Party for all grade school students of Richland and North Richland. A three hour show was held on December 24, and candy and popcorn was given to all of those attending.

Carmichael Junior High School auditorium was the location of the fifth annual presentation of "Handel's Messiah" on Sunday evening December 18. Nearly every musical organization in Richland composed the group with several soloists featured. The program was broadcast over local radio stations.

On December 21, representatives of the Fire Protection and Community - Activities Divisions inspected all government-owned club buildings used by Richland organizations.

CHURCHES

The following is a tabulation of full-time paid church personnel, as of December 30, 1949:

	<u>Ministers</u>	<u>Staff</u>	<u>Total</u>
Assembly of God	1	0	1
Catholic	2	2	4
Central United Protestant	2	2	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
Nazarene	1	0	1
Regular Baptist	1	0	1
United Protestant - North Richland	1	0	1
United Protestant - West Side	1	0	1
United Protestant - South Side	1	0	1
United Protestant - Northwest	1	0	1
Foursquare Gospel	1	0	1
	<u>19</u>	<u>7</u>	<u>26</u>

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Community - Activities Division

From December 1, through December 10, the Church of the Nazarene held a ten day revival in their new Sanctuary. Services were conducted by Rev. Wesley Crist of Los Angeles, California.

The Church of Christ began construction on their church located at the corner of Thayer Drive and Swift Blvd. on December 21, 1949. It is estimated that the building will cost \$75,000 and will be ready for occupancy by the latter part of February.

On December 21, members of the Community Fire Division and the Community - Activities Division made the monthly inspection of all government-owned church buildings.

The following is a list of church organizations constructing their own church buildings.

<u>CHURCH</u>	<u>DATE STARTED</u>	<u>ESTIMATED % COMPLETED</u>	<u>OCCUPANCY DATE</u>
Nazarene Church	April 12, 1949	98%	11/30/49
Latter Day Saints	Feb. 5, 1949	57%	
Latter Day Saints (Reorganized)	August 22, 1949	15%	
United Protestant Southside	Nov. 5, 1948	98%	4/10/49
Richland Baptist	Nov. 27, 1949	98%	4/17/49
Church of Christ	Dec. 21, 1949	15%	

RECREATION

The number and types of organizations presently served by the Community-Activities Division include:

Business and Professional Club	19
Churches & Church Organizations	25
Civic Organizations	4
Fraternal Organizations	20
Music & Art Associations	8
Recreation & Hobby Groups	38
Schools & Parent Teachers Associations	13
Social Clubs & Organizations	10
Veteran & Military Organizations	12
Welfare	6
Youth	
Boy Scouts	19
Camp Fire Girls	36
Girl Scouts	49
Misc.	7
Miscellaneous	7
Total	273

Community - Activities Division

Preliminary arrangements have been made to flood the tennis courts at Columbia Playfield when weather conditions are favorable such that the court area can be used for ice skating. Supervision will be provided during the evening from 6:00 to 11:00 PM.

Plans are well underway for conducting the Benton County Hoop Shoot sponsored Statewide by the Seattle Post-Intelligencer, and locally by the Tri-City Herald. The Recreation Section is coordinating the Benton County contest. The P-I sponsored contest covers boys only in age levels up to 14. The Richland contest has been extended to cover additional age groups: boys 15 and over, girls under 15, girls 15 and over, and men 21 and over. Preliminary contests are to be held by all schools in the County. Finals in Richland will be on January 17 and Tri-City finals on February 10.

An inventory control procedure has been developed for handling all recreational supplies and equipment.

Preliminary plans have been made for the installation of play equipment at the Barth Playlot. All equipment will be of the home-made variety and of salvage materials. It is anticipated that equipment of the type installed will be duplicated and installed in home playlots by residents. Descriptive instructions and plans are now available through the Recreation Section.

Arrangements were made for a badminton demonstration between halves of the Globe Trotters Basketball Game sponsored by the Richland Independent Basketball Association.

Interest in the recreation programs conducted by the Recreation Section has remained good throughout the month of December with the following attendance figures:

	<u>No. Nights</u>	<u>Attendance</u>
Weightlifting and general		
gym work	10	273
Men's Sport Night	4	138
Women's Sport Night	2	25
Co-Rec Night	3	123
Fencing	4	44
Total attendance for the 23 nights of activity was 603.		

The Recreation Section made up the schedule for the Richland Independent Men's Basketball League.

The Recreation Section supplied targets and equipment for the Richland Roving Bowmen Archery Meet held at the Bomber Bowl on December 3, 1949.

On December 17, the Richland Candlelighting Service was held in the recreation room of the Community House. The program was developed and sponsored jointly by the Community-Activities Division and the Youth Agencies of the Village. Approximately three hundred persons witnessed the service.

