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HANFORD WORKS MONTHLY REPORT

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FOR  
DECEMBER 1950

35587

Compiled By  
Division Managers

January 22, 1951

HANFORD WORKS  
RICHLAND, WASHINGTON

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## GENERAL SUMMARY

DECEMBER 1950

### MANUFACTURING DIVISIONS

#### Production Divisions

A total of 79 tons of metal was discharged at the goal value. In addition 19 tubes of special request material were charged into the piles and 12 tubes were discharged and contents shipped off site. Routine shipments of Chemical 68-56 were made. A total of 77 hours was lost at H pile due to a ruptured slug jacket. The average time operated efficiency was 92.4 percent for all piles.

The maximum pile power levels achieved during the month were 375 MW, 335 MW, 447 MW, 480 MW, and 325 MW at B, D, DR, H, and F piles, respectively. Average levels were 341 MW, 310 MW, 430 MW, 454 MW, and 286 MW, respectively.

A total of 82 tons of acceptable slugs was canned at a yield of 90.7 percent. The machining yield attained a new high of 82.7 percent. The melt plant produced 15 tons of billets at a yield of 83.7 percent and a solid metal from scrap yield of 93.2 percent.

A total of 130 charges plus 3 acid washes was started in the Canyon Buildings, 132 plus 2 acid washes were processed through the Concentration Buildings, and 146 charges were completed through the Isolation Building. All the preceding totals represent new record productions. The average cooling time for metal processed was 69 days. The average purity for completed charges was 98.3 percent.

#### Plant Utilities and Maintenance Divisions

The electric power demands for the month represent an all time high due to increased process load:

	<u>Date</u>	<u>KW Demand</u>
Process	12-1-50	67,000
Village	12-5-50	30,000

It was necessary to increase capacity of 12 distribution transformers in Richland Village by a total of 212.5 KVA.

The 100-DR Area No. 4 process water clearwell storage tank was out of service from December 4 to December 18 for inspection and repair to an outlet line.

The 107-B Retention Basin repairs were completed December 21.

### TECHNICAL DIVISIONS

#### Pile Technology Division

Measurements of activities of discharged slugs indicate that the power distribution in tubes of the H-10 loading is not a normal cosine but that it



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General Summary

has a peak in the natural uranium just downstream of the last H-10 slug. As a consequence less tritium is being formed than had been predicted.

Small power level increases were made at the B and H Piles as a result of improvements in the neutron flux distribution. Decreased uniformity of flux distribution in the F Pile caused by special request loadings resulted in a reduced power level.

The discrepancies between exponential pile results and DR Pile tests have been reduced by use of a correction for spontaneous fission of  $U^{238}$  and use of experimentally measured effective pile dimensions.

A successful feasibility test of the proposed ball third safety system was performed. A standard charge of 3/8 inch diameter steel balls was dropped through a spirally fluted stepped plug into a vertical graphite channel from which the thimble had been removed. All balls except six in the graphite and two in the thermal shield were removed with a vacuum cleaner and air jet.

Measurements of nuclear annealing of graphite irradiation damage indicate that the recovery obtained in the pile at 350-400°C over a period of one year is comparable to that in an oven at 1000°C.

Recovery of graphite expansion at the midpoint of the top central tube of the D Pile is in excess of one inch since addition of carbon dioxide.

An improved billet casting procedure has resulted in virtual elimination of pipes and blow holes.

Studies were continued on metallographic examination of uranium rods rolled at 300 to 600°C, on methods of detecting degree of transformation, on new alloys for tritium target slugs, and more rigorous methods of elimination of uranium slugs with defective jackets.

Corrosion tests performed included stainless steel samples for the separation processes, and Al-Si and uranium in water at various temperatures.

The production of tritium previously committed to the A. E. C. for 1950 was attained. The discharge off-gas stream by installation of monitoring which is the highest rate yet reached. A total of 1414 slugs was fabricated.

The metal tritium extraction line was received from KAPL and installation has been started.

Recovery of tritium from air contaminated batches with  
was started during December.

radiated lithium-aluminum slugs indicate that the method is inaccurate use of gas diffusion through stainless steel walls at 700°.

Further tritium development studies included material balances on slugs from the H-10 load, sampling methods, improved analytical techniques, and evaluation of metal shipping containers.

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## General Summary

specification analyses of the product from the UO<sub>3</sub> Plant. Agreement in detail was reached on methods for most of the necessary determinations, and further information is being gathered at both sites to allow selection of the remainder. Approval was obtained and purchase requisitions placed for two mass spectrometers to be used for isotopic analysis of the UO<sub>3</sub> product, as required for accountability purposes.

The feasibility of four new analytical methods has been established. These include infra-red absorption method for analysis of CO-CO<sub>2</sub> mixtures, a method for sulphur in plutonium metal, a fast fluorimetric method for determination of Chemical 70-58 in plutonium metal, and an improved fluorimetric method for determination of low concentration of uranium.

In the 200 Area Control Laboratories, three time-saving revisions of analytical procedures were adopted but these were partially offset by two extensions of service for a net saving of about 230 man hours of bench time per month. All changes in the analytical program for the Separations process, as outlined in Document HW-18731 ("Accountability - Analytical Methods Improvement Committee Meeting"), were completed during the month and a material balance for the process may now be calculated on a radio-assay basis and an americium-curium correction factor applied to each run as it is processed.

A.E.C. approval was received for Project C-414 covering design and construction of the Pile Technology Building for the Hanford Works Laboratory, and technical liaison continued with D & C during their negotiation with the C. T. Main Company for the design of this building. The design criteria were completed and submitted to D & C for their use in these negotiations. A.E.C. approval of the design contract was awaited at month-end.

The project proposal for the design and construction of the Library and Files Building was completed and submitted to the A & B Committee. In anticipation of adding this design job to the work being subcontracted to C. T. Main, preliminary discussions were held with representatives of this firm regarding the scope of this additional building. Efforts were continued on preparation of the design criteria for this facility.

Bid invitations were issued by D & C for construction of the shell of the Mechanical Development Building, with bid opening scheduled for early January. This building, the shell of which is to be erected as early as possible so as to house construction forces during the main part of the Works Laboratory program, will be the first structure under Technical Divisions sponsorship to be erected in the new Laboratory Area.

Contact engineer activity was begun on the Laboratory Supply Building proposed for the Works Laboratory Area. Purchasing and Stores are favorable to their utilization of such a facility as the primary receiving, storage and distribution point in the 300 Area for solvents and Caption 10 items (chemicals and laboratory equipment) which find greatest use in that area.

The Technical shops in Building 101 and seven glass blowers continued on a six-day work week as required to satisfy the needs of the P-10 program. This overtime schedule also was required of three contact engineers to meet schedules for submission of project proposals, design criteria, and equipment lists for planned new laboratory facilities.

  
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A statistical study of the errors involved in obtaining a specified quantity of plutonium in each batch in the separation process revealed considerable improvement in control since the previous study 16 months ago. The reduction of batch make-up errors from + 6.0% to + 3.8% is an important step in improving material balance and process control.

#### HEALTH INSTRUMENT DIVISIONS

Removals and additions to the force resulted in a net gain of four employees. Two Special Hazard Incident Investigations were reported. One concerned high tritium content in the urine of a glassblower, and the other involved contamination spread in a pile building.

In the Biology Division, biological monitoring indicated a downward trend in contamination. Anti-fouling paint investigations indicate "Roxalin" to be most satisfactory of those tested for retention basin algae control. A section of the F Area basin will be painted with this brand in a full-scale test. Biological hazard investigations of several radioactive elements progressed at a satisfactory pace.

Development Division control measurements on activity density in water, soil, air, and vegetation were consistent with previous findings.

A study of air-supplied respiratory devices used in the P-10 program disclosed serious inadequacies and may account for some of the personnel contamination problems in the past. The presence of tritium oxide in the F-13 circulatory water, previously detected but viewed with skepticism, was apparently determined to be real after further evaluation this month.

No confirmed positive result for Pu or fission products in urine of Plant workers was found during the month. The intake of plutonium by one individual, following a laboratory accident in October, was definitely established. Maximum amount for U and tritium was 42  $\mu$ g/liter, and 77  $\mu$ c/liter, respectively.

#### PLANT SECURITY AND SERVICES DIVISIONS

There was one lost time injury for the month making a total of five for the year and a frequency rate of 0.33. This frequency rate is the best achieved since Hanford Works has been in operation.

There were five minor fires during the month with no loss to government property.

The new 2724-W Laundry Building was completed and occupied. The first operations began on December 18, 1950.

Activities completed by the Office Methods Division resulted in annual savings of approximately \$1,000 on a recurring annual basis.

Test runs on Patrol Mobilization Plan A were held in all areas during the month. Practice blackouts were held in four areas and practice evacuations were held in two areas.

General Summary

EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

The number of applicants interviewed decreased from 1,384 in November to 1,069 in December. Of these applicants, 357 were individuals who applied for employment with the Company for the first time. In addition, 528 new applications were received through the mail. Open, nonexempt, nontechnical requisitions increased from 329 at the beginning of the month to 376 at the month end. Total plant roll increased from 7,865 to 7,896. Turnover rate decreased from 1.24% in November to 1.13% in December. During December, 32 new requests for transfers to other type of work were received in the Employment Office, and 25 transfers were effected.

Three employee deaths occurred during December and one employee retired. During the month, 184 visits were made to employees confined to Kaclec Hospital, and 37 salary checks were delivered to employees. At the end of December there were 706 employees registered under the Selective Service Act and 618 military reservists on our rolls.

The News Bureau Supervisor, accompanied by the representative of the Advertising and Publicity Department in San Francisco, spent four days early in December contacting some two dozen newspaper representatives in Portland, Seattle, and Tacoma. Criticism of News Bureau services were requested and additional services that could be performed were outlined.

A program for better coordination between the Nucleonics Department and the office in San Francisco in the distribution of news concerning Hanford Works to media on the West Coast is being mapped out.

During the month, 39 news releases were written and distributed, and a total of 274 column inches was obtained in Pacific Northwest newspapers.

Community Relations publicized the award of a \$250 scholarship received by a Richland policeman to attend the Northwestern University Traffic Institute.

Public Functions produced and recorded two scripts and one quiz program for radio broadcast. This section also booked a number of speaking engagements for the early part of 1951 and reviewed manuscripts for these engagements.

Automatic contact printing equipment was installed in the Photo House to increase efficiency and output of identification prints.

Special Programs placed recruiting classified advertisements in 11 mid-western newspapers and in Portland, Oregon papers. Employment Division received a total of 1,891 replies, 1,600 of which were received during the first week after the ads were published.

"Guide to Richland", the Parks and Recreation Division's booklet which was produced by Special Programs and which contains information about each of the organizations in Richland, was received from the printer and is ready for distribution.

Hanford Works NEWS provided employees with information on the change in procedure for ordering G-E items from the employee store in Schenectady, adult evening classes, Red Cross Blood Program, and the American Legion's drive for Christmas gifts for veterans at Walla Walla hospital.

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## General Summary

Four Women's Pages, prepared by the woman publicity writer in the News Bureau, were published in the Works News during December. This writer also prepared a feature story on the IBM electronic Brain for the Works News and the "Local" and "Daily" lists of newspapers.

During the week of December 11-15, the Supervisor's 40-Hour Training Program was presented with 36 supervisors participating. A total of 80 supervisors, enrolled in PMS, completed their conferences in December. At the request of S Division, the 17-subject 8-Hour Training Program was again presented on December 8 with 28 nonexempt employees in attendance. Two issues of Hanford Works "SAGE" were distributed during the month. Eleven additional handbooks were distributed to new supervisors. A total of 109 employees attended Orientation; 91.8% elected to participate in the Group Insurance Plan.

In response to a request from the HAMTC, President Truman's Davis Panel visited the Project for a three-day hearing beginning on December 18 for the purpose of reviewing facts in the current wage dispute between the Company and the Council. As the Council requested additional time before the final recommendation to prepare new data, the Panel agreed to delay its decision until January 10. In view of the unsettled wage dispute, action in the pending arbitration cases has been temporarily postponed. An understanding was reached with the Council which will offer permanent protection of seniority to employees promoted from the bargaining unit. The NLRB advised the Company that it desires a hearing on the petition for representation submitted by Project Guards. The Company has questioned the authority of the NLRB in this case.

Teamsters' settlement follows Spokane pattern, viz. wage increase approximating 15¢ an hour, time and one half for work during lunch on second and third shifts, a statement extending the Master Agreement until August 10, 1951, (can be opened for negotiation of isolation pay), minor changes in working rules. Operating Engineers continued negotiations with their International, the Davis Panel and Washington AEC being brought into the picture. Local Union's demand was for (1) six-day week starting January 1, 1951, (2) Spokane January 1, 1952, rates effective January 1, 1951, to July 1, 1951 (six months). Contractors rejected this offer and submitted a counter-proposal with Spokane rates and working rules acceptable to the contractors. The Union will consider and notify Negotiating Committee when they desire to meet again. On December 6, Boilermakers were granted a 10¢ increase (no other change) in accordance with their Seven Western States Agreement. Reopening notice to negotiate wage increases was received from Painters and Laborers. No meetings held. Electrician Linemen are expected to request an increase as a result of the recent I.B.E.W.-N.E.C.A. settlement granting a 15¢ increase. The Plumber's October 20 statewide agreement has been changed somewhat by Master. Plumbers east of the mountains. It now appears the vacation plan will be administered by the Employers. The Asbestos Workers on December 29 threatened Jenkins with a work stoppage unless their wage demands were agreed to that day. This office was consulted. We were called into a dispute among the Corps of Engineers, its subcontractor Walle-Camplain, and the Building Trades Council.

During the month of December, representative large refineries and one heavy chemical plant were visited in the San Francisco Bay Area to determine the general relationship between operating jobs and craft jobs in these industries on the West Coast. This information procured indicated that the relationship

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## General Summary

at Hanford Works was comparable to that maintained in the industries surveyed. Work continued on the annual Northwestern General Electric community wage rate survey. Two meetings were held with representatives of the HAMTC in reference to grievances brought by Instrument Division employees who claimed they were discriminated against when employees were considered for upgrade. It was felt that further investigation was needed before a decision could be reached. The AEC approved the reimbursement authorization request for the Glass Technician classification.

PURCHASING AND STORES DIVISIONS

The work load in the Purchasing Division continued at a high level.

The dollar value of purchase orders placed \$2,741,690.63 of which \$2,187,219.84 was for construction equipment and materials.

The material situation continued to grow worse with longer delivery times and higher prices over a wide range of materials. Even with the use of preference ratings it was still difficult to get prompt shipment of many items.

In order to expedite the Redox Program it was necessary to cancel an order held by California Steel Products Company and replace it with the Pacific Coast Engineering Company.

Shipping instructions were issued on all bulk orders for stainless steel. In those instances where the end use was known, shipment was effected directly from the producing mill to the fabricators; however, in those instances where the end use had not yet been determined, the steel was shipped to U. S. Steel Supply Company's warehouse in Pittsburgh.

A contract was awarded the American Agricultural Chemical Company for our estimated requirements of ammonium silicofluoride for the calendar year 1951.

Contracts were awarded the Hooker Electrochemical Company and Pennsylvania Salt Manufacturing Company for our estimated requirements of caustic soda for the calendar years 1951, 1952, and 1953. The business was divided equally between these firms.

The National Production Authority issued new controls on rubber, steel production and distribution, use of aluminum, nickel, zinc, copper, copper base alloys, cobalt, and cadmium.

At the request of the Atomic Energy Commission, studies were completed of our 1951 requirements for alloy steels other than stainless, carbon steel, aluminum, and copper.

A total of 3,744 purchase requisitions was processed through screening with the result that 2,078 items were supplied from project inventories thus obviating the necessity for outside purchase and the expenditure of new funds.

Thirty-one items of stainless steel were supplied from our inventories to fabricators in order to expedite shipment of vessels.

Materials valued at \$48,187.16 were excessed during the month.

Maintenance materials and supplies disbursed from operations inventories during the month amounted to \$293,961.68.

General Summary

Receipts of incoming shipments remained at a high level.

Materials valued at \$180,330.78 were disbursed to construction forces from Account 10.20, "Materials Held for Possible Future Use."

Materials and equipment valued at \$245,288.12 were withdrawn from Account 10.10 "Excess Materials" for use on the project. The bulk of these materials were for construction use.

Excess materials valued at \$247,476.85 were shipped during the month.

Total revenue from the sale of scrap for the year 1950 amounted to \$201,005.

A project proposal for converting Building 186-D in the Clearwell Section was being drafted at month end for submission to the A & B Committee.

The work load in the Traffic Section increased substantially due to the accelerated purchasing program and disposition of excess materials.

The Traffic Section was able to obtain rate reductions on elemental phosphorus which resulted in a net saving of \$1,900.

As a result of rate reductions obtained from carriers, total savings in freight charges amounted to \$24,783.38.

MUNICIPAL, REAL ESTATE, AND GENERAL SERVICES DIVISIONS

Richland was awarded sixth place in the National Fire Prevention Week Contest.

The following commercial facilities began operation during the month of December: Don's Men's Wear (Midstate Amusement Building) and Davis-Pleiss Inc., (Automatic Laundry Building #2).

Total housing applications pending -- 434.

MEDICAL DIVISIONS

"Sleep" was the health topic of the month.

Sickness absenteeism decreased by 0.11% to 2.00% while total absenteeism decreased by 0.17% to 2.67%. The decrease occurred in spite of a wave of mild gastro-enteritis effecting a large number of employees and thought to be due to a virus.

The average daily census decreased from 92.0 to 90.8 (77.7 adults and 13.1 infants). The census was 68.8 a year ago. A wide fluctuation from 57 minimum to 108 maximum daily census was due to Christmas. An addition of 50% in floor space to the Medical-Dental Building was completed and frees space for hospital and public health functions. This space was occupied by physicians and dentists who are moving into space created in the Medical-Dental Building by the addition. Plans and specifications for the additions and renovation of Kadlec Hospital were submitted to prospective contractors, and it is expected that the contract will be let in January.



## General Summary

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A large increase in communicable disease was due mainly to increase in chicken-pox and, to a less extent, scarlet fever. Twenty restaurants have been given permits for operation in 1951. About one-half of these are in need of minor improvements prior to their being rated Grade "A". Two milk producers were rejected for failure to comply with sanitary requirements. State tests of herds in our area are being made because of two or three herds suspected of harboring Bang's Disease. New chemicals are being used in area rodent control efforts. Water, food, and milk control operations were satisfactory.

The net cost of operating the Medical Divisions, before assessments to other divisions, was \$91,591, an increase of \$4,397 and \$2,607 below the budget figure. Major reason for this increase was an increase in salary due to holiday overtime plus some added overtime due to increased hospital census. Supplies and other costs were up \$3,918 due to increased assessments from Municipal, Real Estate, and General Services Divisions due to increased steam and electrical maintenance and a large back charge for October steam.

GENERAL ACCOUNTING DIVISION

Military Duty Allowances equivalent to one month's salary were paid during December in accordance with H. W. Instructions Letter No. 53, dated October 24, 1950, to 22 weekly paid employees and one monthly paid employee who entered the Armed Forces of the United States on or after July 1, 1950. The gross payment to these employees amounted to \$6,941.56. Checks were mailed to addresses indicated by the employees.

During 1950, six employees received loans from the General Electric Employees Educational Fund in total amount of \$1300. The unpaid balance of these loans as of December 31, 1950 is \$766.50.

Under the new Insurance Plan which was made effective December 1, 1950, 97.2% of eligible Hanford Works employees elected to participate. More than 7800 insurance enrollment cards and Waiver of Participation cards were received in Payroll Divisions in connection with the installation of the new Plan. These cards were segregated between employees participating in personal coverage, employees participating in dependent coverage, and employees who signed Waiver of Participation cards. Enrollment cards for participating employees were classified with respect to annual earnings classification, amount of insurance coverage and contribution rates in order to determine the amount of paid up life insurance at December 1, 1950. These cards were also classified with respect to age classification, continuous service date, amount, and effective date of additional insurance under the former Plan. Calculation of amount of paid up insurance at December 1, 1950 was made in the case of 566 employees who were age 55 (50 for women) or over at December 1, 1950 and who first became insured under the former Group Life Insurance Plan prior to age 60 (55 for women). The total paid up life insurance for these employees amounted to \$47,329.36.

Statistical reports were furnished to the Corporate Affairs Department in Schenectady indicating the number of employees, total amount of coverage segregated by sex and age classification, amount of paid up insurance segregated by sex and year of birth, and total coverage segregated by annual earnings classifications.

General Summary

In calendar year 1950, 21,865 accounts payable vouchers were booked for a monthly average of 1,822. Auditing and payment of these vouchers and the submission to AEC for final approval has been on a current basis. As of December 31, 1950, there was a total of 1,320 vouchers on hand in the Accounts Payable Section (329 paid and 991 unpaid) requiring additional work before they could be submitted to AEC.

According to letter received from Atomic Energy Commission, Finance Division, there were seventeen individual disbursements by General Electric totaling \$9,923 made prior to October 1, 1950 which had not been fully approved by AEC as of December 31, 1950. Every effort is being made to clear these items, and as of this date seven of the seventeen have been cleared.

Replies have been made to the 48 Informal Inquiries received to date from the General Accounting Office, 40 of which have been accepted by GAO. Seven of the eight replies not yet accepted by GAO are in connection with payments on Subcontract G-151 with Giffels and Valet and one is relative to the payment of overtime to an employee while in travel status.

The Budget Accounting Section began preliminary work in connection with the Fourth Quarter Budget Review. Letters of instruction, work sheets, and schedules were prepared for distribution to division heads for use in this review.

Internal auditors spent considerable time in reviewing procedures relative to the maintenance and physical checking of stores inventories. An audit of Kadlec Hospital internal cash controls was begun, and work in connection with audit of Area and Village bus revenue controls, preparation of State Business and Occupation Tax, material receiving and shipping procedures, and time-keeping procedures was continued.

Numerous requests were received during the month from other divisions by the Plant Accounting Section for information concerning recorded costs of various plant facilities. Valuation of the domestic water system in Richland, North Richland, 300 Area, and the total valuation of each plant area were included in these requests.

Advances from A.E.C. decreased from \$6,000,000 at November 30, 1950 to \$5,000,000 as of December 31, 1950. Advances are accounted for as follows:

	<u>December</u>	<u>November</u>
Cash in Bank - Contract Accounts	\$4 029 911	\$5 157 399
Cash in Transit	409 470	282 982
Expenditures Disallowed by AEC.	10 619	9 619
Cash in Bank - Salary Accounts	50 000	50 000
Travel Advance Funds	100 000	100 000
Advances to Subcontractors	<u>400 000</u>	<u>400 000</u>
• Total	\$5 000 000	\$6 000 000

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General Summary

Hanford Works cash disbursements and cash receipts, excluding advances from the Atomic Energy Commission for the month of December as compared with November may be summarized as follows:

	<u>December</u>	<u>November</u>
<u>Disbursements</u>		
Material and Freight - G.E.	\$1 874 321	\$1 501 626
Payrolls - G.E. (net)	2 336 307	1 940 639
Payments to Subcontractors	2 981 771	3 065 326
Other	<u>936 383</u>	<u>1 010 879</u>
Total	\$8 128 782	\$7 518 470
 <u>Receipts</u>		
Rents	\$ 105 974	\$ 118 819
Hospital	43 033	39 350
Telephone	16 076	15 784
Bus Fares	9 098	9 726
Other	<u>44 131</u>	<u>51 809</u>
Total	<u>\$ 218 312</u>	<u>\$ 235 488</u>
 <u>Net Disbursements</u>	 <u>\$7 910 470</u>	 <u>\$7 282 982</u>

STAFF

General Manager . . . . . G. R. Prout

Manager, Schenectady Office . . . . . B. R. Prentice

Assistant General Manager . . . . . F. K. McCune

Assistant to the General Manager . . . . . W. I. Patnode  
(Technical and Education Matters)

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

Council . . . . . G. C. Butler

Manager, Municipal, Real Estate and General Services  
Divisions . . . . . L. F. Huck

Manager, Design and Construction Divisions . . . . . W. E. Johnson

Manager, Manufacturing Divisions . . . . . C. N. Gross

Manager, Technical Divisions . . . . . 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

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FORCE REPORT

DECEMBER 1950

	EXEMPT		NON-EXEMPT		TOTAL	
	11-30-50	12-29-50	11-30-50	12-29-50	11-30-50	12-29-50
<u>General</u>	19	18	28	30	47	48
<u>Law</u>	2	2	3	3	5	5
<u>Design &amp; Const. Div.</u>						
Construction	1	1	36	37	37	38
Const. Accounting	10	11	58	61	68	72
Design	236	235	222	222	458	457
No. Richland Realty	17	17	86	89	103	106
<u>Manufacturing Divs.</u>						
General	16	15	5	5	21	20
Proj. Engr. Control	44	46	34	37	78	83
Proj. Engr. Design	50	50	81	79	131	129
Mfg. Acctg.	7	7	51	53	58	60
<u>Operating Divs.</u>						
"P"	75	74	284	283	359	357
"S"	125	134	422	439	547	573
Power	82	88	476	478	564	566
<u>Mechanical Divs.</u>						
Maintenance	56	56	349	350	405	406
Electrical	53	54	254	252	307	306
Instrument	52	52	220	220	272	272
Transportation	39	50	569	541	628	600
<u>Technical Divs.</u>						
Administrative	4	4	2	2	6	6
Pile Technology	113	116	88	87	201	203
Separations Technology	107	105	35	34	142	139
Technical Services	124	128	337	334	461	462
<u>Medical</u>	48	49	229	230	277	279
<u>H. I. Divisions</u>						
General	6	5	4	4	10	9
Operational	56	57	172	175	228	232
Development	40	40	72	73	112	113
Biology	31	32	40	42	71	74
<u>Accounting Divs.</u>						
Gen. Acctg. & Payroll	27	27	152	162	179	189
<u>Employee &amp; Comm. Rel. Div.</u>	32	33	62	62	94	95
<u>Plant Sec. &amp; Services</u>						
Patrol & Security	55	56	535	535	590	591
Safety & Fire	38	38	102	104	140	142
Gen. & Off. Serv.	23	24	210	209	233	233
<u>Purchasing &amp; Stores Divs.</u>						
Purchasing	52	55	72	74	124	129
Stores	21	20	210	208	231	228
<u>Community Divs.</u>	213	213	465	461	678	674
TOTAL	1900	1921	5965	5975	7865	7896

PERSONNEL DISTRIBUTION - DECEMBER 1950

	100-B	100-D	100-F	100-B	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
<u>GENERAL</u>	-	-	-	-	-	-	-	-	-	-	18	18
Clerical	-	-	-	-	-	-	-	-	-	-	30	30
Total	-	-	-	-	-	-	-	-	-	-	48	48
<u>LAW</u>	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	3	3
Total	-	-	-	-	-	-	-	-	-	-	5	5
<u>DESIGN &amp; CONST DIV.</u>	-	-	-	-	-	-	-	-	-	-	1	1
<u>CONSTRUCTION</u>	-	-	-	-	-	-	-	-	-	-	37	37
Supervisors	-	-	-	-	-	-	-	-	-	-	38	38
Clerical	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-	-	-
<u>CONST. ACCTG.</u>	-	-	-	-	-	-	-	-	-	11	-	11
Supervisors	-	-	-	-	-	-	-	-	-	61	-	61
Clerical	-	-	-	-	-	-	-	-	-	72	-	72
Total	-	-	-	-	-	-	-	-	-	-	-	-
<u>DESIGN</u>	-	-	-	-	-	-	3	-	-	23	39	65
Supervisors	-	-	-	-	-	-	35	-	-	16	104	155
Engineers & Inspectors	-	-	-	-	-	-	-	-	-	9	6	15
Other Exempt	-	-	-	-	-	-	-	-	-	-	58	58
Draftsmen	-	-	-	-	-	-	11	-	-	24	107	142
Clerical	-	-	-	-	-	-	1	-	-	9	12	22
Others	-	-	-	-	-	-	50	-	-	81	326	457
Total	-	-	-	-	-	-	-	-	-	-	-	-
<u>NO. RICHLAND REALTY</u>	-	-	-	-	-	-	-	-	-	17	-	17
Supervisors	-	-	-	-	-	-	-	-	-	41	-	41
Janitors	-	-	-	-	-	-	-	-	-	16	-	16
Clerical	-	-	-	-	-	-	-	-	-	32	-	32
Others	-	-	-	-	-	-	-	-	-	106	-	106
Total	-	-	-	-	-	-	-	-	-	-	-	-

**DECLASSIFIED**

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
<b>MANUFACTURING DIVISIONS</b>												
<u>GENERAL</u>												
Supervisors	-	-	-	-	-	-	-	-	-	-	11	11
Engineers	-	-	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	-	-	5	5
Total	-	-	-	-	-	-	-	-	-	-	20	20
<b>PROJ. ENGR. CONTROL</b>												
Supervisors	2	-	-	-	-	2	-	2	4	-	8	18
Engineers	6	-	-	-	-	8	-	4	6	-	4	28
Clerical	2	-	-	-	-	1	-	-	7	-	13	23
Others	2	-	-	-	-	-	-	-	3	-	9	14
Total	12	-	-	-	-	11	-	6	20	-	34	83
<b>PROJ. ENGR. DESIGN</b>												
Supervisors	-	-	-	-	-	2	-	-	-	1	19	22
Engineers	-	-	-	-	-	2	-	-	1	5	20	28
Draftsmen	-	-	-	-	-	6	-	-	-	6	38	50
Clerical	1	-	-	-	-	-	-	-	-	1	10	12
Others	-	-	-	-	-	-	-	-	8	-	9	17
Total	1	-	-	-	-	10	-	-	9	13	96	129
<b>MFG. ACCTG.</b>												
Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	-	-	53	53
Total	-	-	-	-	-	-	-	-	-	-	60	60

1222748

**DECLASSIFIED**

OPERATING DIV'S. "P"	100-B		100-D		100-F		100-H		101		200-E		200-W		300		3000		700-1100		Total
	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	
Supervisors	8	15	9	9	-	-	-	-	-	-	-	-	-	-	-	14	-	-	2	57	
Supv. In Training	1	2	1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	6	
Engineers	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	11	
Operators	34	64	34	34	-	-	-	-	-	-	-	-	-	-	93	-	-	-	-	259	
Clerical	2	4	2	2	-	-	-	-	-	-	-	-	-	-	5	-	-	4	4	19	
Others	2	-	1	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	5	
Total	49	85	47	47	-	-	-	-	-	-	-	-	-	-	114	-	-	15	15	357	
Supervisors	-	-	-	-	-	-	-	-	-	-	17	38	-	-	-	-	-	-	4	59	
Supv. In Training	-	-	-	-	-	-	-	-	-	-	11	25	-	-	-	-	-	-	5	41	
Engineers	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-	-	-	15	34		
Operators	-	-	-	-	-	-	-	-	-	-	149	243	-	-	-	-	-	-	-	392	
Clerical	-	-	-	-	-	-	-	-	-	-	7	18	-	-	-	-	-	4	4	29	
Others	-	-	-	-	-	-	-	-	-	-	8	10	-	-	-	-	-	-	-	18	
Total	-	-	-	-	-	-	-	-	-	-	192	353	-	-	-	-	-	28	28	573	
Supervisors	12	18	12	12	-	-	-	-	-	-	6	7	7	7	7	3	-	-	1	78	
Engineers	-	-	-	-	-	-	-	-	-	-	-	2	2	2	5	-	-	3	3	10	
Operators	75	114	74	74	8	8	8	8	8	8	23	52	52	52	10	7	-	-	-	437	
Clerical	1	1	1	1	-	-	-	-	-	-	-	1	1	1	-	6	-	-	2	13	
Others	5	6	5	6	-	-	-	-	-	-	-	5	5	5	-	-	-	-	-	28	
Total	93	139	92	93	-	-	-	-	-	-	29	67	67	67	18	21	-	-	6	566	
Supervisors	2	8	6	2	-	-	-	-	-	-	4	14	14	14	5	1	-	-	1	43	
Engineers	-	-	2	-	-	-	-	-	-	-	-	2	2	2	1	-	-	-	8	13	
Craftsmen	27	66	38	22	-	-	-	-	-	-	39	95	95	95	42	-	-	-	-	329	
Clerical	-	1	2	1	-	-	-	-	-	-	1	3	3	3	2	2	-	-	1	13	
Others	-	1	1	1	-	-	-	-	-	-	1	2	2	2	-	-	-	-	-	8	
Total	29	76	49	26	-	-	-	-	-	-	45	116	116	116	52	3	-	-	10	406	

MECHANICAL DIV'S  
MAINTENANCE  
Supervisors  
Engineers  
Craftsmen  
Clerical  
Others



	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
<b>MECHANICAL DIV'S CONT.</b>												
<b>ELECTRICAL</b>												
Supervisors	2	1	1	3	-	1	6	2	16	-	11	43
Engineers	-	-	-	2	-	-	1	1	2	-	5	11
Craftsmen	16	19	13	14	2	11	16	11	58	-	26	186
Clerical	1	-	1	1	-	-	1	1	4	-	26	35
Operators	4	4	4	4	-	-	-	-	12	-	-	28
Others	-	-	-	-	-	-	-	-	2	-	1	3
Total	23	24	19	24	2	12	24	15	94	-	69	306
<b>INSTRUMENT</b>												
Supervisors	2	5	2	3	-	2	6	8	1	-	3	32
Engineers	-	-	-	-	-	-	3	10	1	-	6	20
Craftsmen	21	27	17	13	-	15	38	45	4	-	12	192
Clerical	-	1	1	1	-	1	3	5	3	-	3	18
Others	-	-	-	1	-	-	1	7	-	-	1	10
Total	23	33	20	18	-	18	51	75	9	-	25	272
<b>TRANSPORTATION</b>												
Supervisors	2	4	1	2	-	2	2	1	7	-	35	56
Engineers	-	-	-	-	-	-	-	-	-	-	3	3
Bus Drivers	-	-	-	-	-	-	-	-	-	-	163	163
Journeyman	2	5	3	11	-	1	4	-	11	-	67	104
Trainmen	-	-	-	-	-	-	-	-	25	-	-	25
Servicemen	1	14	1	2	-	3	5	3	13	-	13	55
Clerical	1	1	1	1	-	1	1	1	1	-	23	31
Equip. Operators	4	10	3	4	-	4	7	4	17	-	27	80
Others	9	10	2	4	-	11	4	2	8	-	33	83
Total	19	44	11	24	-	22	23	11	82	-	364	600

	100-B		100-D		100-F		100-I		101		200-E		200-W		300		Plant		3000		700-1100		Total
	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	
<u>TECHNICAL DIVISIONS</u>																							
<u>ADMINISTRATIVE</u>																							
Supervisors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Clerical	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
<u>FILE TECHNOLOGY</u>																							
Supervisors	3	1	1	1	1	3	3	11	11	20													20
Metallurgists & Engrs.	20	4	3	5	10	10	30	30	74	2													74
Physicists	1	1	3	3	2	2	12	12	22														22
Tech. Grads.	10	1	1	1	2	2	3	3	18														18
Technologists	5	-	-	-	-	-	-	-	-	5													5
Laboratory Assts.	24	4	1	6	4	4	11	11	50														50
Clerical	4	1	-	2	1	1	5	5	13														13
Engr. Assts.	-	-	-	-	-	-	-	-	-	-													1
Total	67	12	9	18	22	22	73	73	203														203
<u>SEPARATIONS TECHNOLOGY</u>																							
Supervisors	-	-	-	-	-	-	-	-	-	-	1	4	17	-	-	-	-	-	-	-	-	-	23
Chemists & Chem. Engrs.	-	-	-	-	-	-	-	-	-	-	5	11	64	-	-	-	-	-	-	-	-	-	82
Tech. Grad.	-	-	-	-	-	-	-	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	3
Clerical	-	-	-	-	-	-	-	-	-	-	-	3	6	-	-	-	-	-	-	-	-	-	10
Chemical Operatora	-	-	-	-	-	-	-	-	-	-	-	1	7	-	-	-	-	-	-	-	-	-	8
Others	-	-	-	-	-	-	-	-	-	-	-	1	12	-	-	-	-	-	-	-	-	-	13
Total	-	-	-	-	-	-	-	-	-	-	7	21	107	-	-	-	-	-	-	-	-	-	139

**DECLASSIFIED**

1222751

TECHNICAL SERVICES

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 700-1100 Area	Total
Supervisors	1	-	-	2	5	7	13	25	-	3	56
Chemists & Eng'rs.	6	1	1	1	10	2	11	36	-	4	72
Technologists, Tech. Grads <sup>2</sup>	-	-	-	1	1	9	21	21	-	-	55
Laboratory Assts.	4	-	-	5	-	29	59	37	-	-	134
Clerical	-	-	-	1	3	2	3	46	-	35	90
Others	-	-	-	-	34	-	-	20	-	1	55
<b>Total</b>	<b>13</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>53</b>	<b>49</b>	<b>107</b>	<b>185</b>	<b>-</b>	<b>43</b>	<b>462</b>

MEDICAL

Supervisors	-	-	-	-	-	-	-	-	-	1	28	29
Physicians	-	-	-	-	-	-	-	-	1	2	9	12
Other Exempt	-	-	-	-	-	-	-	-	-	-	8	8
Technicians	-	-	-	-	-	-	-	-	3	3	13	19
Nurses	2	4	4	1	-	4	9	2	-	2	55	83
Clerical	-	-	-	-	-	-	1	-	3	8	46	58
Others	-	-	-	-	-	-	-	-	-	1	69	70
<b>Total</b>	<b>2</b>	<b>4</b>	<b>4</b>	<b>1</b>	<b>-</b>	<b>4</b>	<b>10</b>	<b>2</b>	<b>7</b>	<b>17</b>	<b>228</b>	<b>279</b>

H. I. DIVISIONS

GENERAL

Supervisors	-	-	-	-	-	-	-	-	-	-	2	2
Engrs.	-	-	-	-	-	-	-	-	-	-	3	3
Clerical	-	-	-	-	-	-	-	-	-	-	4	4
<b>Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>9</b>	<b>9</b>

OPERATIONAL

Supervisors	1	1	1	2	-	1	6	8	-	3	23
Other Exempt	4	7	5	5	-	4	7	2	-	-	34
Clerical	-	-	-	1	-	-	1	1	-	1	4
Others	17	15	14	11	-	19	37	58	-	-	171
<b>Total</b>	<b>22</b>	<b>23</b>	<b>20</b>	<b>19</b>	<b>-</b>	<b>24</b>	<b>51</b>	<b>69</b>	<b>-</b>	<b>4</b>	<b>232</b>

	100-B	100-D	100-F	100-H	101	200-E	200-W	300	Plant	3000	700-1100	Total
	Area	Area	Area	Area	Area	Area	Area	Area	General	Area	Area	Total
Supervisors	-	-	-	-	-	4	7	4	-	-	1	16
Engineers	-	-	-	-	-	1	13	9	-	-	1	24
Clerical	-	-	-	-	-	1	2	2	-	-	-	5
Others	-	-	-	-	-	17	28	13	-	-	10	68
Total	-	-	-	-	-	23	50	28	-	-	12	113
Supervisors	-	-	7	-	-	-	-	-	-	-	-	7
Engineers	-	-	25	-	-	-	-	-	-	-	-	25
Clerical	-	-	3	-	-	-	-	-	-	-	-	3
Others	-	-	39	-	-	-	-	-	-	-	-	39
Total	-	-	74	-	-	-	-	-	-	-	-	74

DEVELOPMENT

BIOLOGY

ACCOUNTING DIVISIONS

GEN. ACCTG. ACCTG.

Supervisors	-	-	-	-	-	-	-	-	-	1	7	8
Other Exempt	-	-	-	-	-	-	-	-	-	1	9	10
Clerical	-	-	-	-	-	-	-	-	-	-	77	77
Total	-	-	-	-	-	-	-	-	-	2	93	95

GEN. ACCTG. PAYROLL

Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Other Exempt	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	85	85
Total	-	-	-	-	-	-	-	-	-	-	94	94

EMPLOYEE & COMM. RELATIONS

Supervisors	-	-	-	-	-	-	-	-	-	-	24	24
Employee Rel. Counselor	-	-	-	-	-	-	-	-	-	-	1	1
Other Exempt	-	-	-	-	-	-	-	-	-	-	8	8
Clerical	-	-	-	-	-	-	-	-	-	-	49	49
Others	-	-	-	-	-	-	-	-	-	-	13	13
Total	-	-	-	-	-	-	-	-	-	-	95	95

**DECLASSIFIED**

# DECLASSIFIED

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
<b>PLANT SEC. &amp; SER. DIVISIONS</b>												
<b>PATROL &amp; SECURITY</b>												
Supervisors	5	6	6	5	-	5	8	7	6	-	4	52
Other Exempt	-	-	-	-	-	-	-	-	4	-	-	4
Patrolmen	53	49	67	49	-	57	138	72	2	-	28	515
Clerical	-	-	-	-	-	-	-	-	16	-	2	18
Seamstress	-	-	-	-	-	-	-	-	2	-	-	2
Total	58	55	73	54	-	62	146	79	30	-	34	591
<b>SAFETY &amp; FIRE</b>												
Supervisors	13	-	-	-	-	-	4	4	8	-	-	29
Engineers	-	2	-	1	-	2	-	2	-	-	2	9
Firemen	48	-	-	-	8	-	16	17	9	-	-	98
Clerical	-	1	-	1	-	1	-	1	-	-	2	6
Total	61	3	-	2	8	3	20	24	17	-	4	142
<b>GEN. &amp; OFF. SERV.</b>												
Supervisors	-	-	1	-	-	1	2	1	1	-	18	24
Laundry Operators	-	-	-	-	-	-	1	-	-	-	1	2
Janitors & Servicemen	7	5	4	5	2	4	17	13	4	-	34	95
Clerical	-	-	-	-	-	-	-	-	-	-	33	33
Others	-	-	-	-	-	-	27	-	-	-	52	79
Total	7	5	5	5	2	5	47	14	5	-	138	233
<b>PURCHASING &amp; STORES DIVISIONS</b>												
<b>PURCHASING</b>												
Supervisors	-	-	-	-	-	-	-	-	-	-	16	16
Other Exempt	-	-	-	-	-	-	-	-	18	-	21	39
Clerical	-	-	-	-	-	-	-	-	-	-	69	69
Rotational Trainee	-	-	-	-	-	-	-	-	4	-	1	5
Total	-	-	-	-	-	-	-	-	22	-	107	129

	100-B Area	100-D Area	100-F Area	100-B Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
<u>STOKES</u>												
Supervisors	2	-	-	-	-	-	-	-	-	3	15	20
Clerical	14	-	-	-	-	-	-	-	-	29	44	87
Others	28	2	2	-	-	-	1	-	-	12	78	121
Total	44	2	2	-	-	-	1	-	-	44	137	228
<u>COMMUNITY DIVISIONS</u>												
Supervisors	-	-	-	-	-	-	-	-	-	14	122	136
Other Exempt	-	-	-	-	-	-	-	-	-	-	12	12
Firemen	-	-	-	-	-	-	-	-	-	27	38	65
Patrolmen	-	-	-	-	-	-	-	-	-	14	25	39
Journeyman	-	-	-	-	-	-	-	-	-	-	179	179
Serviceemen	-	-	-	-	-	-	-	-	-	-	38	38
Truck Drivers	-	-	-	-	-	-	-	-	-	-	40	40
Power Operators	-	-	-	-	-	-	-	-	-	-	34	34
Clerical	-	-	-	-	-	-	-	-	-	-	79	79
Others	-	-	-	-	-	-	-	-	-	-	52	52
Total	-	-	-	-	-	-	-	-	-	55	619	674
GRAND TOTAL	523	504	426	341	95	516	1137	872	319	390	2773	7896

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MANUFACTURING DIVISIONS

HW-19842 *Del*

DECEMBER 1950

SUMMARY

Production Divisions

A total of 79 tons of metal was discharged at the goal value. In addition 19 tubes of special request material were charged into the piles and 12 tubes were discharged and contents shipped off site. Routine shipments of Chemical 68-56 were made. A total of 77 hours were lost at H pile due to a ruptured slug jacket. The average time operated efficiency was 92.4 percent for all piles.