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Community-Activities Division

Plans have been requested for a devise to raise and lower the "Welcome to Richland" sign in order to eliminate the high service cost involved in handling the work according to existing procedure.

A survey and recommendations have been requested for securing more adequate heat control for the craft room and recreation room at Community House.

A special clean-up of all outdoor recreational areas was necessary after the recent wind.

Community Service

Loud speaker facilities and other equipment was made available to the uptown merchants for their dedication services and open house on the evening of December 8.

The Community Nativity scene was installed near the south end of the Community House and was floodlighted throughout the holiday season.

Assistance and counsel was given in the organization of the Hi-Spot Advisory Board which will become the sponsoring agent of the Hi-Spot Club. The Junior Chamber of Commerce has relinquished its sponsorship to the above Board which is composed of one member from the Lion's Club, Kiwanis, High School P.T.A., Junior Chamber of Commerce, and the American Legion. One member from the Community-Activities Division will also work with the Board in an advisory capacity.

Arrangements and plans were completed for the school board election and the Community Council election to be held on February 4, 1950. Voting will be handled at the grade schools only. The Community Council, School Board, and County officials concurred in the assignment of precincts to the school divisions to facilitate voting.

Park Development

Negotiations were completed for the extension of the plot assigned to the Richland Rose Society.

The design of Frankfort Playground was completed.

Information relating to budget items for 1950 and 1951 was prepared for the Atomic Energy Commission.

Supplementary justifications for Columbia Playfield were prepared and submitted to the Atomic Energy Commission.

Specifications were made available to the Construction Division for laying out and painting court lines on the tennis courts at Carmichael and Spalding schools.

Community - Activities Division

MAJOR ACTIVITIES FOR THE MONTH

December 1 & 2	"Toby Tyler" by Claire Tree Major	Carmichael
3	Boys Choir Concert	"
3	Roving Bowman Archery Novelty Shoot	Bomber Bowl
3	School Boy Patrol Christmas Theatre Party	Village Theatre
9 & 10	Meistersingers Concert	Carmichael
12	Treble Clef Benefit Concert - Kadlec Auxiliary	Carmichael
17	Charter Banquet - Rotary Club	"
18	"Handels Messiah"	"
24	Triple Teeners Christmas Party	"
24	Legion & Eagles Grade School Christmas Theatre Party	Village Theatre
28	Harlem Globetrotters vs. Village All Stars Basketball	Columbia High Sch.

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GENERAL ELECTRIC COMPANY
HANFORD WORKS
COMMUNITY ACCOUNTING DIVISION

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MONTHLY REPORT FOR DECEMBER, 1949

ORGANIZATION

Employees-Beginning of Month	27	Exempt	5	Male	9
Transfers In	<u>1</u>	Non-Exempt	<u>23</u>	Female	<u>19</u>
Total - End of Month	28	Total	28	Total	28

The Steno-Typist from Community Cost, who was on loan, has been transferred to Purchasing and Stores. The other St eno-Typist on loan will be transferred as soon as a permanent opening is found.

ACCOUNTS RECEIVABLE

Rents

	<u>December</u>	<u>November</u>
<u>House Leases Processed</u>		
New Leases	124	109
Modifications	7	20
Cancellations	120	95
Total Active House Leases	5,713	5,709
<u>Dormitory</u>		
New Assignments	72	99
Removals	87	125
Total Occupancy	907	922
<u>Rental Revenue was as follows</u>		
Equipment	\$ 38.41	\$ 47.26
*Houses	257,155.95	255,350.96
*Dormitories	12,702.77	13,196.51
*Facilities	39,653.81	41,283.59
	<u>\$309,550.94</u>	<u>\$309,878.32</u>

* Includes facilities which are collected as a part of the rental.
Nine facility operators still have equipment on a rental basis.

Unoccupied Dormitory Revenue Loss	\$ 3,094.73	\$ 2,600.99
Unoccupied House Revenue Loss	1,916.55	3,721.54
Total Potential Revenue	<u>\$274,870.00</u>	<u>\$316,200.85</u>

Community Accounting Division

Telephone

	<u>December</u>	<u>November</u>
Number of work orders processed	333	252
Number of working phones	2,946	2,767
Revenue including services	\$10,772.28	\$5,539.90

Under our first billing of telephone at the new rates including the new installations it will be noted revenue increased practically 100%.

Miscellaneous

Invoices issued	221	256
Miscellaneous Revenue	\$969.45	\$1,026.11

The following building permits were issued in December:

<u>Lessee</u>	<u>Amount</u>
E. A. Erickson	\$ 410.50
Richland Church of Christ	167.50
Total December Revenue	\$ 578.00
Previously Reported	4,689.51
Total to Date	\$5,267.51

No government owned equipment was sold during the month.

Previously Reported - Total to Date \$105,089.97

General

Twenty six collection letters were written during the month resulting in the collection of seven accounts amounting to \$200.85. One hundred five form collection letters were sent out December 15, in an effort to affect payment of miscellaneous tenant service accounts of active employees involving amounts of less than \$5.00 that are aged thirty days and over.

Bad accounts written off during the month were as follows:

Amount over \$1.00 - 5 Accounts totaling \$69.25

ACCOUNTS PAYABLE

Statistics

	<u>December</u>	<u>November</u>
Accounts Payable Vouchers Processed	174	253
Freight Bills Processed	13	13
Purchase Orders Received	63	65
Net Amount of Purchase Orders	\$7,291	\$7,242
Receiving Reports Received	53	74
Total Net Amount Disbursed	\$26,636.47	\$51,171

Community Accounting Division

The volume of work shows a slight increase although the total amount expended is considerably less than the previous month.

All outstanding items in the Accounts Payable balance of \$167.73 cr are current.

A summary of the active Community subcontracts is shown below:

<u>Subcontractor</u>	<u>Subcontract Number</u>	<u>Amount Awarded</u>	<u>Paid This Month</u>	<u>Total Paid</u>	<u>Amount Retained</u>
Frederickson, Dr. J. L.	-----	* 1,177.00	175.50	1,177.00	-----
Newland Cafeteria	-----	* 5.58	0	5.58	-----
Richland Maintenance Co.	-----	*56,715.86	6,616.54	56,715.86	-----
West Coast Painters Co.	G-219	58,526.79	0	43,974.85	2,926.34
Abrams Aerial Survey Corp.	G-268	14,208.41	0	0	-----
Tacoma Asbestos Company	G-281	12,668.05	0	0	-----
		143,301.69	6,792.04	101,873.29	2,926.34

* Total amount of contract will be total of estimates as submitted.

The Community Divisions Obligations and Expenditure report, Compilation of B & O Tax and the Report on Overtime Meals was submitted for consolidation to the General Division.

The Community Division's estimate of Cash Receipts for January amounted to \$96,500, and estimated cash disbursements were \$58,700.

COST

Reports

The November Cost Report was completed and issued on December 20, 1949.

Budget

Consolidations and graphs are being prepared covering the mid-year budget review Fiscal Year 1950.

Work Orders

A summary of work order statistics for the last two months is listed for information.

<u>Craft</u>	<u>Service Orders</u>		<u>Total Amount</u>	
	<u>Nov.</u>	<u>Dec.</u>	<u>November</u>	<u>December</u>
1. Plumbing	793	659	\$ 1,947.58	\$1,545.49
2. Electrical	2,224	1,853	5,288.59	4,421.29
3. Heat & Vent.	816	690	2,042.81	2,275.62
4. Glazing	58	62	266.92	289.01
5. Lock & Key	253	237	879.28	627.62
6. Carpentry	371	233	1,099.13	679.73
9. Sheet Metal	6	6	42.67	49.63
	4,521	3,740	\$11,566.98	\$9,888.39

Community Accounting Division

The Work Order procedure is not completed. Work is continuing on it however.

Statistics covering regular work orders:

	<u>November</u>	<u>December</u>	<u>Net Change</u>
Active Routine	473	476	$\frac{f}{\quad} 3$
Active Normal	$\frac{1,107}{1,580}$	$\frac{1,182}{1,658}$	$\frac{f}{\quad} 75$ 78
Work Order Received	826	1,277	
Work Orders Completed	1,229	1,199	
Work Orders Incomplete	- 403	$\frac{f}{\quad} 78$	

GENERAL LEDGER

The November trial balance and supporting financial statements were forwarded to the General Division for consolidation on December 16, 1949.

	<u>No.</u>	<u>Debit</u>	<u>Credit</u>
Second Class Invoices Received	63	\$606,313.47	\$288,264.35
Second Class Invoices Issued	44	98,244.64	12,896.88

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DESIGN AND CONSTRUCTION DIVISIONS

December, 1949

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month

527

End of month

534

Net increase

7

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 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 discoveries or inventions.