The maximum pile power levels achieved during the month were 375 MW, 335 MW, 447 MW, 480 MW, and 325 MW at B, D, DR, H, and F piles, respectively. Average levels were 341 MW, 310 MW, 430 MW, 454 MW, and 286 MW, respectively.

A total of 82 tons of acceptable slugs was canned at a yield of 90.7 percent. The machining yield attained a new high of 82.7 percent. The melt plant produced 15 tons of billets at a yield of 83.7 percent and a solid metal from scrap yield of 93.2 percent.

A total of 130 charges plus 3 acid washes was started in the Canyon Buildings, 132 plus 2 acid washes were processed through the Concentration Buildings, and 146 charges were completed through the Isolation Building. All the preceding totals represent new record productions. The average cooling time for metal processed was 69 days. The average purity for completed charges was 98.3 percent.

Plant Utilities and Maintenance Divisions

The electric power demands for the month represent an all time high due to increased process load:

	<u>Date</u>	<u>KW Demand</u>
Process	12-1-50	67,000
Village	12-5-50	30,000

It was necessary to increase capacity of 12 distribution transformers in Richland Village by a total of 212.5 KVA.

The 100-DR Area No. 4 process water clearwell storage tank was out of service from December 4 to December 18 for inspection and repair to an outlet line.

The 107-B Retention Basin repairs were completed December 21.

*C. N. Gross*  
C. N. GROSS, MANAGER  
MANUFACTURING DIVISIONS

1222755

MANUFACTURING DIVISIONS

PATENT REPORT SUMMARY  
FOR  
MONTH OF DECEMBER 1950

Richland, Washington  
January 10, 1951

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

INVENTOR

TITLE

J. C. Manderscheid  
Engineering and Control Division  
Project Engineering Divisions

USE OF VERTICAL AGITATION IN BRONZE POT - 313 BUILDING.  
This invention consists of a method of agitating slugs in the bronze pot, 313 Building, in a vertical manner, thereby increasing the capacity of the bronze pot and at the same time retaining certain agitation specifications.

J. V. Lawler  
Engineering and Control Divisions  
Project Engineering Divisions

AUTOMATIC WELDER, BUILDING 313.  
It is expected the proposed mechanism will enable one operator to operate two to four welders simultaneously, the operator being required only to keep the feed conveyor filled and visually inspect the finished work.



C. N. GROSS

MANAGER, MANUFACTURING DIVISIONS

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HW-19842

Section 10 Approved By:

*for* 

W. K. Woods, Division Head  
File Technology Division  
Technical Divisions

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**WITH DELETIONS**

January 8, 1951

P DIVISION

DECEMBER, 1950

I. GENERAL

The operation of all five piles was routine throughout the month except for a three day outage at H Area to remove a ruptured slug.

Significant increases in level were attained during the month at DR, F, and H Piles under Production Test 105-388-P. The maximum level of the DR Pile was raised from 430 MW to 447 MW, F Pile from 315 MW to 325 MW and the H Pile from 470 MW to 480 MW. The over-all pile time operated efficiency for the month was 92.4%

A new record yield of 82.7% was established in the 300 Area for machining of four inch slugs from alpha rolled rods.

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - December, 1950

Beginning of Month -	359
End of Month	357
Net Decrease	2

W. T. Burns, Shift Supervisor in the 300 Area, terminated voluntarily on December 20 to accept employment elsewhere.

One operator in the 300 Area terminated voluntarily.

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III. AREA ACTIVITIES

<u>File Summary</u>	<u>File B</u>	<u>File D</u>	<u>File DR</u>	<u>File E</u>	<u>File F</u>
Time Operated Efficiency (%)	93.5	92.8	99.8	86.6	88.9
Average Power Level (MW)	341	310	430	454	236
Maximum Power Level (MW)	375	335	447	480	325
*Inlet Water Temperature (°C.)	8.3	8.4	7.9	8.2	8.1
*Outlet Water Temperature (Max. °C., 10 tubes, 0.240" Zone)	57.9	55.1	74.3	64.5	48.2
Number of Scrams	0	1	3	1	2
Number of Purges	2	1	0	1	1
CO <sub>2</sub> Consumption (cu. ft.)	62,832	97,920	92,208	28,503	62,016
CO <sub>2</sub> Concentration	97	98.2	99.0	89	93.0
Metal Discharged (tons)	22.51	16.56	0	13.42	26.45
Inhours Gained (this month)	24	14	103	-5	-14
*Inhours Poisoned	555	554	100	69	484
*Inhours in Rods	101	67	170	138	53
Maximum Graphite Temperature	372	377	282	386	380

\* Month end figures.

FILE BUILDING

Outage Breakdown

<u>Date of Outage</u>	<u>Metal Discharged</u>	<u>Scheduled Maintenance</u>	<u>Unscheduled</u>	<u>Length of Outage (Hrs.)</u>
12-1-50		DR		1.2
(1) 12-4-50			H	76.8
12-5-50	F			28.7
(2) 12-6-50			F	4.0
12-6-50	D			26.3
(3) 12-6-50			D	0.1
12-13-50	B			25.6
(4) 12-13-50			DR	0.1
(5) 12-14-50			F	23.4
(6) 12-15-50			DR	0.1
(6) 12-15-50			DR	0.2
(7) 12-15-50			H	0.8
12-19-50	H			22.4
12-20-50	D			27.1
12-21-50	F			26.7
12-27-50	B			22.8

- (1) Unscheduled outage due to failure of uranium slug jacket
- (2) Unscheduled outage to seal gas leak in A-Test hole facility.
- (3) Unscheduled outage due to trip of Beckman safety circuit during startup.
- (4) Unscheduled outage due to inadvertent trip of No. 1 safety circuit caused by the disconnecting of the instrument voltage switch in the 105-DR switchgear room.
- (5) Unscheduled outage due to panellit alarm which could not be reset. Startup delayed by operational difficulties until recovery was impossible.

P Division

- (6) Unscheduled outage due to panellit alarm which could not be reset.
- (7) Unscheduled outage to investigate indications of a possible failure of a uranium slug jacket.

Operating Experience

Production tests having operational significance are reported below:

105-81-P (Probe Test of Top Central Tubes)  
 The following tubes successfully passed the probes as indicated:

<u>1.475"</u>	<u>1.485"</u>	<u>1.490"</u>
4576-D	4573-D 4674-D 4674-F 4569-B	4578-B

105-103-P (Corrosion Rates at Elevated Temperatures)  
 On November 21, tube 2275-F was discharged, the valved pigtail removed and the tube returned to normal service. Examination of the metal discharged showed it to be in good condition. At month end twenty tubes in F Area are operating at reduced flow under the provisions of this test without operational difficulty.

105-338-P (Pile Test of Special Step Plug and Gas Seal)  
 High gas activity was observed during the month at D Pile near vertical rod #20-D where a special gas seal is being tested. Leak tests revealed that the gas was escaping through the center of the rod and out the rod joints. No leaks were indicated at the gas seal itself. This difficulty will be corrected by replacing the present lead plugs in the rod section with silicone seals.

On December 6, steel balls were dropped into the graphite channel through the flutes of the special step plug (vertical rod #20-D), as outlined by Supplement A of this test. Results of the test indicate that this type of third safety device will perform acceptably. Approximately six of the steel balls were not recovered, but no operational difficulties were encountered.

105-354-P (Operation of ABL-140 with Fuel Installed)  
 The P-13 equipment operated without incident throughout the month.

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105-381-P (Irradiation Creep Tests of Annealed 2-S Aluminum)  
The NEPA creep test apparatus was re-installed in tube 2680-D on December 6. The apparatus was recharged near the front of the unit in a lower flux zone in order to avoid the excessive heat induced by irradiation which was experienced previously. However, the apparatus is currently inoperative because of a faulty electrical connection in the heater circuit. A revised installation will be made in the near future.

105-388-P (Power Level Increase at B, D, DR, F, and H Piles)  
All piles continued to operate throughout the month at maximum levels consistent with the limiting factors established in this production test. On December 28, the process water pressure at H Area was increased from 375 to 390 psi. This change made possible an increase in the H Pile level from 470 MW to 480 MW. The DR Pile maximum level increased from 430 MW to 447 MW and the F Pile level from 315 MW to 325 MW. Other pile levels appear to be essentially stabilized under present conditions.

105-391-P (Graphite Burnout and Transport Test)  
On December 6, tube 2682-F was removed and the equipment for performing the experiment outlined in this production test was installed in the graphite channel. On December 21, additional equipment was installed in tube 2777-F. At month end, the equipment is operating satisfactorily.

The volume of work associated with the special request program was greater than normal during the month with approximately 225 man-hours of time expended by the P Division on this type work. Nineteen tubes of special request material were charged into the piles for irradiation. Twelve tubes of irradiated special request material were discharged and shipped off site. In addition to the special request material handled, the charging, discharging and shipping of Chemical 68-56 required approximately 200 manhours.

At the request of the P Division, analysis figures from the receiving site for Chemical 72-60 were obtained. An evaluation of these figures indicates that actual deliveries are more than 10% greater than amounts specified (and calculated by Hanford methods). Production adjustments to allow for this favorable differential are being made.

A total of 78.94 tons of uranium slugs was discharged during the month; of this amount 78.31 tons was at 100% of goal value, and 0.63 tons was at 64% of goal value.

On December 4, an unscheduled outage occurred at H Area when the pile was shut down on an emergency basis due to indications of high effluent water activity in the water sample rooms and high

## P Division

pressures on tube 3288-H. Subsequent investigations confirmed the presence of a ruptured uranium slug in this tube. It was necessary to remove the tube from the pile since the slug was swollen to the extent it could not be discharged normally. It was also necessary to remove the gunbarrel in order to allow sufficient room for passage of the enlarged tube. The piece of tube containing the ruptured piece was placed in a lead cask and delivered to the hot laboratory for study to determine the cause of the rupture. The H Pile was started up again on December 8 after an outage of 76.8 hours. The contaminated water from this incident was confined to one side of the 107 retention basin by pumping to the earth crib which had been provided for this type of emergency. Details of this outage are reported in document number HW-19750, "Removal of Ruptured Slug from Tube 3288-H".

Mechanical Experience

All horizontal and vertical rods are in satisfactory operating condition at month end except the following:

- (a) Horizontal rod 2-F is out of service because of a water leak in the cooling tubes. Replacement or repair has been rescheduled to correspond with the F Area extended outage for van stone flange repairs.
- (b) Horizontal rod 9-DR failed to enter the pile on an emergency shutdown on two occasions during the month and horizontal rod 6-DR failed on one occasion. Investigation into the malfunctioning of these two rods is planned for a subsequent outage.

On December 20, vertical rod thimble 25-D was replaced with a thimble bearing 6 thermocouples which will be used during pile operation to provide more accurate information on thimble and graphite temperatures in critical areas.

The stainless steel vertical rod 13-F was replaced on December 21 with a standard, flexible, knuckle-jointed rod removed from vertical rod position 27-F. A new, thermocouple-bearing thimble, inclined bore rod guide, and short section, knuckle-jointed rod were installed in vertical rod position 27-F.

The rod tracks on horizontal rods 7-B and control rod B at B Area were cleaned to relieve binding of the rods during operation. Vertical rod 15-B, which stuck when the pile was shutdown December 12, was found to be bent and was replaced.

The unclad 2-S aluminum tube in channel 2357-B was replaced with a 72-S clad tube December 13 in accordance with the P Division program for replacement of all 2-S unclad tubes. (See document number HW-16052 - 100 Areas Program Committee Minutes).



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Tube 1169-D was installed and charged on December 20. This channel has been empty for approximately three months. When replacement of the tube was attempted during the extended outage ending September 7, the tube became stuck in the front gunbarrel. Release was finally obtained by cutting off the front 8 foot section internally and collapsing it in the gunbarrel so it could be removed from the front. This procedure damaged the front gunbarrel and an unusual amount of honing was required before the new tube could be installed.

The central water supply tube in the B-Test hole facility at D Pile which had been leaking since November was successfully repaired by installing a smaller line inside the broken one. Piping of supply and exit lines for this facility and installation of thermocouples remain to be completed before samples can be charged into the test hole.

Following the removal of special irradiation samples ANL-162 from the A-Test hole facility at F Area on December 5, considerable difficulty was experienced in attempting to replace the shielding pieces. Only four of the five pieces were successfully inserted and it was subsequently discovered that the thimble had ruptured, resulting in considerable gas leakage. An unscheduled outage was taken December 6 to investigate the condition and the test hole assembly was sealed off pending replacement of the thimble. This outage represented lost production of 48 MWD chargeable to the ANL-162 experiment.

During the charging of samples in the B-Test hole facility at B Area on December 13, water was observed to be leaking from the small sample holes No. 2 and No. 3 in the assembly. Further investigation at the time was not feasible due to lack of time, so the samples were removed and water drained from the facility pending investigation at a later date.

During the month the inoperative gas thermometer tube and stringer were removed from the C-Test hole facility at D Area. A new stringer of graphite with thermocouples spaced along the entire length will be installed in this facility to provide additional information on graphite temperature distribution across the central regions of the pile.

During the month emergency repairs to the west 107 retention basin at H Area were completed. The repairs included filling all sunken portions of the expansion joints with Oakum and asphalt and dry-packing a cavity beneath a construction joint in the outlet section which had failed and was leaking badly. No further repairs are planned at this time; both basins are in operable condition.

Temporary repairs on the 107 retention basin at DR Area were started during the month. (Leaks were noted in this basin

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during the cleanup of contamination following the ruptured slug removal in November.) Investigation revealed that floor joints in both sides of the basin were leaking as well as the joint at the base of the outlet wall. A repair program similar to that used for H Area is under way.

A screen on the No. 4 process water header in the valve pit of the 105-DR Building failed on December 18 and was replaced. Failure was indicated by an increase in steam requirements for the 190-DR Building pumps serving this header. Rust and sediment, apparently from the No. 4 storage tank which had recently been flushed and put into service following repairs, were responsible for the trouble. Replacement was accomplished without any pile outage.

Pile Development

A program has been undertaken among the 100 Areas for the development of specialized equipment to be used in removal of ruptured uranium slugs from the piles. It is expected that the down time usually required under such circumstances can be reduced through the development of more suitable equipment. In addition, a program of development and improvement of slug failure detection equipment has been initiated.

Gas Processing Building

Operation was normal.

Special Hazards

At D Area, a recent check of the intensity of the radiation beam escaping from the top far corner of the pile showed a reading of 1400 mr/hr as compared to 1850 in June and 2000 in April.

At F Area during the discharge of samples ANL-162, dosage rates of 1 r/hr at 35 feet and 200 mr/hr at 150 feet were encountered. Radiation from this material at a distance of one inch was calculated to be 20,000 r/hr. The major portion of this activity was contributed by the 3-S aluminum in which the samples were canned as the material decayed rapidly after removal from the pile.

The removal of the ruptured slug from the H Pile in December was accomplished successfully without undue exposure of personnel although radiation rates in excess of 5 r/hr were encountered. There were several cases of personnel contamination which were removed by repeated washings. Details of these problems are discussed in document number HW-19750, "Removal of Ruptured Slug from Tube 3288-R".

  
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PROJECT STATUS - 100 AND 300 AREAS

Below is summarized the status of P Division projects which are currently active:

- C-306 (Front Face Shielding Caps)  
Work at F Pile has been deferred to coincide with work on the nozzle replacement project (C-347). An extension of the directive date has been requested.
- C-330 (Improved Ventilation, Building 313-314)  
Development work is being continued.
- C-347 (Nozzle Replacement)  
Work at F Pile is postponed pending receipt of sufficient aluminum nozzles to complete the job.
- M-713 (Flexible Vertical Rod)  
Sample rod sections of alternate designs have been fabricated for evaluation.
- M-723 (Repairs to 107-B Basin)  
Work on this project is complete and the closing notice is being processed.
- C-321 (Effluent Diversionary Outlet)  
The project proposal is nearing completion.
- B-554-R (Steel Process Sewer, 105-107-B)  
Recommendations for repair or replacement are being prepared by the Project Engineering Divisions.
- B-803 (High Tank Control Valves, 100-B, D, F, and H Areas)  
Drawings are complete and the project proposal is nearing completion.
- C-420 (CO<sub>2</sub> Bulk Handling Facilities)  
Preparation of the project is complete and it has been presented to the Atomic Energy Commission for approval.
- B-806 (Flexible Horizontal Rod)  
Project scope has been defined and preparation of the project has started.
- B-1841 (Ball 3X System)  
Development work continues. Feasibility tests were satisfactorily completed.
- B-812 (Algae Filter)  
The pilot equipment is in storage until warmer weather. Data obtained during operation are being analyzed.

P Division

- B-865 (Repairs to 107 Retention Basins)  
The extent and method of necessary repairs is being evaluated.
- C-388 (P-10X Design)  
Funds have been exhausted and the closing notice is being processed.
- C-411 (J-Slug Storage and Shipping Facilities)  
Design studies are nearing completion and scope drawings are being prepared.
- C-412 (P-10X Extraction Facilities)  
Design features have been approved by the Working Committee and are being studied by the Scope Committee. The first metal extraction line has been received and is being installed at the 108-B Building. Run-in tests are scheduled for January. The design of the second metal line is expected to be frozen by the end of January following evaluation of the performance of the first metal line.

300 AREA - METAL FABRICATION

Production Statistics

Production for the month of December was as follows:

Billets Produced	15
Rods Machined	110
Bare Pieces Machined	91
Acceptable Pieces Canned	82

Melt Plant

The casting yields were as follows:

	<u>November</u>	<u>December</u>	<u>To Date 1950</u>
Billet (Avg. per furnace run)	87.0	83.7	76.8
Billet (Yield from total scrap processed)	90.2	89.6	85.0
Solid Yield	92.6	93.2	90.3

The Melt Plant was shut down for seven days during the month due to lack of raw materials caused by the failure of the chip recovery briquetting press.



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## Machining

The machining yields were as follows:

<u>November</u>	<u>December</u>	<u>To Date 1950</u>
79.4	82.7	79.1

A new record yield for 4" slugs was established this month. In accordance with Production Test 313-113-M, "Fabrication Related to Low Temperature Rolling Test on Uranium", 899 "M" slugs were machined from 38 rods rolled at low temperatures.

## Chip Recovery

The chip recovery yield was as follows:

<u>November</u>	<u>December</u>	<u>To Date 1950</u>
88.9	88.3	88.6

The entire chip recovery process was operated three shifts and the press was operated an additional ten shifts. A total of 29,486 pounds of TXB was produced from pickled chips.

Extensive repairs to the chip recovery briquetting press, which were started on November 22, were completed on December 5.

## Oxide Burning

The material burned was as follows:

<u>Weight Out - Pounds</u>		
<u>November</u>	<u>December</u>	<u>To Date 1950</u>
5,343	5,722	158,099

## Oxide on Hand at Month End (Metal Content)

To be burned	1,778
To be analyzed	240
To be shipped	<u>5,542</u>
<b>Total</b>	<b>7,560</b>

## Canning Operation

The canning yield was as follows:



P Division

	<u>November</u>	<u>December</u>	<u>To Date 1950</u>
	91.5	90.7	92.5

Canning rejects, by cause, were:

	<u>Per Cent</u>		
	<u>November</u>	<u>December</u>	<u>To Date 1950</u>
Non Seating	1.4	1.3	1.7
Marred Surface	2.8	2.3	2.0
Al-Si on Outside of Can	1.2	1.2	1.0
Frost Test	0.4	0.6	0.7
Bad Welds	0.8	1.4	0.8
Miscellaneous	<u>1.8</u>	<u>2.5</u>	<u>1.3</u>
	8.5	9.3	7.5

Some increase in rejects resulted from the use of new operators during the first two weeks of the month. Steps are being taken to provide new operators with practical training before using them on regular production line work.

The increase in the miscellaneous reject category was due to a higher percentage of thin cap rejects.

Marred surface rejects, although lower than the figure for November, continue to be one of the major causes for rejects. Cans supplied by the Victor Corporation continued to be responsible for a large portion of the marred surface rejects due to the difficulty experienced with small blistered areas mentioned in last month's report. The problem has been referred to the vendors for correction.

Eighty-nine 4" solid aluminum dummies were canned by the single dip Al-Si process for use in corrosion studies.

Special Request Pieces Canned

Two hundred sixty-five 4" lead slugs were machined from 6" lead dummies and canned using the "B" slug process. These pieces represent the initial part of an order for 700 four inch lead dummies requested by the Test Section, Reactor Division, for testing proposed pile charging equipment.

In addition, 1,039 poison pieces were canned during the month.

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Slug Recovery

	<u>Per Cent Recovered</u>		<u>Avg. Wt. Lbs</u>	
	<u>December</u>	<u>To Date 1950</u>	<u>December</u>	<u>To Date 1950</u>
Z Slugs	98.3	89.7	3.905	3.903
X Slugs	0.0	8.6	--	3.858
Rejects	1.7	1.7		
	<u>100.0</u>	<u>100.0</u>		

Inspection and Testing

Autoclave results were as follows:

<u>November</u>	<u>December</u>	<u>To Date 1950</u>
0.56/M	0.22/M	0.25/M

There were nine autoclave failures from the 41,687 slugs tested during the month. Of these failures, five were complete and four were partial failures. A major portion of these failures were caused by minute pin holes through the weld bead extending into unbonded areas between the cap and can side wall.

The decrease in the frequency rate was attributed to much more rigid inspection on the part of both the welders and the final inspectors.

No slugs were found to be penetrated at 0.010" during the month.

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

	<u>Per Cent Usable</u>		
	<u>November</u>	<u>December</u>	<u>To Date 1950</u>
Aluminum Caps	99.6	98.9	98.4
Aluminum Cans	96.5	96.1	94.2
Steel Sleeves	96.3	82.2	84.5

Material Handling

During the month, 95 tons of alpha rolled rods were received from Simonds Saw and Steel Company. Four tons of these rods were of special dimensions and are to be used in the fabrication of special pieces for the duPont Company.

Twenty-two tons of uranium oxides (metal content - 23,583 pounds) were shipped to the Mallinckrodt Chemical Works for recovery.

No U<sub>235</sub> alloy slugs were received during the month. A total of 12 canned pieces were transferred to the 100 Areas, making a total

P Division

of 7,507 transferred to date. Twenty-nine acceptable canned pieces were on hand for transfer to the 100 Areas at month end.

305 Test Pile

A total of 735 tests were run during the month, 31 on billet eggs, 39 on regular slugs, 318 on P-10-A material, 297 on bare "J" slugs and the following Special Work Requests:

<u>Request No.</u>	<u>Title</u>	<u>No. of Tests</u>
165	To determine the difference between Kaiser and Alcoa aluminum.	4
169	Measure the purity of graphite used in exponential pile experiment.	24
170	Measure the purity of Great Lakes graphite.	16
171	Measure the cross section of zirconium.	4
172	Test Alcoa aluminum blanks for can fabrication.	<u>2</u>
		50

Five hours of 305 testing time were devoted to control rod calibration in order to complete data for the accountability of U<sub>235</sub> in "J" slugs. All remaining heats of bare "J" slugs were pile tested during the month for the same reason.

Special Hazards

No unusual conditions developed during the month.

Development

An improved method was developed to leach the soluble salts from spent flux and thus reduce the bulk of this material prior to shipment off plant for recovery. A siphon type extractor was fabricated from a fifty gallon drum. A self priming siphon intermittently drains the leaching water from the drum which is filled with spent flux. Initial results show this method to be much faster and more effective in reducing the bulk of this material.

In view of two recent slug failures in the 100 Areas, efforts are being made to establish an autoclave test which will be severe enough to assure that pieces will withstand pile use. Tests are now being made to determine the effectiveness of



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present test procedures and evaluate possible improvements by the following methods:

1. Test slugs according to standard procedure, followed by thermal cycling three times during an extended 40 hour period to determine if additional failures will occur.
2. Test slugs according to standard procedure, thermal cycle once, and test for an extended period of 40 hours to determine if additional failures will occur.

Results to date are not conclusive since only 420 slugs have been tested by each of the above methods. It is planned to continue tests until results are statistically conclusive on the effects of either method. In addition, the slugs are being segregated for pile test.

January 5, 1951

S DIVISION

DECEMBER, 1950

OPERATING SECTION

I. GENERAL

One hundred thirty charges were started in the Canyon Buildings, one hundred thirty-two charges were processed through the Concentration Buildings and one hundred thirty-two charges were processed through the Isolation Building. In addition to the regular production shown above, three scheduled acid washes were completed through the Canyon Buildings, two through the Concentration Buildings and one through the Isolation Building. Thirteen special charges from P-11 were completed through the Isolation Building over and above the one hundred thirty-two standard charges completed. The average purity for completed charges was 98.3 percent.

	<u>B Plant</u>		<u>T Plant</u>		<u>Combined</u>	
	<u>Normal</u>	<u>Acid Wash</u>	<u>Normal</u>	<u>Acid Wash</u>	<u>Normal</u>	<u>Acid Wash</u>
Charges started in Canyons	74	1	56	2	130	3
Charges completed thru 224	70	1	62	1	132	2
Charges completed thru 231	66	1	66	0	132	1
Special charges thru 231	-	-	-	-	-	13

The average elapsed cooling time for metal processed was approximately 69 days with the minimum cooling reached for any one push processed during the period being 50 days. The over-all time cycle for the process, counting standard charges and acid washes started, was 10.8 hours based on a thirty day production month. In T Plant, where the production rate was retarded during the last two weeks of the month for preparation of equipment and the start of processing to 50 g/t material, the average time cycle was 12.2 hours per charge; in B Plant where 400 g/t material was processed throughout the month, a time cycle of 9.6 hours per charge, the shortest to date for a sustained period, was averaged.

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## Canyon and Concentration Building Production Performance Data - (12-1-50 thru 12-31-50, inclusive)

<u>For Completed Charges</u>	<u>B Plant</u>	<u>T Plant</u>	<u>Combined</u>
Percentage of starting product in waste:			
This month	3.4 (a)	4.4 (a)	3.9
Last month	3.2 (b)	3.6 (b)	3.4
Cumulative to date	4.0 (c)	3.8 (c)	3.9
Percentage of starting product recovered:			
This month	95.9	92.6	94.2
Last month	96.7	97.1	96.9
Cumulative to date	96.7	95.6	96.2
Percentage of starting product accounted for:			
This month	99.3	97.0	98.1
Last month	99.9	100.7	100.3
Cumulative to Date	100.7	99.4	100.1
Gamma decontamination factor (Log.)			
This month	7.15	7.25	7.20
Last month	7.05	7.32	7.14
Cumulative to date	7.31	7.34	7.32

(a), (b), (c): Includes waste from processing recycle. The recycle wastes are estimated as: (a) 0.011%-T Plant; 0.019%-B Plant. (b) 0.010%-T Plant; 0.015%-B Plant. (c) 0.070%-T Plant; 0.010%-B Plant.

## Isolation Building Performance Data (12-1-50 to 12-31-50, inclusive)

	<u>Prepared for</u>			<u>Retained Material</u>	
	<u>Shipment</u>	<u>Recycle</u>	<u>Waste</u>	<u>Samples</u>	<u>Balance</u>
Average for this month	92.6	5.07	-0.06	0.01	97.6
Average for last month	92.87	5.00	0.05	0.04	97.9
Average to date	95.3	4.84	0.05	0.01	100.2

## II. ORGANIZATION AND PERSONNEL

### Number of employees on payroll:

Beginning of month	551
End of month	575
Net increase	24

### Changes which occurred:

- 7 transfers from weekly roll to monthly roll (4 Tech. grads, 3 CO's)
- 2 transfers from other divisions (monthly roll)

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19 transfers from other divisions (weekly roll)  
 6 new hires (weekly roll)  
 1 terminated (weekly roll)  
 1 removal from payroll (weekly roll)

O. T. Roth was promoted from Supervisor-in-Training to Shift Supervisor, December 1.

J. P. McBride, W. A. Crossman, W. S. Hartnett, W. A. Holve, W. R. Fogue, L. W. Roddy and T. R. Workinger were transferred from the S Division weekly roll to Supervisors-in-Training, effective December 1.

R. G. Barnes and W. J. Smith, Jr. were transferred from other divisions as Shift Supervisors, effective December 1.

R. C. Tabasinski was promoted from Supervisor in Training to Shift Supervisor, effective December 1.

III. PRODUCTION PERFORMANCEExtraction Waste Losses - B and T Plants

Significant data on extraction waste losses are tabulated below:

	<u>B Plant</u>		<u>T Plant</u>	
	<u>December</u>	<u>November</u>	<u>December</u>	<u>November</u>
Analyses before rework	1.76	1.83	2.80	2.40
Analyses after rework (throw-away)	1.35	1.30	2.21	1.78
Average MWD/Ton	391	400	547	537

The unusually high apparent product losses in extraction at T Plant were the result of processing of 30 charges of 600 Program Material. For the 600 Program charges the extraction waste averaged 3.09% before rework and 2.54% after rework.

Acid Washes - B and T Plants

One acid wash was processed through one parallel line in the Canyon Building and through the Concentration Building in B Plant with no unusual recovery of product being experienced at any point in the process. In preparation for processing of 50 g/t material in T Plant for the recovery of a special request amount of plutonium with low isotope content, the metal heels were removed from both dissolvers and an acid wash processed simultaneously through each of the parallel lines in the Canyon Building. One of the washes had been completed through the Concentration Building at month end while the other was still in process. No unusual amounts of product were recovered at any point in the process by these washes. Four acid flushes made of the lanthanum fluoride product

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slurry tank and the Cell F metathesis process vessels at intervals during the month in T Plant effected an unusually high recovery totaling 96.00% of a standard charge. (This product retention problem in the Concentration Buildings is discussed in more detail below under Retention of Product in Cell F Equipment). The following data detail as percentages of standard charges the product recovery by regular acid washes and the Concentration Building pre-flushes:

<u>Run</u>	<u>Extraction</u>	<u>Sect. 12 &amp; 2nd</u>	<u>221</u>	<u>224</u>	<u>Total thru</u>	<u>Preflush B</u>	<u>E&amp;F Cells</u>
		<u>1st Cycle</u>	<u>Cycle</u>	<u>Bldg.</u>	<u>Bldg.</u>	<u>Process</u>	
B-10-11-AW1	2.76	17.53	9.95	30.24	12.95	43.19	29.24
T-10-11-AW1	7.67	10.04	9.58	27.29	10.31	37.60	96.00*
T-10-11-AW2	6.90	17.29	10.29	34.48	Not completed at month end		

\*Represents total recovered by four separate flushes.

### Initial Assay of Process Batches - B and T Plants

At times there have been delays in getting batches started in the extraction step because of difficulties with the analytical results for the initial batch size control sample. In order to provide more time for the initial assay, the long-established practice of obtaining the sample following the reduction operations in Section 6 was discontinued in December, and the sample is now being obtained just prior to the reduction operation. The over-all time cycle through the reduction operation, including the time required to obtain analytical results, has thus been shortened approximately two hours without reducing the precision of analytical results.

### Retention of Product in F Cell Equipment - B and T Plants

Prior to activation of a second centrifuge in F Cell in the Concentration Building at both B and T Plant, rework of metathesis centrifugation effluents was effected by first returning the effluent to the precipitator tank and then recentrifuging through the single centrifuge which was then in operation. Since the material being reworked was very low in product content, it acted as a very effective flush of the precipitator tank; product retention in this vessel was nil. Since activation of the second centrifuge in F Cell, only material containing a full product charge is carried through the precipitator with reworks being carried out in the second centrifuge fed from one of the waste solution tanks; consequently, there has been an increase in the product contained in the liquid heels left in F Cell precipitator. In B Plant it has been found that the product hold-up averages 5 to 10 percent. In T Plant, however, it has been determined that the accumulation of product is at a higher rate with as much as 18 percent of a standard charge being accumulated from eighteen standard charges processed through this tank. The difference between product accumulation experienced in the F Cell precipitator for the two plants is probably explained by the agitator in the T Plant

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tank being four inches shorter than the one presently in use at B Plant which was lengthened several months ago. The difference was being corrected at month end by installation of a longer agitator shaft at T Plant. There are, also, under consideration modifications of the process at both plants for reducing further the product retention in the F Cell precipitators and in the intermediate lanthanum fluoride product slurry tank in B Cell.

WASTE DISPOSAL

Cribbing of Second Decontamination Cycle Waste - B and T Plants

Disposal of second decontamination cycle waste to underground cribs was made in December as tabulated below:

200 East Area from tank X-112-B	249,000 gals.
200 West Area from tank X-112-T	118,200 gals.

Operation of Cooling Water Retention Basins - B and T Plants

During the month the operation of the cooling water retention basins for both B and T Plants was simplified by permitting the water to flow continuously to the ditch rather than filling, sampling and emptying the two parallel ponds alternately. One pond is now allowed to over-flow to the second pond in which a level of approximately one foot of water is maintained by a weir near the basin drain. Samples of the water are analyzed once every twenty-four hours.

Underground Waste Line Testing - B Plant

During the month an unencased line from nozzle 11 in Cell 10 L to nozzle U-4 in the 154-B Diversion Box was hydrostatically tested and found to be satisfactory. This line had been removed from metal waste service in August 1950 when it plugged and was thought to be leaking. Two unencased lines to the 241 C tank farm were, also, tested and found to be sound.

Waste Status

The status of the waste storage areas as of December 31, 1950 is given in the following table:

Tank Farm	200 East Area					Reserve Capacity in Batches to Process				
	Gallons (10 <sup>3</sup> ) in Storage									
	<u>B</u>	<u>C</u>	<u>EX</u>	<u>EY</u>	<u>Total</u>	<u>B</u>	<u>C</u>	<u>BX</u>	<u>BY</u>	<u>Total</u>
Metal	1579	3374	3180	1918	10051	0	0	0	1175	1175
1st Cycle	2645	3170	2645	106	8566	0	0	152	616	768
2nd Cycle	1200	0	0	0	1200	Cribbed as Necessary				
TBP Reserve	-	-	-	-	-	-	-	-	109 BY	(758,000gals)

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Tank Farm	Gallons (10 <sup>3</sup> ) in Storage				Reserve Capacity in Batches to Process			
	T	U	TX	Total	T	U	TX	Total
Metal	1579	4737	2567	8883	0	0	993	993
1st Cycle	3170	1585	3092	7847	0	0	845	845
2nd Cycle	1073	0	0	1073	Cribbed as Necessary			
TBP Reserve	-	-	-	-	-	-	115-TX	(758,000 gals)
Waste Evap. Reserve	-	-	-	-	-	-	116-TX	(758,000 gals)

MECHANICAL PERFORMANCECanyon Equipment Failures - B and T Plants

A description of equipment failures in B and T Plant Canyons is given below:

- a) In B Plant wall nozzle #53 in cell 13-R was abandoned after a leak developed at the discharge flange of the centrifuge to cake dissolution tank transfer jet piping assembly and four attempts to install a new assembly failed to stop the leak. It was concluded that the nozzle was either bent or has a hole corroded through at the flange weld. Further investigation will be made to determine the exact nature of the failure. The transfer from the centrifuge was re-routed through a spare line.
- b) In B Plant after all attempts to unplug the weight factor dip lines for the Section 13 precipitator failed, the pipe assembly was replaced with a new one.
- c) In B Plant the Section 18 centrifuge catch tank thermohm failed. The cell assembly was replaced with a new one. The failed assembly cannot be repaired.
- d) In B Plant the weight factor dip tubes for the Section 19 precipitator became plugged. The assembly was successfully unplugged by removing it to the deck and reaming the precipitate from the tubing.
- e) In T Plant the spray-distributor for the Section 7 precipitator developed a leak and had to be replaced.
- f) In T Plant a leak was found in the precipitator to centrifuge line in Cell 7-R at the centrifuge flange. The cell pipe was replaced satisfactorily.
- g) In T Plant the Section 18 precipitator agitator failed to operate and was replaced. When the second agitator failed to start after installation, a more thorough investigation led to discovery of

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electrical trouble in the motor control box. Since repairs were completed, operation of the second agitator has been satisfactory. The original agitator has since been proved to be operable and is being held as a spare.

- h) In T Plant the motor for the 15-9 waste neutralizer tank agitator failed, apparently because grease leaked through the retainer rings for the bearings into the motor windings. Preliminary surveys indicate that radiation levels for the agitator are low enough to permit replacement of the motor.

#### Concentration Building Mechanical Difficulties - B and T Plants

Mechanical difficulties experienced in B and T Plant Concentration Buildings are described below:

- a) In B Plant the spray-distributor for the Cell E precipitator severed at the spray slot due to corrosion and was replaced. This spray had been in service for three years.
- b) At B Plant a section of the Cell B centrifuge supernatant effluent line was replaced due to severe corrosion at the welded seams.
- c) A leak which developed at the bottom weld of the B Plant Cell A precipitator cooling-heating jacket was repaired by rewelding.
- d) In T Plant a leak developed in the Cell E centrifuge effluent line and a section of the line was replaced.
- e) In T Plant the upper bearing (ball) of the motor drive head for the Cell E centrifuge failed due to faulty lubrication. The motor-drive head assembly was replaced with a spare unit. The failed unit will be repaired.
- f) In T Plant the F-2 centrifuge motor in Cell F was replaced due to the motor rotor shaft becoming bent when pins holding the drive shaft sheered. Undoubtedly this failure can be attributed to the excessive vibration that has been experienced with this machine during recent months for which no correction had been found. The motor and drive head unit were replaced with a spare and the A frame of the centrifuge braced against the building wall. Since the machine was repaired and braced, it has operated satisfactorily with a minimum of vibration. Replacement parts are being obtained to repair the failed unit.

#### Stack Fan - B Plant

On 12-24-50 the No. 2 stack fan at 291-B failed due to motor bearing trouble. After the fan was shut down it was found that the bearing was in excellent condition. The bearing hold-down yoke had become loosened and permitted an adjacent collar to move over and seize the motor shafts. After removing the galling from the shaft by sanding, the fan was placed back in operation, and no further difficulty has been experienced.



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**DECLASSIFIED**IV. SPECIAL HAZARDSIsolation Building Stack Gas Contamination

Regular sampling of the process air being exhausted from the Isolation Building through the 903 System continues to show the product content to be in the satisfactory range of  $1 \times 10^{-11}$  to  $2 \times 10^{-11}$  ugPu/cc.

Canyon Conditions - B and T Plants

The decks of the canyons in both B and T Plants were rather widely contaminated during the month as a result of the several maintenance jobs which were undertaken. At month end considerable progress had been made in cleaning contaminated area of the deck.

V. PROCESS CONTROLDissolver Off-Gas Filter (Project C-337) and Silver Reactor (Project C-378)

Installation of the second dissolver off-gas filter-reactor was completed early in the month on the 3-5R dissolver in T Plant and the third unit in the 4-5L dissolver in T Plant. Both units are operating satisfactorily. The fourth unit is in the 200 East Area mock-up cell for connector pipe fabrication. This unit will be installed on the 3-5R dissolver in B Plant during January.

A study made by the Separations Technology Division of off-gas samples from the first filter-reactor installed in the 4-5L dissolver in B Plant has shown that 99.9+% of the iodine activity is being removed from the gas stream. Figures obtained late in the month have shown that removal of particles from the off-gas stream is 99.99% efficient.

First Decontamination Cycle Waste Evaporator (Project C-369)

The over-all construction phase of the project is on schedule. Due to procurement difficulties, authorization was made to substitute two inch, type 309 stainless steel tubing for the evaporation coils instead of the originally specified one and one-half inch type 347 stainless steel.

A rough draft project proposal and a plot plan have been completed for first cycle waste evaporation facilities for the 200 East Area. A cost estimate for the project is being prepared.

Additional Waste Storage Facilities - 241-BZ (Project 417) and 241-TY (Project 418)

The necessary design work for twelve additional underground waste storage tanks - six to be installed in each of the 200 Areas - has been initiated by the Design and Construction Divisions. Requisitions for

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the steel plate and stiffener angles for the tank liners have been submitted to the Purchasing Division for 3-21-51 delivery.

Special Samples

- a) A 100 ml sample of metal solution was obtained from the 4-5L dissolver in B Plant and delivered to the Atomic Energy Commission for shipment to the University of California at Berkley.
- b) Ten 500 ml samples were procured from the various first decontamination cycle waste storage tanks and delivered to the Chemical Research Section in the 300 Area for analysis of activity.

F-10 Tank Study

A study was made of the final product tank in the Concentration Building to determine if adequate agitation was present to insure good mixing of the final product solutions which are necessary to obtain good material balances.

This study revealed that present agitation was fair and that by making minor changes in the sparger design good agitation and mixing would result. These changes in the sparger will be made during the coming month.

VI. EXPANSION SECTIONTBP Project (C-362)Essential Materials

1. Since the nitric acid requirements for the TBP Project are to be supplied by a locally operated General Chemical Company plant, and delivered by tank truck, the Design and Construction Divisions have been requested to provide the necessary truck unloading facilities in the TBP area. It is anticipated that seven truck deliveries per day, five days per week will be handled.
2. A request was made by the Accountability Section to the Atomic Energy Commission to make 25 tons of  $UO_2$  available for use in cold runs during the TBP Plant start-up. This material will be required in the event that UNH solution from Redox is not available.

Designa) General

1. AEC Directive HW-160, Modification #5, was received approving the project proposal and authorizing the expenditure of the total project funds. Separations Design Division Work Authority C-362

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(13) was consequently issued on 12-6-50, authorizing the continuance of the complete design and construction of all phases of the Waste Metal Recovery Facilities.

- 2. A proposed system for numbering diversion box, pump pit, and cell jumpers for Phases I, II, and IV was formulated by the Manufacturing Divisions and forwarded to the Kellex Corporation via the Design and Construction Divisions.
- 3. A status report on Project C-362 was presented by the Design and Construction Divisions on 12-19-50. In general the design of all Phases of the project as of 12-1-50 is ahead of the original schedule and is on the stepped up schedule as revised on 10-1-50.

A cost status report of the Project will be issued at a future date when more construction is complete and all contracts are negotiated.