INVENTOR

TITLE

Phil P. Smith

Instrument Movement Transmitter
for High Pressure Apparatus

REACTOR DIVISION (D & C)

I. ORGANIZATION AND PERSONNEL

Number of employees on payroll

Beginning of month

45

End of month

41

Net decrease

-4

II. SECTIONAL ACTIVITIES

Project C-165-A. Construction of "H" Area

Formal "stop charge" notice was issued December 30, 1949 on Project C-165-A, Construction of "H" Area. Plant forces are engaged in the finish-up work covered by previously authorized work orders. During December active assistance was rendered to maintenance forces by this Division on the Automatic Import Valve installation and the 190-H Storage Tank Inlet Butterfly Valve installation.

All drawings with the exception of those covering phases of the work being worked on by maintenance forces have been certified "as built". Project Engineering has agreed to make any further drawing changes required as actual field changes are completed. Giffels & Vallet

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Project C-165-A, Construction of "H" Area (continued)

Richland Office was closed December 9, 1949. Since that date no Giffels & Vallet personnel have been active on this project.

Project C-300. Design of New Pile Area "G"

A study of costs for Project C-300 shows that actual expenditures for the first half of fiscal 1950 will not exceed 20 per cent of the total estimate for the fiscal year; however, large sums have been committed and will be expended within the next several months. Presently, it appears that the estimate of \$970,000 for the fiscal year of 1950 is ample. The actual cost plus commitments will approximate the estimate, but due to delays encountered in August, September, and October of this year, it is questionable whether the actual expenditures will reach the total estimate during fiscal 1950.

Statistical and General

Controls

An investigation of high absorption cross-section alloys for control rods has been made and the results appear in report HDC-1572. This report covers desirable alloys with an analysis of life versus cost of safety, shim and control rods containing various quantities of boron and gadolinium.

Investigation of the Ball 3-X System was continued and the possible vendors have been contacted. All drawings required to construct a Ball 3-X test set-up have been completed with the final checking nearing completion.

The Working Committee on controls has met twice to discuss the location, number, and type of control rods required. Further meetings will be held after the issuance of a Technical Division report in answer to the questions listed in Document HDC-1450.

An investigation of operating transients has been started for Reactor "G" operating at 800 MW. This study will continue as more is learned about metal and graphite co-efficients and graphite operating temperatures of Reactor "G".

Shielding

Continued effort was spent on refinement of the front and rear face crate design. A general arrangement with working dimensions is almost complete and drawings for the test crate assembly are now nearing completion. Working dimensions and methods of crate fabrication are now well established.

Top shield design is nearing the checking phase in the Drafting Room. After final checking by engineers, revised instructions will be issued for the final design work.

Moderator

Work consisted mainly of attempts to work the 8" vertical growth specification into a rigid enough stack design to prevent loss of balls and

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Moderator (continued)

rupture of the binder by 3-X ball loading. Ways and means of designing sufficient flexibility into the front and rear binder are still under investigation pending further calculations on allowable leakage by the blocks.

Basic data published by the Pile Technology Group in the past few months provides reason for review of the total growth expectancy. This has begun and will be carried on during January and February. High temperatures are the key to the graphite problem with tests run at 2750° C showing less than 2 per cent of the growth at 400° and as high as 75 per cent recovery in some samples.

Charging Methods

The Working Committee on "continuous charging" comprised of representatives of Operations, Technical, and Design has been meeting weekly. To date, discussions have centered about the operating requirements for charging devices and the economical gains to be derived from "continuous charging."

Materials

The Remington Arms Company of Bridgeport, Conn., successfully prepared and fabricated titanium-gadolinium alloys containing up to an estimated 4.7 per cent gadolinium oxide by weight (4.1 per cent gadolinium) in small experimental quantities. Even though this 4.1 per cent gadolinium alloy contained about 0.7 per cent oxygen, the alloys were warm rolled at 1200° F. without difficulty. Microtensile specimens containing 1.5 per cent Gd and 4.1 per cent Gd have been furnished to Hanford for corrosion testing.

Computed lives of 4.1 per cent gadolinium-titanium alloy control rods 1/4" and 5/16" thick by 11" wide are 2.7 years and 3.8 years, respectively.

Heat Transfer

Secret Document HDC-1560 has been prepared and presents correlations for non-boiling pressure drop data in standard process tube assemblies. These correlations, along with steam-water flow results, (HDC-1565) have been adapted for the calculation of preliminary pressure-flow curves.

Water shutdown requirements have been examined with respect to heat generation following pile shutdown. Preliminary calculations have been made for header pressure - time curves based upon the prevention of the "boiling disease."

Various methods for calculating graphite temperatures have been compared so as to determine a suitable application for the "G" design analysis. A start has been made in applying equations for calculating maximum and cap temperatures.

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SEPARATIONS DIVISION (D & C)I. DESIGNRedox Production Plant

Information was received on December 21 that the Redox Plant would be a single rather than a dual purpose plant. At the same time, a study was initiated concerning an East versus West location for the Redox Plant. A decision on this matter is to be reached by January 5, 1950.

The Kellex narrative report on main Production Plant Building, Stack and Mock-up for the month of December has not been received. A reported percentage completion of design as of December 31, 1949 is 20.4. Scope drawings for the Mock-up Building have been received from Kellex for approval by General Electric and the Atomic Energy Commission. These have been approved for transmittal to the Separations Committee.

Structural steel drawings including roof trusses for the Mock-up Building have been received from Kellex for approval. Scope drawings covering the architectural, heating, and ventilating for the main Production Plant have been received from Kellex.

Approximately one-third of the engineering flow diagrams have been transmitted by Kellex to General Electric for approval.

Contracts have been signed with Crane and Pyle-National for the Connector Development Program, and negotiations between Kellex and the aforementioned companies are in process. The number of models necessary to be tested and approved has been reduced from nine to six in order to permit transmittal of design information on these critical items to Kellex as presently scheduled.

Redox auxiliary facilities being designed by General Electric are approximately 11 per cent completed. Solid chemical bulk storage has been eliminated and flow sheets for solution make up and laboratory waste system are in the comment stage.

Redox utilities scope work is approximately 75 per cent complete, and construction drawings are approximately 25 per cent complete.

Drawings and specifications have been completed and fully approved for the Tank Farm, Retention Basin, and Waste Disposal Cribs. All information is now available for the preparation of invitations to bid on this project.

Work on the Redox Project Proposal which was scheduled for completion December 23, 1949 was suspended pending the final location of the Redox Plant and other necessary decisions.

Conversion of UNH to UO₃

Design studies have been initiated on the basis of a batch operation similar to that in use at Mallinckrodt except that additional precautions against air contamination are to be included. A formal recommendation with regard to the

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type of operation is to be made by the Process Working Committee in the near future. If approved, this will form the basis of design.

Waste Metal Recovery

The Metal Recovery Survey Committee issued a report (Document HW-15369) on December 12, 1949 covering economic comparisons of various proposals for waste metal recovery. The General Electric Company has recommended to the Atomic Energy Commission that the T.B.P. process be adopted for waste metal recovery. The local A.E.C. office has received a letter from Walter Williams (A.E.C., Washington) stating that the T.B.P. process is to be used. This letter also stated that the maximum capacity possible is to be installed in the "U" area in the shortest time possible. Based on the above information, the Separations Committee has appointed a Working Committee and is presently investigating possible sources of manpower for a project group to handle the Scope Design.

Redox Analytical and Plant Assistance Laboratory

Scope drawings and specifications have been completed by the Architect-Engineer, approved by the General Electric Company, and were forwarded to the Atomic Energy Commission on December 20, 1949 for approval.

The Architect-Engineer reports design at approximately 77 per cent complete as of December 31, 1949. Scheduled completion as of this date is 87 per cent.

All design work is proceeding satisfactorily and during the month many problems of final design affecting the building operation were firmed up by the Contact Engineer.

Redox Laboratory Waste Facilities

The process flow sheet has been issued for final comment. It is expected that the approved flow sheet will be issued about January 13, 1950.

234-5 Project

Phase I (Portion after July 31, 1949) (Estimated to Dec. 31, 1949)
69.2% Scheduled 100%*

Phase II (Estimated to Dec. 31, 1949) 99% Scheduled 82.8%*

Phase III (Estimated to Dec. 31, 1949) 32% Scheduled 59%*

R. M. Line (Actual Expenditures to Dec. 12, 1949) 92% Scheduled 95%

* Being rescheduled

Justification Letter #11, H. I. Room 161, and Justification Letter #3, Maintenance Shop "D", were approved by the Separations Committee for issuance.

Two work orders were issued for Phase I work. These included the relocation of air monitoring outlets and provision for seals on the vent ducts in Phases II and III Areas.

Work orders were released to Minor Construction for Rooms 146 and 147 in the Analytical Laboratory and the alteration to the Coal Conveyor in 284-W.

Estimates on all approved changes in the R. M. Line are being prepared by GE&CL and are scheduled to be completed by December 28, 1949.

Design Modifications #46 and #47 were added to the LA classification, which includes the items requiring immediate action that are necessary to make the R. M. Line operable. Modification #46 covers the solenoid valve air discharge. Modification #47 provides for additional space down the line from Hood #17 to permit future location of H-17-S should it be needed. GE&CL will continue the development of mechanical unloading for possible installation in H-17.

Two items were reclassified and are now included in the LA category. Modification #1 authorizes design modifications in the R. M. Line that are necessary to change product. Modification #15 allows the use of Room 320 for auxiliary equipment of the helium system, thereby eliminating the stairs and platform in Task IV.