To date the following number of drawings have been received and reviewed by the Manufacturing Divisions:

Phase I	280	of a scheduled 400
Phase II	107	total not completely scheduled
Phase III	99	of a scheduled 118
Phase IV	316	of a scheduled 1456
Phase VI	30	of a scheduled 94

b) Phase I - Metal Removal - One Cascade

Past testing of the Kellex slurry sampler developed for use in sampling the slurry accumulator tank at the 244-UR installation has proved that it is inadvisable to install this unit. On the basis of this information, the Design Division, in conjunction with the Separations Technology Division, has investigated possible control procedures for the operation of the accumulator and blend tanks in order to obtain a uniform feed solution for the TBP process. These investigations resulted in the following instruments to be installed at this vault:

- 1. Magnetic induction type strain gauge, weight factor and specific gravity instruments in the accumulator tank.
- 2. Specific gravity, weight factor, and pH instruments in the blend tanks. A turbidimeter is also being considered for the blend tanks.

c) Phase II - Metal Removal - Remaining Cascades

- 1. The Kellex Corporation has issued a revision of their Document KLX 1077 outlining design requirements for Phase II. This

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revised document (KLX-1077.1) is at present being studied and comments will be forthcoming.

2. The Manufacturing Divisions have requested that heel jet delivery lines be eliminated in Phase II. As the service rendered by the heel jet is to remove the final heel in the tanks that the pumps are unable to pick up, they are used only after the pump has completed its function in that tank. The Manufacturing Divisions suggest that the delivery from the heel jet discharge be routed to the pump pit then, by a jumper change, through the pump discharge line to the accumulator. This suggestion is felt to have particular merit at the 241-TX Farm where present plans call for the heel jet to deliver via a line some 2000' long to the slurry accumulator tank at 244-TXR. This suggestion is presently being considered by Kellex.

d) Phase III - Design of Underground Pipe Lines

After a thorough consideration of the needs of the encasement around the East-West pipe lines, agreement was reached by all concerned that the encasement required adequate protection from corrosion of the solutions being transferred in the six pipe lines. Therefore, the top will be coated with Amercoat #33, and the sides and bottom with Amercoat #55, a coating which is recommended for concentrated acid service.

e) Phase IV - Reactivation and Conversion of 200-U for TBP

1. Jet tests requested by the S Division and conducted in the 221-U Canyon have shown that standard existing 70 gpm and 20 gpm jets could be used for all normal jet services on TBP design. Therefore, the Kellex requisition for nine new types of jets has been cancelled.
2. By discussion with Kellex, it has been agreed that the agitators and pumps on the concentrator cooler tanks will be made remotely removable. Previously, the design was such that the entire cooler tank unit had to be removed in case of an equipment failure.
3. In order to provide for removal of the concentrator units, it has been agreed to make the condenser remotely removable. This is to be accomplished by off-setting the condenser fume line so that it may be remotely disconnected. This feature will reduce the over-all height of the remainder of the unit thus making removal from the canyon on a flat car possible.
4. In some cases 221-U cell jumpers have been designed with the bail located above the connector head. Since this bail location may interfere with the crane operator's vision and made remote removal

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impractical, a request for change in this design has been forwarded to the Kellex Corporation.

5. Considerations in transporting concentrated neutralized wastes to the East Area underground storages via the East-West pipe line revealed a possible difficulty on initial start-up. It was anticipated that, in cold lines, these wastes would drop in temperature below the saturation point resulting in crystal build-up and possible line plugging. A steam water injector system was requested to be installed on the condensate waste line in this trench. Prior to pumping concentrated wastes, 25 gpm hot water at 160 - 180°F will be routed through the East-West condensate line and discharged to the 216-ER crib. It is planned to continue this operation of warming the trench until thermocouples in the trench lines indicate a desirable operating temperature.

f) Phase VI - Increase Capacity of Utilities for TBP

The purchase order for the filter unit for use at 283-W was placed December 14, 1950 with the Roberts Filter Co. Design of the filter plant will begin January 15th when the vendor's layout drawing will be available.

Present plans call for changing the existing pumps and motors to larger capacity units rather than adding additional pumps which would require enlarging the existing pump room structure.

Procurement

1. Procurement status of engineered items show that all requisitions for Phase I have been issued and orders have been placed on approximately 65% of these requisitions. For Phase IV approximately 30% of all orders have been placed. The completion of Phase I construction may be delayed due to the delivery of the large WR and UR vault tanks. These tanks are to be fabricated by Willamette Iron and Steel Company. Field fabrication is to be accomplished by personnel of this same firm transferred to the Atkinson and Jones payroll since Willamette is a subsidiary of A&J. Completion of these tanks is anticipated in the early part of April.
2. The order for twenty-seven stainless steel 221-U Canyon tanks, placed with South West Welding on 10-30-50, is being considered for cancellation and placement elsewhere in order to obtain the required delivery dates for these critical equipment items.

Construction

The following table presents the construction status of all phases as of month end:

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<u>Phase</u>	<u>Weighted % of Total</u>	<u>% Complete</u>
I	9	9.6
II	38	--
III	7	11.7
IV (277-U)	41	8.3
V	2	87.0
VI	3	--
TOTAL	100	3.4

The contract with Atkinson & Jones for construction of Phases II, IV, and VI has been signed on December 29, 1950. Construction activities will proceed immediately.

a) Phase I

Progress on the various portions of this Phase are delineated below:

1. Excavation of 241-WR nine tank storage vault is 95% complete and piling has been driven between the upper and lower vault elevation.
2. At the 151-UR Master Diversion Box all walls have been poured and the box is complete except for piping and the floor proper. The latter will not be poured until the pipe nozzles have been received and installed.
3. At the 244-UR Blend Tank Vault many of the nozzle sleeves and pipe stubs have been set. Concrete pouring of the north and south walls is proceeding.
4. The pump pit excavations at Tanks 241, U-101, 102, and 103 are complete and retainer rings have been set. The base slab of Tk-101-U pump pit has been poured and forms are 50% complete. Tk-101 sluice pit is 95% complete.

b) Phase III

1. Excavation for the East-West pipe line between 154-UX and 151-ER diversion boxes is complete, and 2260 ft. of the concrete encasement has been poured.
2. Excavation for the three-line encasement between 151-ER diversion box and the 241-C Tank Farm is 85% complete, and 600 ft. of concrete has been poured.
3. The excavation of the 216-WR crib is 90% complete.

c) Phase IV - 277-U Mock-Up Shop

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The concrete base of the building has been completed and structural steel work has begun. The building is estimated to be 18% complete.

d) Phase V

Stripping of 221-U Building is estimated to be 92% complete and that of 224-U Building is 55% complete.

e) UO<sub>3</sub> Project (C-361)

1. Progress status at month end is as follows:

Scope	100%
Detailed plans	69%
Construction	0%

The 69% completion of detailed plans compares to a scheduled 93%. Contingent on receipt of vendors drawings as now scheduled, all construction drawings except 4 electrical and 2 structural should be approved by the Manufacturing Divisions by February 15, 1951. A greater portion of the delay of the above mentioned drawings is caused by slowness of the Westinghouse Company's submission of substation drawings. Procurement in general is on schedule, as 396 of the required 448 requisitions to be placed are on order. Many of the remaining items are available.

2. On December 18 a meeting was held with representatives of Carbide and Carbon Chemical Co. of Oak Ridge to discuss UO<sub>3</sub> specifications since it has been verified by the AEC that all of the UO<sub>3</sub> produced at Hanford would be utilized by the K-25 process. In general there were no major discrepancies in the specifications requested by the K-25 personnel over those used as design bases for the Redox, TBP, and UO<sub>3</sub> Plants.

3. During the above meeting the K-25 personnel explained the difficulties incurred in their process by feed materials containing varying amounts of U-235. Although AEC had previously stated that segregation of UO<sub>3</sub> produced by the Redox and TBP Plants would be unnecessary, it appears highly probable that this question will be reconsidered.

Redox (Project C-187-D)

Procurement

1. Procurement of certain critical items of process equipment continued to be a problem during the past month despite all efforts by the Purchasing Division to expedite the fabrication and delivery of the equipment. In some instances, difficulties in vessel procurement extend through the fabricators of the component parts to the procurement of the stainless steel billets for the rolling of plate,

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forging of vessel flanges, etc. Unless this situation improves rapidly, it is probable that a significant delay may be experienced for the C-187-D facilities.

Using the critical procurement list of December 22, 1950 as a basis, the Expansion Section has suggested several courses of action and alternatives which may, in some instances, improve the procurement problem.

2. As a means of expediting fabrication of the Class I vessels, corrosion tests on stainless steel sample coupons, normally run prior to vessel fabrication, are being run concurrently with fabrication or, in some cases, after the fact. As a result of this, cases are arising where sub-standard stainless steel has been included in the fabrication of various cell vessels. Waiver of the corrosion test specifications in these instances is being handled on an individual case basis and, in some instances, it has been possible to exchange like vessels to place the sub-standard units in positions where the corrosion conditions of the process are less severe.

Design

1. Design of the electrical heating system for the UNH cross-country transfer line between the 203-S and 203-U Buildings has been completed. This represents the last known major design required of the Power and Mechanical Group of the G.E. Design Division for Project C-187-D.
2. At the request of the Manufacturing Divisions, steps are being taken by the Design Division to procure for use in the jet flanges of the 202-S cell jumpers specially designed Flexitallic gaskets made of stainless steel and teflon. It is believed that these gaskets will be very stable in steam service and will lower the frequency rate of jumper loss due to blown gaskets at these points.
3. As a result of process work done at SPRU, the specification for methyl isobutyl carbinol in the hexone solvent for Project C-187-D has been raised from 0.03% to 0.6%. The revised specification has been forwarded to vendors, however, bids based on the new specification has not, as yet, been returned.
4. At the request of the Manufacturing Divisions, the Design Division is including in the 211-S nitric acid storage facilities, a U Plant excess 9' x 9' cell tank to be used as a receiving and sample tank for truck deliveries of nitric acid. It is expected that a large portion, if not all, of the nitric acid used in the 202-S Buildings will be delivered by vendor's truck.

Construction

1. 202-S Building

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S Division

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- a. Building Structure is estimated to be 81% complete

A major effort to complete the structure of the canyon portion of the building terminated in the last concrete pours of the canyon roof on 12-27-50. Lift No. 12 of the silo section has been completed with the exception of a single pour. Further progress on the tower shaft is expected to be delayed pending receipt of 3 upper U Frames which have been rejected by G.E. inspectors at the fabricators plant. These are expected to be delivered on 1-10-51. The placing and welding of stainless steel liners in the tower shaft continued at the lower U Frame level. Concrete pours have been started on the chemical storage room and are continuing generally in the north and south service areas of the building.

- b. Piping is estimated to be 28% complete.

The installation of plumbing continued in the north and south service areas and the hanging, welding, valving, and painting of raw and sanitary water and steam headers continued in both pipe galleries. The 24" stainless steel T in the utility header of the pipe tunnel is being welded in place prior to testing.

- c. Cell Process Equipment is estimated to be 13% complete.

The welding of Van Stone flanges on the pipe gallery terminal of pipe-through-concrete is progressing slowly.

- d. Electrical Work is estimated to be 29% complete.

- e. General Building Mechanical Work is estimated to be 14% complete.

The 75 ton crane was placed in the building during the past month and work is in progress on the assembly of the crane cab frame. A 10 ton construction crane was also placed in the building during the past month, and work on its electrical components is in progress.

- f. Over-all Building Completion is estimated at 37%.

2. 277-S Building

Work on the 277-S Building is estimated to be 95% complete. Mock-up and kick plate installation continued with 22 plates in place at month's end and 3 additional plates awaiting installation. Two Class I vessels were received in the mock-up building during the past month. Racks for jumper storage have been completed in the warehouse and the hanging of jumpers is now in progress.

S Division

3. 291-S Building

Placement of the first layer of filter bed material was started in the sand filter on 12-21-50. At month's end work was in progress in the placing of the second layer (Type B) aggregate. Work continued on the welding and testing of the off-gas lines to the 291 jet control house and on general structural work on the jet control house.

4. 241-S Building

Over-all facility is estimated to be 26% complete.

Four of six concrete pours in the retention basin walls have been completed to date. Placement of 24" tile is progressing rapidly with 1100 ft. completed to date. Completed steel liners are in place for tanks 101, 104, and 107 and the knuckle plate sections have been placed for tanks 105, 108, 110 and 111 and a portion of 102.

5. Outside Lines

Completion of outside buildings and facilities at month's end is estimated as follows:

240-S Waste Lines	43% Complete
276-S Building	6% Complete
Steam Lines	76% Complete
Water Lines	64% Complete
Railroad	51% Complete
Process and Sanitary Sewers	68% Complete
Propane Storage	16% Complete

6. Slab Yard

The pouring of the concrete cover blocks for Project 187-D was essentially complete at month's end with 3 pipe tunnel plugs remaining to be poured. Painting of the canyon cover blocks has progressed slowly due to adverse weather conditions.

7. Pipe Shop

A total of 135 jumpers have been fabricated and tested to date. Work in the pipe shop during the past month has been generally satisfactory.

Training and Procedures

1. Training

The training manual "An Introduction to the TBP-UO<sub>3</sub> Plant" has been

S Division

  
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completed and is being issued. This manual, and its counterpart for the Redox Plant, is an important adjunct to the Training Lecture Series, and provide a good preliminary reference on matters pertaining to these plants.

The second cycle of the Training Lecture Series started on December 26.

Operational training for the Redox and TBP plants is scheduled to start on February 19, 1951. Operators and supervisors of these plants will take a six weeks training course, on a shift basis, in column operation, aqueous make-up, solvent handling, and other aspects of Redox and TBP operation, at the Chemical Development Section's test facilities in Bldg. 321, 300 Area.

## 2. Procedures

### a. Redox

Comment issues have been made of the Evacuation Procedure, and the Black-out procedure. Safety rules have been made up for the Redox Plant in general, and for sub-divisions of the plant. Essential Material Control procedures have been made up covering the receipt, storage, analytical and accounting control of Essential Materials. A listing of the miscellaneous operating supplies required for start-up has been given to the Stores Division for procurement purposes.

### b. TBP-UO<sub>3</sub>

Comment issues have been made of the Evacuation Procedure and the Black-out procedure. Safety Rules have been made up, for both the plant in general and its sub-divisions. A listing of the miscellaneous operating supplies required for start-up has been given to the Stores Division for procurement purposes.

  
INSTRUMENT DIVISIONMONTHLY REPORT - DECEMBER, 1950GENERAL

There was no increase in personnel during the month, new hires just covering the terminations.

Personnel of the White Bluffs Training School continue to contribute to production work. Approximately 1350 man-hours have been applied to conversion and reconditioning of instruments for new facilities and special application throughout the plant. A backlog of approximately 750 man-hours of work remains to be accomplished.

100 AREAS (Reference Doc. No. HW-19884)100-B Area

Increasing build up of deposits in the pile water system has caused abnormal pressure monitor gauge changing. One hundred gauges were borrowed from 100-DR and 100-H, depleting their stock of spares.

The fourth mass spectrometer leak detector has been diverted to use on P-10 work in 108-B. Performance of leak detectors has been satisfactory. Kanne chambers have given an unusual amount of trouble due to excess moisture in the air.

Installation of the metal line was started on December 17. Inspection of instruments upon arrival found them in good condition.

100-D Area

All instruments for the NEPA Creep Test were put in standby until next shut-down. At that time defective heaters in the slug will be replaced.

Thermocouple well to tube No. 0880 sprung a leak and allowed water to go through the conduit into the control room. The thermocouple was replaced with a spare on the December 20 shut-down.

100-DR Area

The Bailey Power Level Recorder system has followed the calculated power level to within 1%.

**DECLASSIFIED**

  
**DECLASSIFIED**100-F Area

An abnormal amount of moisture was collected from the pile atmosphere although the L & N Gas Analyzer did not indicate change of purity. Apparently outside air was being drawn in at blower inlets since an increase in make-up pressure raised the negative pressure at blower inlets and corrected the condition.

100-H Area

Water pressure was raised to 390 psi., causing gauges in the 0.140 inch orifice zone to approach their upper limit. They were replaced with gauges in the next higher pressure range. Some pressures in the 0.175 inch orifice zone are very near the upper limit. As soon as they can be replaced, it is intended to raise the water pressure to 400 psi.

A broken thermocouple well on tube No. 2657 allowed water to leak into the conduit. It was replaced with a spare during shut-down.

Shutdown Experience

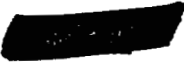
100-B Area - None due to instrument failure.

100-D Area - None due to instrument failure. Unit was shut down at 8:50 PM December 6, when No. 4 Beckman reached full scale before changing range during start up. Mechanic on duty was changing galvanometer system from No. 8 riser to "A" hole chamber at the time.

100-DR Area - Unit was shut down manually at 8:50 A.M. December 15, due to pressure monitor alarm. A loose mercoid switch connection was found as the cause. The gauge was by-passed and the unit was back to power at 9:16 A.M. Replacement gauge alarmed at 9:38 A.M. and unit was again shut down. Gauge bourdon tube was found shorting to alarm circuit. After correcting the trouble the unit was back to full power at 10:01 A.M.

100-F Area - Unit shut down manually at 11:45 P.M. December 13, due to high pressure alarm. Check of gauge found no trouble. Unit was back to full power at 8:25 P.M. December 15.

100-H Area - Unit shut down manually at 6:56 P.M. December 4, due to a ruptured slug. Indication of the trouble was found on the water activity monitor, pressure monitor and temperature monitor. Condition was corrected and the unit started up at 8:25 P.M., December 7. Unit was manually shut down at 6:20 P.M. December 15 to investigate a high reading on cross header No. 25 as indicated by the water activity monitor. Survey confirmed this high reading but was not considered significant of warranting further investigation. Unit was back to normal power at 7:55 P.M.



200 AREAS (Reference Doc. No. HW-19835)T & B Plant Production Instruments

Continued plugging of specific gravity and weight factor dip tubes for tank 15-9 in Building 221-B necessitated replacement of the entire assembly. The new installation is functioning properly.

Projects C-337, C-378 - Silver Reactor and Gas Filter

The second unit installed in Section 3, Building 221-T is completed. Installation of the third unit in Section 4 of that building is 50% complete.

Project C-397 - Conductivity Cells

One conductivity cell was installed in Cell 15-R of 221-T Building. To expedite use of the facility one recorder was diverted from use on the drain outlet. As recorders are received for the balance of the project, this recorder will be replaced.

Z Area Production Instruments

The Shadowgraph balance used for initial product weighing has been extensively damaged by corrosive fumes. As space in Hood 4 is badly needed and Building 231-W provides an acceptable weighing station, this balance will not be replaced.

A re-survey of neutron counters contaminated by the Hood 10 explosion in October indicates they will be usable. Work has started in putting this equipment back in service.

300 AREA (Reference Doc. No. HW-19886)MANUFACTURING SECTIONProject C-340 - (P-11)

Selsyn receivers for the liquid level indicator have been installed and tested by the Development Section. Circuit modification was necessary to eliminate instability. The servo system has given satisfactory laboratory performance.

Project C-399 - Tcepler Pump Control Units (P-10)

Eleven complete units have been delivered. Completion of the remaining 19 units is pending delivery of material.

M-806 - Timing and Locking Devices for 313 Building

The portion of this project assigned to the Instrument Division has been completed. Two lock type tong guides have been installed and are under operational testing.

**DECLASSIFIED**

  
**DECLASSIFIED**DEVELOPMENT SECTIONProcess Tube Temperature Mapping Display

Equipment fabricated for the demonstration unit has been received and is being assembled for testing. The design of the 2000 point jet switch is nearing completion. It appears that a switching cycle may be completed in 1/10 of a second.

100-D - 100-DR Safety Interlock

A report (HW-19634) has been issued giving a proposed method and cost estimate for shutting down both piles should the neutron flux level become excessive in either unit.

Power Level Recorders

The 105-DR power level recorder is being converted to cover new ranges, zero suppressions and greater flexibility for future range changing.

DESIGN & CONSTRUCTION GROUP - 760 BUILDING (Reference Doc. No. HW-19866)Project C-300 (100-G Area)

The Foxboro Company has made a study of the error induced by increasing static pressure on their differential pressure cell. This error was found due to faulty assembly and their manufacturing has been adjusted to eliminate it.

Project C-187 (Redox)

All preliminary schematic drawings for instrument calibration and control application are completed. A paper covering calibrating data and methods is in progress.

Project C-362 (Tri-Butyl Phosphate Process)

"General Test Specifications for Process and Utility Instruments" has been approved and is awaiting distribution.

The Foxboro Company was successful bidder for the graphic panel and auxiliary equipment. Five month delivery was promised. Contract for purchase of the equipment was awarded at a cost of \$176,000.

Project C-361 (Metal Conversion Facilities)

All major items for off-plant procurement have been requisitioned with the exception of the dust collector which will be procured early in January.

Project C-289 (Additional Laundry Facilities)

All instruments ordered off-plant have been received except HW poppies. Partial delivery is expected early in January. Beta-Gamma clothing monitor construction has been delayed pending receipt of material.

Project C-198 (234-5 RM Line)

Drawings showing interconnection of lines between existing services and RM line have been completed. Elementary wiring diagrams are being re-arranged and segregated from electrical drawings to provide functional clarity to servicing personnel.

Job M-801 (Carbon Monoxide Recording and Alarming System)

The only bid meeting requirements of this specification was received from Mine Safety Appliicance Company for \$10,870 with delivery in 150 to 180 days. This makes the total job estimate approach \$20,000 which exceeds the funds appropriated. The increased cost is reflected entirely in the equipment cost.

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DECEMBER, 1950

GENERAL

The divisions backlog of work as of December 31 is 8,565 mandays, which represents 25.8% days of work for present forces.

As of December 1 the General Area section of the division was discontinued. The work assignments, together with personnel, were transferred to the other major area groups.

100 Areas

100-B Area

During a scheduled shutdown of the "B" pile, it was necessary to remove #7 and B horizontal safety rods from the unit to vacuum loose graphite material from the thimbles. This resulted in the rods working more freely. The top bent section of vertical safety rod #15 was replaced

The cracked six inch cast iron fire and sanitary water line was repaired approximately two feet from the Power House, 104-B.

Project M-723 - Repairs to North Retention Basin - 107-B

Repairs were completed and final acceptance inspection was made with no exceptions, on December 21.

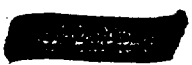
100-D Area

The algae clogged one inch air vents in the two forty-two inch process effluent lines were cleaned.

Work on the development of a new 3X safety device for the piles is being continued. Shop personnel are experimentally fabricating aluminum rupture disc that will release 3/8" boron steel balls from a container upon the application of 25# psi of air pressure.

100-F Area

During a normal shutdown of the pile, it was necessary to replace the tip section of #2 horizontal safety rod because of a leak in the cooling water tube. At the same time the thimble was vacuumed to remove loose graphite. This rod does not operate satisfactorily and it is planned to investigate during the next scheduled shutdown of the unit.



Project M-713 - Development of Flexible Vertical Safety Rods

Development work is progressing on fabrication of flexible vertical safety rods. The best design so far consists of segments of stainless steel tubing 9" long X  $2\frac{1}{4}$ " in diameter X  $1/16$ " wall thickness

Project M-823 - Thermocouple Equipped Vertical Safety Rod Thimbles

Three thimbles have now been fabricated, two of which have been installed in the pile units.

100-H Area

On December 4 the "H" pile was shutdown on an emergency basis because of a ruptured slug in process tube #3288. The process water tube together with the slugs were removed from the unit and a new tube was installed. The unit resumed operations on December 7.

Project M-824 - Repairs to 107-H and DR Retention Basins

Repairs are presently being made to the defective expansion joints of both the DR and H Basins.

200 Areas

Because of faulty lubrication, the bearings failed in the drive head on the B-2 centrifuges in Building 224-T. A spare drive head was installed and the unit restored to service.

An orifice and metering station was installed on the ten inch steam supply to the "U" construction area. This installation will permit metering steam usage by the Construction forces.

Additional bracing was added to every other ladder section of the meteorology tower, #622, to give it added rigidity. Also, the floor gratings on the landing were bolted down to eliminate a tripping hazard.

Project C-289 - Additional Area Laundry Facilities

An acid resistant catch basin was constructed in order that the contaminated waste from the new laundry building can be diverted to the existing process sewer.

Projects C-337 and C-378 - Silver Nitrate Reactor and Off-Gas Filters

The third unit was fabricated on the 18th of the month and sent to the 221-T Building for installation. The fourth unit is being assembled in the mock-up facility of the 272-East shop and is approximately 70% complete.

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Metal Fabrication

It was necessary to replace four lucite panels in the Zone 2 side of hood #10 as the original panels had been badly damaged by the explosion that occurred in October. This exchange of panels between the Zone 2 and Zone 4 was made without any spread of contamination.

The vacuum and water lines were altered in hood #19 to provide connections for a second pressing can. This installation will permit two press cans to be in use simultaneously and eliminates the waiting time for a can to cool. The vacuum systems on hood #25-B failed during the month and the condition was corrected by replacing the Miller and Pirani gauge tubes and installing new seats in the coating gas valve. A high leak rate occurred in the vacuum system on hood #26 and successful repairs were made by replacing the Miller and Pirani gauge tubes, the bell jar and flange assembly.

Project C-366 - Auxiliary Hood Enclosure

The stainless steel structural members have been received and assembly work has been started.

Project M-802 - Loading Facilities for Recycle Material

The installation of this facility is substantially complete and is in operation. Material which is still due to be shipped from vendors consists of one hand lift truck and one portable platform scale. Additional funds are required to complete the fabrication of four PR cans and jackets.

Project M-738 - Revised Sanitary Water System

The water line has been completely installed with exception of insulating material.

300 Area

The air conditioning units and related duct work located near the pickling and canning operation of 313 Building were painted with corrosion resistant paint.

The restoration of demonstration unit columns 1-A, 1-B, 1-C, and the installation of a new 1-D column in Building 321 were completed. These units are now in readiness for the operator training school starting February 1. The thirteen agitators in the 321 Building tank farm were removed and overhauled. The ten agitator bases installed in tanks with cold liquid were sprayed with polythene. The three agitators installed in tanks handling hot liquid were resprayed with stainless steel. This has been done to prevent any corrosive action to the mild steel base.

An exhaust fan was installed in the duplicating room of 321-A in accordance with the Safety Division regulations.

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**DECLASSIFIED**ELECTRICAL DIVISIONDECEMBER, 1950GENERAL:

The month end backlog of scheduled work was 6,819 mandays, essentially unchanged from the previous month end. This was approximately 27 mandays per non-exempt employce.

The power demands for the month were:

	<u>Date</u>	<u>December KW Demand</u>	<u>Comparative Nov. Demand</u>
Process Load	12-1-50 (2:00 pm)	67,000	66,000
Village Load	12-5-50 (5:00 pm)	30,000	29,475

Since process load has increased substantially during the year, this represents an all-time high. The Village demand, because of good weather, has probably not yet reached the seasonal peak.

The following assistance was given Design Divisions relative to current and pending projects:

- C-360 (Aquatic Biology Laboratory) Review of power and telephone changes to existing system was completed and work orders were issued to effect modification.
- C-403 (Part I) (New Fencing for Distribution and 230 KV Substations) Final requirements were established, and specifications for sub-contractor bidding were reviewed.
- C-187-E (Analytical and Plant Assistance Laboratory) Completed final recommendations and review of electrical test procedures.
- C-380-R (Electric Metering - Village of Richland) Final specifications for subcontractor bidding were reviewed and modifications were recommended. Meter service and accounting procedures are being developed. A study of billing rates was prepared for the Atomic Energy Commission and a rate for Richland was developed and proposed.
- B-1870 (Additional Equipment - Richland Telephone Exchange - Fiscal Year 1952) Data and recommendations were developed and a Project Proposal for an 800 line addition has been requested.
- B-1869 (Additional Equipment - Richland Telephone Exchange - Fiscal Year 1951) Studies were completed, recommendations made, and a Project Proposal was requested for additional relays, line finders, etc. to improve service from existing equipment.
- B-1877 (Electric Service to Building 703 Extension) Completed study of requirements and requested informal approval of required funds for modification of distribution lines.

AREA ACTIVITIES:

A truck bumped into a power pole near the 184-B Building on December 15, causing a phase to phase fault on the 2300 volt area emergency feeder. Service was restored to normal in approximately ten minutes. A cross-arm, which was cracked by the impact, was replaced the following day.

Only two construction completion items remain in Building 183-DR and 190-DR. The permanent Lime Silo Vibrator installation in 183-DR is awaiting receipt of the controller and the switchgear interlocking change in 190-DR is awaiting a scheduled area shut down.

While checking trouble in the Instrument Power Supply Panel in 105-DR on December 13, the pile was scrambled by tripping the standby transformer air circuit breaker. The trip action of this breaker has been erratic and will be replaced.

A circuit was completed to permit the blackout of the 107-D Basin lights from the 105-D control room.

Facilities for maintaining water jacket heat on a total of 30 additional evacuation busses were provided in 100-F, 100-H, 200-E and 200-W Areas.

Both No. 1 and No. 2 Spillway sample pump motors in the 1904-H Building burned out due to extreme atmospheric conditions. A recommendation has been made to the "P" Division that these motors be replaced with totally enclosed motors.

In 108-F (H.I. Laboratory), extensive additions of receptacles and electric heaters were completed to provide standby heating source against failure of the building heating system; installation of a special lighting hood or "climatizer" was completed.

Installation was completed and adjustment made for two silver nitrate reactors in the 221-T Canyon Building.

TRANSMISSION AND DISTRIBUTION:

The new dispatch board in the 251 Substation (M-720) has been completed and is in service.

The new 13.8 KV tie line, 100-D to 100-H, was used for the first time and functioned without incident. This line permits transfer of 13.8 KV power between these areas, enabling maintenance of 220 KV breakers and equipment without necessity of shut down and loss of essential production.

Fire alarm, telephone and series street light circuits were rearranged at the intersections of Swift and George Washington Way, Swift and Stevens, Lee and Stevens, and Williams and Thayer Drive to provide clearance for the new traffic lights being installed by a subcontractor.

In Richland it was necessary to increase the capacity of 12 distribution transformers by a total of 212.5 KVA because of overloaded conditions attributed to extensive use of portable electric heaters.

Work has been started on Project C-341 (Addition to Richland Village Distribution System). The tie cable for the new Kuhn Street feeder is now in position and the Swift-Cottonwood tie is essentially complete.

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Extensive work was carried on in supplying service to contractors and in moving lines and services, particularly in the 200 Areas and Richland.

There were no unscheduled power outages during the month.

TELEPHONE SECTION:

Project M-807 covering installation of larger cable facilities to serve the Kadlec Hospital, Medical-Dental and Public Health Buildings was completed except for removal of the old telephone cable.

Plans were developed with the subcontractor (and Atomic Energy Commission) for telephone wiring changes during prefab housing rehabilitation with minimum interference to customers service.

Discussions with Project Engineering developed the need for increased telephone service to the P-10-X program. Recommendations were made to increase 100-B exchange, possibly by installing equipment not used in other areas.

The following is a summary of current telephone service rendered by the Project Telephone System:

	<u>Lines in Service</u>	<u>Stations in Service</u>	<u>Vacant Lines</u>
Richland	3,760	6,010	240
Project	5,182	7,527	558

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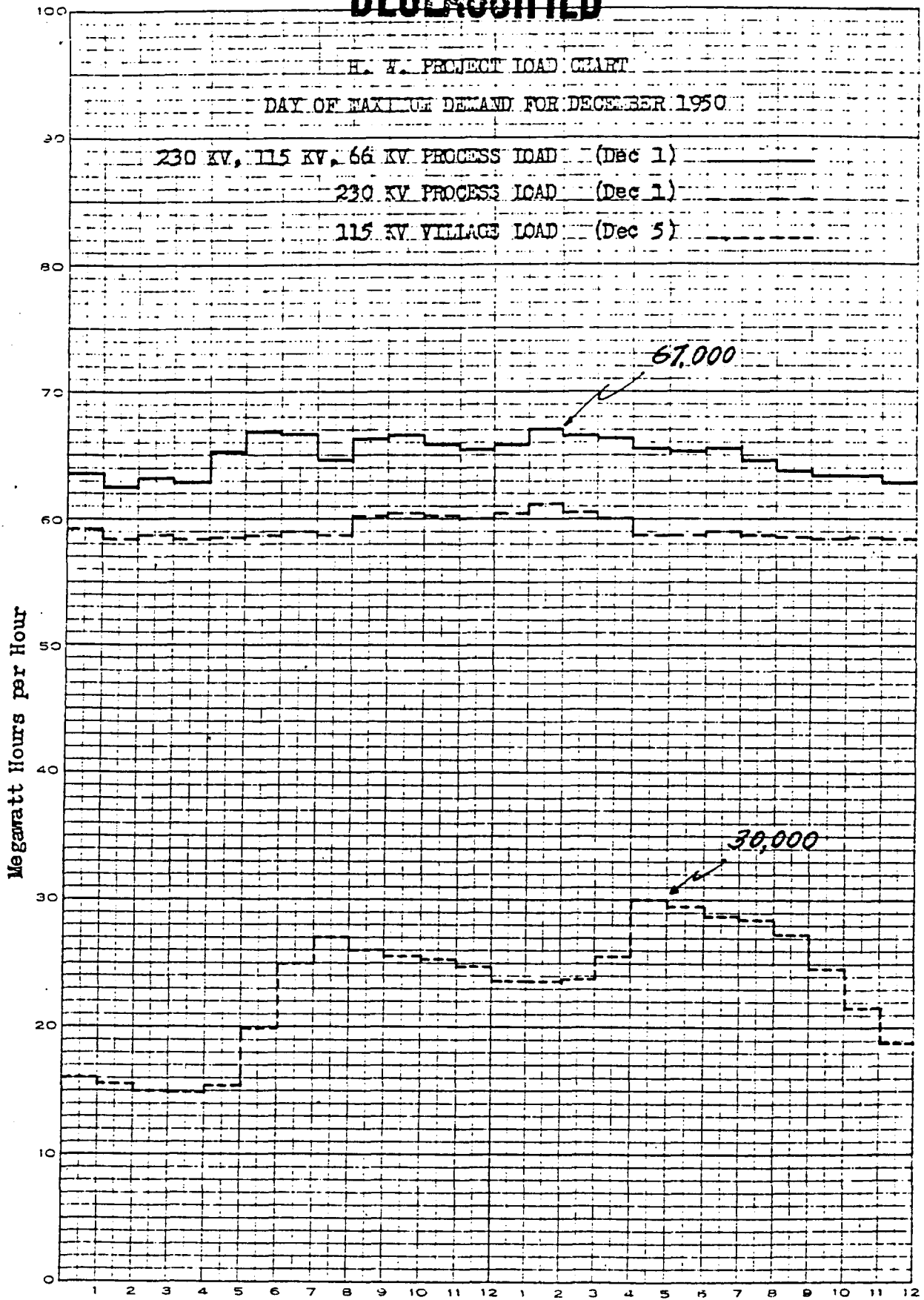
**POWER STATISTICS - ELECTRICAL DIVISION**  
**FOR MONTH ENDING DECEMBER 31, 1950**

ITEM	ENERGY - MW HRS.		M.X. DEMAND - KW		LOAD FACTOR - %	
	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.
<b>230 KV SYSTEM</b>						
A-2 Out (100-B)	7,590	7,750	12,300	12,200	85.7	85.4
A-4 Out (100-D)	12,550	13,660	21,600	21,800	83.0	84.2
A-5 Out (100-H)	8,208	8,208	13,800	17,800	82.6	62.5
A-6 Out (100-F)	6,670	6,570	10,500	11,200	88.2	78.8
A-8 Out (200 Areas)	4,068	4,500	7,200	7,560	78.5	80.0
TOTAL OUT	39,086	40,760	64,800**	70,560**	83.8	77.7
MIDWAY IN	39,449	41,575	60,000*	61,200*	91.3	91.3
Transm. Loss	363	815				
Percent Loss	.9	2.0				
<b>115 KV SYSTEM</b>						
B1-S4 Out (N. Richland)	1,819	2,554	3,456	3,513	73.1	97.7
BB1-S1 Out (Richland)	6,746	7,402	14,400**	14,760**	65.1	67.4
BB1-S2 Out "	6,840	7,576	16,020**	15,390**	59.3	66.2
BB3-S4 Out (300 Area)	744	784	1,840	1,840	56.1	57.3
TOTAL OUT	16,149	18,316	35,716**	35,503**	62.8	69.3
Benton In	140	800	25,800*	33,000*	7.5	3.3
S. Richland In	16,370	17,690	34,000*	34,800*	66.9	68.3
TOTAL IN	16,510	18,490	59,800**	67,800**	38.3	36.7
Transm. Loss	361	174				
Percent Loss	2.2	.9				
<b>66 KV SYSTEM</b>						
B7-S10 Out (W. Bluffs)	327	351	1,237	1,125	36.7	41.9
Hanford Out	309	318	600	600	71.5	71.2
TOTAL OUT	636	669	1,837**	1,725**	48.1	52.1
HANFORD IN	637	672	1,700*	1,700*	52.1	53.1
Transm. Loss	1	3				
Percent Loss	.2	.4				
<b>PROJECT TOTAL</b>						
230 KV Out	39,086	40,760	64,800**	70,560**	83.8	77.7
115 KV Out	16,149	18,316	35,716**	35,503**	62.8	69.3
66 KV Out	636	669	1,837**	1,725**	48.1	52.1
TOTAL OUT	55,871	59,745	102,353**	107,788**	75.8	75.0
230 KV In	39,449	41,575	60,000*	61,200*	91.3	91.3
115 KV In	16,510	18,490	59,800**	67,800**	38.3	36.7
66 KV In	637	672	1,700**	1,700**	52.1	53.1
TOTAL IN	56,596	60,737				
Transm. Loss	725	992				
Percent Loss	1.3	1.6				

\* Coincidental Demand  
 \*\* Non-Coincidental Demand

Average Power Factor - 230 KV System--95.4  
 Average Power Factor - 115 KV System--96.6  
 Average Power Factor - 66 KV System--97.6

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TRANSPORTATION DIVISION  
MONTHLY REPORT  
DECEMBER 1950

*[Redacted]*  
By Authority of *[Redacted]*  
*[Redacted]*  
VIEW *[Redacted]*  
Date: *[Redacted]*

GENERAL

Transportation Division personnel forces decreased by 27 non-exempt employees during the month from 628 to 601 by 4 new hires, 6 transfers in, 27 transfers out, 10 terminations, and 1 retirement. Force reduction resulted from a decline in project work performed by Operations forces, partial completion of handling excess materials for the Stores Division, and seasonal work.

RAILROAD ACTIVITIES

Commercial cars handled during December increased 14.1% over November with abnormally large volume coal receipts, increased shipments of outbound surplus and salvage materials, and inbound construction materials.

Process service was rendered on a normal level with all movements being completed as scheduled.

Cars handled in December including process movements totaled 3,242 compared with 2,838 in November, 2,476 in October, 1,843 in September, 1,615 in August, 1,162 in July, 2,180 in June, 3,154 in May, 3,132 in April, 2,978 in March, 1,443 in February and 1,223 in January.

The following recapitulation indicates the number of commercial cars handled:

Carload Movements - General Electric Company

<u>Loads In</u>	<u>Empties In</u>	<u>Loads Out</u>	<u>Empties Out</u>
1,235	17	24	1,196

Carload Movements - Subcontractors and Others

	<u>Loads In</u>	<u>Empties In</u>	<u>Loads Out</u>	<u>Empties Out</u>
Atkinson & Jones Co.	61	-	-	63
Baldwin & Dunham Co.	16	-	-	11
Dix Steel Co.	1	-	-	1
F. J. Early	12	-	-	11
Edmund P. Erwen Co.	1	-	-	1
Hagen & Wolfe Co.	5	-	-	5
J. P. Head Co.	2	-	-	-
Morrison-Knudsen Co.	-	8	9	-
S. S. Mullen Co.	1	-	-	1
Murray Construction Co.	1	-	-	1
Pioneer Insulation Co.	1	-	-	1
Richland Fuel & Lumber Co.	15	-	-	13
U.S. Army 519th Anti-Aircraft Btln	18	-	-	18
Waale Camplan Co.	8	-	-	8

*[Redacted]*

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Transportation Division

Completed overhaul of No. 2 engine on 80-ton Diesel electric locomotive 39-3726 which was returned to service on December 13 after being out of operation since November 9.

Railroad track maintenance and rehabilitation work continued on a normal basis throughout the five sections. Surfacing was in progress on the 200-East coal track, "A" line from Station 787 to Station 799, on the 100-H lead from Station 34 to Station 90, 100-D coal track, Section IV on the "A" and "B" lines, Union Pacific connection, between Mile Posts B-35 and B-36, and 1125 Warehouse track, requiring 2,422 man-hours. Replaced 221 switch ties in the Riverland Yards, 343 cross ties and 166 switch ties in 200-East and vicinity of 200-North, requiring 1,206 man-hours. Respaced and straightened ties skewed by running rails and relocated rail anchors on Section V requiring 448 man-hours. Loading and disposal of excess, salvage and scrap materials required 384 man-hours. Loading and distributing ties required 113 man-hours.

AUTOMOTIVE ACTIVITIES

The Area Bus System transported approximately 1% fewer passengers in December than in November. The following tabulation indicates the passenger volume by shifts and the revenue received:

No. 1 outbound and No. 3 inbound	26,198
No. 2 outbound and No. 1 inbound	53,498
No. 3 outbound and No. 2 inbound	52,276
Total	131,972
Revenue	\$ 6,598.60

The following is a comparative breakdown of average daily bus trips to the Plant Areas:

Passenger busses - 100-B	11
Passenger busses - 100-D	11
Passenger busses - 100-F	10
Passenger busses - 100-H	11
Passenger busses - Hanford	4
Passenger busses - 200-West	18
Passenger busses - 200-East	12
Passenger busses - 300 Area	7
Passenger busses - Riverland	3
Passenger busses - Pistol Range	16
Passenger busses - White Bluffs	2
Passenger busses - North Richland	3
700-300 Area Shuttle	26
Inter-Area Passenger Service	3
Inter-Area Express Service	1
Inter-Area Mail Service	1

Classification Cancelled or Changed to  
 By Authority of  
 TECHNICAL DOCUMENT BOARD  
 Date: 12-10-81

Effective December 6, Intra-Area Shuttle Bus Service was established for 105-DR personnel to and from the 100-D Area Badge House at shift change time.

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Transportation Division

Effective December 7, Shuttle Bus Service was established to the Redox Area from the 200-West Area Badge House.

The Village Bus System transported approximately 11% more passengers in December than in November which is a normal seasonal increase. Volume of service rendered is indicated in the following statistics:

Total passengers, including transfers	44,682
Total bus trips	3,550
Total bus miles	19,525
Total revenue	\$ 3,179.30

Off-Plant automobile trips (Company business and/or official visitors) totaled 183.

The following tabulation indicates the service rendered by the Drivers:  
Test Unit:

Applicants: Male	45	Number retested	0
Female	3	Number rejected	1
	<u>48</u>	Number tests given	48

Permits issued: Limited to driving with glasses	8
Unlimited	<u>39</u>
	47

Permits reissued: 22

The following tabulation indicates the volume of fuel distribution by the Equipment Maintenance Section:

	<u>Gasoline</u>	<u>Diesel Fuel</u>	<u>50 Cetane</u>	<u>Kerosene</u>	<u>White Gas</u>
Stock at start of month	44,188	13,850	5,635	4,235	192
Received during month	104,895	23,000	34,227	6,070	100
Total	149,083	36,850	39,862	10,305	292
Delivered to Areas	106,093	20,685	29,447	6,890	122
Stock at end of month	42,990	16,165	10,415	3,415	170

The following tabulation indicates the Plantwide usage of automotive equipment:

<u>Code</u>	<u>Type</u>	<u>No. of Units</u>	<u>Total Mileage</u>
1A	Sedans	320	528,763
1B	Busses	155	211,407
1C	Pickups	474	257,378
1D	Station Wagons	115	119,349
1E	Armored Cars	12	527
1G	Weapon Carriers	40	2,110
68 Series	Trucks	<u>320</u>	<u>102,777</u>

Classification Code: [REDACTED] 1,436 1,222,311

By [REDACTED] 46  
 NON-TECHNICAL DOCUMENT RE-  
 VIEW BO [REDACTED]

**DECLASSIFIED**

1222807

Transportation Division

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~~RESTRICTED~~

Serviced and assigned eight pickup trucks and two flatbed trucks to the Richland Post Office, three pickup trucks to the Pasco Post Office, two pickup trucks and one flatbed truck to the Kennewick Post Office for the holiday season.

Initiated a survey to determine construction equipment requirements at Hanford Works with a view toward releasing surplus equipment to other Atomic Energy Commission installations.

Three fire trucks previously transferred to the U.S. Army at the Pasco Base Depot were received completing the return of all equipment loaned to the U.S. Army.

Installed speed restrictor baffle plates in the carburetors of 59 sedans and pickup trucks during the month. Two Pontiac sedans, 46 Buick sedans, 95 Chevrolet sedans and panel trucks, 28 Ford pickup trucks, and one International pickup truck have been so equipped to date.

Ignition systems of automotive and other similar types of equipment are being treated with a weatherproof liquid to facilitate engine starting during cold and inclement weather.

Forty-seven vehicles having a clearance of nine feet or more have been marked by a sign on the dash indicating the exact height. This is a safety measure to aid operating personnel when traveling under marked overhead lines.

LABOR ACTIVITIES

The following tabulation indicates in gallons the volume of asphalt road material handled by the Services Section:

	<u>MC 1</u>	<u>MC 3</u>	<u>MC 4</u>	<u>MC 5</u>
Stock at start of month	0	1,521	0	0
Received during month	0	0	0	0
Dispensed during month	0	0	0	0
Stock at end of month	0	1,521	0	0

The following tabulation indicates the volume of materials handled by the Services Section and a breakdown by Plant Areas:

	<u>100</u> <u>B</u>	<u>100</u> <u>D</u>	<u>100</u> <u>F</u>	<u>100</u> <u>H</u>	<u>200</u> <u>W</u>	<u>200</u> <u>E</u>	<u>300</u>	<u>Total</u>
Cars coal unloaded	185	209	187	171	76	45	0	873
Cars other material	0	1	1.5	2.5	15	2	3	25
Cars loaded out	0	1	0	0	0	0	1	2

Classified by [REDACTED]  
 By [REDACTED]  
 OPERATIONS  
 NON-TECHNICAL DOCUMENT RE  
 NEW B  
 [REDACTED]

Transportation Division



Crushed and stockpiled 776 cubic yards of 5/8" crushed rock and 433 cubic yards of 1/4" minus crushed rock requiring 593 man-hours. Maintenance of Area roads required 695 man-hours. Unloading of 39 railroad cars at the Hanford Coal Dock and delivery of 413 tons of coal to the 101 Building required 270 man-hours.

Handling and hauling of miscellaneous materials for the Stores Division in the 700, 1100, 300 Areas and Pasco required 741 man-hours. Unloaded and warehoused 6 railroad cars of incoming material and loaded 12 truckloads of cutbound salvage for the Stores Division requiring 215 man-hours.

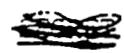
Handling of Area deliveries required 1,200 man-hours, Stores deliveries 293 man-hours, and moving office furniture 799 man-hours.

Handling of 14 carloads of equipment, 3 carloads of scrap metal, 20 carloads of coal, 2 carloads of poles, 53 truckloads of equipment, and 76 truckloads of material required 2,331 man-hours.

Routine Area maintenance was performed in all operating areas with labor and transportation equipment being furnished for Projects: P-172, P-192, P-276, P-289, P-291, P-300, P-337, P-341, P-346, P-347, P-349, P-354, P-355, P-366, P-369, P-378, P-388, P-399, M-723, M-730, M-757, M-802, and M-824.

~~Classification Controlled Document~~  
**RESTRICTED**  
 By Authority of ~~OPERATIONS~~ *86*  
 CASE, NON-TECHNICAL DOCUMENT RE-  
 VIEW BOARD. H. J. Newton, Chair.  
 Date: 12-18-57

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POWER DIVISION

DECEMBER 1950

GENERAL

Water treatment for the month was entirely satisfactory. Coagulant feeds averaged approximately 5.5 ppm for all areas, which is the lowest average feed rate for the month of December since start-up.

An operator in the 100-DR Area sustained a major injury on December 4, when he lost his balance while operating a twelve inch water valve in the 105 Pile Building valve pit, and fell eight feet to the floor, injuring his wrist.

PERSONNEL AND ORGANIZATION

Three Division organizational changes were made effective December first: The Chief Supervisor, formerly assigned to 100-DR field inspection work assumed the responsibility for Power operations in the 200, 300, and General Plant Areas; the Chief Supervisor, formerly assigned to the 200, 300, and General Plant Areas assumed responsibility for all the 100 Area Power operations; and the Assistant Chief Supervisor for 100-D was assigned responsibility for both the 100-D and 100-DR Area Power operations.

No. of Employees on Payroll - December

Beginning of month	565
End of month	<u>567</u>
Net Increase	2

The indicated net increase is the result of the transfer into the Division of seven employees, while five left the Division. Those leaving the Division included four terminations and one death.

100 AREAS

The No. 4 process water clearwell storage tank in 100-DR Area was taken out of service on December 4, and a search was made to locate the source of leakage. A crack in one of the outlet lines was found and repaired and the tank returned to service on December 18, after being cleaned and flushed. Shortly after placing this tank back in service, partial plugging of the Nos. 3 and 4 twenty-four inch screens in the 105 Pile Building valve pit was noted. The No. 4 clearwell tank, the No. 4 bank of process water pumps, and the No. 4 process water header were isolated on December 19, after which, the screen was removed and this system thoroughly flushed for an hour. The screen was then replaced and this system returned to normal service. On December 20, the No. 3 process water header was sectionalized and the No. 3 screen cleaned.

Power Division

An additional air compressor of 111.4 cfm. capacity, which had been excessed from 100-E Area, was placed in operation in the 190 Process Pump House in the 100-DR Area on December 8, to provide an adequate air supply.

On December 7, in the 100-3 Area, a leak occurred in the Fire and Sanitary water line supplying the 134 Power House. The leak was repaired and the line returned to service on December 8.

On December 15, in the 100-B Area, the area emergency electrical feeder was out of service from 3:20 p.m. until 3:30 p.m., and the normal power supply to the 164 Power House was out of service from 3:20 p.m. until 4:30 p.m., as a result of a truck striking a power pole.

In the 100-F Area. 135 Deaerator Building, deaerator tanks Nos. 3, 4, 5, 6, and 7 were successfully removed during the period December 6 through 29. This work was accomplished on the C-172 Deaerator Removal Project.

On December 28, in the 100-H Area, 190 Process Pump House, the upper limit for process water pressure was raised 20 psi at the request of the "P" Division.

200 AREAS

The Worthington air compressor in the 271-B Service Building in the 200 East Area was out of service for three hours on December 22, to permit the Electrical Division to make changes in the building emergency feeder line. A standby diesel air compressor was connected to the system during this outage.

In the 200 West Area, the 225 psi steam line to the 222-U Health Instrument Laboratory was out of service for six hours on December 2, while an orifice was installed in the line near Third Street. The meter installation was completed and put into service on December 22. This meter will determine the consumption of steam in the construction areas.

The circuit breakers on the switchboard in the 284 Power House in the 200 West Area were opened for three hours on December 4, and seven hours on December 7 to make the tie-in for the new emergency generator switchboard. Also, the emergency generator in the 284 Power House was out of service for three hours on December 18 while construction forces relocated the field rheostat, and again five hours on December 27 to make the permanent tie-in of this rheostat. All work was in connection with Project C-187-D.

Due to a sticking pilot valve on the main damper positioner, the static pressure in Zone 3-A of the 234-5 Facility fluctuated widely at 8:20 p.m. on December 27, although there were no reversals of air flow. The system was stabilized through manual operation until the sensitivity of the zone transmitter sensing tip could be

Power Division

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reduced. Repairs were completed on December 28.

In the 291-Z Stack Fan House, in the 200 West Area, the Johnson Service Company pilot valve on the throttling damper of the EM-4 exhaust fan was replaced with a Moore pilot valve on December 11. This new pilot valve was given a thorough test and apparently affords a much better overall control of the 234-5 Facility filter manifold pressure.

### 300 AREA

The main steam line was out of service from 3:00 p.m. to 4:00 p.m. on December 19 to replace a flange gasket on the main steam valve at the 384 Power House. Part of this system was again out of service from 9:00 p.m. until 9:45 p.m. to replace a valve.

The coal crusher has been out of service since December 27, in order to remove and repair badly worn bearings on the main shaft. It is expected that the crusher will be out of service until January 4, 1951.

### 101 SHOPS

The work on the preparation of the roof-mounted ventilation units for winter operation has been completed except for the installation of reverse flow dampers.

The coils on five of the ventilation units were frozen on December 3 because of faulty thermostatic controls. The ruptured coils and faulty controls have been replaced.

### POWER ENGINEERING SECTION

Preliminary design for expansion of the 283 Filter Plant in the 200 West Area has been approved by the Power Division. This expansion will include the addition of one Roberts filter similar to the existing equipment, two additional sedimentation basins, an addition to the clear well to provide double the original storage capacity and the installation of a flash mixer and mechanical flocculators. Provisions are included in the design for the installation of another additional filter for future use. Construction of the concrete tank for this filter will be completed with Project C-362. Drawings for a new ten-inch raw water line from the 282 Reservoir Pump House to the 283 Filter Plant have also been approved. Construction of this line is necessary for expansion of the filter plant.

Tentative plans for enlargement of the 384 Power House in the 300 Area have been approved by the Power Division. This plan proposes construction of two new boilers having continuous capacity rating of 30,000 pounds per hour each, one 750 KVA diesel driven emergency generator, additional air compressors, service water pumps and -- boiler auxiliary equipment as required to serve the new Hanford Laboratory Area. This work is in connection with Project C-394.



POWER DIVISION STATISTICS

From December 1, 1950

Through December 31, 1950

**DECLASSIFIED**

RIVER PUMP HOUSE (Building 181)		A R E A S				
		100-B	100-D	100-DR	100-F	100-H
River Elevation (msl ft.)	(max)	391.9	383.2		369.7	375.2
	(min)	386.2	378.8		365.4	370.9
	(avg)	388.6	380.5		367.0	371.9
River Temperature	avg. °F.	45.1	46.0		46.4	46.2
Water to Reservoir	gpm avg. rate	41,116	53,835		35,710	50,327
Water to 183-DR	gpm avg. rate		30,085			

RESERVOIR (Building 182)

Flow to Filter Plant	gpm avg. rate	35,263	45,023		32,020	45,572
Flow to Cond. System	gpm avg. rate	3,943	3,362		3,206	4,149
Flow to Cond. System (DR)	gpm avg. rate		3,585			
Flow to Export System	gpm avg. rate	1,910	1,915		484	606
Flow to Export System	gpm nor. rate	4,915	4,915		4,915	4,915
Chlorine, Added (#1 Inlet) Pounds		7,850	11,080		8,000	6,700

FILTERED WATER (Building 183)

Flow to Power House	gpm avg. rate	277	521		256	235
Flow to Process (190)	gpm avg. rate	32,351	31,580	37,200	28,496	37,957
Flow to DR	gpm avg. rate		8,174			
Flow to Fire & Sanitary	gpm avg. rate	176	199		224	104

WATER TREATMENT (Building 183)

Chlorine - Consumed	pounds	4,750	4,050	9,600	4,000	4,300
	ppm avg.	.87	.79	.86	.94	.62
Line - Consumed	pounds	12,900	32,900	23,400	26,000	32,000
	ppm avg.	1.0	2.0	2.1	2.2	1.9
Coag - Consumed	pounds	66,300	101,900	57,400	73,340	85,000
	ppm avg.	5.0	6.1	5.1	6.1	5.0
Raw Water pH	pH	8.09	7.95	8.10	8.00	8.00
Finished Water pH	pH	7.69	7.72	7.66	7.65	7.77
Alkalinity, M.O. - Raw	ppm avg.	59	60	57	59	60
Finished	ppm avg.	57	56	55	59	62
Residual Chl. - Settled	ppm avg.	.19	.16	No Anal.	.17	.19
Finished	ppm avg.	.12	.09	.18	.10	.16
Iron - Raw	ppm avg.	.07	.08	.08	.08	.07
North Clearwell	ppm avg.	.012	.018	.011	.011	.015
South Clearwell	ppm avg.	.015	.017	.013	.014	.017
Hardness - Finished	ppm avg.	69	66	70	70	74
Turbidity - Raw	ppm avg.	3	4	4	4	4
Filtered	ppm avg.	0	0	0	0	0

Power Division Statistics

From December 1, 1950  
Through December 31, 1950

		<u>100-B</u>	<u>100-D</u>	<u>100-DR</u>	<u>100-F</u>	<u>100-H</u>
<u>POWER HOUSE (Building 184)</u>						
Maximum Steam Generated	lbs./hr.	160,000	306,000		154,000	139,000
Total Steam Generated	M lbs.	104,897	193,589		95,469	85,499
Steam Load - Avg. Rate	lbs/hr.	140,990	260,200		128,319	114,918
225 psi Steam to Plant(est)	M lbs.	87,981	163,191		79,986	71,531
15 psi Steam to Plant(est)	M lbs.	972	972		972	972
Coal Consumed	Tons	6,937	11,465		6,541	5,895
Coal in Storage (est)	Tons	43,672	44,982		40,596	42,498

<u>TANKS (190 Building)</u>						
Flow to 190	gpm avg.rate	32,101	31,330	37,200	28,246	37,707
Dichromate-Consumed	pounds	20,600	23,000	27,500	22,200	25,000
Chemical Analysis:						
pH	pH Avg.	7.64	7.67	7.66	7.64	7.67
Dichromate	ppm avg.	1.8	1.9	1.9	1.8	1.9

<u>PROCESS PUMP ROOM (Building 190)</u>						
Flow to 105	gpm avg.rate	31,926	31,155	36,700	28,071	37,532
	gpm nor.rate	33,431	33,211	36,700	30,300	40,400
Water Temperature	Avg. °F.	48.0	48.2	47.7	47.3	47.3

<u>VALVE PIT (Building 105)</u>						
Solids Consumed	pounds	2,600	2,000	0	2,500	2,000
Chemical Analysis:						
A, B, C, & D Headers						
Standard limits						
pH	7.5 - 7.8 pH	(max) 7.70	7.70	7.70	7.70	7.70
		(min) 7.60	7.65	7.65	7.60	7.60
		(avg) 7.64	7.65	7.67	7.65	7.60
Na <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub>	1.8 - 2.2 ppm	(max) 1.9	1.9	2.1	2.0	2.0
		(min) 1.7	1.8	1.7	1.8	1.7
		(avg) 1.8	1.8	1.9	1.9	1.8
Iron	ppm	(max) .020	.015	.020	.025	.061
		(min) .010	.010	.010	.010	.010
		(avg) .011	.012	.012	.015	.015
Chlorides	ppm	(avg) 1.2	1.1	1.1	1.2	1.2

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Power Division Statistics

From December 1, 1950  
Through December 31, 1950

200 Areas

<u>RESERVOIR (Building 282)</u>		<u>200-E</u>	<u>200-W</u>
Raw Water Pumped	gpm avg. rate	2,375	2,540

FILTER PLANT (Building 263)

Filtered Water Pumped	gpm avg. rate	315	776
Chlorine Consumed	lb.	111	193
Alum Consumed	lb.	856	2,138
Chlorine Residual - Sanitary Water ppm		.50	.40

POWER HOUSE (Building 284)

Maximum Steam Generated	lb./hr.	41,700	125,000
Steam Generated - Total	M lb.	26,589	69,710
Steam Generated - Ave. Rate	lb./hr.	35,737	93,696
Coal Consumed (Est.)	Tons	1,889	4,074
Coal in Storage (Est.)	Tons	10,738	22,095

300 Area

POWER HOUSE (Building 384)

Maximum Steam Generated	lb./hr.	25,000
Steam Generated - Total	M lb.	16,487
Steam Generated - Avg. Rate	lb./hr.	22,160
Coal Consumed - Total (Est.)	Tons	1,037
Coal in Storage (Est.)	Tons	1,882

SANITARY AND PIPE SYSTEM (300 AREA)

Sanitary Water from 3000 Area	gal.	23,837,760
Well Water Pumped - Total	gal.	0
Total Water Per Day	gal/day	768,960
Total Water	gpm avg. rate	534
Chlorine Residual	ppm	.50

MISCELLANEOUS AREAS

WHITE BLUFFS

Ice Manufactured	lb.	0
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101 SHOPS

Coal Consumed	Tons	457
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# PROJECT ENGINEERING DIVISIONS MID-MONTHLY STATUS REPORT 100 AREA PROJECTS

DATE: DECEMBER 12, 19 50

(\$100,000) HIGH SPOT ESTIMATE ONLY  
 [ ] WORK PROGRESS DURING PERIOD  
 [ ] WORK PREVIOUSLY DONE

ENG. REQ. NO.	DATE RECEIVED	BLOC OR AREA	DESCRIPTION OF WORK	SPONSORING DIVISION	PROJECT NO.	ESTIMATED COST	ENGINEERING STATUS PER CENT COMPLETE	PROJECT DATE	APPROPRIATION REQUEST DATE	APPROVED A & B COMMITTEE	ROUTED TO GOVERNMENT	DIRECTIVE DATE	AUTHORIZATION RECEIVED	WORK RELEASE	FIELD WORK PER CENT COMPLETE	REMARKS
A1034 5-29	1050	108	REPAIRS TO EQUIPMENT IN THE DEMONSTRATING AND DEGRADING PLANTS	POWER	C-172	360,000	100	7-11-47		7-11	3-31-46	4-4	4-7	100	SUBTRACT WORK PROGRESSING. SKETCH & ESTIMATE IN PROGRESS FOR PART III	
A532 1-7	108	108	BIOLOGICAL LABORATORY, PARTS I AND II	M.I. TECH.	C-192	1,121,000	100	3-31-49	4-1	4-1	3-29	4-3	4-6	100	WORK PROGRESSING	
A106 6-14	1050	108	NEUTRON SPECTROMETER	P	C-290	17,400	100	9-5-48	9-9	9-14	10-4	10-11	10-11	100	FURTHER WORK AWAITING SHUTDOWN. REVISED PROJECT BEING REVIEWED BY P-DIV. WORK BUDGETED FOR 1951. PROJECT PART III WILL BE SUBMITTED TO A & B IN JAN.	
A1060 7-29	1008	108	INCREASED SHIELDING - FRONT RIZZLE CAPS	P	C-306	88,000	100	10-6-48	10-11	11-10	11-30	12-2	5-17-50	100	PROJECT REACTIVATED. INSTALLATION BEING SCHED. FOR 10% CAPTURE EXTENDED SHUTDOWN IN JAN.	
A1057 4-20	1050	108	EFFLUENT DIVERSITY OUTLET (105-107 B & F)	P	C-321	138,000	100	5-23-49	5-20	6-1	10-15-50	10-16	10-16	100	WORK DELAYED IN 100B	
A1093 3-17	108	108	P-11 PROJECT	PILE TECH.	C-340	328,000	100	8-1-49	8-16	8-17	10-31	11-3	11-25-50	100	AWAITING FINAL INSPECTION	
A1097 4-27	101	108	FACILITIES FOR EXPERIMENTAL EXPERIENCES	P	C-346	391,000	100	8-15-49	8-15	10-12	12-28	1-4-50	1-12	100	UNIT PLACED IN OPERATION	
A1100 5-27	1050	108	RIZZLE GALVANIZING AND REPLACEMENT	P	C-347	775,000	100	9-26-49	9-26	12-13	12-14	11-18-50	1-19	1-8	WORK PROGRESSING IN EXERCISES. PROJECT TO BE CLOSED IN DEC.	
A1110 7-21	1050	108	PILE CLEANANCE - INNER AND MIDDLE WALLS 10500F	P	C-355	40,600	100	3-1-50	3-21	3-22	4-24	5-1	5-23	100	WORK PROGRESSING	
A1129 2-2	1088	108	P-10-B (COLD FACILITIES)	PILE TECH.	C-368	95,000	100	3-31-50	3-31	4-11	10-12	10-17	10-24	100	DESIGNS PROGRESSING	
A1125 11-23	1050	108	P-13 - FIRST HANDED PILOT CHANNEL TEST RIG (ENL 4150)	PILE TECH.	C-379	130,000	100	4-12-50	4-13	4-20	5-29	6-1	6-9	100	G.E. & C.L. FABRICATING FURNACE TUBE, WORK BEING SCHEDULED. DETAILED DESIGN & MATERIAL ORDERING IN PROGRESS	
A1130 2-3	1080	108	P-10-A EXPANSION	P	C-383	300,000	100	7-13-50	7-14	7-14	10-19	10-25	7-0	100	PROJECT REQUIT FOR APPROVAL	
A1141 6-25	1080	108	P-10-X PRODUCTION PLANT (ONLY SCOOPING WORK AUTHORIZED)	P	C-388	100,000	100	8-7-50	8-17	8-30	9-29	9-28	10-18	100	BACK-UP OLD MANUFACTURE DELAYED FOR MULTIPLE WORK	
A1135 3-13	1088	108	REPAIRS TO EQUIPMENT FROM BLDG. 108-D	P	C-396	109,000	100	10-17-50	10-17	10-30	11-13	11-17	12-7	100	WORK PROGRESSING	
A1142 6-20	1050	108	P-10-B (COLD FACILITIES)	PILE TECH.	C-392	1,216,500	100	11-22-50	11-22	11-22	12-5	12-7	100	DESIGN INITIATED		
A1141 6-25	108	108	P-10-X EXHAUSTION FACILITIES (ENGINE. AUTHORIZED & PROCUREMENT OF CRITICAL ITEMS)	P	C-411	615,000	100	11-20-50	11-20	11-21	11-24	11-24	12-6	100	PROJECT BEING PREPARED	
A1141 6-25	1080	108	P-10-X EXHAUSTION FACILITIES (ENGINE. AUTHORIZED & PROCUREMENT OF CRITICAL ITEMS)	P	C-412	13,500,000	100	11-3-50	11-3	5-27	7-19	7-22	9-26	100	TEMPORARY REPAIRS SCHEDULED TO START DEC. 18	
A1138 2-4	1080	108	CL2 BULK HANDLING FACILITIES	P	C-420	39,300	100	5-18-49	5-18	5-27	10-12	10-25	10-27	100	AWAITING INFORMATION FROM TECH. DIVISION	
A1068 10-29	105	108	DEVELOPMENT OF FLEXIBLE VERTICAL SAFETY ROOS	P	M-713	18,500	100	9-15-49	9-15	10-12	10-25	10-25	10-27	100	LEAKAGE STUDIES CONTINUING	
A1104 6-7	1078	108	REPAIRS TO 107 BASIN (IMMEDIATE PROGRAM ONLY)	P	M-723	18,100	100	3-20-50	3-20	4-28	5-23	5-23	8-7	100	DESIGN IN PROGRESS	
A1116 9-30	1118	108	HEALTH MONITORING AND STORAGE FACILITIES	PILE TECH.	M-759	16,100	100	11-3-50	11-3	5-27	7-19	7-22	9-26	100	MEET UP FOR HIGH PRIORITY WORK	
A1150 11-10	101	108	GRAPHITE LABORATORY	PILE TECH.	M-773	3,000	100	5-18-49	5-18	5-27	10-12	10-25	10-27	100	WORK PROGRESSING	
A1149 12-13	107	108	EMERGENCY REPAIRS TO 107-DK AND 107-N RETENTION BASINS	PILE TECH.	M-824	29,000	100	9-15-49	9-15	10-12	10-25	10-25	10-27	100	PROJECT BEING PREPARED	
A275 2-1	1050	108	PILE TECHNOLOGY STORAGE & TEST BUILDING	PILE TECH.		(95,000)	100	3-20-50	3-20	4-28	5-23	5-23	8-7	100	AWAITING INFORMATION FROM TECH. DIVISION	
A268 7-31	1050	108	MCT MAINTENANCE MACHINE SHOP	MAINT.		41,000	100	5-18-49	5-18	5-27	10-12	10-25	10-27	100	INTERFERENCE DIVISION HAS REQUESTED THE ALTERATIONS	
A1059 6-29	1008	108	INSTALL STEEL PROCESS SENSER 1050 - 107B	P		(550,000)	100	9-15-49	9-15	10-12	10-25	10-25	10-27	100	LEAKAGE STUDIES CONTINUING	
A1086 2-4	10080	108	HIGH TANK CONTROL VALVES	P		40,000	100	3-20-50	3-20	4-28	5-23	5-23	8-7	100	DESIGN IN PROGRESS	
A1118 10-15	1050	108	DRAWER REPLACEMENT	P		(100,000)	100	5-18-49	5-18	5-27	10-12	10-25	10-27	100	MEET UP FOR HIGH PRIORITY WORK	
A1119 10-17	300	108	COAL PETERING FACILITIES	POWER		31,400	100	9-15-49	9-15	10-12	10-25	10-25	10-27	100	TEMPORARILY HELD IN ABRAYANCE	
A1122 11-9	100	108	DEVELOPMENT OF FLEXIBLE INSTRUMENTAL CONTROL SLOTS	P		(50,000)	100	3-20-50	3-20	4-28	5-23	5-23	8-7	100	DESIGN IN PROGRESS. RUGH DRAFT OF PROJECT BEING REVIEWED	
A1151 11-24	1050	108	CONTROLLED TEMPERATURE TEST FACILITIES	PILE TECH.		(200,000)	100	5-18-49	5-18	5-27	10-12	10-25	10-27	100	SCHEDULE BEING DETERMINED	

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# PROJECT ENGINEERING DIVISIONS MID-MONTHLY STATUS REPORT 200 AREA PROJECTS

(\$1000,000) HIGH SPOT ESTIMATE ONLY  
 WORK PROGRESS DURING PERIOD  
 WORK PREVIOUSLY DONE

DATE DECEMBER 15, 19 50

ENG. REQ. NO.	DATE RECEIVED	BLDG. OR AREA	DESCRIPTION OF WORK	SPONSORING DIVISION	PROJECT NO.	ESTIMATED COST	ENGINEERING STATUS PER CENT COMPLETE	PROJECT DATE	APPROVAL REQUEST DATE	APPROVED A & B COMMITTEE	ROUTED TO GOVERNMENT	DIRECTIVE DATE	AUTHORIZATION RECEIVED	WORK RELEASE	FIELD WORK PER CENT COMPLETE	REMARKS
2159	12-30	200	UNDERGROUND GEOLOGICAL & HYDROLOGICAL INVESTIGATION PROGRAM INCLUDING TEST WELLS & OTHER FACILITIES	H. I.	C-326 REV. 2	36,800	██████████	5-25-50	6-13	6-14	11-2	11-10	ADD. 2	██████████	DESIGN COMPLETE; FIELD TO FABRICATE LIFTING DEVICE	
2160	12-23	221TB	EQUIPMENT FOR DISSOLVER OFF-GAS FILTRATION PART II	S	C-331 REV.	158,000	██████████	12-14-49	12-20	12-23	1-30-50	2-9	2-16	██████████	WORK PROGRESSING	
2146	7-19	200E	HOT SEMIWORKS COMPLETE PLANS & SPECS. PARTS I & II	SEP. TECH.	C-349	150,000	██████████	2-1-50	2-8	2-15	3-9	3-16	3-24	██████████	DESIGN COMPLETE	
2146	7-19	200E	HOT SEMIWORKS PART III	SEP. TECH.	C-349	2,582,000	██████████	5-31-50	6-13	6-14	9-19	9-26	ADD. 4	██████████	PREP. OF SITE IN PROGRESS BID OPENING SCHEDULED JAN. 1951	
2113	8-30	234-5	AUXILIARY INCO. ENCLOSURE FOR PART I, BLDG. 234	S	C-366	49,000	██████████	2-20-50	3-6	3-22	4-11	4-14	4-26	██████████	FABRICATION OF ENCLOSURE BEING PERFORMED BY OUTSIDE VENDOR	
2191	5-13	200W	EVAPORATION FACILITIES FOR WASTE SOLUTIONS (200W) (CODE)	S	C-369	489,000	██████████	6-23-50	6-23	7-12	8-18	8-24	9-1	██████████	WORK PROGRESSING	
2190	5-13	221TB	REARRANGEMENT OF F CELL EQPT. BLDGS. 224 T & B	S	C-378	149,000	██████████	3-9-50	3-9	4-12	5-9	5-12	5-23	██████████	WORK PROGRESSING	
201	9-2	221TB	ADDITIONAL UNIT TO SUPPLEMENT THE OPERATION OF HEAD #25, BLDG. 235	S	C-384	30,000	██████████	4-12-50	4-12	5-10	6-9	6-15	6-20	██████████	AWAITING CONSTRUCTION COMPLETION NOTICE	
210	5-11	231-5	PARALLEL OPERATION, SECTIONS 19 & 20, BLDGS. 221 T & B	S	C-392	25,500	██████████	6-1-50	6-1	6-17	7-14	7-19	7-25	██████████	WORK PROGRESSING	
201	9-2	221TB	CONDUCTIVITY METERS FOR CELL DRAINS, BLDGS. 221 T & B	S	C-395	91,165	██████████	6-26-50	6-26	7-20	8-4	8-8	8-15	██████████	AWAITING CONSTRUCTION COMPLETION NOTICE	
211	6-2	221TB	EXPERIMENTAL COATING HOOD, BLDG. 231, 200W AREA	SEP. TECH.	C-397	21,700	██████████	7-12-50	7-12	8-9	8-10	8-28	8-31	9-5	██████████	WORK PROGRESSING
212	6-1	231	SETTLING TANKS FOR SECTION 5 WASTES, BLDGS. 221-B AND T	S	C-398	53,000	██████████	8-8-50	8-8	8-9	9-12	9-14	10-5	██████████	UNIT TO BE REVISED FOR NEW LOCATION	
214	7-28	221TB	OFFICE AND STORAGE ANNEX TO BLDG. 222U	S	C-415	35,000	██████████	10-23-50	11-28	11-28	12-11	12-14	██████████	██████████	PROJECT AUTHORIZED	
224	12-23	222U	INSTALLATION OF LABORATORY FURNITURE IN BLDGS. 271 T & B	H. I. TECH. SERV.	M-755	9,700	██████████	10-26-49	10-26	11-25	12-7	12-7	2-21-50	██████████	AWAITING CONSTRUCTION COMPLETION NOTICE	
204	7-22	271TB	LOADING FACILITIES FOR RECYCLED MATERIAL, BLDG. 234	S	M-766	13,600	██████████	4-25-50	5-9	5-10	5-31	6-2	6-14	██████████	PROJECT COMPLETED 10-13-50	
220	1-16	234-5	CONSOLIDATED MAINTENANCE SHOPS, 200W ENTIRE COST MAINT.	S	M-802	19,000	██████████	4-24-50	5-2	5-10	6-5	6-5	7-14	██████████	WORK STOPPED PENDING SUBMISSION OF PROJECT PROPOSAL	
270	3-15	200W	ANIMAL EXPOSURE CHAMBER	H. I.	M-813	(310,000)	██████████	9-12-50	9-12	9-12	10-19	10-20	11-13	██████████	DESIGN WORK PROGRESSING	
271	4-7	200W	DUCT LEVEL FLOOR COVERING AND SAFETY SHOWERS	S		(45,000)	██████████							██████████	WORK PROGRESSING	
203	7-22	234-5	PROJECT FOR COATING UNIT HEAD #26	S		(150,000)	██████████							██████████	DESIGNS FURNISHED BY S-DIVISION	
217	8-15	235	PROJECT FOR SKULL RECOVERY FACILITIES	S		(25,000)	██████████							██████████	DESIGN IN PROGRESS	
222	10-25	234	PROJECT FOR EVAPORATION FACILITIES, 200 EAST AREA	S		44,300	██████████							██████████	PROJECT PROPOSAL RECEIVED FOR APPROVAL	
254	11-3	241D		S		(500,000)	██████████							██████████	PROJECT PROPOSAL IN PREPARATION	

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# PROJECT ENGINEERING DIVISIONS MID-MONT / STATUS REPORT 300 AREA PROJECTS

(\$000) HIGH SPOT ESTIMATE ONLY  
 [ ] WORK PROGRESS DURING PERIOD  
 [█] WORK PREVIOUSLY DONE

DATE ILLUSTRATED 19 50

ENG. REQ. NO.	BLDG. OR AREA	DESCRIPTION OF WORK	SPONSORING DIVISION	PROJECT NO.	ESTIMATED COST	ENGINEERING STATUS PER CENT COMPLETE	PROJECT DATE	APPROVAL REQUEST DATE	APPROVED A & B COMMITTEE	ROUTED TO GOVERNMENT	DIRECTIVE DATE	AUTHORIZATION RECEIVED	WORK RELEASE	FIELD WORK PER CENT COMPLETE	REMARKS
3061	313-314	IMPROVED VENTILATION - BLDGS. 313-314	P	C-330	200,000	[█]	12-8-49	12-8	12-28	12-18	11-10-49	11-17	12-13	100	INVESTIGATIONAL WORK ON BAG FILTER TERMINATED PROJECT TERMINATED REPORT TO BE SUBMITTED APRIL 1
3062	314	ENGINEERING DESIGN FOR ROLLING MILL	P	C-339	60,000	[█]	5-23-49	5-23	5-27	6-1	12-13	12-23	12-23	100	FINAL INSPECTION IN PROGRESS
3063	300	ADDITION TO BLDG. 3745	H.I.	C-354	20,300	[█]	11-8-49	11-8	12-1	12-1	12-19	12-23	11-25	100	SUBCONTRACT WORK PROGRESSING
3064	300	NEW INSTRUMENT MAINTENANCE & DEVELOPMENT BLDG. 3717-B	INST.	REV 1	154,000	[█]	4-26-50	3-25	4-28	5-10	6-6	6-8	6-19	100	WORK BEING SCHEDULED
3065	300	PRIMARY ELECTRIC POWER LINES FOR HANFORD WORKS LABORATORY	ELECT.	C-404	39,000	[█]	8-24-50	8-24	9-12	9-12	10-11	10-26	12-12	100	SPECIFICATIONS IN RUGH DRAFT
3066	RIVER	RIVERLAND ELEVATED WATER TANK	TRAN.	C-409	46,000	[█]	10-2-50	10-2	10-30	10-31	11-28	12-4		100	
3067	3701	300 AREA BARGE HOUSE ADDITION	SERV.		14,500	[█]	12-14-48	12-10	12-14	12-31	1-3	1-6		100	FINAL REQUEST BEING CANCELLED
3068	3701	URANIUM DETECTORS, 300 AREA BARGE HOUSE	SERV.		19,400	[█]	9-8-50	9-8						100	FINAL REQUEST AWAITING APPROVAL
3069	300	SULFUR STORAGE FACILITIES - BLDG. 3706	TECH. SERV.		(60,000)	[█]								100	AWAITING INFORMATION FROM TECHNICAL DIVISION
3070	300	MFG. DIVISION ADMINISTRATION BLDG.	ALL		140,000	[█]								100	AWAITING INFORMATION FOR BUILD REQUIREMENTS
3071	300	SOLVENT STUDIES BLDG.	SEP. TECH.		(25,000)	[█]								100	PRELIMINARY DESIGNS STARTED
3072	300	METAL FABRICATION BLDG. 3730 (ADDITION)	PILE TECH.		(200,000)	[█]								100	PRELIMINARY DESIGNS STARTED
3073	300	EXPERIMENTAL PRODUCTION HEATING FACILITIES BLDG. 3732	PILE TECH.		52,800	[█]	11-28-50							100	PROJECT AWAITING APPROVALS
3074	313	SEGREGATION OF FLUORIDE SLUDGE	P		(40,000)	[█]								100	DESIGNS BEING FORWARDED FURTHER
3075	305	305 BLDG. MODIFICATION AND TEST BLOCK	PILE TECH.		150,000	[█]								100	DESIGNS ON WORK TO BE DONE
															DESIGN PROGRESSING

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COMBINED TOTAL OF AUTHORIZED AND FORFEITED 300 AREA WORK \$1,221,000

# PROJECT ENGINEERING DIVISIONS MID-MONTHLY STATUS REPORT GENERAL PLANT PROJECTS

(\$100,000) HIGH SPOT ESTIMATE ONLY  
 [ ] WORK PROGRESS DURING PERIOD  
 [█] WORK PREVIOUSLY DONE

DATE DECEMBER 15, 19 50

ENG. REQ. NO.	DATE RECEIVED	BLDG. OR AREA	DESCRIPTION OF WORK	SPONSORING DIVISION	PROJECT NO.	ESTIMATED COST	ENGINEERING STATUS PERCENT COMPLETE	PROJECT DATE	APPROVAL REQUEST DATE	APPROVED BY COMMITTEE	ROUTED TO GOVERNMENT	DIRECTIVE DATE	AUTHORIZATION RECEIVED	WORK RELEASE	REMARKS
262	7-10	ALL	115 KV POWER LINE TO RICHLAND PLUS SUBSTATION FACILITIES	ELECT C-177	1,483,000	██████████	7-17-47	-	-	-	7-21	8-14	8-16	8-29	PROJECT COMPLETED 10-31-50
452	2-17	ALL	INSTALLATION OF OVERALL PLANT TELEPHONE FACILITIES	ELECT C-276	1,548,600	██████████	9-8-48	7-13	9-8	9-9	10-3	10-6	10-6	██████████	WORK PROGRESSING
290	6-28	ALL	INSTALLATION OF NEW SECURITY FENCES - ALL AREAS	SERV. C-291	424,000	██████████	8-31-48	9-9	9-9	9-15	10-7	10-25	11-2	██████████	COMPLETION DATE REV. TO 2-1-51
2480	3-15	ALL	H. I. OPERATIONAL DIVISION SURVEY INSTRUMENTS	H. I. C-333	85,000	██████████	3-30-49	4-1	4-1	4-1	10-3	10-4	10-10	██████████	WORK PROGRESSING
4406	5-16	1100	ADDITIONS TO RICHLAND ELECTRICAL DISTRIBUTION SYSTEM	ELECT C-344-R	155,000	██████████	5-29-49	5-29	6-6	6-16	8-24	8-30	11-20	██████████	COMPLETION DATE REV. TO 7-1-51
4543	7-14	HANF.	ARSENAL BLDG., FIRE PROTECTION & SANITARY FACILITIES PATROL PISTOL RANGE	SERV. C-360	(54,000)	██████████	3-2-50	2-25	3-9	3-10	4-3	4-5	4-12	██████████	WORK PROGRESSING
5442	7-8	200	ADDITION TO METEOROLOGY BLDG. 622	H. I. C-365	23,100	██████████	3-25-50	3-25	4-11	4-12	5-9	5-11	5-23	██████████	DESIGN BEING RE-ESTIMATED
5563	12-22	ALL	METEOROLOGICAL FIELD STATIONS	H. I. C-371	30,800	██████████	6-15-50	6-15	6-26	6-27	10-11	10-16	10-18	██████████	NEW PROPOSAL TO BE SUBMITTED
4435	2-10	1100	ELECTRICITY METERING - COMMUNITY OF RICHLAND	ELECT C-380-R	331,000	██████████	5-6-50	5-6	6-13	6-14	6-22	6-27	7-3	██████████	WORK MEASURING COMPLETION
568	2-27	ALL	1950 AREA ROAD MAINTENANCE PROGRAM	TRAN. C-389	94,000	██████████	8-21-50	8-21	10-30	11-2	12-11	12-14	██████████	INST. OUT FOR PURCHASE	
426	11-11	ALL	SALVAGE AND RECOVERY OF TELEPHONE CABLE AND EXCHANGE EQUIPMENT (WRITE PROJECT)	ELECT C-402-R	33,000	██████████	8-19-50	8-19	10-2	10-3	10-20	10-25	11-7	██████████	WORK BEING SCHEDULED
527	11-11	ALL	NEW FENCES FOR DISTRIBUTION AND 230 KV SUBSTATIONS (PART 1)	ELECT C-403	40,000	██████████	7-11-50	7-11	7-11	7-11	8-1	8-10	8-10	██████████	PROJECT COMPLETED 9-30-50
562	11-1	3000	CENTRAL STORES WAREHOUSE IN 3000 AREA	M-770	17,000	██████████	9-22-50	9-22	9-26	9-27	10-6	10-13	10-18	██████████	WORK TO BE SCHEDULED
555	1-16	1100	PRELIM. ENGRG. EST. ENTIRE COST	STORES C-390	(7,800,000)	██████████	6-13-50	6-13	6-13	6-14	7-11	7-11	8-14	██████████	SPECS., DWGS., CHIP. FOR BID PURP. PART 1 TO BE SUBMITTED ON 7-1-52
558	11-11	500	ENGRG. DESIGN EST. ENTIRE COST	M-771	14,000	██████████	8-8-50	8-8	8-8	8-8	8-16	8-16	8-28	██████████	DESIGN SCOPING IN PROGRESS
180R	5-25	3000	TRANSFORMER & CIRCUIT BREAKER OIL REPROCESSING FACILITIES	H. I.	(216,000)	██████████	7-11-50	7-11	7-11	7-11	8-1	8-10	8-10	██████████	DESIGN IN PROGRESS
180R	5-25	3000	CONSOLIDATION OF TRANSPORTATION FACILITIES	ELECT M-805	13,300	██████████	6-13-50	6-13	6-13	6-14	7-11	7-11	8-14	██████████	VENDOR'S DRAWINGS BEING APPROVED
180R	5-25	3000	PRELIM. ENGRG. EST. ENTIRE COST	M-811	19,000	██████████	8-8-50	8-8	8-8	8-8	8-16	8-16	8-28	██████████	DESIGN SCOPING IN PROGRESS
180R	5-25	3000	EST. ENTIRE COST	C-288-R	(2,700,000)	██████████									
180R	11-11	1100	RELOCATION OF RICHLAND LINE CREW HEADQUARTERS	ELECT	(30,000)	██████████									
180R	10-25	ALL	PORTABLE METEOROLOGICAL MAST	H. I.	(90,000)	██████████									

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COMBINED TOTAL OF AUTHORIZED AND PENDING GENERAL PLANT AREA WORK



1222820

PROJECT ENGINEERIN DIVISIONS  
MID-MONTHLY STATUS REPORT  
WORK RELEASED  
(BY INFORMAL AUTHORIZATIONS, MISCELLANEOUS WORK ORDERS, ETC.)