A study was made as to the most economical means of adding to the length of the R. M. Line. Based on the estimates, it was decided to raise the stairs since this could be done at the minimum overall cost.

Rala

A.E.C. authorization for GE&CL design and development of the electrolytic cell has been requested.

Dissolver studies have been completed and agreement reached on the dissolver to be used. Underground pipe tests have been completed and all piping tested found to be usable.

Technical information has been received on the iodine removal equipment requirements. With this information, the major equipment up to and including the electrolytic step has been determined and flow sheet work on this part of the process is limited to the determination of minor details.

An instrument engineer has been assigned to Rala work starting in January and work has been initiated on instrument availability in the present installation and the choice of instrumentation for the process.

An apparently feasible equipment arrangement for purification equipment incorporating Nutsch filters has been developed but flow sketch work has not yet been completed. The requirements for materials for the fabrication of the purification step equipment have been determined but not yet firmly established.

Studies have been initiated on mechanical devices for handling small equipment associated with purification and shipment.

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Tentative scope design and detailed design drawing lists have been issued. These drawing lists are not complete for laboratory building or laboratory equipment for which no information on requirements has been received.

Personnel Meters and Records Building

Design is 100 per cent complete.

Health Instrument Control and Development Laboratory

Scope drawings and specifications have been completed by the Architect-Engineer, approved by the General Electric Company, and were forwarded to the Atomic Energy Commission on December 20, 1949 for approval.

The Architect-Engineer reports design at approximately 67 per cent complete as of December 31, 1949. Schedules for design of this building are to be revised on the basis of a completion date of April 15, 1950.

The Architect-Engineer has been directed to revise the building layout and to submit to the General Electric Company its claim for the work which is considered to be outside the scope of work as covered by his Subcontract G-256. This claim will be processed as a field change order.

II. CONSTRUCTION

Redox Production Plant

A contract has been signed with Atkinson-Jones Company for construction of the Redox Plant in the West Area including all facilities except Laboratory, Waste Disposal, Metal Recovery, and Tank Farm. In a series of meetings between Atkinson-Jones, Kellogg, and General Electric Company representatives, substantial progress has been made toward a mutually agreeable design, procurement, and construction schedule for the Redox Production Plant.

Redox Analytical and Plant Assistance Laboratory

A contract for the construction of this facility has been signed with Atkinson-Jones Company. Scheduling of construction work is to get underway about January 9, 1950.

234-5 Project

Phase I (Portion after July 31, 1949) 46.7% complete.
Scheduled 59%.

Rala

It is understood that a directive for construction of Rala has been issued. Procurement of critical materials will proceed as soon as construction cost codes can be established.

Personnel Meters and Records Building

All work by the construction contractor was completed on December 30, 1949.

Remaining work consists of installation of furniture and equipment by plant forces. Final completion is scheduled for February 28, 1950.

III. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	65
End of month	<u>65</u>
Net change	0

POWER AND MECHANICAL DIVISION (D & C)

I. SUMMARY

Earlier design completion dates recently set by the Separations Division together with the added work load imposed by new projects approved during the past month will result in severe peaks in manpower requirements especially in the Drafting Room during the first half of 1950. The plan is to increase the present drafting force by 12 men and negotiate a services contract with an outside concern to provide draftsmen not permanently needed.

Analysis of the time applied to major projects by the 29 engineers in the general engineering group of the Power and Mechanical Division shows that 35 per cent of the total was expended on Separations Division projects; 28 per cent on other projects behind the barricade; 15 per cent on Community Division projects; and the remaining 22 per cent on clean-up of completed projects or other miscellaneous engineering work.

II. STATISTICAL AND GENERAL

Progress made on the more important projects assigned to this Division may be summarized as follows:

C-185, Railroad Connection South of Richland

This project is approximately 60 per cent complete. Whether or not the presently established completion date of March 15, 1950 can be met depends primarily upon progress of the Yakima River bridge. Difficulty has been experienced in driving piling for the bridge piers to the specified design penetration. The Architect-Engineer, J. Gordon Turnbull, Inc.--Graham, Anderson, Probst & White, Inc., has modified the pier design to permit lesser penetrations. This redesign is being issued and barring unfavorable weather, construction should proceed without undue delay.

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C-288-A, B, C, D - Development of Parking Areas, Etc., Richland, Village

Construction work on these Village projects is substantially completed, minor sections of paving being still uncompleted. Should further severe weather occur, the remaining work may have to be deferred until next Spring.