DATE DECEMBER 12, 19 50

R. NO.	DATE REC'D.	BLDG. OR AREA	DESCRIPTION OF WORK	SPONS. DIV.	PROJECT M, OR W.O. NO.	ESTIMATED COST	WORK RELEASE ISSUED	FORCES PERFORMING WORK	REMARKS
	5-1-50	251	DISPATCHING BOARD - 251 SUBSTATION	ELECT.	M-720	6,000	5-12-50	ELECTRICAL DIVISION	
	1-12-50	1113	METERING RICHLAND SCHOOLS	ELECT.	M-730	4,500	ADD #3 10-23-50	ELECTRICAL DIVISION	
539	4-13-50	234-5	REVISED SANITARY WATER SYSTEM - BLDG. 234-5	S	M-738	13,000	ADD #2 11-28-50	MAINTENANCE DIVISION	
502	3-17-50	234-5	AUXILIARY VENTILATION FOR DRY BOX HCOODS, BLDG. 234-5	S	M-739	13,500	6-2-50	MAINTENANCE DIVISION	
	6-16-50	186-D	REMOVAL OF EQUIPMENT FROM 186-D CLEAR WELL	MFG.	M-749	19,800	6-16-50	MAINTENANCE DIVISION	
381	4-13-50	222-TB	ACID DISPENSING SYSTEM FOR BLDGS. 222-T & B	TECH. SERV.	M-757	9,000	5-17-50	MAINTENANCE DIVISION	
	12-12-50	222-TB	IMPROVED DECONTAMINATION FACILITIES - BLDGS. 222-T & B	TECH. SERV.	M-772	10,000	12-14-50 ADD #1	MAINTENANCE DIVISION	
	6-8-50	234-5	INSTALLATION OF LIRA GAS DETECTOR	S	M-801	11,800	7-10-50	INSTRUMENT DIVISION	
	7-20-50	313	SLUG CANNING - TRANSFORMATION TIMING EQUIPMENT, 313 BLDG.	P	M-806	2,931	7-24-50	INSTRUMENT DIVISION - INSTR. DIV.	
	8-9-50	1118	TELEPHONE FEEDERS FOR MADLEC HOSPITAL	ELECT.	M-807	2,508	8-15-50	ELECTRICAL DIVISION	
530	8-9-50	234-5	REPLACEMENT FILTERS FOR 26" VACUUM SYSTEM, 234-5 BLDG.	S	M-808	2,180	8-15-50	ENGRG. & DESIGN - DESIGN DIV	
	8-18-50	105-H	CONTROL MECHANISMS, 105-H PILE	P	M-810	3,200	8-22-50	MAINTENANCE DIVISION	
	9-28-50	105-OR	FACILITIES FOR DR PILE MOTION MEASUREMENTS	P	M-812	4,500	9-29-50	ENGRG. & DESIGN - DESIGN DIV	STOP CHARGE NOTICE ISSUED 12-14-50
NE	11-14-50	317	REPLACEMENT OF THREE TEN-INCH SOUTH BEND LATHES	INSTR.	M-820	4,855	11-21-50	P. U. & M DIVISIONS	
NE	12-12-50	-	CHLORINE CYLINDERS	POWER	M-821	3,000			
449	11-14-50	100-D, H 200-W	WATER LINE & ELECTRIC SERVICE EXTENSIONS FOR THE ARMY AREAS 100-D, 100-H & 200-W	A. E. C.	M-822	25,000	12-12-50	ELECT. DIVISION AND CFT. SUBCONTRACTOR	WATER SERVICE DESIGN COMPLETED
NE	12-12-50	105-F	THERMOCOUPLE EQUIPPED VSR THIMBLES	P	M-823	4,925	12-13-50	MAINTENANCE DIVISION	
NE	12-13-50	313	MECHANICAL ROD FEEDERS	P	M-825	2,200			
NE	5-1-50	234-5	MJ-2 PHASE 111 - H. I. RCCM #161 (INSTALLATION & RENOVATION)	SEP. DBC	C-198				
NE	5-22-50	2724-W	ADDITIONAL AREA LAUNDRY FACILITIES, BLDG. 2724-W, 200-W AREA	P & M, D & C	WO#H83321 C-289, WO# H83346-49	4,877	5-5-50	MAINTENANCE DIVISION	
NE	3-24-50	100-H	DESIGN OF NEW PILE AREA "G" (TEST PROJECT NO. 20 - INSTALL RECIRCULATION WATER TEST SYSTEM, 100-H AREA)	REACTOR, D & C	C-200 WO#H83240	11,000	5-24-50	MAINTENANCE DIVISION	
NE	5-10-50	3706	DESIGN OF NEW PILE AREA "G" (GAS CORROSION TESTING EQUIPMENT)	REACTOR, D & C	C-300 WO#H83337	26,720	4-18-50	MAINTENANCE DIVISION	COMPLETED 11-24-50
NE	6-29-50	105-H	DESIGN OF NEW PILE AREA "G" (TEST PROJECT NO. 20 - LEAD SHIELDING ON EFFLUENT LINES, 100-H AREA)	REACTOR, D & C	C-300 WO#H83410	9,500	5-16-50	MAINTENANCE DIVISION	
NE	3-23-50	115-D	MODIFICATION OF 115-D GAS SYSTEM FOR SIMULTANEOUS OPERATION (100-DR WATER PLANT)	P & M D & C	C-312, PT. 2 WO#H83231	20,320	6-30-50	MAINTENANCE DIVISION	
NE	8-14-50	100-DR	REMOVAL OF STEAM DRIVEN BLOWER FROM 115-B & INSTALLATION IN 115-D	P & POWER & MECH. D & C	C-312, PT. 2 WO#H83477	114,016	3-27-50	MAINTENANCE DIVISION AND SUBCONTRACTOR FORCES	
586	7-5-50	NO. RICH.	FENCE FOR NORTH RICHLAND TELEPHONE EXCHANGE	ELECT.	WO#H59264	1,995	ADD #1 8-16-50	ENGRG. & DESIGN - DESIGN DIV	COMPLETED
NE	8-14-50	100-D	REMOVAL OF NO. 4 REFRIGERATION UNIT FROM 189-D TO 186-D	REACTOR, D & C	WO#H83447	3,800	7-24-50	MAINTENANCE DIVISION	COMPLETED 11-30-50

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PROJECT ENGINEERING DIVISIONS  
ENGINEERING DESIGN  
100 AREAS

DECLASSIFIED

DATE DECEMBER 15, 1950

E. R. NO.	DATE REC'D.	DIV. RESP.	BLDG. OR AREA	DESCRIPTION	PERCENT ENGINEERING COMPLETE		EST. COMPL. DATE	REMARKS
					LAST MO.	THIS MO.		
A-1001	9-1-49		100	"AS-BUILT" DWGS. SINCE 9-1-46	30	30		NO PROGRESS THIS MONTH
A-1002	2-1-50	TECH. & P.	105	G.E.C. STUDY	30	30		EXTENDED STUDY BY STANDING COMMITTEE. NO PROGRESS THIS MONTH
A-1074	11-2-49	P	115BDF	DESIGN MOISTURE EXTRACTION EQUIPMENT FOR GAS SYSTEM	0	0		NCT STARTED
A-1132	2-8-50	P	105	RECTARY TUBE CUTTER	95	95	3-1-51	FIRST TRIAL SATISFACTORY; OTHER TEST SCHEDULED
A-1140	6-1-50	P	107B	INVESTIGATE SEWER LEAKS	65	95	1-15-51	RECOMMENDATION REPORT IN ROUGH DRAFT FORM
A-1143	7-7-50	P	105BDF	STUDY BALL 3X SYSTEM	90	93	5-1-51	STEERING COMMITTEE ORGANIZED TO REVIEW PROBLEM. DRCP TEST COMPLETED
A-1148	10-10-50	P	108D	CASK REPAIR & DECONTAMINATION FACILITIES	0	30	3-15-51	108D BUILDING IS UNDER CONSIDERATION

122282

PROJECT ENGINEERING DIVISIONS  
ENGINEERING DESIGN  
200 AREAS

DATE DECEMBER 15, 1950

E. R. NO.	DATE REC'D.	DIV. RESP.	BLDG. OR AREA	DESCRIPTION	PERCENT ENGINEERING COMPLETE		EST. COMPL. DATE	REMARKS
					LAST MO.	THIS MO.		
2266	10-28-49	-	200EW	"AS-BUILT" DWGS. SINCE SEPT. 1, 1946	45	45	12-31-50	ONLY URGENT CORRECTIONS BEING MADE TO DWGS. AT PRESENT
2534	4-17-50	S	234-5	DESIGN NEW SHAFT FOR WASTE SUMP TANK AGITATORS	90	90	1-26-51	DESIGN AWAITING APPROVAL
2541	5-15-50	S	234	DESIGN VACUUM BREAKER FOR EVAPORATOR BLDG. 234	80	80		NO PROGRESS THIS MONTH DESIGN BEING REVIEWED BY S-DIV
2550	10-24-50	S	234-5	REDESIGN VACUUM SYSTEM HOODS 5, 6, 7, 8	10	100	12-15-50	DESIGN COMPLETE
2551	10-24-50	S	234-5	STUDY HF REMOVAL FROM HOOD #8 EXHAUST	80	100	12-1-50	DESIGN COMPLETE
2553	11-3-50	S	234-5	REDESIGN REACTION VESSEL SEAL HOOD #10	10	100	12-1-50	DESIGN COMPLETE
2555	11-14-50	TECH.	234-5	DESIGN & EST. PARTITIONS FOR ROOMS 179A AND 177 BLDG. 234-5	-	60	12-22-50	DESIGN COMPLETION PENDING DECISION FROM TECH. DIV.
2556	11-22-50	S	234-5	DESIGN REACTOR TUBE FOR HOOD #8	-	100	12-1-50	DESIGN COMPLETE
2557	12-8-50	S	221-B	DESIGN JUMPERS FOR CELLS 25 & 26	-	10	1-19-50	SKETCHES SENT TO SHOPS FOR IMMEDIATE FABRICATION - DWGS. TO BE COMPLETED LATER.
2558	12-11-50	S	211-TB	CHECK FEASIBILITY OF USING EXISTING STEEL TANKS FOR CAUSTIC STORAGE	-	0	12-29-50	STUDY WILL BE MADE

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PROJECT ENGINEERING DIVISIONS  
ENGINEERING DESIGN

300 AREA

DATE: DECEMBER 15, 1950

E. R. NO.	DATE REC'D.	DIV. RESP.	BLDG. OR AREA	DESCRIPTION	PERCENT ENGINEERING COMPLETE		EST. COMPL. DATE	REMARKS
					LAST MO.	THIS MO.		
A-3002	9-1-49		300	"AS-BUILT" DRAWINGS SINCE 9-1-46	0	0		ONLY URGENT CORRECTIONS BEING MADE AT PRESENT
A-3088	2-13-50	P	314	STUDY GATE TYPE CRUCIBLE, MELT PLANT	80	80	3-1-51	WORK POSTPONED UNTIL TEST OF SIDE POUR CRUCIBLE IS COMPLETED
A-3090	3-7-50	P	314	HCCD FOR CUTGASSING FURNACE	70	70	2-1-51	WRK DELAYED FOR MORE URGENT WRK
A-3092	12-6-50	P	314	DESIGN AIR SWEEP SYSTEM FOR STOKES PUMPS	-	5		DESIGNS STARTED

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REF ID: A64583

**PROJECT ENGINEERING DIVISIONS  
ENGINEERING DESIGN  
PLANT GENERAL**

DATE DECEMBER 15, 1950

E. R. NO.	DATE RECD.	DIV. RESP.	BLDG. OR AREA	DESCRIPTION	PERCENT ENGINEERING COMPLETE		EST. COMPL. DATE	REMARKS
					LAST MO.	THIS MO.		
A-537	10-4-50	TRAN.	ALL	ENGRG. SERVICES REQUIRED BY PLANT R.R. MAINT.	10	15	3-1-51	WORK PROGRESSING
A-553		-	ALL	ARCHITECTURAL STANDARDS	15	15		NO PROGRESS THIS MONTH
A-569	3-2-50	TECH. & MFG.	300	ENGRG. REPORT ON 300 AREA DEVELOPMENT STUDY	40	40	2-15-50	WORK HELD UP PENDING BADGE HOUSE DECISION
A-578	10-1-50	D & C	200	200E-W WASTE TIE-LINE (LAYOUT ONLY)	90	97	2-1-51	SURVEY WORK STARTED ON A NEW ROUTE
A-585	6-29-50	S	ALL	STRESS ANALYSIS PROCESS CASK CAR	90	92	3-1-51	WORK PROGRESSING
A-593	9-13-50	H.I.	ALL	GATE HOUSE BADGE ELEVATORS	20	30	2-1-51	EST. RECEIVED ON SKETCH AWAITING H.I. DECISION
A-594	9-15-50	POWER	ALL	TOPOGRAPHIC MAP - PLANT AREA	40	50	1-1-51	WORK PROGRESSING
A-597	10-11-50	MAINT.	ALL	CD-2 AREA SHELTERS	80	80	2-1-51	NO FURTHER PROGRESS PENDING DECISION ON TYPE OF SHELTER
A-599	10-20-50	H.I.	-	METEOROLOGY TOWER ELEVATOR	5	20	3-1-51	WORK PROGRESSING
A-605	11-20-50			SPECIAL CHARTS - ENGRG. & CONTROL DIV.	-	25	1-15-51	WORK PROGRESSING
A-607	12-1-50	H.I.	200-W	LUCATE TEST WELLS	-	75	3-1-51	WORK PROGRESSING
A-608	12-6-50	MAINT.	200-E	BIDG. 271-B ROOF DRAINAGE	-	0	2-1-51	WORK TO BE SCHEDULED
A-609	12-12-50	POWER	ALL	COAL SAMPLING ILLUSTRATION SHEET	-	0	2-1-51	WORK TO BE SCHEDULED
E-439L	1-12-50	-	ALL	ELECTRICAL AS-BUILTS (LAYOUT WORK ONLY)	44	46	1-1-51	WORK PROGRESSING
E-406L	8-1-49	ELECT.	1100	ADDITIONS TO VILLAGE DIST. - LAYOUT ONLY FOR PROJECT C-341	98	98	12-15-50	NO PROGRESS THIS MONTH
A-1001L	5-26-49	-	100	AS-BUILTS - 100 AREAS - LAYOUT ONLY	40	42	6-1-51	WORK PROGRESSING
2E66L	1-13-50	-	200EW	AS-BUILTS (LAYOUT WORK ONLY)	60	62	2-15-51	WORK PROGRESSING
A-3002L	12-7-49	-	300	AS-BUILTS - 300 AREA - LAYOUT ONLY	50	50	2-1-51	NO PROGRESS THIS MONTH
43650	12-2-49	P	-	PROCESS CHARTS - 300 AREA (FOR IND. ENGRG. GROUP)	70	100	12-15-50	WORK COMPLETED

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122282

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**PROJECT ENGINEERING DIVISIONS  
ELECTRICAL DESIGN  
PLANT GENERAL**

DATE: DECEMBER 15, 1950

E. R. NO.	DATE RECD.	DIV RESP.	BLDG. OR AREA	DESCRIPTION	PERCENT ENGINEERING COMPLETE		EST. COMPL. DATE	REMARKS
					LAST MO.	THIS MO.		
A-480RE	8-11-50			CONSOLIDATION OF TRANSPORTATION FACILITIES	0	10	5-1-51	SCOPING STARTED
A-505E	8-19-50	-	ALL	ELECTRICAL STANDARDS - DESIGN, DRAFTING & STAFF WORK				
A-562SE	2-27-50	STGRES	ALL	CENTRAL STORES WAREHOUSE	10	10	3-1-51	SCOPING STARTED
A-565E	3-23-50	H.I.	700	BIC ASSAY LABORATORY	10	10	2-1-51	NO PROGRESS THIS MONTH
A-570E	7-20-50		200W	CONSOLIDATED MACHINE SHOP	10	10	2-1-51	NO PROGRESS THIS MONTH
A-582E	8-11-50		300	ADMINISTRATION BLDG.	10	10	2-1-51	NO PROGRESS THIS MONTH
A-588E	8-11-50		105F	MAINTENANCE SHOP	5	10	INDEF.	WRK PROGRESSING
E-404	11-15-50	COMM.	7-1100	AIR RAID SIGNAL SYSTEM - RICHLAND - N. RICHLAND	10	10	INDEF.	NO PROGRESS THIS MONTH
E-413	6-21-50	ELECT.	ALL	SUPERVISORY CONTROL ON 115 KV LINES	25	25	12-1-50	CANCELLED
E-428	11-1-49	ELECT.	HANF.	DISMANTLE DIST. LINES & TELEPHONE CABLE - HANF.	10	10	INDEF.	POSTPONED INDEFINITELY
E-432	1-11-50	ELECT.	300	ELECTRICAL POWER - HANFORD LAB.	15	15	INDEF.	NO PROGRESS THIS MONTH
E-435	2-10-50	ELECT.	RICH.	ELECTRICITY METERING - RICHLAND	45	70	6-1-51	WORK PROGRESSING
E-439	7-14-50		100	"AS-BUILT" - 100 AREA				NO PROGRESS THIS MONTH
E-441	7-14-50		200	"AS-BUILT" - 200 AREA				NO PROGRESS THIS MONTH
E-442	7-14-50		300	"AS-BUILT" - 300 AREA				NO PROGRESS THIS MONTH
E-443	7-14-50		7-1100	"AS-BUILT" - 700-1100 AREA				NO PROGRESS THIS MONTH
E-444	7-14-50		ALL	"AS-BUILT" - POWER LINES				NO PROGRESS THIS MONTH
E-445	7-14-50		ALL	"AS-BUILT" - TELEPHONE				NO PROGRESS THIS MONTH
E-449	11-29-50	A.E.C.	ALL	ELECT. SERVICE EXTENSION FOR ARMY CAMP		5	2-1-51	WRK INITIATED
A-1135E	4-2-50	TECH.	100B	P-10-D ADDITIONAL HOT FACILITIES	80	85	2-1-51	WRK PROGRESSING
A-1086E	8-11-50		100BDF	HIGH TANK CONTROL VALVES		30	12-25-50	WORK PROGRESSING
A-1141	7-21-50		100B	P-10-X - 108B BLDG.		5	6-1-51	WORK PROGRESSING

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1222825

PROJECT ENGINEERING DIVISIONS  
**ELECTRICAL DESIGN DECLASSIFIED**  
 PLANT GENERAL

DATE DECEMBER 15, 1950

E. R. NO.	DATE REC'D.	DIV. RESP.	BLDG. OR AREA	DESCRIPTION	PERCENT ENGINEERING COMPLETE		EST. COMPL. DATE	REMARKS
					LAST MO.	THIS MO.		
A-1142	9-15-50		100	P-14 - CO <sub>2</sub> IN PILE ATMOSPHERE	-	2	2-1-51	WORK PROGRESSING
2540E	7-22-50		200W	COATING UNIT - HOOD 25, BLDG. 234-5	0	0	1-1-51	CANCELLED
2543E	7-22-50		200W	EXPERIMENTAL COATING HOOD - BLDG. 231	10	75	12-1-50	WORK PROGRESSING
2554E	11-10-50	S	200E	EVAPORATION FACILITIES - 200W	0	0	1-10-51	NO PROGRESS THIS MONTH

ORIGINAL USE ONLY

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PROJECT ENGINEERING DIVISIONS  
INDUSTRIAL ENGINEERING  
ALL AREAS

DATE: DECEMBER 15, 1950

E. R. NO.	DATE RECD.	DIV. RESP.	BLDG. OR AREA	DESCRIPTION	PERCENT ENGINEERING COMPLETE		EST. COMPL. DATE	REMARKS
					LAST MO.	THIS MO.		
1141	6-16-50	DESIGN	100	P-10-X FEED & FUEL SLUG HANDLING AT 212-N P-10-X CASK DECONTAMINATION P-10-X EXTRUSION P-10-X BUCKET & YOKE TESTS P-10-X RAILROAD MOVEMENT	80	85		WORK PROGRESSING WORK PROGRESSING WORK PROGRESSING SCOPE INCR. WORK PROGRESSING
4365	4-15-50		300	INDUSTRIAL ENGINEERING - P-DIVISION OPTIMUM BILLET DIMENSION DETERMINATION REDUCED CUT-OFF TOOL WIDTH 314 OXIDE HANDLING 303 PROCESS & ESSENTIAL MATERIALS CHIP RECOVERY EXPOSURE STUDY NATURAL HANDLING CREW METHODS REVISED MACHINING STANDARDS TXB DIE STUDY DILATOMETER DEVELOPMENT SPRAY BOOTH STUDY INSPECTION GAGE EVALUATION CANNING LINE MECHANIZATION INSPECTION LINE MECHANIZATION	70 91 20 0 35 0 0 95 50 10 50 - - -	100 45 20 0 35 0 0 96 100 60 90 0 0 0		COMPLETED 12-14-50 WORK PROGRESSING, SCOPE INCR. AWAITING PERSONNEL ASSIGNMENT AWAITING PERSONNEL ASSIGNMENT AWAITING PERSONNEL ASSIGNMENT WORK PROGRESSING COMPLETED 12-14-50 WORK PROGRESSING NEW WORK AWAITING PERSONNEL ASSIGNMENT AWAITING PERSONNEL ASSIGNMENT
4370	11-1-49		100	INDUSTRIAL ENGINEERING - P-DIVISION CHARGE-DISCHARGE METHODS SUGGESTION EVALUATION FOR P.C. GROUP CREW REQUIREMENTS, 105 AREA IMPROVED H-10 PICK-UP TONGS (CROSS-ORDERED TO 300 GROUP)	50	50		PERSONNEL ASSIGNED TO P-10-X WORK " " NEW WORK
4374	12-20-49		234-5	INDUSTRIAL ENGINEERING - S-DIVISION - 234-5 CREW REQUIREMENTS HCCD 8 IMPROVEMENTS HCCD 25-26 IMPROVEMENTS	20 0 -	60 0 0	2-1-51	WORK PROGRESSING AWAITING PERSONNEL ASSIGNMENT AWAITING PERSONNEL ASSIGNMENT
4383	3-6-50	POWER	ALL	FUEL OIL STUDY	98	98	1-16-51	REVIEWING FINAL REPORT
4386	3-13-50	MFG.	ALL	STUDY DEVELOPMENT AND ROUTINE	0	0	3-13-51	SERVICE AND SURVEY
4386	11-1-50	MFG.	ALL	SPECIAL REPORT, ENGRG. ACTIVITIES	-	40	1-1-51	NEW WORK
4388	11-15-49	MFG.	ALL	ANALYSIS OF HEAVY DUTY LACQUERS	90	90		NO PROGRESS THIS MONTH
4391	5-12-50	MFG.	ALL	INDUSTRIAL LUBRICATION PROGRAM	50	50		NO PROGRESS THIS MONTH
4392	5-17-50	MFG.	ALL	METALIZING J.I.	35	35		NO PROGRESS THIS MONTH

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**DECLASSIFIED**

PROJECT ENGINEERING DIVISIONS  
INDUSTRIAL ENGINEERING  
ALL AREAS

DATE DECEMBER 15, 1950

E. R. NO.	DATE REC'D.	DIV. RESP.	BLDG. OR AREA	DESCRIPTION	PERCENT ENGINEERING COMPLETE		EST. COMPL. DATE	REMARKS
					LAST MO.	THIS MO.		
4393	5-19-50	MFG.	100	LUBRICATION SPECIFICATIONS - 100-DR	95	100		COMPLETED 12-8-50
4395	6-28-50	MFG.	ALL	MANUFACTURING DIVISIONS PROCEDURES	20	20		NO PROGRESS THIS MONTH
4397	10-30-50	MAINT.	ALL	LADDER J.I.	-	0		AWAITING PERSONNEL ASSIGNMENT
4401	8-18-50	MFG.	ALL	WORK ORDER CONTROL STUDY	80	100		COMPLETED 11-22-50
4402	10-24-50	POWER	ALL	USE OF NATURAL GAS IN POWER HOUSES	15	50	2-1-51	WORK PROGRESSING
	11-6-50	PU&M	ALL	REVISE J.I. SHEETS	0	0		AWAITING PERSONNEL ASSIGNMENT



**DECLASSIFIED**

**PROJECT ENGINEERING DIVISIONS  
COST ESTIMATING WORK SCHEDULE  
WORK RECEIVED AND COMPLETED  
ALL AREAS**

DATE DECEMBER 15, 1950

JOB NO.	BLDG. OR AREA	DESCRIPTION	PERCENT ESTIMATING COMPLETE		DATE REC'D.	DATE REQ'D.	DATE COMPL.	AMOUNT	REMARKS
			LAST MO.	THIS MO.					
C-290	100	SPECTROMETER FABR. & INSTALLATION (EST. TO COMPLETE)	-	75	12-12-50	12-15-50			
C-306	105'S	F. FACE SHIELDED NOZZLE CAPS (EST. TO COMPLETE)	-	50	11-25-50	12-1-50	12-18-50		
C-326	-	WELL SAMPLER LIFTING DEVICE	50	60	11-7-50	11-15-50		65,000	WORK PROGRESSING
C-337	200	DISSOLVER OFF-GAS - EST. TO COMPLETE	-	100			11-1-50		EST. TO E.S. BELL
C-337 C-378	200	SPARE UNIT - DISSOLVER OFF GAS	-	100	12-12-50	12-12-50	12-12-50	37,000	EST. TO E.M. JOHNSTON
C-349	-	HOT SEMIWORKS	10	100	10-2-50	11-15-50	12-9-50	2,688,594	EST. TO E.S. BELL
C-355	105'S	PILE CLEARANCE - INNER ROD ROOM WALLS (EST. TO COMPLETE)	-	50	11-25-50	12-1-50	12-18-50		
C-378	200	IODINE REMOVAL - EST. TO COMPLETE	-	100	11-15-50	11-28-50	11-24-50	105,000	EST. TO E.S. BELL
C-380-R	1100	ELEC. METERS - 633 PREFABS (FAIR COST EST.)	-	100	11-24-50	11-30-50	11-28-50	9,088	EST. TO E.S. BELL
C-388	100B	P-10-X STEEL TOWER	50	100	11-6-50	11-13-50	11-12-50	VARIOUS	EST. TO M.F. PATRICK
C-388	-	P-10-X, 66 UNIT BUCKET - 3 ALTS.	80	100	11-9-50	11-13-50	12-6-50	VARICUS	EST. TO G.P. KESEL
C-388	-	P-10-X - R.R. CARS AND CASKS	-	100	11-16-50	11-28-50	12-5-50	VARICUS	EST. TO G.P. KESEL
C-388	-	P-10-X YOKES, BRACKETS, LINERS	-	100	11-18-50	11-27-50	12-5-50	VARICUS	EST. TO G.P. KESEL (PARTIAL)
C-388	-	P-10-X MOD. TO 212-N CRANE	-	100	11-18-50	11-27-50			WAITING FOR ADDITIONAL DESIGN DATA
C-388	-	P-10-X TECH. DEV. BLDG. - 3 ALTS.	-	100	11-16-50	11-20-50	11-20-50	VARICUS	EST. TO F.A. BOWMAN
C-388	-	P-10-X EXHAUST DUCTS - 3 ALTS.	-	100	11-29-50	11-29-50	11-29-50	VARICUS	EST. TO M.F. PATRICK
C-388	108	P-10-X METEOROLOGICAL FAC. ON STACK	-	100	12-4-50	12-15-50	12-9-50	52,000	EST. TO M.F. PATRICK
C-395	200	PARALLEL OPERATION - EST. TO COMPLETE	-	50	11-23-50	12-11-50	12-20-50		
C-396	108-D	REMOVAL OF EQUIP. - EST. TO COMPLETE	-	100	11-21-50	11-28-50	11-28-50	73,000	EST. TO E.S. BELL
C-399	-	P-10-D, PART II	-	25	11-29-50	1-15-50	1-15-50		

**DECLASSIFIED**

**PROJECT ENGINEERING DIVISIONS  
COST ESTIMATING WORK SCHEDULE  
WORK RECEIVED AND COMPLETED  
ALL AREAS**

DATE DECEMBER 15, 1950

JOB NO.	BLDG. OR AREA	DESCRIPTION	PERCENT ESTIMATING COMPLETE		DATE REC'D.	DATE REQ'D.	DATE COMPL.	AMOUNT	REMARKS
			LAST MO.	THIS MO.					
C-412	-	P-10-X EXTRACTION FAC. - PRGJ. EST.	-	20	12-13-50	12-22-50			
A-480-R	-	TRANSPORTATION CONSOLIDATION	-	25	12-6-50	12-20-50			
A-532	100F	BIOLOGY LAB. - TRAINISHED REMODELING	80	100	11-8-50	11-17-50	12-14-50	125,000	EST. TO H.E. HYLBAK
A-543	-	PISTOL RANGE ADDITIONS	90	95	10-13-50	10-20-50			WORK PROGRESSING
A-582	300	MFG. DIV. ADMIN. BLDG. - 300 AREA (5,500 SQ. FT.)	75	100	8-21-50	8-29-50	11-20-50	120,000	EST. TO H.E. HYLBAK
A-582	300	MFG. DIV. ADMIN. BLDG. - 300 AREA (7,000 SQ. FT.)	-	100	11-20-50	11-27-50	11-20-50	155,000	EST. TO H.E. HYLBAK
A-593	-	BADGE HOUSE BADGE ELEVATORS - INSIDE	90	100	10-13-50	10-20-50	11-27-50	18,600	EST. TO H.E. HYLBAK
A-593	-	BADGE HOUSE BADGE ELEVATORS - OUTSIDE	-	100	10-13-50	10-20-50	11-27-50	22,200	EST. TO H.E. HYLBAK
A-600	300	SOLVENT STUDIES BLDG.	-	-	12-14-50	12-27-50			
E-404-RE	1100	AIR RAID & EVAC. WARNING SYSTEM	-	100	11-9-50	11-13-50	11-10-50	21,000	EST. TO H.E. HYLBAK
E-404-RE	-	AIR RAID WARNING & EVAC. SYSTEM - REV. NO. 2	-	100	11-16-50	11-20-50	11-22-50	22,100	EST. TO H.R. HUGHES
E-413	-	SUPERVISORY CONTROL - 115 KV SYSTEM	-	100	11-8-50	11-11-50	11-11-50	35,000	EST. TO H.R. HUGHES
E-413	-	SUPERVISORY CONTROL - 115 KV SYSTEM REV. NO. 1	-	100	11-14-50	11-15-50	11-15-50	33,600	EST. TO H.R. HUGHES
E-440	234-5	DIAL PHONE EXCHANGE - 100 LINE	-	100	11-17-50	11-21-50	12-13-50	5,300	EST. TO H.R. HUGHES
A-1093	-	P-11 PROJECT, PART III	-	100	11-15-50	11-21-50	12-9-50	48,500	EST. TO H.P. SHAW
A-1100	100	DRYER TURBINE EXH. STM. - BLDG. HEATING	-	100	11-15-50	11-15-50	11-30-50	VARICUS	EST. TO H.P. SHAW
A-1150	101	GRAPHITE LABS.	-	100	11-24-50	11-27-50	11-24-50	3,000	EST. TO L.G. HENKE
2546	221 T&E	SETTLING TANKS - SEC. 5 WASTES	-	100	11-16-50	11-16-50	11-16-50	35,000	EST. TO E.M. JOHNSTON
2548	202	SAMPLER FOR REDOX FACILITIES	-	100	11-14-50	11-29-50	12-6-50	VARICUS	EST. & B/M TO E.M. JOHNSTON
2552	234-5	SKULL REC. FAC.	-	100	11-20-50	11-27-50	11-27-50	44,300	EST. TO E.M. JOHNSTON
2554	200-E	EVAPORATION FAC.	-	25	11-29-50	12-11-50	12-20-50		

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**PROJECT ENGINEERING DIVISIONS  
COST ESTIMATING WORK SCHEDULE  
WORK RECEIVED AND COMPLETED  
ALL AREAS**

DATE DECEMBER 15, 1950

JOB NO.	BLDG. OR AREA	DESCRIPTION	PERCENT ESTIMATING COMPLETE		DATE REC'D.	DATE REQ'D.	DATE COMPL.	AMOUNT	REMARKS
			LAST MO.	THIS MO.					
2555	234-5	ALTERATIONS TO RM. 177 AND 179A	-	100	11-30-50	12-6-50	12-12-50	6,800	EST. TO E.M. JOHNSON
A-3095	305	MODIFICATIONS	100	100	10-23-50	10-30-50	12-6-50	300,000	EST. TO H.P. SHAW
M-757	222	ACID HANDLING SYSTEM	-	100	12-8-50	12-9-50	12-9-50	10,500	IND. TOT. COST TO E.S.BELL
M-770	-	CENTRAL STORES WAREHOUSE	-	30	12-8-50	12-20-50			
M-802	200	HANDLING FAC. FOR WASTE (EST. TO COMP.)	-	100	12-6-50	12-9-50	12-9-50	29,500	IND. TOT. COST TO E.S.BELL
M-822	-	WATER SUPPLY - ARMY CAMPS REV. NO. 1	-	100	11-15-50	11-16-50	11-16-50	11,000	EST. TO H.E. HYLBAK
-	-	GRAPHITE WHSE - TEMPORARY - 2 ALTS.	-	50	12-13-50	12-15-50			

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DECEMBER 15, 1950

RECAP - ALL AREAS

PROJECT COSTS

	100	200	300	GENERAL	TOTAL
AUTHORIZED	\$ 6,602,400	\$ 3,913,865	\$ 533,800	\$ 2,733,800	\$ 13,783,865
AWAITING APPROVAL	39,300	44,300	72,200		155,800
WORK IN PREPARATION	<u>4,952,400</u>	<u>1,015,000</u>	<u>615,000</u>	<u>4,440,000</u>	<u>11,022,400</u>
TOTALS	\$ 11,594,100	\$ 4,973,165	\$ 1,221,000	\$ 7,173,800	\$ 24,962,065
LAST MONTH'S TOTALS	\$ 12,383,100	\$ 4,980,165	\$ 1,221,000	\$ 8,750,400	\$ 27,334,665

PROJECTS COMPLETED DURING MONTH:

	EST. COST
C-177 115 KV POWER LINE TO RICHLAND PLUS SUBSTATION FACILITIES	\$ 1,483,000
C-389 1950 AREA ROAD MAINTENANCE PROGRAM	94,000
M-766 INSTALLATION OF LABORATORY FURNITURE IN BLDGS. 271 T & B	13,600

SUBCONTRACTS IN FORCE:	\$ 399,989
SUBCONTRACTS PREPARING:	\$ 2,997,000

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TECHNICAL DIVISIONSDECEMBER 1950SUMMARYFile Technology Division

Measurements of activities of discharged slugs indicate that the power distribution in tubes of the H-10 loading is not a normal cosine but that it has a peak in the natural uranium just downstream of the last H-10 slug. As a consequence less tritium is being formed than had been predicted.

Small power level increases were made at the B and H Piles as a result of improvement in the neutron flux distribution. Decreased uniformity of flux distribution in the F Pile caused by special request loadings resulted in a reduced power level.

The discrepancies between exponential pile results and DR Pile tests have been reduced by use of a correction for spontaneous fission of  $U^{238}$  and use of experimentally measured effective pile dimensions.

A successful feasibility test of the proposed ball third safety system was performed. A standard charge of  $3/8$  inch diameter steel balls was dropped through a spirally fluted stepped plug into a vertical graphite channel from which the thimble had been removed. All balls except six in the graphite and two in the thermal shield were removed with a vacuum cleaner and air jet.

Measurements of nuclear annealing of graphite irradiation damage indicate that the recovery obtained in the pile at  $350-400^{\circ}\text{C}$  over a period of one year is comparable to that in an oven at  $1000^{\circ}\text{C}$ .

Recovery of graphite expansion at the midpoint of the top central tube of the D Pile is in excess of one inch since addition of carbon dioxide.

An improved billet casting procedure has resulted in virtual elimination of pipes and blow holes.

Studies were continued on metallographic examination of uranium rods rolled at  $300$  to  $600^{\circ}\text{C}$ , on methods of detecting degree of transformation, on new alloys for tritium target slugs, and more rigorous methods of elimination of uranium slugs with defective jackets.

Corrosion tests performed included stainless steel samples for the separation processes, and Al-Si and uranium in water at various temperatures.

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Technical Divisions

The production of tritium previously committed to the A.E.C. for 1950 was attained. ~~office~~ pipe gallery has revealed that the recently installed is the highest rate yet reached. A total of 1414 slugs were fabricated.

The metal tritium extraction line was received from KAPL and installation has been started.

Chemical Services Division

Studies of the present method for analysis of surface and dissolved gas in unirradiated lithium-aluminum slugs indicate that the method is inaccurate because of gas diffusion through stainless steel walls at 700°.

On December 18 and 19, discussions were held by Hanford and Site K-25 analytical personnel to decide upon analytical methods to be used for specification analyses of the product from the UO<sub>3</sub> Plant. Agreement in detail was reached on methods for most of the necessary determinations, and further information is being gathered at both sites.

Separations Technology Division

The production test use of water instead of dilute nitric acid for flushing plant Dissolvers after coating removal has resulted in significant lowering of both plutonium and uranium losses, as well as waste volume reduction. Production testing has also resulted in a six-hour time cycle for the lanthanum fluoride by-product step in the Concentration process. The test elimination of Sample Can evaporation in Bldg. 231 is proceeding satisfactorily in both the Isolation and Purification processes. The test destruction of Purification supernatant oxalate, prior to recycling to Bldg. 224, is continuing in Bldg. 234-5.

In Redox and TBP Process development, the preparation of Technical Manuals and Start-Up Operating Procedures has continued to receive primary emphasis. Revisions of the Bldg. 321 Demonstration Unit for simulation of plant-type Redox training operations is about 99% complete. Engineering development studies are continuing on Production Plant pumps, transmitters, evaporators, materials of construction, and de-entrainment equipment. Additional laboratory studies on continuous UO<sub>3</sub> conversion have been carried out.

In the research laboratory, the feasibility of further Bismuth Phosphate Process solution volume reductions by bismuth carrier weight decreases has been demonstrated. Surveys of stored first-cycle waste activities have revealed possibilities of large-volume cribbing. Good promise of satisfactory coupling of Redox final solutions to metal production by either the peroxide or oxalate processes has been obtained. Preliminary but promising results on studies testing the blending of current and aged metal wastes as feed to the TBP Metal Recovery Process have also been obtained.

In the 234-5 process development laboratory, additional studies of plutonium peroxide cake filtration and improved skull dissolution methods have been carried out. Further investigation of the hydrofluorination step has developed a potential time-cycle saving of one hour in the plant process. The effects of one, two, and three peroxide cycles on subsequent metal production are still to be investigated, as well as a continuous precipitation method for this process. Continued improvement of final inspection methods and interpretations is still being sought.

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Contact engineer activity was begun in the Laboratory Supply Bldg. proposed for the Works Laboratory Area. Purchasing & Stores are favorable to their utilization of such a facility as the primary receiving, storage and distribution point in the 300 Area for solvents and Caption 10 items (chemicals and laboratory equipment) which find greatest use in that area.

The Technical Shops in Bldg. 101 and seven glass blowers continued on a six-day work week as required to satisfy the needs of the P-10 program. This overtime schedule also was required of three contact engineers to meet schedules for submission of project proposals, design criteria, and equipment lists for planned new laboratory facilities.

A statistical study of the errors involved in obtaining a specified quantity of plutonium in each batch in the separation process revealed considerable improvement in control since the previous study sixteen months ago. The reduction of batch make-up errors from  $\pm 6.0\%$  to  $\pm 3.8\%$  is an important step in improving material balance and process control.

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January 10, 1951

PILE TECHNOLOGY DIVISION

DECEMBER, 1950

VISITORS AND BUSINESS REPORTS

C. E. Stilson, N.E.P.A. Division, Oak Ridge National Laboratory, was here December 5 through 31 for observing progress on the in-pile creep test.

C. D. Carroll, General Engineering and Consulting Laboratory, was here December 8 and 9 in regard to the electrical heater for gas reaction test.

H. Hurwitz, Knolls Atomic Power Laboratory, was here December 11 through 15 for technical consultation with the Physics Group.

L. F. Coffin, Knolls Atomic Power Laboratory, was here December 16 through 20 for consultation on special request KAPL-105.

F. J. Dunn, Los Alamos National Laboratory, was here December 13 through 15 for P-10 consultation.

H. W. Mattraw and O. N. Salmon, Knolls Atomic Power Laboratory, were here December 11 through 15 for P-10 consultation.

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

J. F. Fletcher visited Knolls Atomic Power Laboratory and General Engineering and Consulting Laboratory on December 1 through 9 for P-10 consultation.

A. T. Taylor visited Knolls Atomic Power Laboratory and General Engineering and Consulting Laboratory on December 1 through 9 for P-10 consultation.

H. F. Zuhr visited Los Alamos National Laboratory on December 1 through 3 for P-10 consultation.

L. A. McClaine visited Knolls Atomic Power Laboratory on December 5 and 6 for technical consultation on graphite.

P. H. Reinker visited Knolls Atomic Power Laboratory on December 5 and 6 for technical consultation on graphite. He also visited North American Aviation Corporation on December 27 and 28 for a graphite committee meeting.

W. L. Schalliol visited the University of California, Los Angeles, California, on December 3 through 7 for P-10 consultation; and Knolls Atomic Power Laboratory on December 11 and 12 for P-10 consultation. He also visited the National Research Corporation, Cambridge, Massachusetts, on December 13 for metallurgical liaison; and Maywood Chemical Company, Maywood, New Jersey, on December 14 for metallurgical liaison.

C. E. Lacy went on a recruiting trip to the University of Michigan on December 11 and 12 and to Michigan State on December 13 and 14.

R. A. Stella visited Argonne National Laboratory on December 11 through 13 for consultation on controlled temperature facility.

F. W. Kleimola visited Argonne National Laboratory on December 11 through 13 for consultation on thermocouple experiments.

R. E. Nather visited Chalk River, Ontario, Canada, on December 12 through 17 for consultation on special irradiation.

M. D. Fitzsimmons visited Argonne National Laboratory on December 17 through 20 to investigate loading of P-13 equipment.

G. E. McCullough visited North American Aviation Corporation on December 27 and 28 for a graphite committee meeting.

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ORGANIZATION AND PERSONNEL

	<u>November</u>	<u>December</u>
Physics Section	45	45
Engineering Section	58	58
Metallurgy Section	37	38
P-10 Project	57	56
Administration	4	3
	<u>201</u>	<u>200</u>

A general clerk was transferred from the Administrative Section to the Physics Section as an accountant. One physicist terminated to return to school.

In the Engineering Section, one physicist was hired for the Physical-Chemistry Group, and an engineer terminated to return to school for graduate work.

A metallurgist was hired for the Metallurgy Section.

One technologist terminated from P-10 to return to school.

PHYSICS

Area Physics Work

Measurements of activities of discharged slugs indicate that the power distribution in the tubes of the H-10 loading is not a normal cosine but that it has a peak in the natural uranium just downstream from the last H-10 slug. This distribution is believed to have been produced initially by the control rods and to have been self-promoting due to a higher rate of plutonium build-up and higher graphite temperatures in the more active portion of the tube. As a consequence less power, and therefore less tritium has been developed in the H-10 load than was expected on the basis of a normal cosine distribution. The condition is difficult to correct because the control rod pattern is not centered in the pile.

Small power level increases were made during the month at B Pile and at H Pile as the result of improvements in the neutron flux distribution. At F Pile, special request irradiations undertaken during the month decreased the flatness of flux and necessitated a drop in the power level.

Reactivity coefficient tests were performed at the B and D Piles during the month. The results are in agreement with previous observations and predicted trends.

Plutonium Critical Mass

The experimental program proceeded as scheduled during the month. Additional data were accumulated on the effect of nitrate and Pu<sup>240</sup> on the critical mass in stainless steel spherical reactors of diameter eleven, fourteen, and fifteen inches.

An experiment was also carried out in an aluminum reactor of fourteen inch diameter in order to check the calculated effect of the reactor wall on the critical mass.

Preparation has been made to determine the neutron capture cross-section of tritium by its effect upon the reactivity of a reactor. The feasibility of the experiment has been established by the use of dilute boric acid in sample containers identical with the one which will contain tritium.

A suspense code has been approved providing for the purchase of stainless steel, reactor shells, and other long delivery items necessary for the measurements on untarped reactors, the final phase of the present experimental program.

### Exponential Experiments

The disagreement between exponential pile results and the wet critical size of the DR Pile, reported last month, has been reduced by the discovery of several necessary corrections. The most important correction is required by the existence of a natural neutron background in the exponential pile arising from the spontaneous fission of  $U^{238}$ . The second correction has come from the use of experimentally measured neutron-effective dimensions of the pile rather than those calculated from theory. These two corrections together with several minor ones have reduced the buckling determined in the exponential experiment to  $78 \times 10^{-6} \text{ cm}^2$ . This is now only 11% higher than the value of  $70 \times 10^{-6} \text{ cm}^2$  deduced from the critical size of the DR Pile. Further work is in progress.

The graphite used in constructing the standard sigma pile (solid graphite stack) was rechecked in the Test Pile to determine whether any contamination had occurred. None was found and the discrepancy between the neutron diffusion length in this pile and in the unloaded LR and H Piles remains unexplained.

### Shielding

Additional measurements have been made of the neutron flux at various positions in the biological and thermal shields. It has been demonstrated that the thermal neutron flux goes through a maximum in each masonite layer, as was expected from theoretical considerations. The flux of neutrons of 5 e.v. energy has also been measured throughout the biological shield. It has no maxima in the masonite but falls off smoothly as the shield thickness increases. The general rate of decrease of the thermal neutrons is the same as that of the 5 e.v. group which fact is also in agreement with theory.

### Special Request Program

A total of 207 P-10-A slugs and 21 other special requests were charged during the month, while 297 P-10-A slugs and 11 other special requests were discharged.

Thirty-one special requests are now on hand awaiting charging.

Non-routine work on the special request program during the month included the following: discharging from a test hole large sample containers which could not be handled in the normal fashion but which had to be moved remotely through a hole in the building wall and down a ramp to the ground level; charging of tantalum pellets to produce 30,000 curies for the Army Chemical Corps; recharging of previously irradiated uranium-zirconium alloy samples.

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Xenon Cross Section Measurement

A special shielding device has been designed to catch and stop the main neutron beam after it passes through the neutron spectrometer. Design of this catcher is complicated by the high intensity of gamma radiation generated by the capture of the neutrons.

Fabrication of the apparatus for producing and handling the xenon is progressing as expected.

Test Pile

Further work has been done in calibrating the control rod of the Test Pile. This has included both an extension of the length of rod which has been calibrated and also the use of an improved inhour formula in the interpretation of the data. The results have been applied to an analysis of existing graphite test data. The previously used calibration for graphite purity has been found to be sound. Investigation of the correction for graphite density is still in progress.

Some samples of graphite produced by the Great Lakes Carbon Company were tested at the request of the Atomic Energy Commission.

Instrument Development

The pole faces of the magnetic spectrometer were machined to produce a magnetic field which varies in the desired way over the region in which the particles will travel. Magnetic field tests after machining indicate that the desired variation was obtained.

Reactivity

During the latest period of operation under equilibrium conditions the reactivity status of the five production piles was as follows:

	<u>B Pile</u>	<u>D Pile</u>	<u>DR Pile</u>	<u>F Pile</u>	<u>H Pile</u>
In rods	101 ih	88 ih	170 ih	53 ih	138 ih
In xenon poison	523	515	665	542	703
In Special Requests					
duce the number of unaccountable changes in effluent water activities.					
Other	20	49	0	28	0
In lead-cadmium columns	0	0	0	0	28
ptured slug occurred in H Pile on December 4, 1950. Abnormal effluent					
In plant assistance	15	36	0	17	11
In dummy columns	0	5	100	30	20
In overall coefficient	<u>-266</u>	<u>-320</u>	<u>-88</u>	<u>-296</u>	<u>-170</u>
Total cold, clean reactivity	913	837	847	814	740

The B Pile gained 24 inhours during the month, 20 inhours of which were produced by draining the cooling water from the B Test Hole for repair of that facility. The D Pile gained 13 inhours and the H Pile 14 inhours while the F Pile lost 12 inhours during the month. The DR Pile gained 103 inhours due to the increase in plutonium concentration typical of a new pile.

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Graphite Expansion and Pile Motion

Continued graphite damage recovery was noted in the center of the B, D, and F Piles. The D Pile has dropped 0.8 inches since March, 1950; the total recovery at the midpoint of the top central tube is in excess of one inch.

Horizontal tube traverses taken in fringe tube 2451 and 2496 in D Pile have revealed some horizontal recovery. The near side has moved in 0.40 inches and the far side 0.30 inches. Tight wire measurements on the far side had indicated that such motion was possible but these were not conclusive. It seems that the T beams supporting the biological shield exert sufficient restraining force to push the graphite towards the center of the pile as the graphite contracts horizontally.

A vertical traverse of the #2 horizontal control rod thimble at F Pile showed that the maximum elevation in the thimble was 1.65 inches at a point between nine and ten feet from the outer edge of the biological shield. The maximum slope observed was 0.3 inches per foot occurring between five and ten feet from the side of the pile.

Vertical traverses of fringe zone tubes in the B Pile indicate that the growth in the upper half has exceeded that observed in the same section of the pile in the lower half. The extra growth in the top portions probably reflects a cantilever action between the graphite blocks.

Metal Exposure Production Tests

A test exposure of depleted 238 uranium slugs and alpha rolled lead dipped uranium slugs has been partially completed. The test slugs were all untransformed and the natural uranium slugs were made from rods representing three rolling temperatures. The following table summarizes the results to date of slugs discharged at 100 MWD/T.

<u>Type of Slug</u>	<u>No. of Slugs</u>	<u>Average Length Change</u>	<u>Average Diameter change</u>	<u>Average Warp Change</u>
Depleted U <sub>238</sub>	10	+0.018	Negligible	None
Alpha Rolled at High Temp.	5	+0.008	None	+0.004
Alpha Rolled at Med. Temp.	5	+0.035	0.004	+0.002
Alpha Rolled at Low Temp.	5	+0.171	+0.005	+0.012
Group V Control Slugs	11	-0.002	-0.002	None

Graphite Burnout

Weighted graphite samples have been placed in graphite channels in the F Pile where they are exposed to pile atmospheres at ambient temperatures. Additional samples have been installed in small aluminum tubes located in dry process tubes. These will be exposed in gas atmospheres of CO<sub>2</sub>, O<sub>2</sub>, CO, and a mixture of 95% CO<sub>2</sub> and 5% CO. The samples will be removed periodically to be re-weighed for determination of burnout or re-deposition.

**DECLASSIFIED**KAPL Fuel Element Tests (Beta Experiment, SR-79, P.T. 105-180-P)

The influence of Hanford flux on the behavior of fuel materials in contact with sodium is being determined. Slug R-1, consisting of a 347 stainless steel pin packed with  $U^{235}O_2$  immersed in sodium was discharged December 20. High pile temperatures necessitate the positioning of future slugs in low flux zones. Methods of cooling the slugs are being studied. Slug R-5, similar to R-1 except that the oxide is packed in a stainless-steel jacketed titanium pin, has been irradiated 184 days in a 75% flux zone.

High-Pressure Water Channel (P-13, ANLM-140, P.T. 105-354-P)

The behavior of water, fuel, and structural materials is being determined under conditions simulating those of the Westinghouse Pile as nearly as is possible in a Hanford Pile. Operation during the month was routine at 540°F and 1500 psig. The quantity of iron in the water increased 25%; the other constituents remained nearly constant.

Differential Transformer Calibration (WAPDM-103, P.T. 105-379-P)

The test slug now undergoing irradiation is to determine the influence of Hanford flux on the calibration of a differential transformer and on the electrical resistivity and dimensional stability of zirconium. All equipment has been performing satisfactorily. No change in output of the transformer has been observed, but the resistance between the windings and ground has decreased from  $2 \times 10^6$  ohms to  $2 \times 10^4$  ohms. The resistance of the zirconium specimen had increased 3% and was approaching saturation in the first six weeks. In the eighth week erratic behavior commenced, the cause of which has not been determined.

Creep of Aluminum (P.T. 105-381-P)

An attempt is being made to use the NEPA equipment to determine the influence of Hanford flux on the creep rate of aluminum. A second slug was charged upstream in a low flux region. The specimen temperature was observed to be between 200°C and 300°C when not electrically heated. Electrical interference between the heater circuit and thermocouples developed inside the pile soon after start-up and it has been impossible to obtain creep data.

Creep of Zirconium (Pneumatic Load) - (WAPDM-106)

The effect of Hanford flux on the creep rate of a zirconium bar under tensile stress is to be determined. The slug will resemble that of WAPDM-103 but will contain a bellows loading system for stressing the specimen to 15,000 psi and a heater for maintaining temperature at 275°C. It is planned to heat the slug at rated temperature and pressure in a furnace until second-stage creep is established, and then to charge it, without interruption of load or temperature, into the pile.

Creep of Zirconium (Weight Load) - (ANLM-159)

A deadweight loaded test is proposed to determine the effect of irradiation on the creep properties of zirconium. The experiment requires that a system approximately forty feet long be installed in a specially water-cooled through-hole at H Pile. W. Primak, from Argonne National Laboratory, discussed this

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experiment in detail on his recent visit to Hanford Works, and lines of responsibility were established. Design may be complete by March 1, 1951.

#### Thermal Conductivity of U-Zr Alloys (ANLM-172)

It is proposed that an experimental slug be inserted in a process tube to determine the effect of irradiation on the thermal conductivity of U-Zr alloys. W. Primak, from Argonne National Laboratory visited Hanford Works on December 12 and 13 to discuss this experiment in detail. Responsibility for various phases was established, and an installation date later than March 1, 1951, agreed upon.

#### Fission Gas Experiment (KAPL)

An experimental slug is being designed which will permit a continuous measurement of the rate of fission gas release from fuel materials undergoing irradiation. The bond between the fuel and the heat conductor has not been developed, but all other developments are complete at KAPL. Preliminary design is now in progress at Hanford Works on the nozzles and shielding for application to a cooled annular-type process tube.

#### Dielectric Properties of Insulators (P.T. 105-367-P, RDA-P.T.-11-IV)

The dielectric properties of insulating materials which have been irradiated in the pile are to be determined. The first three slugs were discharged December 19 and will be opened and measured next month.

#### Controlled-Temperature Exposure of Graphite (RDA-PT-10)

Graphite samples are to be exposed at moderate temperatures to determine the temperature coefficient of damage. The slugs are being constructed, and the next available charging date is January 23, 1951.

#### Calibration of Thermocouples

The effect of irradiation on the thermo-electric properties of thermocouples is to be determined. A literature survey and some theoretical studies have been made. Apparently the sensitivity of the measurements should be a fraction of a degree, because no theory predicts that the thermocouples will change more than a degree or two at the temperatures under consideration, 0°C to 1000°C.

#### Controlled Temperature Facility

The facility now under design is to provide a controlled temperature, adjustable within the range of 100°C to 450°C in a through-hole of the H Pile for irradiating up to 100 samples, any one of which is to be on call. Project Engineering is continuing the design of a method for locating samples within the pile by means of push rods and shifting boxes in each step plug. An alternate method under study is the erection of a shielded extension of the through-hole in the rod rooms. The entire train of samples would be pushed into the extension from which samples may be charged and discharged through ports. The latter method would increase the sample container size, thereby decreasing the number of sample containers, and permit a circular cross section to the hole assembly.

**DECLASSIFIED**Pile Tube Removal Equipment

The removal of irradiated assemblies from the experimental holes by pulling them out through the side of the building is being given further consideration. Design work is proceeding on a method for removing the P-13 tube by suspending it from a monorail. The monorail runs from the face of the pile to the burial pit. Extreme reliability will be required because personnel must remain over a hundred feet from the exposed tube.

Can Openers

Opening of an SR-79 was attempted in the dry can opener. The slug was badly corroded and could not be inserted into the chuck. Since a chuck for the underwater can opener will be available in early January the opening will be attempted in that facility.

Ball Third Safety Program

A successful feasibility test of the proposed ball third safety system was performed on December 6 at D Pile. A 2 1/2 cubic foot charge of 3/8 inch diameter steel balls was dropped through the spirally fluted stepped plug into the bare vertical graphite channel from which the thimble had been removed. The ball flow rate obtained was sufficient to provide adequate emergency protection and was in close agreement with mock-up tests. Two hours were required to vacuum the balls from the hole and an hour for blowing balls out of the cracks with an air jet. A subsequent boroscopic examination of the hole revealed six balls visible in the graphite and two in the thermal shield. Had these been six boron steel balls they would have absorbed on the order of 0.15 ih of reactivity. For a 29 rod pile this would amount to a loss of less than 5 inhours.

The gas seal being tested in conjunction with the fluted stepped plug is operating satisfactorily. A Kanno Chamber was installed in the seal vent line to detect any gas leakage. It was found that during the gas regeneration cycle when the gas pressure is raised to approximately eight inches of water a small amount of gas was leaking through the rod which had been sealed on the inside. A new sealing plug for the rod is being prepared.

Water Survey Program

The literature survey for the water quality study has been completed and the results have been published in Document HW-19590. An experimental program consisting of a correlated series of flow laboratory and in-pile experiments is being planned. An informal technical committee with representatives from Power, H.I., P, Technical Services and Pile Technology Divisions has been established to furnish assistance on the experimental program.

Boiling Studies

Pressure drop measurements in an electrically heated tube were found to be in good agreement with values predicted by the methods currently used to determine maximum allowable process tube heat loads. The hydraulic radius of the tube being used is the same as that of the process tube annulus. The range of enthalpies studied was up to 35% in excess of those which might be encountered under pile operating conditions.

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Inlet Magnesium Dummies

Magnesium dummy slugs are to be installed in the upstream end of the process tubes to reduce pitting type corrosion in the tube. Sufficient magnesium has been received for twenty tubes and will be installed on Production Test 105-407-P with ten tubes at both B and D Piles. The magnesium which has been received is undersized and it will be necessary to upset it to standard diameter. Working drawings have been prepared for the cap supported piece which will bridge the Van Stone joint.

Slug Temperature Measurements

A production test is being prepared to authorize the experimental determination of the effect of pressure drop film on slug temperatures. Also to be studied at the same time will be the rate of heat generation after shutdown. A thermocouple slug similar to the one used on P.T. 105-80-P will be used and provisions are being made to isolate the tube from regular purges and allow large amounts of film to build up. This one tube will be purged during operation in order that the effect of film on slug temperature can be more closely followed.

Irradiation Effects of Graphite RDA-#TP-10

A correlation has been made between Co-spacing and thermal annealing temperature for graphite samples having exposures to 1534 MD/CT. Samples which have been pile annealed show an apparent effective pile temperature of the order of 1000°C or higher with respect to the annealing phenomena.

Capsule samples of graphite exposed in the pile at temperatures in the range 10-19°C exhibit constant rates of change of length, Co-spacing and thermal conductivity. Previous tests of a similar nature indicated a 30 percent decrease in the rate of damage between 15 and 40°C. These recent data may indicate a very sharp change in the temperature coefficient of damage between 20 and 40°C.

A continuation of the pile annealing experiment indicates that the thermal conductivity of graphite with low cold test hole exposure recovered to a value comparable with virgin graphite exposed simultaneously in the hot test hole. Samples with higher initial exposures show a continuing trend toward greater recovery.

The in-pile controlled atmosphere gas tube experiment has been assembled and loaded in the F Pile. Irradiated and virgin samples of graphite have been placed in the center and fringe zones of tube 2777-F and tube channel 2682-F to be exposed in pile gas, carbon dioxide, carbon monoxide, oxygen, and a 95-5% CO<sub>2</sub>-CO mixture. Exposure temperatures at each sample position will be monitored. Weight changes of the graphite pieces will be noted when the samples are discharged.

Thermal expansion coefficients determined by the interferometric method now agree to 1% with the elimination of oxidation of the graphite samples. Expansion coefficients for an end and center section of a transverse sample of KC graphite were  $\alpha = 4.92 \times 10^{-6}$  and  $4.55 \times 10^{-6}$  respectively. This difference is not as great as expected. Sudden oxidation of CSF graphite in the apparatus with the sample at 710°C led to an increased expansion of the graphite followed by a continual decrease. The cause for this behavior is being investigated.

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Surface area measurements indicate that to obtain consistent results thermal outgassing of graphite is necessary. A sample of WSF graphite after 159 MD/CT gave a surface area of 0.66 square meters per gram after being outgassed at room temperature. Thermal outgassing at 275°C gave a 10 and a 25% increase respectively in the surface area for this sample and the virgin WSF sample reported last month. Adsorption isotherms for these samples are conventional "S" shaped curves.

Suspense code M-773 has been issued to provide funds for building the 101 Area laboratories. Construction is scheduled to start shortly.

Accelerated rates of physical and crystal expansion have been observed in a series of boron impregnated CS graphite samples exposed to pile irradiation. The ratio of damage in the boron impregnated samples compared with pure CS graphite with similar exposure is 4.2 and 2.4 for physical and crystal expansion respectively. This accelerated rate is attributed to the additional damaging effect of the heavy particles produced by the boron disintegrations.

Process tube channel 2357-B was mined and Co-spacings of numerous samples along its length are consistent with other reported mining data.

The majority of graphite samples in the B test hole at B Area were removed due to a water leak in the facility. The CSF and Lampblack exposure program is proceeding normally at other locations.

#### In-Pile Controlled Atmosphere - Project C-410

Design and procurement of units for this project is proceeding normally. Technical Services Division has reported the initial results of corrosion tests on aluminum samples and thermocouple installations which will be used in contact with carbon dioxide, carbon monoxide and water vapor.

### METALLURGY

#### Uranium Billet Casting and Rod Fabrication

The recommended procedure of adding the caps in two separate installments to poured billets has been adopted as standard practice and has resulted in the virtual elimination of pipes and blow holes at the billet tops. The billets are still being cropped at the cap line so that this improvement in billet quality has not yet resulted in any appreciable increase in billet yield. However, it is expected that an improvement may be noticed in billet-to-slug yield, due to a probable increase in the length of usable rod obtainable from each billet. This effect cannot be evaluated until a considerable number of such billets has been completely processed.

It has also been recommended that the rate of pouring molten uranium from the crucible into the molds be slowed down by reducing the size of the pour hole. It is expected that this change will reduce the tendency to form pipes and blow holes, since it will permit progressive solidification to take place even while the billet is being poured. A trial of this recommendation will be made as soon as possible.

A preliminary comparison of the uranium pouring temperature as measured by the optical pyrometer and by a thermocouple installed in the center of a stopper rod indicated that the pyrometer reading is 60° to 80°C too low. Billets poured at these more elevated temperatures probably contain an increased amount of carbon and exhibit more pronounced piping tendencies.

A study of the rods received at Hanford comparing the quality of uranium produced in Mallinckrodt's new casting plant with that produced in their old plant and their experimental #7 furnace, indicates that both the experimental furnace and the new plant produce billets containing significantly lower amounts of nitrogen and carbon. This improvement is attributed to the better vacua obtained in the new furnaces.

A study of the effect of chip pickling upon the casting yield has indicated that when the pickling time is increased so that the loss of uranium to the pickle solution is raised from 4 to 6%, a 3.2% increase in the melt plant yield is obtained. While the loss in the pickling bath can be taken only as a rough index to the amount of oxide remaining on the pickled chips, it is evident that economic gains may be made by a more thorough pickling treatment than is obtained with the present practice. It is estimated that the increase in yield mentioned above will represent a saving of approximately \$31,000.00 per year.

#### Uranium Canning

Continued studies have failed to identify the specific impurities responsible for lowered reactivity in Scovill cans as compared to Victor and Alcoa cans. A sample of 2S aluminum blanks, representative of the metal to be used in the fabrication of additional process cans for Hanford was furnished to Hanford by Alcoa. Reactivity tests in the 305 test pile indicated satisfactory reactivity; therefore, Alcoa has been advised to proceed with the fabrication.

Additional progress has been made on the installation of the "lockout" mechanism to insure complete transformation in all triple-dip process slugs. It is expected that this installation will be completed within the next month.

Tests are in progress to develop a more rigorous method of eliminating from production channels slugs having leaky jackets. These tests include modification of the standard autoclave procedure to provide thermal-cycling during the autoclave period.

#### Uranium Metallurgy

The uranium rods finish rolled at temperatures of 300 to 500°C in connection with the rolling studies made earlier in the year were machined into slugs preparatory to canning. A total of 894 pieces were obtained, each being identified with regard to rod number and position in the rod.

Metallographic work was continued on the experimental uranium rods rolled at temperatures of 300 to 600°C at BMI.

A report is being prepared on the variation of orientation in standard production rod.

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### Dilatometry

The additional slugs required to establish the degree of transformation versus expansion curves for the production dilatometer were not canned during the month as anticipated. It is expected that these slugs will be processed and tested next month.

Experiments were continued using laboratory slug testing dilatometer. Expansion measurements were made on a number of slugs for the rod quality study in which several lots of production rod are being tested for differences during processing. An exhaust system to remove oil fumes from this dilatometer was installed.

### KAPL Assistance to Hanford

Experiments were continued on the melting characteristics of aluminum-lithium slugs with magnesium-aluminum alloy to determine the effect of lead and cadmium on the final melting temperature. Results indicate that with the addition of lead the mixture remained solid up to a temperature of about 580°C, presumably due to the formation of the compound  $Mg_2Pb$  whereas with additions of cadmium the mixture remained entirely molten at 500°C. Additional experiments are planned to provide information on cadmium volatility as well as rates of melting of the Al-Li slugs.

Work was also continued on the comparison of hydrogen pick-up of the standard 3.5% Li-aluminum alloy and an experimental 64.77% Mg- 30.48% Al- 4.75% Li alloy. Analyses for hydrogen from turnings removed from slugs before and after exposure to an 80 percent humidity test showed that the hydrogen pick-up for the standard Al-Li alloy to be approximately ten times that for the magnesium containing experimental alloy. Further experiments to obtain a more easily fabricated alloy in the Mg-Al-Li system are underway.

### Radiometallurgy

The cask containing the slug that failed in tube 1476-DR was received on December 4 and modified to permit safe removal of the slug from the process tube. The tube section containing the slug was visually examined and photographed by pushing it from the cask into a lucite tube in a cave of lead bricks. The presence of a break in the process tube was confirmed by the appearance of a hole of about one-half inch in diameter which appeared to be almost completely filled with uranium corrosion products. Attempts to cut the process tube from the slug were postponed when more interest was shown in a subsequent slug failure at 105-H Area.

The slug failure in tube 3288-II was received for examination on December 13. The process tubing surrounding this piece was visually examined and photographed and arrangements were made to separate the slug. The canning data showed that it to be a MRH slug that was canned April 6, 1950, and was tested in the steam autoclave. The slug has not yet been separated from the process tubing.

The shop work on the dry sample storage system for the 111-B Building is nearly completed but the installation will not be made until the current slug examination program is completed. The print for the Health Monitoring system was received.

P. File Technology Division

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A report on the examination of the dry process tube 4630-F was issued as document HW-19643.

P-10 Alloy

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... mesh, woven or T-304 stainless steel, was examined micro- revealing some evidence of intergranular attack after two to three re in refluxing RCU stream vapors. Additional corrosion tests in ic acid on similar material revealed no excessive corrosion rates. attributed, therefore, to the small wire diameter (.006 inches to rather than to inferior corrosion resistance.

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...-347, received from 200 West construction area, and reported in having failed to pass the Huey test

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Three extruded aluminum-lithium rods from recent production were checked for lithium segregation and were found to be extremely homogeneous. There was lithium segregation along the length of the rods and the compositions of the three rods were almost identical. In nineteen samples taken from the three rods, the lithium varied only from 3.64 to 3.66 percent. This checks with reactivity data indicating that aluminum currently being produced for P-10 production is within limits with regard to uniformity of composition.

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Brief data indicate that the resistance of Type 304 stainless steel to corrc by molten aluminum-lithium alloy is equal to that of Type 347 stainless. At the corrosion rates of Type 304, tested in the annealed condition, were 0.00 inches/hour and 0.0046 inches/hour for runs of four and eight hours respecti Additional tests will be made at 700°C on similar material and on specimens sensitized prior to testing. It is doubtful that sensitization will affect the corrosion rates significantly since in the tests at 900°C, which gave lo rates, the stainless steel was in the sensitizing temperature range.

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Examination of a welded Type 347 stainless steel container used as reservoir for mercury confirmed the belief that the stainless was not attacked by the mercury. Small depressions adjacent to the weld metal at first thought to b the result of corrosion were found to be due to weld undercutting.

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Corrosion

Huey tests have been completed and Strauss tests are now 80% completed on T-CbTa, T-304 ELC and T-321 as substitute materials for T-347 stainless steel. Tests on these same steels in RWF are 95% completed and tests in PAW are 50% completed. Similarly, intergranular corrosion tests in HNO<sub>3</sub>-HF solution have been completed and preparation for tests in BiPO<sub>4</sub> process solutions are now underway.

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A report on the corrosion of Al-Si containing tin specimens in pile process w was delayed until an evaluation of the pitting effects could be made. This work is currently in progress and measurements indicate that the pits that were noted were of much smaller depth than originally suspected.

Responsibility for the development of a bellows type circulating pump for simulated pile atmosphere corrosion tests has been assumed by the Instrument Division. This pump will replace the Roots-Connorsville blower which was not suitable for this particular use. Neoprene gaskets will be substituted for the Garlock packing which is presently used to seal the tube ends.

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**DECLASSIFIED  
WITH DELETIONS**Miscellaneous

In a continuation of the x-ray diffraction work on "cold" process tubing, patterns were made to determine whether a measurable shift in lattice spacing occurred during annealing. Such a shift might be used as a measure of changes in samples of irradiated tubing which will be examined soon. It is expected that the work on irradiated aluminum will also give some indication of the maximum activity of samples which may be handled by normal techniques on an x-ray spectrometer.

Samples of Kaiser and Alcoa aluminum-silicon alloy which had been used in canning for various lengths of time were examined metallographically to determine if the differences in the "as received" structure, which indicated sodium modification of the Alcoa alloy, were retained during canning. There was little difference between the alloys from the two vendors, indicating a rapid burn out of any sodium present in the Alcoa alloy.

Chemical analysis of the 2S-0 aluminum specimens "as received" and after being creep tested at 500°C gave similar oxygen and nitrogen values; hence, oxidation does not explain the improvement in creep resistance observed at 500°C as compared with 450°C. A test at 330 psi and 500°C is following previous data in that the creep rate is lower than was observed at a similar stress at 450°C.

A number of welds on 309 stainless made with electrodes other than those presently accepted for plant use are being examined for structure and corrosion properties.

An aluminum nozzle used in a mercury pump was found to have failed by stress corrosion.

The first experimental melt of uranium in the vacuum furnace in Building 3730 was made during the month.

P-10 OPERATIONS

The production of tritium previously committed to the A.E.C. by the General Electric Company for calendar year, 1950, was attained and the greatest production rate experienced in the history of the project was achieved. During December, 1950, Two of the batches became air contaminated, and one other batch, extracted from slugs, had product purity below 90%. In addition, six batch separations of accumulated cutgas fraction and four runs reprocessing previously air contaminated batches, were made. Operations were placed on a maximum effort basis at the start of the month. Planned overtime increased operating shifts to eighteen per week. Development activities were curtailed and personnel normally assigned to such work were occupied in production activities together with the regular staff.

It is planned that production rates in the early months of 1951 will not exceed 200 slugs per month. The extraction facilities will be operated during this period for production test (development) purposes and for personnel training.

Two glassblowers were found to be tritium contaminated during the month. One was in excess of the maximum permissible concentration, the other in excess of the permissible working limit. The former case was investigated as a class II special hazards incident.

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A total of 1414 slugs was manufactured during the month.

Additional arrangements directed towards the transfer of P-10-A responsibility to the P Division in January, 1951, were made.

### TRITIUM DEVELOPMENT

#### Material Balance Studies

During December the gas from nine Al-Li slugs, irradiated in the H-10 loading alone, was extracted. The tritium that was recovered was approximately seventy percent of that expected from early calculations. The thirty percent discrepancy is estimated to result from (a) approximately a ten percent error in the factor used to divide the heat output of a tube between its normal uranium and enriched slug components, (b) approximately a ten percent loss of tritium in diffusion into and/or through stainless steel furnace tube walls or by retention in the exhausted melt, and (c) an unexplained loss of approximately ten percent. Two additional tubes of the H-10 loading will be discharged to check the above yields.

To assist in determining more accurate yields of tritium from slugs, the Knolls Atomic Power Laboratory has undertaken the problem of determining the residual amounts of tritium and helium in a "hot" furnace tube and an exhausted melt contained therein, and of determining the diffusion of helium and tritium through the gasketing material used between the furnace tube and its cap.

#### Metal Separation Line

The metal separation line, control console, and associated instrumentation were received on December 15, 1950. Immediate installation was undertaken and is proceeding in a satisfactory manner. For purposes of security and personnel control, a temporary exclusion area has been established in Cells 1 and 2 on the third floor of Building 108-B.

Material procurement and fabrication of the pressure vacuum system ("helium recycle hood") is essentially complete. This is being constructed by the General Engineering and Consulting Laboratory.

Fabrication and installation of the extraction furnace for the metal separation line is underway. Instrumentation for the furnace has been installed. Installation of the second furnace pot outgassing furnace and its attendant instrumentation and process piping approaches completion.

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Air Contaminated Product

Several runs have been made for the recovery of tritium from air-contaminated batches and the recovered tritium collected for shipment. Experimental difficulties have not permitted the recovery of tritium at the expected rate, but steps are being taken to simplify the process where possible and to design a system whereby the air-contaminated product can be treated in situ without the necessity of an interim storage in collection cylinders. Certain modifications already have aided in better separation of the tritium from the associated air. Actual operation of the process is now in the hands of the Production Group.

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Regardless of the slight increase in helium yield noted with lead addition, the use of the helium yield as a measure of exposure is definitely superior to the MWD/AT values currently reported.

### Sampling

To obtain accurate analyses of product, the effects of sample containers on the analyses must be negligible or at least reproducible. Since analytical results cannot differentiate between improvements in production or in sampling, both techniques must be developed together. The sampling program is under active consideration by a number of people. Using glass sampling containers and employing both break-seal and stopcock techniques, work continues in obtaining a uniform gas from which to take a sample, in evaluating wall effects and in devising appropriate bulb processing procedures. A similar program is in progress which uses metal sample bulbs.

Using the new "stopcock free" production lines and employing the new sampling procedures, better product analyses are being obtained. These analyses indicate tritium purities above 95 percent with hydrogen the major residual impurity.  $^2\text{He}^3$ ,  $^2\text{He}^4$ ,  $\text{O}_2$ , and A impurities are negligible while  $\text{CO}_2$  and  $\text{N}_2$  impurities average less than 0.25 percent but still above the desired value which is less than 0.02 percent.

### Metal Shipping Containers and Transfer System

Four shipping containers have been received at Los Alamos for evaluation. Representatives of the Hanford Purchasing and Technical Divisions met with University of California personnel and the various contractors on this work to discuss contractual and technical items associated with the transfer of responsibility for procurement from the University of California to the General Electric Company. Results of the contractual discussions are reported elsewhere. Pending Los Alamos evaluation, all technical phases of construction except hydrogen firing appear to be satisfactory.

The initial design of the metal transfer system to be added to the glass lines is nearing completion. Six of the ten metal Toepler pumps have been received and the vacuum valves were reported to have been shipped from the vendor. Assemblage will start as soon as possible.

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Tritium Cross Section

The P-11 Reactor test to determine the cross-section of tritium has proceeded to the point that a suitable container has been devised. The container will be a 3S aluminum tube since 3S aluminum has a suitably low cross-section; the 3/8 inch diameter tube, 10 inch long will contain tritium at one-third of an atmosphere pressure. Tritium will be sealed in the tube with a cold welding, "pinch off", technique, tests of which have been completed satisfactorily.

Instrument Development Room Activities

The thermal conductivity equipment system for the Instrument Development Room has been installed and preliminary tests started.

During the month tests were performed with the buoyancy balance to study its behavior with hydrogen-helium mixtures. Considerable effort was expended in obtaining pure gases for these studies.

The Instrument Development Room has been made a "Danger Zone" with introduction of tritium and buoyancy balance tests of tritium have started.

Ion Chamber Developments

An aluminum-coated glass ion chamber of approximately one liter capacity has been received from the Knolls Atomic Power Laboratory and has been installed in Glass Line 2 for the measurement of low concentrations of tritium in the effluent air from the air-contaminated process. Concentrations of the order of 40 ppm of tritium were determined by this ion chamber as compared to a zero concentration of tritium as determined by the mass spectrometer on a sample of the same effluent air.

Glass Line Revisions

The second glass line to be revised has been turned over to the Production Group. Revision of the third glass line is scheduled to begin January 2, 1951.

Stripper Line

Engineering study of the tritium stripping process by the General Engineering and Consulting Laboratory continues. Several terminal reports (in rough draft form) by Knolls Atomic Power Laboratory personnel have been made available to provide fundamental data. Authorization to design and build a prototype sorption chamber has been given to the General Engineering and Consulting Laboratory.

Project P-10-D

Construction work on Part I of Project P-10-D is proceeding satisfactorily.

Additional design requests have been made to the Project Engineering Division for inclusion in Part II of Project P-10-D. These include:

1. Vacuum Rack and Hood in the Instrument Development Room.
2. Mass Spectrometer.
3. Temporary Maintenance Shop.

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4. Stack Gas Sampling System.
5. Fire Protection System Modifications,
6. Metal Product Transfer Systems.
7. Mercury Vapor Detectors and Vacuum Cleaners.
8. Air Sweep For Outgassing Furnaces.

Project P-10-X

Scoping of the facilities to be provided by the P-10-X Project for the 108-B Building for the production activities of the P Division is essentially complete and preparation of a Project Proposal is in progress. Scoping of the associated development building is continuing.

Experimental Glass Line

To assist in the required production effort in December, development work on the experimental glass line was curtailed and the line and its operating personnel were turned over to the Production Group.

INVENTIONS

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

<u>Inventor</u>	<u>Title</u>
E. A. Smith	(1) Hot-top Mold Hood for P-10 Alloy. (2) Furnace Charging Magazine for P-10 Alloy.
W. A. Clark	High Speed Mercury Contact.

Signed

*W. K. Woods*


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 W. K. Woods  
 Division Head
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January 10, 1951

SEPARATIONS TECHNOLOGY DIVISION

MONTHLY REPORT  
DECEMBER, 1950

VISITORS AND BUSINESS TRIPS

R. Girdler, du Pont, visited the Hanford Works on December 6 for separations processes discussions.

F. Hurd, R. E. Gustafson, C. A. Keinburger, H. F. Henry of the Carbide & Carbon K-25 Plant and G. T. Arnold, AEC, K-25, visited here on December 18 and 19 for discussions of recovered uranium specifications.

A. G. Blasewitz and E. R. Irish attended the A.I.Ch.E. Meeting at Columbus, Ohio, from December 4 through 6.

R. H. Beaton, R. B. Richards, and F. W. Woodfield visited the Knolls Atomic Power Laboratory on December 12 and 13 for a SFRU program consultation.

ORGANIZATION AND PERSONNEL

Personnel totals are as follows:

	<u>November</u>	<u>December</u>
Administration	2	2
Special Assignment	1	1
Research Section	38	37
Development Section	72	71
Process Section	29	29
	<u>142</u>	<u>140</u>

Research Section: One Rotational Trainee was transferred from the Technical Services Division. One Chemist and one General Clerk B were terminated.

Development Section: One Rotational Trainee was transferred from the Purchasing Division, one Chemist was transferred to the "S" Division, and one Laboratory Assistant A was granted a leave of absence.

## Separations Technology Division

200 AFEAS PLANT ASSISTANCECanyon Buildings

The use of water instead of dilute nitric acid for flushing the Dissolvers following coating removal has been initiated as standard procedure. Tests under Production Test 221-B-8 indicated that product losses in the coating removal wastes are lowered to approximately 0.2% of an average run from 0.5% under the acid flush procedure. Uranium losses are lowered from 2.1 pounds to approximately 1.2 pounds per waste. A waste storage volume saving of 215 gallons per coating waste is also realized.

Metal irradiated to a nominal level of 55 MWD/ton is being processed at T Plant. Extraction batches are limited to 1.65 tons of uranium because of limiting process tank volumes. Since the resultant product batches are small, two extraction batches are combined to make one run through the decontamination cycles.

Concentration Buildings

Reworking the lanthanum fluoride by-product waste of each run separately, rather than in combination with that of another run, together with selected items tested under Production Test 224-B-5, has resulted in an effective cycle of approximately six hours. Decontamination and waste losses have not been adversely affected. Flexibility of Isolation Building recycle material handling is not affected under this procedure.

Visual inspections of the B-4 and F-1 Tanks at T Plant were made in investigating the high product hold-up indicated by F Cell flushes. Since an appreciable amount of precipitate was observed on the bottom of the tanks, the agitators have been lowered to facilitate slurry transfer at the lower level.

Isolation Building

Fifteen runs have been evaporated in the stills to a product concentration of approximately 350 grams per liter for processing in the Purification Building with no further drying. No difficulties were experienced in maintaining this concentration.

Fifty per cent, instead of the standard 27.5 per cent, hydrogen peroxide was used under Production Test 231-9 to process ten runs. When this concentration of peroxide was used in 1949, it was indicated that a sludging condition was aggravated during the nitrite decomposition of the peroxide. Subsequent operation at a higher acid concentration and thermal decomposition of the peroxide appear to have eliminated the sludging problem. Since satisfactory operation was observed in the ten recent runs, it has been recommended that the 50 per cent peroxide be tested on production runs for one month at both the Isolation and Canyon Buildings.

Recently the method of analysis for Isolation Building starting solution (P-1) was changed to radio-assay from chemical assay. More recently, the final solution (AT) has been assayed by both radio and chemical methods on a test



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basis. The average material balances for runs processed with chemical P-1 to chemical AT, radio P-1 to chemical AT, and radio P-1 to radio AT were 100%, 97.5%, and 101%, respectively. Although these were not concurrent analyses in all cases, the numbers are considered comparable.

#### Purification and Fabrication Building

Considerable grey to white-colored solids, composed chiefly of Si and Ti, were found in the Hood 29 (Waste Recovery) evaporator after the second water wash of a routine permanganate flush. Pending further investigation, they are tentatively considered to be derived from solution of glass linings of various tanks. Following the flush, concentration of a composite of peroxide supernates containing americium was completed without incident.

Elimination of Sample Can evaporation (Production Test 231-10, Suppl. B) has been tested on 25 cans with no apparent reaction between HI and HNO<sub>3</sub> or other undesirable effects. Oxalate destruction in supernate (Production Test 234-1) was tested on a second lot with 99.46% destruction of oxalate but with incomplete removal of iodine compounds. The test is continuing.

A survey of oxidation and fluorination furnaces showed only two in satisfactory condition. Four furnaces have perforated exhaust gas lines, several have warped tubes. Electrical troubles are frequent, with top heating elements and hinge leads being the most troublesome.

Addition of Chemical 4C-8 in the Reduction operation was made standard practice during December. Use tests of calcium (Production Test 235-3) furnished to a new specification and containing 5 ppm Li (specified 2 ppm max.), 385 ppm N as received, and 239 ppm N when ground (specified 200 ppm max.) resulted in 98.9% yields (normal) of plutonium of acceptable purity.

Test castings made in pre-outgassed crucibles had improved appearance and showed noticeably fewer pits during machining. Fine-grain casting crucibles tested for resistance to thermal and mechanical shock are inferior in these properties to coarse-grain crucibles currently used, but may be usable with care.

A new lathe in Hood 17 (Machining) is producing smoother-machined surfaces which result in better pressed pieces. Production of acceptable Model 110 pieces was started. However, clearance between the No. 4 planes is greater than preferred and new dies to correct this will be tried.

#### REDOX AND METAL WASTE RECOVERY DEVELOPMENT

##### Technical Manuals

The preparation of the Redox Technical Manual was continued. On December 25 the over-all preparation of this manual was about 40% complete. A small amount of effort was expended on the preparation of the Uranium Recovery Technical Manual. On December 25 the preparation of this manual was about 4% complete.

Separations Technology Division

Process Studies

A study to evaluate the feasibility of adapting the Redox Plant to various proposed modifications of the Purex-type "saltless" process was continued. It is expected that this study will be completed in January, 1951, and reported on separately.

Bldg. 321 Construction and Maintenance

Work on the revisions to the Demonstration Unit equipment to simulate portions of the Redox Plant for training purposes is about 99% complete. The major remaining work to be completed before the whole unit is operable consists of calibration of several process stream controlling-recording rotameters. Two minor items, (1) installation of a seal pot on the oxidizer (A-6), and (2) installation of pressure taps on the ICU stripper-concentrator (B-1), will essentially complete the revisions.

Other work of a maintenance nature completed during the period consisted of (1) completion of work on the Aqueous Make-Up Room floor to seal leaks through the concrete, (2) re-installation of all tank farm agitators after the agitator bases were either polythene flame-sprayed or stainless steel-metalized, (3) overhaul of all Fisher pumps, (4) reassembly of 8 Worthington pumps, following overhaul, (5) completion of overhaul of the tank farm suction header valves, and (6) completion of the winterizing of the tank farm pipe trench.

Bldg. 321 Operations

With the exception of continuation of life-testing of the 8-in. column pulse mechanism, the Scale-Up and Demonstration Unit operating equipment remained in an inactive status throughout the month. Operation of the pulser throughout the month was continuous and trouble-free, and with the 720 operating hours accumulated during the month, this mechanism has now performed satisfactorily for 4097 hours (170 days) with water as the test fluid.

Operations personnel continued work on preparation of the Redox and TBP Technical Manuals and preparation of the 321 Building Training Manual for both processes.