C-289, Additional Laundry Facilities, 200 West

Revision of existing plans and specifications to make them suitable for lump sum bid advertising is in progress, to be completed by January 16.

C-312, Technical Center

Estimates of the cost of preparing separate project proposals for the Radiochemistry Building and the Radiometallurgy Building and the plot plan development for the entire area were submitted to Technical Divisions December 19, 1949 and subsequently approved.

C-342, DR Water Works

The modification of the Atkinson-Jones subcontract (G-133) to include the construction of this project was effective December 15, 1949. Actual construction operations began on December 19, which has been established as the official construction starting date.

The design subcontract (G-274) with Chas. T. Main, Inc., is being modified to include the provision by Main of detailed construction inspection, the design of a gas system for 105-DR, and the preparation of detail drawings for fabrication of structural steel. Approximately 40 per cent of total design assigned to Main has been completed. Thirteen requisitions for the purchase of critical equipment by General Electric Company have been released, total value being approximately \$500,000. Eleven requisitions having an aggregate value of about \$800,000 have been released to Atkinson-Jones for purchase.

MC-964, Records Depository

Final plans and specifications have been received from the Architect-Engineer. Based thereon, a cost estimate and project proposal have been prepared and submitted. Minor revisions in the plans are underway to prepare them for lump sum bidding.

-Projects Completed During December

Physical work on the following projects was completed during the month and they will not appear on subsequent reports:

Y-4.5)	
C-314)	Hains Avenue Improvement
C-178	Construction Camp (Piping to John Ball School)
C-205-R	Third Addition to Housing
C-283	Personnel Meters and Records Building
C-292	Van Giesen Avenue Extension
C-299	AEC Airport

III. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	193
End of month	<u>198</u>
Net increase	<i>/ 5</i>

CONSTRUCTION SERVICES DIVISION (D & C)

I. SUMMARY

During the month a number of procedures have been worked out with other Divisions of Design and Construction and Construction Contractor pertaining to the new construction program. Several sections of the Contractor's Manual were completed and released for issuance. The new cost code system for the Division has been completed and will be placed into effect January 1, 1950. The financial budget for the Division has been realigned to the new cost codes.

II. STATISTICAL AND GENERAL

NORTH RICHLAND CONSTRUCTION CAMP

	<u>Beginning of Month</u>	<u>End of Month</u>	<u>Net Change</u>
Camp Population	2238	2267	<i>/ 29</i>
(Barracks	191)		
(Trailers	1472)		
(Houses	604)		

Barracks in Use

7 wings, one-story male barracks
1 wing, one-story female barracks

Trailer Lots

Occupied -- 528

Houses

Of the 201 houses available in North Richland Camp, 21 were vacant at the end of the month. Fifteen were assigned during the month and 13 were vacated.

Maintenance

The construction contractor's maintenance force at the end of the month totaled 47 employees.

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Work Order Control:

Brought forward from 12-1-49	25
Issued during December	60
Completed during December	55
Balance on hand December 28	30

Steam Generating Plant

The following is a resume' of the operations of the steam generating plant from December 1 through December 27th:

Steam generated, M pounds	20,505
Oil consumed, Gallons	13,425
Coal consumed, Tons	1,330.1
Boiler efficiency, average	76.69%
Estimated cost per M pounds - based on last known cost of fuel	\$.8291

Commercial Facilities

Renegotiation of facility operators' contract has not as yet been completed. However, these renegotiations are progressing as rapidly as may be expected.

Monthly report of the facility operators presently active are not available at this time; however, from the facts obtainable the trend of business has not improved over last month.

The eating establishments in compliance with the new governing Washington State Code are being required to perform certain repairs and improvements in order to maintain a Grade "A" rating. This work is presently being completed.

Hand's Buy Rite Drugs has requested approval to establish a cocktail bar in connection with their eating facilities and recommendations have been forwarded to the Atomic Energy Commission for their approval.

OFFICE SERVICES

Services performed during the month by this section included the following:

Ditto Masters Processed	2,163	Copies	59,122
Stencils Processed	1,675	Copies	109,951
Mail Handled (pieces)	110,482		
Mail Registered (pieces)	61		
Teletypes Sent and Received	244		
Orders Issued for Stationery	82		
Stationery Issued (requests)	1,082		
Phone Installation Requested	0		
Phone Moves Requested	38		

Offices Furniture Moved (pieces)	176
P.I.T. Processed	15
Special Messenger Runs	92
Office Machines Delivered Repair Shop	12
Service Calls	612
Work Orders Issued	12
Requisitions Approved	33
Reports Prepared	4
Checks Distributed	82

The physical inventory of office furniture and equipment was completed and a perpetual control file has been established.