Some time was also devoted to an engineering study of the feasibility of installing a 5-in. diameter pulse column to cascade to the 8-in. pulse column, to permit RA-RC cascade operation for TBP training on the Scale-Up unit. The feasibility of adding an existing packed 8-in. column to the cascade as an RO Column, and of making minor piping revisions to the tank farm to permit continuous or nearly continuous operation of the system was also included in the study. Results of the study indicate that operation of the system in cascade is feasible and at present, cost estimates are being made to determine whether or not the gain in training time and ability to procure data more rapidly would offset the additional costs of revision:

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Separations Technology Division

Equipment Studies

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Redox De-entrainment Studies

Two studies were carried out in the 5-inch diameter de-entrainment packing test column, packed with 2 ft. of 1/2-inch by 1/2-inch stainless steel Raschig rings to test the effectiveness of this packing in de-entrainment of droplets from the surface of a simulated boiling Redox ICU solution made 2 M in UME and 1 M in HNO<sub>3</sub>. The first of these studies was carried out (without returning reflux to the packing) over a range of vapor velocities from 0.9 to 13 ft./sec., and the second was carried out at vapor velocities of 7 to 8.6 ft./sec., with the packing wet by refluxing a portion of the condensed overhead vapor to the top of the packing. Uniformity of feed in the pot was maintained by condensing all overhead vapor and returning condensate to the pot by way of a condensate return line or by reflux through the packing. The following new information was obtained from these studies:

- (1) Using dry packing, D.F.'s (Decontamination Factors) ranged from  $2.9 \times 10^7$  to  $8.3 \times 10^5$  and entrainment values ranged from  $5.8 \times 10^{-8}$  to  $2.1 \times 10^{-6}$  lb. liquid entrained/lb. of vapor over a range of vapor velocities from 0.9 to 13.2 ft./sec. with an apparent optimum value at a vapor velocity = 2.4 ft./sec.
- (2) Entrainment increased significantly at a vapor velocity greater than 7 ft./sec. in dry packing.
- (3) With 25% of the overhead vapor returned as reflux to the top of the packing, D.F.'s of  $2 \times 10^7$  with entrainment values of  $8.5 \times 10^{-8}$  lb. liquid/lb. of vapor were obtained at vapor velocities of 7 and 8.6 ft./sec.

TBP De-entrainment Studies

A comparison in the de-entrainment obtained with York woven 18-8 Cr-Ni wire mesh sections made with 0.011-in. diameter wire (coarse) and 0.006-in. diameter wire (fine) at varying bed thicknesses (0, 6, 12, 18 inches) and vapor velocities (1, 3, 6, 9 ft./sec.) indicated that the optimum condition, of those investigated, existed for the fine wire at a depth of 12 inches and a vapor velocity between 3 and 6 ft./sec. The decontamination generally exceeded  $10^5$  for all conditions and only in very few instances exceeded  $3 \times 10^5$ .

The vapor was generated in a single long-tube evaporator simulating the concentration of RCU (78% UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>, 2% HNO<sub>3</sub>).

Equipment Development

Submerged Pump No. 2, a prototype of the Redox Production Plant pumps now being used as a bearing evaluation device, completed 11 days of operation with Stellite No. 12 bushings and journals employing RAX as the test fluid.

Submerged Pump No. 3, a Roth submerged regenerative turbine pump is under low priority test to evaluate Graphitar #2 bushings and Stellite #6 journals operating in water simulating certain agitator requirements (Redox and TEP),

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where sleeve bearings of Graphitar running against Stellite are employed in a water-flooded tube. The pump has completed 185 days of service in water while generating flow to an hydraulic test stand. Operation has been smooth and the shut-off head has remained unchanged at 175 ft.

Submerged Pump No. 4, consisting of a Roth 147 turbine pump driven through a 10-ft. drive shaft guided by two Graphitar No. 2 sleeve bearings operating in a static reservoir of water contained in the torque tube, has operated for 30 days pumping a slurry of 1.67 per cent Superfiltrol F0 in water. Seal leakage for the first 8 days of operation averaged 99 ml./hr. After 8 days the rate dropped abruptly to less than 2 ml./hr. and remained essentially constant throughout the remainder of the test. Disassembly is in progress.

Peerless TD-423-50, the Redox prototype, double-volute turbine pump with Graphitar sleeve bearings on either side of the impeller and Graphitar wear rings, mounted at the lower end of a 10-ft. torque tube containing a force-fed Graphitar bearing at the midpoint of the torque tube, has operated for 65 days in hexone. The shut-off head has remained constant at 214 ft.

Peerless 8"-IA TBP Prototype, a six-stage deepwell turbine pump employing process fluid-lubricated Graphitar No. 2 bearings, completed 36 days of operation in RAX at 1750 rpm., discharge pressure 195 ft., flow rate - 95 gpm. The shut-off pressure has remained essentially constant at 214 ft. Operation was smooth and uneventful. As it has been decided to purchase Johnston Co. pumps for plant application, the test was terminated and the pump removed for inspection.

Johnston 8" TBP Prototype Pump, consisting of an 8-stage deepwell turbine-type pump driven by a 1-3/16-in. diameter shaft approximately 15 ft. long, with the shaft guided between stages and at the middle by Graphitar No. 41 bearings, has been placed in operation in water.

Peerless (P-124) Redox Production Pump, consisting of a single-volute turbine pump mounted on the lower end of a 10'-6" torque tube, is destined for use in the Redox production plant in TK 124, pumping neutral hexone from the canyon to the hexone receiver. The three sleeve bearings (2 on either side of impeller, 1 at midpoint of shaft) are boron carbide, and the journals Stellite. The pump wearing rings are 60% carbon-filled fluorothene-B and the seal has boron carbide seal faces. An external grease-lubricated thrust bearing supports the shaft. The pump has been received, installed, and initial operation on water scheduled for December 29, 1950.

Submerged Motor-Pump Unit, consisting of a G.E.&C.L. turbine pump directly connected to a 1/3 HP induction motor, has completed 102 days operation in RAX at 1750 rpm. Inspection and measurement revealed no significant change in dimensions of bushings, journal, or thrust rings.

Foxboro D/P Cell. One unit has completed 96 days of test operation with water. During the last 53 days of operation, the zero shift was  $\pm 2.0$  per cent (slow drift). At shutdown, the zero was (-) 1.0 per cent. The pen was returned to zero by adjustment at the recorder (Taylor) and the calibration obtained over the full scale was compared to the original calibration. The maximum deviation +20.8 per cent occurred at 10 per cent of chart. Between

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30 and 50 per cent of chart the deviation was 5.5 to 6.8 per cent. From 70 to 90 per cent of chart the deviation was 3.16 to 3.72 per cent. The error of measurement was less than 1.0 per cent.

A second D/P cell orifice plate system has been under test in a system circulating neutralized RAW (contains ppt'd.  $\text{Fe}(\text{OH})_3$ ). The controlled flow rate of 14 gal./min. (27.5% of chart) has been maintained within  $\pm 1.0$  per cent, and the shift in the zero has not been more than  $\pm 0.5$  per cent of chart over the 51-day test period. This concludes the testing on both D/P cell units.

$\text{HNO}_3$ -Hexone Proportioning System, consisting of a Proportioneer's, Inc., air-operated, single-acting, plunger pump with adjustable frequency and displacement characteristics for delivering a metered amount of nitric acid to a mixing tee, where it is blended with a flow-controlled hexone stream, has been evaluated for safety as previously reported. Based upon the findings, the mixing tee, head tank elevations, and column feed line were changed as described in last month's report. The revised equipment was found to work satisfactorily.

#### $\text{MnO}_2$ Scavenging

Three runs at 1150 x gravity were made in the 12-in. diameter solid bowl Bird centrifuge at hold-up times of 16.7, 31, and 32 minutes using dissolver solution containing 0.0757 M  $\text{KMnO}_4$ . The clarities of the effluent solutions (62 to 70%) were less than that of the untreated dissolver solution (84%), although no visible particles were present. Further runs will be made at 1750 x gravity to simulate Redox Production Plant conditions.

#### Materials of Construction

Samples of Pioneer Rubber Mills specially compounded rubber for use in lining aluminum nitrate storage tanks have completed 31 days of static exposure to 72 per cent  $\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ , 0.3 per cent  $\text{HNO}_3$  solution at 25-30°C. The total weight increase was 0.25 per cent. There was no evidence of sample decomposition or reaction and the material is considered entirely competitive with other previously approved lining materials.

A concrete basin (2 ft. x 2 ft. x 2 ft.) coated with Duralon 36 (3 coats sprayed, 1 coat brushed), aired for 7 days at 40°F. and 10 days at 95°F. has been exposed to neutralized and concentrated RAW at  $157 \pm 9^\circ\text{F}$ . (freezing point 22-44°C.). The coating was unaffected over 7 days.

#### Process Chemistry

Studies associated with conversion of  $\text{UO}_2(\text{NO}_3)_2$  to  $\text{UC}_2$  by a continuous-type process have shown:

- (1) Neither organic phosphates (TEBP) nor inorganic phosphates ( $\text{H}_3\text{PO}_4$ ) will be removed during the conversion step at 250 to 300°C.
- (2) Two more determinations of  $U$  (BTU/Hr./Sq.Ft./°F.) during the heating of  $\text{UC}_3$  powder gave results in agreement with previous values ( $U = 1.5$ ). It was observed that the agitation was extremely inefficient as the entire mass tended to move rather than churn to expose fresh material to the heating surface.

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Hot Semi-Works

The lump sum construction bid opening date was deferred from December 20, 1950 to January 4, 1951, at the request of contractors who were late in receiving corrected bid assemblies.

Erection of the temporary construction fence in the 200 East Area is in progress. All posts have been set and the wire 50 per cent installed.

The metal waste transfer system trench will pass through the South and East sections of the Hot Semi-Works construction area. The Design & Construction Divisions have agreed to complete the portions interfering with the Hot Semi-Works area first. The ditch has been excavated and concrete pours will start within a week. Completion is estimated for February, 1951.

Eighteen sub-sections of the Hot Semi-Works Manual were completed this month. The total completed is now sixty and the over-all completion is 30 per cent.

SEPARATIONS PROCESS RESEARCH

Bismuth-to-Plutonium Ratio at Extraction Step

Continued studies of plutonium loss versus MWD at constant bismuth concentration (2.5 g/l) in the Bismuth Phosphate Process Extraction step show no trend toward higher losses for plutonium concentrations up to 1430 g/T. Similar studies at a bismuth concentration of 1.8 g/l show constant losses for plutonium concentrations in the range of 250 to 1430 g/T. In these laboratory studies the losses were about the same magnitude for the two bismuth concentrations. Currently, plutonium loss in the first-cycle product precipitation step at these lower bismuth-to-plutonium ratios is being studied.

Lanthanum Fluoride Concentration Process Studies

Further attempts to combine the bismuth phosphate and lanthanum fluoride by-product precipitation steps in the Concentration process have brought out the following points: (1) recovery of plutonium from the combined cake is incomplete by the current plant lanthanum fluoride by-product cake rework procedure; (2) addition of phosphoric acid to the rework solution did not improve plutonium recovery from the combined cake; (3) increasing the concentration of  $\text{HNO}_3$  by 50 per cent in the rework solution did improve, although not markedly, the recovery of plutonium from the combined cake.

Survey of Activities in Aged First-Cycle Supernates

Plutonium analyses of first-cycle supernates from the six oldest tanks in each of the 200 Areas show a wide variation (100-fold) from tank to tank, the variation showing no apparent correlation to age, area or position of the tank in a cascade. Strontium analyses showed a similar variation, while cesium and total beta content were relatively constant. It is significant to note that the total plutonium content of the supernatant in the twelve tanks is only 184 grams, approximately the same amount that has been annually disposed to ground via cribbing. Furthermore, four of these tanks contain ca. 80% of the total, such that the remaining eight contain only 34 grams.

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Preliminary scavenging experiments indicate that, from synthetic supernates, strontium D.F.s of the order of 200 can be obtained by the precipitation of 0.001 moles of lead per liter while plutonium D.F.s of about 20 are obtained by precipitation of 0.01 moles of ferric iron per liter.

#### Retention of Iodine in Dissolver Solution

Further studies of the use of mercuric nitrate to prevent the evolution of active iodine from Dissolver solution during subsequent process steps show that  $10^{-4}$  M mercury is adequate to reduce the evolution of iodine (added as iodine) from simulated dissolver solution to <0.05 per cent during one hour of air-sparging at about 100 CFM plant scale. Iodine evolution increases rather sharply as the mercury concentration is decreased below this value.

In the Extraction step, iodide carried on bismuth phosphate to a greater extent in the absence of mercuric nitrate than in its presence; about two per cent being carried from a simulated Dissolver solution  $10^{-4}$  M in mercuric nitrate. The carrying of plutonium on bismuth phosphate in the presence of mercury is under study.

Simulated slug dissolving in the presence of  $10^{-4}$  M mercury indicated that the evolution of iodine, although less rapid than in the absence of mercury, was still appreciable.

#### Redox Coupling Studies - Plutonium Peroxide

The Redox plant, if processing 400 g/T material, will produce a final stream consisting of 10 g Pu/l and ca. 5.5 M  $\text{HNO}_3$ . Experiments performed to test the feasibility of coupling this stream into Bldg. 231 operations showed rather poor results when the hydrogen peroxide was added slowly - over a period of 20 to 30 minutes - with intermittent stirring. The troubles encountered, slow and incomplete precipitation of plutonium peroxide, were overcome by rapid addition of hydrogen peroxide and vigorous stirring of the slurry. Further, two alternatives present themselves:

- (1) Make the peroxide strike after neutralization of excess acid. After acidity reduction to 2 M, variations of hydrogen peroxide concentration in the final solution from 7 to 15% caused little difference in solubility, as the plutonium losses were all ca. 1% or less.
- (2) Make the peroxide strike from the high (5.5 M) acid solution. Losses of 1.5% or less occurred when the final solution was 2.8 M  $\text{HNO}_3$  and contained between 11 and 15% hydrogen peroxide.

The presence of 0.02 M aluminum nitrate and 0.004 M  $\text{Fe}^{+++}$ , probable upper limits for these impurities in this solution, caused no deleterious effects.

#### Redox Coupling Studies - Plutonium(III) Oxalate

Plutonium(III) oxalate precipitation studies have been carried out to investigate the feasibility of coupling Redox directly into Bldg. 234-5 operations without first using any Bldg. 231 facilities. The procedure found to work satisfactorily is as follows: evaporate the Redox stream to ca. 600 g Pu/l,

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dilute 160 g. portion of the plutonium concentrate to 2.7 liters with water (this results in ca. 1.5 M  $\text{HNO}_3$ ), add 7 M HI solution to an HI concentration of ca. 1 M, and then add 0.67 M  $\text{H}_2\text{C}_2\text{O}_4$  to a total volume of ca. 7 liters for the precipitation of Pu(III) oxalate. Nitric acid concentrations as high as 2.4 M at the reduction step gave good performance.

Experiments performed at full level plutonium concentrations and in the presence of 0.1 M  $\text{Al}(\text{NO}_3)_3$  during reduction gave plutonium losses of 0.18% to 0.76% after settling 45 minutes and the plutonium(III) oxalate contained <20 ppm aluminum. Further, even if all impurities were to stay with the plutonium during metal reduction, the c/q summation would be <1.

Plutonium Recovery from Slag and Crucible

During the extraction of plutonium from the nitric acid leachings of slag and crucible materials into an organic-TBP phase, the addition of aluminum nitrate to the aqueous leaching solution as a salting agent gives a white material of unknown composition, resulting in appreciable emulsion formation, particularly at the interface. Since this emulsion is objectionable in that a sharp phase separation is extremely difficult, further extraction studies have been performed using either calcium or ammonium nitrate as the salting agent. Ammonium nitrate is no more efficient than nitric acid, but calcium nitrate does effectively increase the values of the plutonium nitrate extraction coefficients. Emulsion troubles have not been encountered using either the ammonium nitrate or calcium nitrate systems.

Redox Head-End Investigations

Using the Junior Cave, two experiments were performed employing 33 ml of 100% Hanford dissolver solution (0.03 M  $\text{HNO}_3$ ), 0.078 M  $\text{KMnO}_4$ , and 3% (by weight) ozone at a flow rate of 16.5 ml/minute for six hours at 95°C. In the first, the permanganate had decomposed completely to  $\text{MnO}_2$  by an unknown mechanism after only three hours' treatment. In the second, some permanganate remained after the complete six-hour treatment. This anomalous behavior is still under investigation.

For the first run, the D.F.s for the Head-End steps were 313, 83, and 370 for ruthenium, zirconium, and niobium, respectively. Through extraction-scrub studies, the over-all D.F.s for zirconium, niobium, and ruthenium were  $1.7 \times 10^6$ ,  $3.2 \times 10^6$ , and  $2.4 \times 10^6$ , respectively (including the D.F.s obtained in the Head-End steps).

Further studies are planned in the Junior Cave to compare more firmly the use of ozone versus an inert gas as the spargant for the ruthenium decontamination step.

Decontamination of Uranium from Combined Aged and Current Metal Wastes

In order to store current metal waste, the Extraction supernatant is neutralized with caustic and carbonate. Subsequently in recovery operations, this caustic and carbonate are to be acidified with nitric acid to prepare the metal waste solutions for feed to the TBP Recovery Plant. Since these two operations result in considerable expenditure of time and reagents, substantial



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saving could be accomplished by blending current metal waste into a feed stream which utilizes aged metal waste from storage tanks. The ultimate volume of wastes (concentrated RAW) from such a blending process would also be materially reduced, since there would be a lesser amount of sodium nitrate resulting from the neutralization processes. Since, however, the fission products in current metal waste have had less time for decay, the fission product spectrum is sufficiently different to cause some concern as to whether or not adequate decontamination can be obtained by the blending process. To test the feasibility of the blending process in the laboratory, a synthetic metal feed corresponding to the TEP HW #4 Flowsheet was combined with Hanford Dissolver solution in a uranium weight ratio of 3 to 1, respectively, and the fission product decontamination measured in a batch countercurrent apparatus of two extraction and three scrub stages. The resulting RAF analyzed 0.251 M UNH, 0.251 M  $\text{SO}_4^{2-}$ , 0.252 M  $\text{PO}_4^{3-}$ , 3.32 M  $\text{Na}^+$ , 5.72 M  $\text{NO}_3^-$ , 3.85 M  $\text{H}^+$ , and 0.05 M  $\text{Fe}(\text{NH}_2\text{SO}_3)_2$ ; the RAS was 2.0 M  $\text{HNO}_3$ ; and RAX was 12.5 volume per cent TBP in AMSCO 125-GOW. With a RAS/RAF/RAX flow ratio of 1/2/5 the D.F.s for beta and gamma were  $4.75 \times 10^4$  and  $1.25 \times 10^4$ , respectively. These D.F.s are believed lower than could have been attained with modified experimental technique, but very promising none the less. Plutonium in the initial RAF was 5% of Dissolver solution and was scrubbed out of the uranium stream (RAU) to the extent of  $3.1 \times 10^{-8}$  g Pu/g U.

#### Uranium Extraction by Tributomyethyl Phosphate

Uranium extraction from aqueous  $\text{HNO}_3$  and  $\text{NaNO}_3$  by 0.5 M tributomyethyl phosphate (TTEP) in Supersol was compared to TBP in the same diluent. TTEP was found to be definitely inferior to TBP as an extractant, as well as having a higher molecular weight (poorer volumetric efficiency) and higher viscosity. When the TTEP-Supersol extractant was contacted with 5 M  $\text{HNO}_3$ , three phases resulted, an effect which was eliminated by the use of  $\text{NaNO}_3$  as salting agent. TTEP- $\text{CCl}_4$  extractants did not form three phases in the presence of 5 M  $\text{HNO}_3$ .

#### Valve-Actuated Pulse Column

A small pulse column has been built in which the conventional pulse generator was replaced by solenoid valves in the inlet and outlet streams, which were actuated and synchronized by an electronic timer. Mechanically, the column operated satisfactorily and gave good mixer-settler type of operation between plates. The pressure on the inlet valves for the liquids employed was adequate between 15 and 40 psig. When the "on" times for the inlet valves were 0.2 and 0.3 seconds with an "off" or settling time of one second, a total liquid throughput of 1000 gal./sq.ft./hr. was obtained. Stage heights are being determined at present for uranium under TBP Metal Recovery Process conditions.

#### Diffusion of UNH and $\text{HNO}_3$ in TBP Extraction

Since solvent extraction processes are generally conceived to be closely associated with the transport of matter through stagnant phase "films" by diffusion alone, a study of the diffusion rates of transferring species should prove valuable in the formulation of a theory for the mechanism of solvent extraction. Extraction of UNH and  $\text{HNO}_3$  by and from solid aqueous 3% agar-agar drops (4 mm. diameter) showed that the percentage (based on equilibrium) rate

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of extraction by diffusion was approximately the same in either direction, although the nature of the continuous organic phase, relative phase volumes, and concentrations of transferring species was varied over a wide range.  $\text{HNO}_3$  extracted at a rate approximately five times greater than that of URE, such that the interface concentration of URE in the aqueous phase was depressed in general agreement with the expression,

$$K = \frac{E_a^\circ}{(\text{TBP})^2(\text{NO}_3^-)^2}$$

The effect of drop stirring can be evaluated by repeating the above experiments with liquid aqueous drops.

Coefficients of diffusion of URE at 25°C. in aqueous 3% agar-agar from an organic RCF were determined to be  $6 \times 10^{-6} \text{ cm}^2/\text{sec}$  (both agitated and static RCF). Values of the diffusion coefficient were similarly determined for  $\text{HNO}_3$  and found to be  $3 \times 10^{-5} \text{ cm}^2/\text{sec}$  (agitated) and  $2 \times 10^{-5} \text{ cm}^2/\text{sec}$  (static).

234-5 PROCESS DEVELOPMENT

A 2-inch sintered platinum filter was used to develop design data for a plant-scale unit for filtration of plutonium peroxide. From the filtration rate data obtained, an equation has been established relating volume of filtrate and time of filtration. This equation can be modified for the case of a filter of larger area to be used for cake separation (in 231 Building) and for hydrofluorination in Task II of the RM Line. It is indicated that the time required for filtration and washing with the proposed filter boat will be on the order of 3 hours.

Based on the observation that the powdery material associated with old skulls can be dissolved much more readily than the skull proper, attempts have been made to generate such powder from skulls by means of oxidation in steam at elevated temperatures. The black powder produced in this way did not dissolve in boiling nitric acid, but was readily dissolved in a mixture of boiling 16 M  $\text{HNO}_3$ -0.04 M HF. Means for incorporating this time-saving operation into the projected skull dissolving operation for 234-5 Building are being studied.

Studies of the direct hydrofluorination of Pu(III) oxalate have been extended. A ten-fold increase in oxygen content of the hydrogen fluoride gas has been shown to shorten the hydrofluorination cycle by one hour. Although equipment limitations may complicate such a change in the 234 Building cycle, consideration is being given to incorporation of this change in the production test recently approved for direct hydrofluorination of Pu(III) oxalate.

Analytical data have been received for the samples of the metal produced in the laboratory experiments where F-10-P solution was given one, two, and three peroxide cycles, respectively. The data do not permit a simple conclusion as to the number of cycles required to obtain adequate purity. Although the lanthanum is observed to decontaminate in the successive cycles, other impurities such as iron, cobalt, and nickel show no decrease with increasing numbers of precipitations. Whether this observation is real or is evidence of recontamination of the material during the Dry Chemistry and Reduction operations in the laboratory is not known. It will be necessary to make additional laboratory runs or a production test, or possibly both, before a firm conclusion can be drawn.

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In search of plutonium peroxide precipitation process modifications which might permit this operation to be carried out in the Task I equipment of the RM Line, the possibility of continuous precipitation has been investigated. Preliminary results with simultaneous addition of plutonium and hydrogen peroxide solutions to an agitated vessel have given satisfactory bulk density of product and suitably low plutonium content of supernatant solution. Product purity and other aspects of the process will be investigated as time permits.

Further attempts have been made to obtain a satisfactory plutonium fluoride by precipitation from an aqueous system. Using solutions containing one gram of plutonium per liter, the precipitate was difficult to separate from the supernate, although a low solubility was noted. A low Reduction yield was observed when the resultant dried fluoride was reduced with the usual proportions of calcium and iodine, but it is not known whether the low yield was due to Reduction conditions or to the nature of the fluoride.

Previous reports have indicated contradictory results in the program of observing the integrated alpha count of coated shapes before and after storage for limited periods of time. The past month's data again show no increase on alpha count with storage. A clearer picture might be obtained here if such operations as electrolytic test and final polishing were not carried out between the initial and final integrated alpha counts. The short periods of storage also operate against easy demonstration of a marginal effect.

Two pieces gave positive electrolytic tests during this period. The pits in the coating which gave rise to the positive results were easily recognizable after their location was defined by the test method.

Procedures for electrolytic tests and radiographic examination of Model 110 pieces have been developed. Conditions required for the film exposures in the radiographic examination do not permit as low resolution as was obtained on the previous model due to the thicker section that must be penetrated in the present case. The necessary gauges, pressure forms for autoradiography, and master inspection forms for the Model 110 assemblies have been received from Los Alamos. The constants to convert neutron counts to emissivity have not yet been received and only a limited amount of film for the autoradiographic work was received. Autoradiographs were made of two Model 090 assemblies and the films and reports were forwarded to Los Alamos for comments. Efforts are being concentrated on establishing procedures for this operation with Model 110 pieces.

#### STACK GAS DISPOSAL

The efficiency evaluation of the first Silver Reactor-Fiberglass filter assembly, installed in the 4-5L Dissolver Cell at B Plant, has been completed. As stated in the previous report, caustic scrubbing monitoring data have established the  $I^{131}$  removal efficiency of the silver reactor to be 99.9%. A spot check monitoring run made December 14 resulted in an efficiency >99.9%. The formation of acidic condensate in the downstream Fiberglass sampling system and the deposition of this material with its associated contamination on the downstream monitor continued to prevent a reliable determination of the filter's efficiency. To overcome this difficulty, it was necessary to install monitoring equipment in the 221-B pipe gallery. The upstream and downstream

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Separations Technology Division

gas samples were obtained from the filter pressure taps located in the entrance and exit plenum chambers, respectively. The samples were drawn through the pressure lead lines to the pipe gallery. The use of these short, clean, and condensate-free lines made accurate monitoring data possible. These data have established the particulate removal efficiency of the Fiberglass filter to be greater than 99.9% and probably near 99.99%.

The third Silver Reactor-Fiberglass filter assembly was placed in mock-up test in the 272-B Building. Difficulties in the by-pass valve operation and the electrical system were observed and corrected. Silver Reactor-Fiberglass filter units were installed in both operating Dissolver cells at T Plant. From the operational viewpoint, the performance of all three reactor-filter assemblies has been satisfactory.

Fiberglass filters were designed for incorporation into the condenser hatchways of the underground metal-waste storage tanks (Project C-362). The filters were designed for an ldf = 4 and a pressure drop of approximately 2.0 inches of water. The detailed specifications for the units have been presented in a letter to F. A. Hollenbach from A. G. Blasewitz, dated 12/6/50.

### INVENTIONS

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>Inventor</u>	<u>Title</u>
C. F. Callis K. M. Harmon	The Combined Use of $KMnO_4$ , in a Separations Process for Plutonium, as: (1) an oxidizing agent for ruthenium, and (2) a source of $MnO_2$ as a scavenging agent for zirconium and niobium.
O. F. Hill C. H. Holm	Use of Mercuric Salts in Dissolver Solution to Prevent Evolution of Iodine.

*R. H. Beaton*  
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R. H. Beaton  
Separations Technology Division

Date: January 1, 1951

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TECHNICAL SERVICES DIVISION

DECEMBER 1950

VISITORS & BUSINESS TRIPS

There were no offsite visitors to this Division during the month.

Business trips of Technical Services Division personnel were as follows:

C. R. McCully spent December 1-2 at the University of Minnesota consulting on mass spectrometry. He visited the Knolls Atomic Power Laboratory on December 4-6 where he discussed mass spectrometric methods of analysis for P-10 process materials.

E. F. Gates visited the Eck & Krebs Scientific Glass Company in New York City, December 11-19, to effect modification in glass valves being supplied by that company for P-10, and to secure delivery on a quantity of these modified valves.

W. C. Healy spent December 27-29 attending meetings of the American Statistical Association and Institute of Mathematical Statistics held at Ann Arbor, Mich.

ORGANIZATION AND PERSONNEL

Personnel totals in the several subdivisions are summarized as follows:

	<u>November 30</u>	<u>December 31</u>
Analytical Section	292	291
Engineering Section	76	78
Information Group	72	70
Statistics Group	17	19
Administrative	<u>3</u>	<u>3</u>
Division Totals	460	461

The Analytical Section employed one laboratory assistant, and one laboratory assistant returned from a leave of absence. One laboratory assistant resigned and four went on leaves of absence.

The Engineering Section employed one experienced glass technician, and received one serviceman by transfer from the Transportation Division and one draftsman by transfer from the Design & Construction Divisions. One general clerk was transferred to the Maintenance Division. The Information Group employed three general clerks; three resigned, and two went on leaves of absence. The Statistics Group added one Mathematician by transfer from Schenectady, and employed one office machine operator.

Technical Services Division

Two additional Rotational Trainees were assigned to the Analytical Section, bringing to eight the total now assigned to this Division. Of this total, seven are in the Analytical Section and one in the Engineering Section. Two of the five trainees formerly assigned to the Analytical Section were replaced during the month.

ANALYTICAL CONTROL

Work Volume Statistics

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

	November		December	
	<u>Samples</u>	<u>Determinations</u>	<u>Samples</u>	<u>Determinations</u>
Process Control - 200	4,546	12,580	4,770	12,305
Process Control - 300	493	940	447	797
Water Control - 100, 700	744	3,089	1,059	3,642
Research & Dev. Programs	3,350	7,264	4,413	7,297
Process Reagents	2,015	2,411	2,323	2,738
Essential Materials	199	983	176	855
Special Samples	1,277	9,996	1,491	9,359
Stack Gas Filters	49	92	9	18
Naval Reactor Project	22	119	53	212
Totals	12,695	37,474	14,741	37,223

The heading "Research and Development Programs" has been substituted for "Redox & TBP Programs" to represent more correctly the fact that this category includes all analytical control work in support of the Redox, TBP, UO<sub>3</sub>, 234-5, Analytical RDA, and Purex research and development programs.

100 Areas Water Control

In analysis of Naval Reactor (P-13) Project gas samples, the time consumed by taking pressure readings on the McCloud Gauge after successive pumpings of the Toepler Pump was saved by altering the operation of the apparatus so as to use the high vacuum of the system to transfer the gas to be analyzed. A saving of 10 hrs./mo., better precision and fewer lost samples due to leaking ampule stopcocks resulted from this change.

200 Areas Control

The precision of the results of the analysis of the Canyon Bldg. starting solution (6-3-MR), the Isolation Bldg. starting and final solutions (P-1 and AT, respectively), and the 234-5 Bldg. starting solution (P-4) may be summarized as follows:

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Precision ( $\pm$  %)

<u>Samples</u>	<u>Expected</u>	<u>November Average</u>	<u>December Average</u>
6-3-MR	1.58	1.58	1.56
P-1 (Chem. Assay)	2.39	1.87	-
P-1 (Radio Assay)	1.51	-	1.49
AT (Chem. Assay)	1.57	2.01	1.78
P-4	2.51	1.74	-

The method of determining plutonium in the P-1 sample was changed from chemical to radio-assay, as explained in the November report. Statistical evaluation of recent data showed that the expected precision for the AT analysis should be changed from  $\pm 1.98\%$  to  $\pm 1.57\%$ , indicating steady improvement in laboratory techniques. Analysis of the P-4 sample was discontinued this month.

The tabulated counting range limits for radio-assay discs prepared in the analysis of Concentration Bldg. samples were received from the Statistics Group (Reference: Letter dated November 30, 1950, W. C. Healy to O. P. Amacker) and were placed in effect on December 1 in the 222-B and T Bldg. Laboratories. The range limits were established from statistical evaluation of radio-assay data on approximately 125 current production runs. The prepared discs must check within the prescribed limits or the sample must be rerun.

Table of Range Limits - 224 Building Samples

<u>Sample</u>	<u>No. of Discs</u>	<u>Upper Limit % Range</u>
A-4-BP	2	16.85
D-4-BP	2	13.57
F-8-WS	2	11.23
B(E)-3-WS	2	23.33
E-4-RC	4	3.63
E-4-RC	3	3.40
C-4-P	2	2.10
C-4-P	4	4.00
D-1-O	3	3.75
F-1-PS	2	2.45
F-10-P	4	3.44
F-10-P	3	3.23

The 271-B and T Laboratories were reactivated on December 12 for Essential Materials and Process Reagents analyses, thereby releasing Room 6 of each 222 Bldg. Laboratory for use by the Analytical Research and Methods Adaptation Groups. Except for emergency situations where "rush" analyses are needed, in each area one chemist per shift spends the first four hours of the shift performing the analytical work on Essential Materials and Process Reagents samples in the 271 Laboratory and the last four hours of the shift in the 222 Laboratory performing radio-assays on process samples.

As of December 20, the Canyon Bldg. starting solution is being sampled



before reduction. This sample is now coded 6-3-MS rather than 6-3-MR. This change in sampling procedure gives the laboratory three hours (reduction time of the metal solution) to complete the analytical work and should practically eliminate any operations hold-up due to sampling and analysis of this solution.

All changes in the analytical program for the Separations Process as outlined in Document HW-18731, "Accountability - Analytical Methods Improvement Committee Meeting," were instituted during the month and the material balance for these processes may now be calculated on a radio-assay basis and an americium-curium correction factor applied to each run as it is processed.

In the B plant, sampling of the retention basins (ponds) has been reduced to one per 24 hours rather than one per shift. This change in sampling procedure results in a savings of 25 man hours/month of analytical time. This change will also be instituted at T Plant after the retention basins and overflow pipes have been cleaned of debris.

Other changes in sampling and methods of analysis introduced during the month which influence manpower requirements are listed below. The man-hour totals cited represent actual bench time and are based on a 120-run/mo. schedule.

1. Approximately 92 man-hours/month of analytical time will be required for the americium-curium determination on the 6-1-MS sample.
2. The necessity for sampling the effluent from the lanthanum fluoride by-product precipitation (D-4-BP) on each run rather than alternate runs will require approximately 24 man-hours/month of analytical time.
3. All 6-1-MS and 6-3-MS samples are being analyzed for plutonium by the direct evaporation procedure (Method CA-6b) rather than the lanthanum fluoride precipitation procedure (Method CA-2a). This change in procedure results in a savings of approximately 280 man-hours/month of analytical time.
4. A reduction has been made in the number of discs prepared in the analysis of the D-1-0 sample (oxidized solution prior to lanthanum fluoride by-product precipitation). Accuracy requirements are still being met. It is estimated that 44 man-hours/month of analytical time will be saved as a result of this change in procedure.
5. Sampling the P-4 solution was discontinued on December 1, which resulted in a saving of approximately 60 man-hours/month of analytical time based on a 200 run/month (234-5 Bldg. runs) schedule. This saving has been temporarily off-set by the analytical service required for the 231-10 Production Test. Actually there were five more P-4 samples received during the month than would normally have been the case.

The high voltage-low voltage Selector Switch Control and a new and safer wiring circuit for the spectrograph has been installed and placed in service in the 234-5 Bldg. Laboratory. Also, a service representative from the Applied Research Laboratories installed two improved film drive mechanisms in the spectrograph, thereby eliminating a prime source of maintenance dif-



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difficulties. The old film drives have been delivered to the shipping warehouse for subsequent return to Applied Research Laboratories.

As another improvement in this laboratory building, a plastic safety shield has been fabricated and installed around the high vacuum apparatus used in the gasometric determination of carbon in plutonium metal.

### 300 Area Control

The high silica content reported in magnesium oxide essential material samples was found to be due to reagent contamination. The Baker-Dunson reagent grade sodium carbonate, used in the analysis to fuse the magnesium oxide, was found to contain 25 times more silica than was stated on the label. Reagent blanks are now being run on each bottle of sodium carbonate used.

Due to increasing procurement difficulties, the 300 Area P Division is investigating means of recovering U, Sn and Cu from the bronze and tin baths as well as the bronze flux. This program has resulted in a large increase of metal samples to be analyzed for U, Sn and Cu.

### Chemical Research Service Laboratory

Because of the high activity level of some recently submitted samples, it has been necessary to build a lead brick shield in one of the steel hoods and quickly develop remote control means for coping with the problems of determining Pu, Nb, Ru and Zr.

It has been found that permanganate in very active solutions may be determined by titrating with ferrous sulfate. This method reduces the number of sample transfers required in the colorimetric method, and thereby reduces the radiation hazard to the analyst.

### Chemical Development Service Laboratory

To provide a better work load distribution in anticipation of additional shift coverage requirements for control of the Canning Operation, the responsibility of calibrating micro glassware was transferred from the General Chemical Laboratory to the Chemical Development Service Laboratory. The equipment and two persons assigned to the work were transferred at the same time. Otherwise the operations of the laboratory continued on a routine basis.

### Counting Standards

The processing of increased MWD level material in the 200 Areas, and the increased emphasis on accountability, caused a question to be raised concerning the basis of the coincidence loss correction factor for Simpson Proportional Alpha Counters (ASP). This factor is applied to the alpha counts measured in the analysis of the Separation Process solutions. Using the paired disc technique, the resolving time of the ASP Counters was determined to be  $0.117 \times 10^{-6} + 0.016$  minutes. Dividing any given counting rate (R) by  $1 - 0.117 \times 10^{-6} \times R$  and subtracting the observed counting rate will give the coincidence loss at that rate. In application, this will cause

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an 0.3% change in the factors used in the past. The test results were substantiated with a recently received electronic instrument, The Double Pulse Generator, which accurately measures the resolving time of the counter. From this time the coincidence loss can be calculated as before.

#### Miscellaneous Service Analyses

A new furnace has been installed in the cold P-10 alloy analytical line (300 Area) and operated with the furnace tube inside an evacuated chamber. In two runs, the rate of hydrogen diffusion into the furnace tube using this equipment was approximately 0.01 cc/hr. as compared to a rate of 0.8 cc/hr. on the unjacketed furnace tube of the type now being used in the P-10 production lines. This design change should improve the accuracy of the analytical work in support of the Metallurgy Section studies, and adds further weight to the arguments for change of the present P-10 production line design.

#### Methods Adaptation

Studies on the fluorimetric determination of Chemical 70-58 were continued. This method consists of dissolution of the sample with hydrochloric acid, reduction of the plutonium with sodium hydrosulfite, buffering of the solution with acetic acid - ammonium acetate, extraction of the Chemical 70-58 as an oxinate with chloroform and measurement of the fluorescence of the extracted material with a Klett fluorimeter. Results to date indicate that with optimum concentration of acetate, hydrogen ion and oxine, at least 99% of the Chemical 70-58 and less than 0.001% of the Pu are extracted by the chloroform.

In the fluorimetric determination of uranium, use of a TBP extraction of uranium followed by back extraction into 5% sodium fluoride solution appears promising. This separation step decreases the radioactivity of the fused melt and appears to improve the precision of the method.

The calibration of reference liquids for the determination of specific gravity by the falling drop technique was substantially completed. Each solution covers a range of 0.05 specific gravity units and a precision of  $\pm 0.0001$  may be obtained when required. One lambda drops may be used without seriously decreasing the precision of the method.

The recovery of plutonium from the 234-5 laboratory wastes for return to the "S" Division has been undertaken. At present, the wastes from analytical operations are stored in four-liter bottles having fritted stoppers for ventage. There is a total of 153 liters of solution containing 1078.9 grams of Pu. Since approximately 1/3 of the total volume is in the low level liquid waste from Chemical 70-58 analyses, this problem was examined first. Six of the bottles contained less than 0.06 g. of Pu per bottle and four ranged from 0.8 to 5.0 g. of Pu per bottle. Present work is directed towards hydroxide precipitation of the Pu to remove objectionable impurities and to concentrate the plutonium.

**DECLASSIFIED**Special Hazards Control

A portable gloved box has been in use since December 4 in the 222-B Laboratory for the plutonium assay of F-10-P samples. Constructive criticisms regarding the box are being tabulated and will be forwarded to the Design Unit of the Engineering Section for study before other boxes are assembled for use in the 222 Laboratories.

Several high air samples were obtained in Room 143 of the 234-5 Bldg. during the week of December 4-December 10. Investigation of the hood exhaust dampers revealed that a damper had slipped. The damper was reset and a locking set screw was installed to prevent a slipping recurrence. Apparently this hood was missed during the installation of the locking set screws on the shafts of all hood dampers in February 1950.

ANALYTICAL RESEARCHP-10 Analytical Studies

Mass spectrometric analyses of gaseous P-10 products have increased in number with greater familiarity with and routinization of the method, 328 separate process samples having been analyzed and reported during the month. Approval has been obtained and a requisition placed for a second instrument to provide adequate facilities to meet the work load imposed by P-10 operation and development. Experience has shown that an excessive amount of time is required to convert the raw mass spectrometer data to percentages. For this reason, an electronic calculator has been devised that will perform the necessary calculations automatically. The necessary parts have been ordered, and it is expected that the instrument will be assembled for testing within several weeks.

Analyses of surface and dissolved gas in unirradiated lithium-aluminum slugs has continued on a current basis during the month, with 35 separate analyses reported. Elimination of the backlog of samples has released a certain amount of apparatus time for much-needed testing of the method. Standard gas samples introduced into the system while the extraction tube remains at room temperature have been recovered with a high degree of accuracy. However, samples introduced while the extraction tube is held at 700° C were only partially recovered. This information correlates with the observations obtained with the 300 Area hydrogen line relative to the diffusion of hydrogen through hot stainless steel. It also serves to explain the poor correlation that is evident by the examination of all past analyses.

Analysis of Uranium Oxide

A conference between Hanford and K-25 personnel was arranged by the Separations Technology Division during the month to discuss specifications for uranium oxide ( $UO_3$ ) produced from Redox and TBP process materials. As part of the agenda, detailed considerations were given to the analytical methods to be employed for the analysis of the product. These included methods for the determination of beta activity, gamma activity, plutonium content, uranium content, impurity content, particle size distribution, bulk density,

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and surface area. In each case an attempt was made to select a suitable umpire method that was acceptable to both sides. A majority of the methods were agreed upon by the participating parties, and further information is being gathered at both sites to allow selection and detailing of the remaining methods. It was agreed that uranium isotope determinations were necessary principally in regard to Hanford accountability considerations. In order to allow conduct of these analyses, approval has been given and a requisition is being placed for the purchase of two mass spectrometers.

Radiochemical Methods (FDA #TC-1)

It was reported previously that an attempt was being made to replace platinum counting discs with disposable stainless steel discs. Such a move would eliminate inaccuracies caused by the marred surface of used platinum discs, and would eliminate the necessity of decontaminating and testing the discs between uses. A systematic survey has been undertaken to find if the stainless discs are suitable for use in the plutonium assay of various separations process solutions, and the evidence to date indicates satisfactory performance in the analysis of all but three such solutions.

A study of the effect of the discriminator bias on the counting rate obtained with the fission counter has been supplemented by a similar study designed to establish the effect of the chamber potential on both the alpha and the spontaneous fission counting rates. The data gathered from these two studies allow the selection of the optimum operating conditions. These were found to coincide closely with those recommended by KAPL. An additional brief study showed the optimum setting of the delay line clipper to be about 0.15  $\mu$  sec.

Spectrochemical Methods (RDA #TC-2)

A study of an infrared absorption method for the determination of carbon monoxide in pile atmosphere has shown that a linear relationship is obtained between carbon monoxide pressure and optical density in the absence of carbon dioxide, but not in its presence. It has been shown that the curved relationship obtained in the presence of carbon dioxide is due to a distortion in the shape of the carbon monoxide absorption band, and that a linear relationship may be obtained by plotting the carbon monoxide pressure versus the square of the optical density.