Western Union facilities were established in Building 101, 3000 Area, during the month and are available for use by the construction contractors.

SECURITY ADMINISTRATION

A summary of activities is as follows:

Visitor passes issued	99
Badge Number Changes	140
Lost Badges	3
New Hires (Contractor)	337
Terminations (Contractor)	191
Number of Subcontractors and	
Vendor Employees as of 12-28-49	1360
"FP" Clearances Requested	34
Received This Month	10
"Q" Clearances Requested	46
Received This Month	91
"P" Clearances Requested	78
Visitor Clearances Requested	29
"QE" Clearances Requested	1
Total Clearances Requested for Month	188
Total Clearances Received for Month	101

The new construction area designated as the 100-DR Water Plant was established on the south side of 100-D Area. This area will be controlled by signs, "Construction Workers Do Not Pass Beyond This Point," being installed between the work area and the remainder of 100-D Area, and roving Patrol.

In compliance with a request from Plant Security Division, the construction badges are being changed from the present plastic case type to a laminated tamper proof type badge. The equipment necessary has been ordered and every effort will be made to complete this change next month.

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MAJOR CONSTRUCTION EQUIPMENT

1. Physical inventory of shop equipment assigned to Atkinson-Jones completed.
2. Equipment assignment as of December 30:

Atkinson & Jones	442 pieces
Design & Construction Divisions	117 pieces

SAFETY REPORT

<u>Construction Injuries</u>	<u>C.P.F.F. Contractors</u>	<u>Lump Sum Subcontractors</u>
Major Injuries	-0	0
Sub-major Injuries	0	0
Minor Injuries	15	10
Fires	0	1
Motor Vehicle Accidents	0	0

During 1949 there occurred 128 major injuries among subcontractor personnel, developing a frequency rate of 10.27 and a severity rate of 1.01. Compensation payments for the year to date total \$23,026.08. Estimated compensation premium figures at 2-1/2¢ per hour for C.P.F.F. contractors only (hours worked 11,519,044) was \$287,976.10, resulting in a loss ratio of 7.99 per cent. Medical costs which should be included are not available inasmuch as the Medical Division insist that they do not segregate such costs.

III. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	90
End of month	<u>101</u>
Net increase	11

CONTRACT DIVISION (D & C)

I. SUMMARY

Modifications to Contract G-133, Atkinson-Jones, and Sub-subcontract 21, Newbery-Neon Electric, thereunder, covering Redox Production Plant, Redox Laboratory, and DR Water Works, were executed and approved by the A.E.C.

Fee negotiations on modification covering DR Water Works, Sub-subcontract 22, Urban, Smyth, and Warren, under G-133, were successfully concluded, and modification executed, but are awaiting A.E.C. approval

II. STATISTICAL AND GENERAL

Twenty-six contract items were completed during the month. Fifty-five contract items remained open at end of month.

III. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	25
End of month	<u>23</u>
Net decrease	-2

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	11-30-49	12-30-49
<u>GOVERNMENT EMPLOYEES</u>		
Civilian Personnel - Atomic Energy Comm.	339	338 ✓
Civilian Personnel - G.A.O.	<u>8</u>	<u>8</u> ✓
Total	347	346
<u>RICHLAND VILLAGE PERSONNEL</u>		
Commercial Facilities (Includes No. Richland)	1031	1080 \ 1156
Organizations, Clubs, Etc.	74	76
Schools	378	388 \ 417
Churches	<u>26</u>	<u>26</u>
Total	1509	1570
<u>CONSTRUCTION SUB-CONTRACTORS</u>		
Atkinson & Jones	524	792 ✓
Newberry Neon	55	93 ✓
Urban Smyth, Warren Co.	9	6 ✓
Kellex Corp.	332	391 ✓
Giffels & Vallet, Inc.	5	-
J. A. Terteling & Son	179	121 ✓
Troxell	9	7 ✓
Howard P. Foley	5	5 ✓
Charles T. Main, Inc.	93	101 ✓
No. Electric Mfg. Co.	6	3 ✓
Great Lakes Carbon	137	~~137~~
Graham, Anderson, Probst & White Inc., &		
J. Gordon Turnbull	33	33 ✓
McCorkee Const. Co.	50	43 ✓
Dayley Bros.	12	3 ✓
J. P. Head	3	-
H. P. Fisher & Sons	2	-
Curtis Sand & Gravel	7	7 ✓
Bergman Lampson	-	29 ✓
Consolidated Western Steel	-	<u>15</u> ✓
Total	1461	1786
GENERAL ELECTRIC PERSONNEL	<u>7429</u>	<u>7405</u>
GRAND TOTAL	10746 1247 29	11107 137 12470

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