Electrochemical Methods (RDA #TC-3)

The previously tested method for the coulometric determination of uranium involves reduction of uranium in a lead reductor and subsequent coulometric titration. Nitrate interferes in the titration, and must be eliminated. No completely satisfactory method for destroying the nitrate was found. Borohydride and hydrobromic acid accomplish the purpose, but act slowly. Chromous ion is effective, but an undesirable excess is required.

Conventional Chemical Methods (RDA #TC-4)

Reference has been made previously to the investigation of a method for the determination of Chemical 70-58 that involves chromatographic separation and

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subsequent photometric determination of the material. It has been found that iron is not separated according to the procedure, and that it interferes in the photometric measurements. Evidence has been obtained that the interfering effect of the iron may be removed either by reducing it to the ferrous state prior to the separation, by complexing it during photometric measurements, or by selection of a modified color developing agent.

Further work on the development of a method for the determination of sulfur in metallic plutonium has included the photometric analysis of 25 standard solutions; a sensitivity of 0.2 ug and a precision of + 10% were obtained. Analysis of a Bureau of Standards' steel sample showed a recovery of about 80%.

The results of the standard sample program during the month are summarized in the following table:

<u>Sample</u>	<u>Constituent</u>	<u>Laboratory</u>	<u>Method</u>	<u>Concentration</u>	<u>Found</u>	<u>No.</u>
6-3-MR	Am	222-B	--	$3.875 \times 10^3$	$3.876 \times 10^3$	11
6-3-MR	Am	222-T	--	$3.875 \times 10^3$	$3.865 \times 10^3$	8
6-3-MR	Am	222-B	--	In progress		
6-3-MR	Am	222-T	--	In progress		
6-3-MR	Pu	Chem. Res. Service	CA-2a	In progress		
6-3-MR	Pu	222-B	CA-6b	In progress		
6-3-MR	Pu	222-T	CA-6b	In progress		
Pu Soln.	Chemical 70-58	234-5	--	In progress		

Miscellaneous

Members of the Analytical Research Groups have participated in discussions with Pile Technology Division personnel for the purpose of planning the procedures in a proposed in-pile experiment designed to reduce film build-up on pile cooling tubes, reduce the activity of pile effluent water, and decrease the cost of water treatment. Consideration was given to the nature and frequency of necessary analyses and to the methods of sampling.

The November report described analytical work conducted in an effort to determine the cause of high neutron absorption of certain aluminum cans. Spectrographic and radioactivation analyses had failed to disclose the cause. It was observed that the offending cans had a slight discoloration on the surface. Removal and analysis of this surface material revealed a concentration of boron, cadmium, and several other elements. Calculations indicated, however, that the quantities present were not sufficient to cause the high neutron absorption.

ENGINEERING SERVICES

Mechanical Shops (Bldgs. 101 and 3706)

Work volume statistics for the Mechanical Shops are as follows:

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	Customer Division or Program	November		December (a)	
		No. of Jobs	Man- Hours	No. of Jobs	Man- Hours
<u>Work Done on Jobs Com- pleted</u>	P-10	20	790	14	287
	Pile Tech. (Incl. P-12) (b)	45	1,005	37	339
	Separations Tech.	39	417	37	394
	Technical Services	40	373	36	490
	Other Divisions	2	10	1	2
	Subtotal	146	2,595	125	1,512
<u>Work Done on Jobs Not Completed</u>	P-10	6	675	2	507
	Pile Tech. (Incl. P-12)	6	297	11	506
	Separations Tech.	4	116	8	79
	Technical Services	5	161	4	19
	Other Divisions	0	0	1	28
	Subtotal	21	1,249	26	1,139
Total Work Done			3,844		2,652

Work Backlog:

				Man-Hours To Complete	
<u>Jobs Started</u>	P-10	6	1,434	2	1,549
	Pile Tech. (Incl. P-12)	9	4,399	11	4,327
	Separations Tech.	5	99	8	94
	Technical Services	5	95	4	69
	Other Divisions	0	0	1	(c)
	Subtotal	25	6,027	26	6,040
<u>Jobs Not Yet Started</u>	P-10	2	860	2	98
	Pile Tech. (Incl. P-12)	4	116	15	311
	Separations Tech.	8	121	12	255
	Technical Services	15	356	28	870
	Other Divisions	2	416	4	114
	Subtotal	31	1,869	61	1,978
Total Backlog			7,896 (d)		8,018 (e)

- (a) To expedite month-end reporting, records were closed and the above statistics compiled as of 12-25-50. It is planned to follow this practice in the future.
- (b) P-12 designates the Exponential Pile Project.
- (c) Unestimated routine work.
- (d) Does not include 352 man-hours transferred to Maintenance & Inst. Div. Shops.
- (e) Does not include 352 man-hours transferred to Inst. Shop during December.

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The apparent drop in December work volume from the November level, even after adjustment for the short period resulting from the December 25 cut-off, is due to the fact that the November statistics (and those for October, also) erroneously included work done by other Divisions in support of the 101 Shops (e. g., Transportation Div. help with P-12 graphite handling). The December figures are limited to jobs actually performed by Technical Shops forces.

The six-day work week was continued in the Bldg. 101 Shops, as required to meet the P-10 Program needs for special equipment.

Installation work on the additional office facilities for the Pile Technology Division in Bldg. 101 was completed by outside forces. Pile Technology personnel were then moved from the 100 and 300 Areas to occupy these offices. Personnel of all divisions regularly assigned to the 101 Area now total 116.

Graphite sample shipments were being received on a continuing basis from Great Lakes Carbon Co. Machining of the samples and testing was being conducted.

The Stores Division contacted the Technical Shops on numerous occasions for data and information pertaining to graphite storage, and also to secure ideas relative to storage. One meeting with Stores and Pile Engineering representatives was held, at which time various facilities and the types of facilities necessary for graphite storage were discussed.

Two Toepler pump units for P-10 were delivered to Bldg. 108-B on December 4 and two more units on December 22, all as scheduled. Test results continue to indicate that all the units fabricated to date will meet the rigid requirements specified.

A "pinch-off" tool was fabricated for the purpose of cutting and sealing  $\frac{1}{4}$ " O.D. aluminum tubing. The sealing of tubing was required after a sample of gas or liquid had been taken into the tubing. The seal is obtained by applying hydraulic pressure, thus forming a cold weld. The tool was designed by the P-10 group and fabricated in the 101 Shops. This is the first of this kind of precision tool made for any of the Technical Sections on the project. Test results have proved to be extremely satisfactory and an order has been placed for another such tool, identical to the original except that it will be used for sealing smaller size tubing.

The third set of mercury pots was completed for P-10 on schedule, and delivered to 108-B. A total of 36 units has been completed on this order.

A cut-off box for the Metallurgy Section was completed during the month. The box was enclosed within 4" lead shielding and contains an abrasive cut-off saw for the sectioning of irradiated slugs. To reduce fabricating costs on this job, the box was made of  $\frac{1}{2}$ " brass plate bolted construction instead of the originally planned welded stainless steel.

Fabrication work continued on exponential pile graphite. Upon completion of the fabrication work now scheduled, all graphite needed for exponential piles planned in the first phase of this program will be complete. This does not include the specialty graphite items for this work, but will give the

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details necessary for erection of the exponential piles.

A Gilmont titrating assembly was fabricated for testing and eventual use in Junior Caves. This equipment will be used for determining the amount of acidity in a product through addition of a neutralizer. The unit is remotely controlled. A previous titrating assembly had been made in another shop but was not remotely controlled. Its use was limited due to inaccuracy and contamination problems. The new remote controlled unit was built and assembled in a very compact manner, consisting of three reduction geared motors with two gear box assemblies, six micro switches, a solenoid valve and other intricate parts.

A large number of small jobs were completed in the Bldg. 3706 shop, principally in support of the Chemical Research, Analytical and Metallurgy Sections. Work was completed on the micro precision pumps for Chemical Research which are being used in column extraction studies. Considerable difficulty has been encountered with these pumps due to the close tolerances and the action of the pump itself. Shop and gadgeteering work for the Junior Cave was completed. Several changes and revisions had to be made before test runs could be accomplished.

Work was still progressing on the assembly of a thermo conductivity unit for the Pile Technology Division. The unit was fabricated in the 101 Shops but the final assembly and installation work is being carried on by the Bldg. 3706 shop. There are several small jobs in progress in this shop for P-10, consisting of necessary work in support of the Glass Shop and the work being carried on in Bldg. 3706 by Analytical and Metallurgy for the P-10 program.

Glass Shop

Work volume statistics for the Glass Shop (exclusive of P-10 service) are as follows:

	<u>November</u>	<u>December*</u>
<u>Jobs Completed</u>		
New	37	48
Repairs	14	15
Revisions	<u>7</u>	<u>7</u>
Total	58	70
<u>Job Backlog</u>	33	29

\* Statistics based on period ending December 25.

Seven glass blowers were assigned on a full-time basis to P-10 work at Bldg. 108-B. Three of these men were working shifts on production lines, and the other four were lending assistance in developmental work and the installation of Line 4. The assigning of these men to P-10 on a full-time basis placed an abnormally high load on the one glass blower and two trainees remaining in the Glass Shop. Installation work and testing of Line 4 was completed, and a large number of jobs turned out in the Shop.

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The trainees are increasingly valuable, due to their ability to fabricate some of the less complicated parts.

Two glass blowers had to be removed from P-10 production line work due to being above the working limits for contamination. Personnel contamination continues to be troublesome, and no determination has yet been made as to how this contamination is contracted. This also is a serious scheduling problem, due to the limited number of glass blowers who can act as replacements.

An emergency trip to New York was made by the Glass Shop Foreman for the purpose of contacting Eck & Krebs Scientific Glass Co. to secure an immediate modification and production of the P-10 discharge check valves. Fourteen of the new-type check valves were obtained at once, and a promise for the delivery of twelve additional valves during the following weeks was secured.

One Glass Shop trainee continued on assignment to the H.I. Biology Division in Bldg. 108-F.

Equipment Design

Work volume statistics for the Equipment Design Unit, expressed as man-hours, are summarized as follows:

	November		December	
	Engineering	Drafting	Engineering	Drafting
<u>Pipe Technology</u>				
Engineering Section	36	96	192	250
Physics Section	152	264	-	-
Metallurgy Section	184	80	168	8
<u>Separations Technology</u>				
Chemical Research Section	340	28	428	136
Chemical Development Section	20	192	40	200
<u>Technical Services</u>				
Engineering Sect. (Tech. Shops)	12	-	-	8
Analytical Section	164	168	120	108
Statistics Group	-	-	4	44
<u>Laboratory Equipment Development (RDA #TC-5)</u>				
	224	223	484	244
Totals	1,132	1,056	1,436	998

The following work was done for Divisions and Sections as indicated:

Pipe Technology Division

Engineering Section

1. The underwater slug weighing device was nearly completed.

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2. Fabrication of the underwater slug scrubber was nearly complete.
3. Development of the pressure tube cut-off device continued. The fourth shear blade design tried made successful clean cuts from steel tubing without damage to the blade.
4. Design has started on a pressure tube disposal method based on removal of the tube from the pile building by monorail.
5. The thermo-conductivity apparatus was being assembled in Bldg. 3706.
6. Drafting of the bubble tester continued.
7. Drawings were made on the following items: Slugs, underwater collet, gas nozzle, and some graphs.
3. A shipping cask was drafted. Drawings of the process mandrel and beta nozzle were completed.

#### Metallurgy Section

1. "Slice-and-dice" box development continued; various additional sketches were prepared for shop work.
2. Development of the "sugar loaf" cask and operating equipment continued.
3. Tests were carried out on a slug dicer built by the 300 Area Instrument Shop.
4. Scoping of equipment for slug fracturing tests was started.
5. A sample shaker for use in Bldg. 3706 was drafted.

#### Separations Technology Division

##### Chemical Research Section

1. The installation of the gloved box in Bldg. 3706, Rm. 44, continued.
2. The installation of the 9-foot gloved box in Bldg. 3706, Rm. 95, was nearing completion. The interior has been partially taped and strip-coated with "D-1000" coating.
3. A pipet rack support was designed.
4. Sink trays were sketched.
5. Assistance was given in the assembly of two stirrer-motor control panels.
6. A manual switch adapter was designed for the automatic valve cycle timer.

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7. A lucite gloved panel adapter with air lock was designed and assembled for a type K hood.
8. Three gloved boxes were outfitted and delivered to Bldg. 3706.
9. Assembly of the metal recovery apparatus for Junior Cave use continued. This unit was nearly complete, but alterations are being made in accord with a change of program.
10. Development of the pulse column apparatus for Junior Cave use continued. Pre-pump sintered stainless steel filters were designed and built for this unit after some pump troubles were discovered in Bldg. 3706 laboratories.

Chemical Development Section

1. Conferences were held on the multicurie wing and hot cells of Bldg. 222-S. One draftsman continued on direct assignment to this Section in Bldg. 3702.

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Engineering Section

1. A cabinet was designed for the shops.

Statistics Group

1. A base enclosure was designed and installed for one of the IBM machines at Bldg. 101. This enclosure includes fiberglass filters and blowers to provide a dust-free air for circulation around electronic components.

Analytical Section

1. Some spectrophotometer attachments and a polythene funnel were designed.
2. A thermometer rack and the primary sampler enclosure for Bldg. 222 laboratories were sketched.
3. Work on the chromium assay panel continued.
4. Outfitting of the chromatography gloved box continued.
5. A gloved box at Bldg. 234 was inspected.
6. A wiring diagram was drafted.
7. Scoping of the temperature controlled chromatography cabinet continued.
8. A waste can was drafted.

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9. Some drawings of a still were made.

Laboratory Equipment Development (RDA #TC-5)

The following work was done under this RDA:

1. Scoping of the airborne contamination detector continued.
2. Experimental application of protective coatings continued. The following coatings were prepared and submitted for corrosion tests: "4-A" resinous enamel, "Penkote," "D-1000" strippable coating, "Krylon" plastic spray coat, "W-600" and "C-111" rubber coatings and Amerocats 23 and 33. Panelyte and Lucoflex were also tested. Results were not yet available.
3. Development work on a cheap manipulator gauntlet for Junior Caves continued. The metal expansion spring was successfully eliminated, and attempts were being made in the Technical Shops to mold a gauntlet from Neoprene.
4. Design of multicurie cell equipment for Bldg. 222-3 was well underway. Design of in-cell air hoists was complete enough for shop fabrication; however, alterations were to be expected during assembly and testing. Several varieties of tongs were sketched and were being built.
5. One machinist was obtained on a continuing direct assignment from the Technical Shops for the multicurie cell equipment development work. This man will be indispensable when the cells go into operation.

New Laboratory Planning

Redox Analytical & Plant Assistance Laboratory, Proj. C-187-E

Construction work on Bldg. 222-S, the Redox Analytical & Plant Assistance Laboratory in the 200-W Area, was about 73% complete as of December 29. The associated waste disposal system was 60% complete. The dry-waste disposal vault, retention basin and solution and process waste lines were about complete. Work generally was slightly behind schedule because of the shortage of pipe welders and pipe fitters and delays in shipment of partitions. The latter delays were caused by the adverse weather conditions on the East Coast and in the Middle West.

Radiochemistry Bldg., Proj. C-381

There was a minimum need for contact engineer liaison on the design of this major building for the new Hanford Works Laboratory Area during December. The architect-engineering work by Leland S. Rosener was estimated to be 82% complete as of the middle of the month.

Plot Plan and Utilities, Proj. C-394

Several check prints were received from the Leland S. Rosener Co., and contact engineer comments were transmitted through D & C. In order to

## Technical Services Division

provide suitable slope for the waste lines, it was found necessary to relocate the retention and neutralization basin to a point approximately 200' northwest of the location shown on the scope print. A topographical survey was requested of this new site. Information pertaining to the soil characteristics in the area in which the leaching trench is to be located was being assembled for submission to the architect-engineer.

Radiometallurgy Bldg., Proj. C-365

The design of this building was begun on November 22 by the Leland S. Rosener Co., and by December 16 their progress schedule showed that mechanical design was 28% complete and building design was 8% complete. Check prints on some of the special mechanical equipment were received, checked, and comments transmitted through D & C.

Mechanical Development Bldg., Proj. C-406

Invitations for bids were sent out by D & C for the immediate construction of the shell of this building, with bid opening scheduled for early January. This building, the shell of which is to serve initially as housing for the construction forces during the main phase of the Works Laboratory construction program, will be the first Technical Divisions structure in the Hanford Works Laboratory program.

Pile Technology Bldg., Proj. C-414

A.E.C. approval of the project proposal for the design and construction of the Pile Technology Bldg. was obtained by Directive No. HW-212 on December 6.

Completion of the design criteria for this building was expedited in order to provide this information for review by the proposed architect engineer, Chas. T. Main and Co., during contract negotiations. These negotiations were completed by D & C, and by the end of the month approval had been requested of the A.E.C. for this design contract.

Library & Files Bldg.

The project proposal for the Library & Files Bldg. was completed and submitted to the A & B Committee for action at a special meeting. This facility, which has been designed to house also the Statistics Group and certain other general administrative personnel, is estimated to cost \$848,000. Preparation of the design criteria was expedited in order that D & C can present this information to the Chas. T. Main Company promptly, with a view toward inclusion of this design as a modification to the Pile Technology Bldg. design contract. Preliminary discussions were held with D & C personnel and representatives of the Main Company to discuss the scope of this new facility prior to the completion of the project proposal and design criteria.

Bldg. 3730 Extension

Contact engineer liaison continued with the Project Engineering Divisions

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in the preparation of a project proposal covering the extension of the experimental metal forming facilities now housed in Bldg. 3730. A cost study indicated that, if another use can be found for the existing building, the construction of an entirely new building can be justified over making the extensive revisions which would be required to the existing building.

Laboratory Supply Bldg.

Contact engineer study of this building was begun. Discussions with Purchasing & Stores led to the conclusion that such a 300 Area facility would be logical for the primary receiving, storage and distribution of solvents and Caution 10 items (chemicals and laboratory equipment) which find their greatest use in that Area. Preliminary consideration was being given to the utilization of Bldg. 3730 (if released, as noted above) as the solvent dispensing and solvent sample storage facility.

300 Area Services

Normal Bldg. 3706 services continued routinely. Stockroom and work order activity is summarized as follows:

	<u>November</u>	<u>December</u>
<u>Purchase Requisitions</u>		
Total number processed	114	75
Number requiring special expediting	12	6
Number requiring emergency handling	1	2
<u>Stores Stock Requests Processed</u>	3	2
<u>Store Orders</u>		
Total number processed	1,166	979
Number requiring emergency pick-ups & deliveries	16	7
<u>Work Orders Processed</u>	45	54

Considerable time was spent in a study of the ventilating problems of Bldg. 3706. The fresh air supply units furnishing the building are designed to operate at approximately one-half of their capacity during cold weather. This is necessary to avoid overloading the heating units (during hot weather, by-passes permit supply air to enter without passing through the steam coils and the units are enabled to operate at full capacity). With this situation, the exhaust systems (fume hoods, attic exhaust fans, etc.) create a negative pressure within the building during cold weather. This results in excessive cooling in any location which may have an opening to the outside; doors are difficult to open, and cold air rushes in each time they are used. To compensate for the decreased air supply, attic exhaust fans have been turned off for trial periods; a slight negative pressure still resulted, but conditions were much more satisfactory. An undesirable result is insufficient air circulation in the attic for Maintenance personnel. The possibility of operating a minimum number of attic fans and increasing the air supply to compensate for the added exhaust is being investigated.

STATISTICAL & COMPUTING SERVICES

Statistical design features were incorporated in an experiment to gain further Test File Information on the quality of seven batches of Scoville aluminum cans on hand at Hanford.

The statistical analysis of data from Production Test 314-54-M, to study the effects of furnace pressure and etched turning scrap on the quality of re-melted uranium, was reported in Document HW-19812. An analysis of the reactivity of canned uranium slugs fabricated from billets produced by the Mallinckrodt experimental furnace was made for the Metallurgy Section of the Pile Technology Division.

Further statistical design of experimentation was made for the Engineering & Control Division study of uranium slug cut-off tools. The objective of this study is to reduce annual uranium scrap losses by \$50,000. This is an extension of a program instigated by the Statistics Group in 1949 which has already resulted in \$150,000 annual reduction in scrap losses.

Daily, weekly, and monthly statistical controls were reported on P Division operational results at Machining, Pickling, Canning, Test File, Autoclave, and Melt Plant (for monthly report see Doc. HW-19918).

For the 300 Area P Division, a sampling and testing procedure was recommended to determine the uranium content of 100 barrels of brick lining from furnaces in the Melt Plant. A study was begun to provide production and analytical personnel with more practical sampling and testing specifications to meet S.F. material accountability requirements for uranium oxides.

A report was made to the S. F. Accountability Section (Doc. HW-19710) of the losses of U(235) in the aluminum-silicon baths during the canning of P-10 fuel slugs. An estimate of the difference between Test File results on P-10 fuel slugs before and after the recent recalibration of the Test File was furnished to 300 Area Accountability and Pile Technology Division (Doc. HW-19789). For the Analytical Section, the precision of the volumetric method for the determination of lithium was estimated, and a study of the precision of P-10 analytical results using the mass spectrograph was undertaken. Enlarged graphs were furnished the P Division, in connection with the P-10A testing program, to facilitate calculations by the Test File operators.

Dimensional data were analyzed to determine the distribution of deviations from average diameter in canned P-10 fuel slugs. At the request of the Industrial Engineering Section of the Project Engineering Divisions, a statistical analysis was made of the dimensions of irradiated P-10 fuel slugs to determine optimum dimensions of buckets for handling discharged slugs.

Statistical analysis of Production Test 105-255-P, to study the effect of rolling temperature on uranium slug stability during pile irradiation, was begun for the Pile Technology Division. The numerical calculations from theoretical formulae of the pile multiplication factor  $k$  for various graphite radii, water thickness, and uranium radii, was completed for the Pile Physics

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Section. At the request of the Pile Engineering Section, I.B.M. equipment was used to prepare a table of the fifth root of water vapor mixtures for moisture percentages 0(1) 100 and pressures 15(5) 100; 110(10) 200; and 220(20) 400. Methods of programming the Pile Engineering Section "boiling disease" problem for I.B.M. computations is under study. I.B.M. programming was completed for fitting a three term cosine series to Pile Physics Section experimental data. Calculations of tube temperature gradients from tube mock-up data were made for the Design & Construction Divisions.

In connection with a proposed test to reduce outgassing time of plutonium metal in the 235 Bldg. process, information in regard to the number of samples required was furnished to the Separations Technology Division.

A statistical study of the errors involved in obtaining a specified quantity of plutonium in each batch in the separation process revealed considerable improvement in control since the previous study sixteen months ago. The reduction of batch make-up errors from + 6.0% to + 3.8% is an important step in improving material balance and process control.

Final study of the Analytical Section experiment on the paper chromatographic extraction of Chemical 70-58 showed an interaction between the length of the paper strip and the amount of 70-58 in the sample. Preliminary results from an extensive study of data obtained by the Analytical Section in cross-checking vacuum attachments on different ASVP instruments indicate that observed discrepancies are functions of attachment-instrument combinations (interactions) rather than of the attachments themselves.

Weekly and monthly statistical controls were reported on the precision and accuracy of analyses made on uranium solutions, plutonium solutions, and process wastes by control laboratories in Buildings 222-B, 222-T, 231, and 234-5. The monthly report (Doc. HW-19919) also includes the AT Specific Gravity Relationship; 231-234 plutonium assay differences; and Hanford-Los Alamos plutonium assay differences. Calculations were made to show the effect on precision, and on process resample limits, of a reduction in counting time from four minutes to one minute for separations process samples.

The regular semi-monthly report of certain Kr-85 computations for the A.E.C. was completed and forwarded.

A study for the H. I. Biology Division was made of the uptake of radioactivity in a variety of field crops treated with irrigation water of different type. Data from thyroid counts, radio analysis, hematology and blood chemistry, obtained at the Animal Farm of the Zoology Group, are being recorded on I.B.M. cards to facilitate statistical calculations in the analysis of covariance to be applied to these data.

#### LIBRARY, FILES AND CENTRAL REPORTING SERVICE

##### Plant Library

Library work volume and book statistics were as follows:



Technical Services Division

	<u>November</u>	<u>December</u>
Number of books on order received	106	198
Number of books fully cataloged	126	236
Number of bound periodicals processed but not fully cataloged	9	0
Pamphlets added to the pamphlet file	22	64
Miscellaneous material received, processed, and routed (Including maps, photostats, patents, etc.)	108	55
Books and periodicals circulated	2,862	3,034
Unclassified reports processed	270	223
Unclassified reports circulated	193	140
Reference services rendered	1,404	1,472

	<u>Main Library</u>	<u>W-10 Branch</u>	<u>108-F Branch</u>	<u>Total</u>
Number of books	6,594	2,665	244	9,503
Number of bound periodicals	4,115	0	497	4,612

Work in the Plant Library proceeded on a routine basis. Figures on the circulation of books and periodicals, and the number of technical reference services rendered, continued to increase and reached a new high for the third successive month.

The reference services rendered, of which a number of typical questions are listed below, continued to reflect the use of the Library's reference resources by all Divisions at Hanford:

- What is the highest possible concentration of iron in an  $Fe_2O_3 \cdot H_2O$  colloidal sol?
- What does 2" diameter manila rope weigh per linear foot?
- All available data on the vapor pressure of the uranium halides. Impurities in commercial acetylene.
- What is the composition of alsimag refractory?
- Effect of beta and gamma radiation on rubber.
- Who is the personnel director and resident director of the Bechtel Corporation in San Francisco?
- What is the vapor pressure of propane at  $-30^\circ$ ,  $0^\circ$ , and  $+30^\circ$  Fahrenheit?
- What is the specific heat of water between  $50^\circ$  and  $500^\circ$  Fahrenheit under minimum pressure required to maintain the liquid state?
- What information is available on high capacity electrically heated steam generators or boilers?
- Specifications for glazed tile.
- Permeability of human skin to Hg and other toxicants.
- Information on Boolean algebra and Boolean functions.
- Standard dimensions of a welding ell.
- How to maintain field records of costs of construction.

The project proposal for the Library & Files Bldg. planned for the new Hanford Works Laboratory Area was completed, with the necessary narrative support.

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The expedited purchasing procedure established in 1949 was further improved at the suggestion of the Purchasing Division. The new procedure will involve the preparation of a single purchase requisition for the calendar year, with invoices paid directly by Accounts Payable against this basic requisition. Thus, a large proportion of the books and periodicals will continue to be purchased from a single broker selected on the basis of submitted bids. This has already resulted in a substantial discount on the cost of the Library's acquisitions, and the new procedure will also markedly decrease the number of purchase requisitions required to procure the Library's routine book and periodical additions.

Classified Files

Work volume statistics for the Classified Files were as follows:

	<u>November</u>	<u>December</u>
Documents routed	11,072	10,010
Documents issued	6,140	5,477
Reference services rendered	4,110	3,940
Registered packages prepared for offsite	389	289
Inter-area mail sent via transmittal	25,448	23,879
Holders of classified documents whose files were inventoried:		
(a) Because of normal perpetual inventory procedure	110	134
(b) Because of transfer of work assignment	2	2
(c) Because of termination	3	1
Inventory reductions:		
Copies of documents destroyed	146	398
Copies of documents downgraded	0	0
Copies of reports declassified	3	1
Classified documents located which were unaccounted for in previous inventory	84	37
Volume of unclassified mail handled by the 300 Area Mail Room	38,228	26,111

The work of the Audit & Inventory Unit continued routinely. The number of personal files inventoried during the month was the highest achieved to date.

After a meeting with D & C Classified Files personnel, plans were completed to begin the inventory of the 300 Area, 700 Area, and D & C Classified Files in January 1951. Tentative procedures have been drafted and the necessary forms printed. It is planned that the inventory will be started by two girls in each of the three Classified Files involved, in order to test the practicality of the proposed procedures.

A summary report on the present inventory program was prepared, setting forth the current A.E.C. inventory requirements as well as past Hanford performance and present plans for meeting these requirements.

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The quarterly inventory of personal document holdings was set in motion using procedures and forms which had been developed prior to the issuance of the formal Instructions Letter, H. W. 135, Section XXVI. It is anticipated that this additional requirement will greatly aid the inventory program by supplying a useful supplement to the field inventories of classified documents; requiring the proper maintenance of adequate office records on classified documents; and reducing the reporting period on missing documents. It will also serve as a valuable pilot study on which to base recommendations for expanded use of this method of conducting a classified document inventory.

The space situation in the 300 Area Classified Files continued critical. A work order was issued expanding the present main Files room to include the West half of the East-West hallway in Building 3702.

Central Report Publications Unit

Work volume statistics for the Central Report Publications Unit were as follows:

	<u>November</u>	<u>December</u>
Ditto masters run	446	619
Mimeograph stencils run	593	876
Ditto copies prepared	16,476	19,332
Mimeograph copies prepared	37,046	43,589
Formal Research and Development Reports issued	23	14
Reports abstracted	267	263

A number of steps were undertaken to expedite the handling of code designations as required under H. W. Instructions Letter No. 135, Section XXIII. Division Heads were asked to review the "Unofficial Security Codes" listed in document HW-18223 (Hanford Codes and Jargon) and to indicate those of present and continuing security value. Official A.E.C. approval will be requested for those so indicated. Those of no further security value will be included as "Convenience Codes" in the revision of HW-18223, presently in process. In addition, the new document will summarize officially approved code changes occurring since original issuance.

INVENTIONS

All Technical Services 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 December 1950 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>Inventor(s)</u>	<u>Title</u>
W. N. Carson, Jr.	Preparation of P-10-A Slugs



Technical Services Division

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HW-19842-*Del*

E. M. Kinderman

A Process for the Recovery of Uranium  
and Aluminum from Spent Al-Si

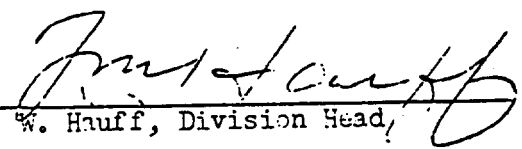
W. N. Carson, Jr. &  
E. R. Schmidt

A Method of Gas Extraction from P-10  
Alloy

J. E. Meinhard

Separation of Ions by Means of Solid  
or Supported Liquid Membranes Carry-  
ing Specific Selective Agents

Signed

  
T. W. Hauff, Division Head

TW:mcs

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MEDICAL DIVISIONS

DECEMBER 1950

## General

### Personnel Changes

The roll increased from 277 to 279.

### Visits

A public health nursing consultant from San Francisco visited us at our request for the purpose of offering constructive criticism of our obstetrical nursing services.

Dr. Sachs attended a civil defense meeting called by the State Medical Civil Defense Director in Seattle.

A social service worker attended the Washington State White House Conference in Seattle.

The field director of Washington Society for Crippled Children consulted with our Public Health Division.

## Industrial

Employee physical examinations increased from 2205 to 2227. Dispensary treatments decreased from 7986 to 7506.

Four major and twelve submajor injuries were treated as compared to eight major and seven submajors for the previous month. One major and two submajor injuries were sustained by G. E. employees.

Industrial hygiene studies of the welding operations in White Bluffs were started.

"Sleep" was the health topic for the month.

Sickness absenteeism decreased by 0.11% to 2.00% while total absenteeism decreased by 0.17% to 2.67%. The decrease occurred in spite of a wave of mild gastro-enteritis thought to be due to a virus infection. Several blood specimens were sent to the State Virologist for check.

## Kadlec Hospital

The average daily census decreased from 92.0 to 90.8 (77.7 adults, 13.1 infants) The census was 68.8 a year ago. Daily census - Max. 108, Min. 57. Nursing hours per patient day were 3.34 for the mixed services and 4.02 for obstetrics.

An addition to the Medical-Dental Building was completed and adds 50% to the space. All community physicians now have offices in this building and only one dentist remains to be moved into this building. This gives needed space to Kadlec Hospital and Public Health which was previously occupied by clinic physicians and dentists.

## Public Health

A large increase in communicable disease was due mainly to increase in chicken-pox and to a less extent scarlet fever.

Twenty restaurants have been given permits for operation in 1951. About one-half of these are in need of minor improvements prior to their being rated Grade "A". Two milk producers were rejected for failure to comply with sanitary requirements. State tests of herds in our area are being made because of two or three herds suspected of harboring Bang's disease.

New chemicals are being used in area rodent control efforts. Water, food and milk control operations were satisfactory.

MEDICAL DIVISIONS

DECEMBER 1950

Costs (November)

Medical Divisions' operating costs before assessments to other divisions were as follows:

	October	November	November Budget
Industrial Medicine (Oper. Div.)	\$ 38,044.	\$ 45,017.	\$ 40,563.
Public Health (Oper.)	10,897.	11,513.	11,070.
Kadlec Hospital (Net)	23,271.	24,909.	25,478.
Hosp. assessments to other divisions and Workmen's Compensation	3,793.	3,366.	3,700.
Sub-total - Oper. Medical Divisions	<u>76,005.</u>	<u>79,805.</u>	<u>80,811.</u>
Construction Medical (Ind. & P.H.)	11,189.	11,786.	13,387.
Total (Operations & Construction)	\$ 87,194.	\$ 91,591.	\$ 94,198.

The net cost of operating the Medical Divisions, before assessments to other divisions, was \$91,591., an increase of \$4,397., and \$2607. below the budget figure. Salary costs were increased \$1882. due to holiday and other overtime, and an additional industrial physician. Supplies and other costs were up \$3918. due largely to increased assessment from Municipal, Real Estate and General Services Divisions. A big factor in this was a back charge and increased use amounting to an increased charge of \$1861. Maintenance charges increased \$1800. due to increased electrical and plumbing repair work. While hospital revenue increased \$1638., it was insufficient to offset increased steam charges and increased maintenance charges.

MEDICAL DIVISIONS

DECEMBER 1950

Industrial Medical Division

General

The total number of dispensary treatments and medical examinations remained about the same as the previous month. The station at MJ-1 continued to handle 58% of all construction first aid cases.

Industrial hygiene studies of the welding operations began in White Bluffs. The Chemical Hazards Committee met on Dec. 21 and outlined a series of routine studies to be made.

The industrial physicians' scientific meeting dealt with "Coronary Heart Disease and the Employee". It was decided that the next meeting would deal with Civilian Defense.

The Health Activities Committee met on Dec. 21 and the health topic on "Sleep" was presented. Material on this subject was presented for distribution to all employees. Plans were made for the making of a film strip for orienting employees about available industrial medical health services.

There were no findings attributable to radiation exposure of any employee during the month. One construction employee was hospitalized who believed his condition to be due to welding fumes, but the cause of the trouble has been shown not to be a result of welding.

Absentecism due to sickness was 2.00% and absenteeism due to all causes was 2.67%.

The net cost of operations increased \$2002. over the previous month. This was due chiefly to transferred charges from other divisions, the chief item being steam; professional services and travel expense.

	Increase or (decrease) over Previous Month	November	October	November Budget
Administration	\$ 879.	\$ 9025.	\$ 8146.	\$ 9047.
Household & Property	(31.)	1448.	1479.	1300.
Professional Services	541.	24238.	23697.	26140.
Total Direct Expense	1389.	34711.	33322.	36487.
Accrual for Public Liability Claims	-0-	150.	150.	-0-
Transferred Charges from Other Divisions	651.	5704.	5053.	5100.
Less: Revenue	67.	548.	481.	1024.
Workmen's Compens.	(29.)	662.	691.	700.
Net Cost Operations	2002.	39355.	37353.	39863.

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MEDICAL DIVISIONS

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<u>Physical Examinations</u>	<u>November</u>	<u>December</u>	<u>Year to date</u>
<u>Operations</u>			
Pre-employment.....	134	126	1566
Rehire.....	27	35	560
Annual.....	412	497	4689
Interval.....	329	309	4946
Visitor.....	0	0	1
A. F. C. ....	45	19	190
Recheck.....	152	123	1622
Termination.....	80	100	1037
Sub-total.....	1165	1204	14611
<u>Sub-contractors</u>			
Pre-employment.....	204	269	3625
Rehire.....	424	346	3935
Recheck.....	108	90	1180
Termination.....	304	318	2872
Sub-total.....	1040	1023	11612
Total Physical Examinations.....	2205	2227	26223
 <u>Laboratory Examinations</u>			
<u>Clinical Laboratory</u>			
Government.....	127	75	1246
Pre-employment, terminations, transfer..	4848	4984	60727
Annual.....	2161	2599	24451
Rechecks (Area).....	1861	1602	25925
First Aid.....	0	2	142
Clinic.....	2893	2637	32690
Hospital.....	3972	3640	36971
Public Health.....	38	32	655
Total.....	15900	15571	182807
 <u>X-Ray</u>			
Government.....	21	14	213
Pre-employment, termination, transfer...	818	793	9964
Annual.....	431	517	4862
First Aid.....	135	159	1633
Clinic.....	229	205	2696
Hospital.....	232	225	2273
Public Health.....	5	12	72
Total.....	1871	1925	21713
 <u>Electrocardiographs</u>			
Industrial.....	34	60	371
Clinic.....	5	2	46
Hospital.....	26	27	276
Total.....	65	89	693
 <u>Allergy</u>			
Skin Tests.....	4	5	200



MEDICAL DIVISIONS

DECEMBER 1950

<u>First Aid Treatments</u>	<u>November</u>	<u>December</u>	<u>Year to date</u>
<u>Operations</u>			
New occupational cases.....	344	281	4215
Occupational case retreatments.....	1018	948	13995
Non-occupational treatments.....	3094	2682	36897
Sub-total.....	<u>4456</u>	<u>3911</u>	<u>55107</u>
<u>Construction</u>			
New occupational cases.....	659	540	5526
Occupational case retreatments.....	2223	2266	18524
Non-occupational treatments.....	648	789	4712
Sub-total.....	<u>3530</u>	<u>3595</u>	<u>28562</u>
Total First Aid Treatments.....	7986	7506	83969
<u>Major Injuries</u>			
General Electric.....	0	1	5
Sub-contractors.....	8	3	67
Total.....	<u>8</u>	<u>4</u>	<u>72</u>
<u>Submajor Injuries</u>			
General Electric.....	1	2	25
Sub-contractors.....	6	10	79
Total.....	<u>7</u>	<u>12</u>	<u>104</u>

<u>Absenteeism</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>	<u>%</u>	<u>Comparison with</u>
				<u>Absenteeism</u>	<u>previous month</u>
No. days absent due to all causes	1999	1175	3174	2.67%	.17% less
No. days absent due to sickness only	1505	869	2374	2.00%	.11% less
Avg. days absent by males due to sickness	.34 day or 340 days/1000 employees				
Avg. days absent by females due to sickness	.58 day or 580 days/1000 employees				
Avg. days absent by all employees due to sickness	.40 day or 400 days/1000 employees				

Comparison of present year to date figure on total absenteeism with the 1949 figure shows an increase of .01%.

Absenteeism by divisions:

Plant Security & Services	2.30%
Municipal, Real Estate & Gen'l Services	2.32%
Manufacturing	2.36%
Design & Construction	2.85%
Purchasing & Stores	3.00%
General Accounting	3.12%
Medical	3.43%
Technical	3.64%
Employee & Community Relations	3.68%
Health Instrument	4.03%

Absenteeism Investigation:

Total No. calls requested.....	18	7	167
Total No. calls made.....	18	8	167
No. absent due to illness in family.....	0	0	3
No. not at home when call was made.....	0	1	16

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MEDICAL DIVISIONS

DECEMBER 1950

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Community Medical Division

General

The ratio of hospital employees to patients (excluding newborn) for the month of November was 1.70. When newborn infants are included, the ratio is 1.49. The figures represent reductions from the previous month due primarily to an increased patient census.

The net expense of the Richland community medical program for November, 1950 was \$24,909., as compared to \$23,271. for October. Breakdown is as follows:

Kadlec Hospital net expense	\$ 24,609.
This is an increase of approximately \$1600. as compared to October. It is due primarily to increased salary costs and increased charges from other divisions. Revenue also increased during November due to a higher patient census, but it was not sufficient to offset the additional expenses.	
Clinic net expense	300.
This is an increase of approximately \$50. due to greater personnel time spent on getting clinic medical records ready for storage.	

Miss Marjorie Clark joined the staff at Kadlec Hospital as Chief Dietitian on December 4.

Two surgeons have vacated the space which they have been occupying in the hospital and have moved into the new wing of the Medical-Dental Building. The chief nurse and her secretary have moved into a portion of this vacated space, with Medical Records expanding into the remainder. This change has made two additional patients' rooms available in our Pediatric Section.

<u>Kadlec Hospital</u>	<u>November</u>	<u>December</u>	<u>Year to date</u>
<u>Census</u>			
Admissions: Adults.....	443	488	5101
Patient Days: Adults.....	2418	2409	26831
Infants.....	342	406	4082
Total.....	2760	2815	30913
Average Stay: Adults.....	5.5	4.9	5.3
Infants.....	5.2	5.0	5.3
Average Daily Census: Adults.....	80.6	77.7	73.5
Infants.....	11.4	13.1	11.2
Total.....	92.0	90.8	84.7
Discharged against advice.....	0	1	14
One-day cases.....	66	92	812
Occupancy Percentage: Adults.....	90.5%	87.3%	82.6%
Infants.....	142.5%	165.0%	140.0%
Admission Source: Richland.....	80.8%	79.7%	80.3%
North Richland.....	8.6%	7.9%	8.0%
Other.....	10.6%	12.4%	11.7%

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MEDICAL DIVISIONS

DECEMBER 1950

Census (continued)	November	December	Year to date
<u>Admissions by employment:</u>			
General Electric.....	73.4%	77.1%	
Government.....	2.9%	2.1%	
Facility.....	4.5%	4.5%	
Sub-contractors.....	11.3%	10.0%	
Schools.....	1.4%	1.2%	
Military.....	3.8%	2.9%	
Others.....	2.7%	2.2%	
<u>Surgery</u>			
Majors.....	68	70	768
Minors.....	57	84	894
Eye, Ear, Nose, Throat.....	64	47	584
Transfusions.....	61	45	625
Dental.....	2	2	21
<u>Vital Statistics</u>			
Deaths.....	1	7	37
Live Births.....	66	82	775
Still Births.....	3	0	14
<u>Physiotherapy Treatments</u>			
Clinic.....	169	133	1026
Hospital.....	181	139	951
Industrial: Plant.....	183	125	1956
Personal.....	34	11	248
Total.....	567	408	4191
<u>Pharmacy</u>			
No. of prescriptions filled.....	3063	2931	32325
<u>Patient Meals</u>			
Regulars.....	3721	3823	39901
Specials.....	1291	1302	12671
Lights.....	37	24	1601
Softs.....	1357	1283	17532
Tonsils & Adenoids.....	171	104	1362
Liquids.....	128	169	2285
Surgical Liquids.....	79	90	848
Total.....	6784	6795	73200
<u>Cafeteria Meals</u>			
Noon.....	1275	1195	16260
Night.....	177	184	2615
Total.....	1452	1379	18875

Public Health Division

General

There was a sharp increase in the number of communicable diseases reported due primarily to chickenpox. Slight rises in scarlet fever and ringworm were also noted. Due to this increase in morbidity, home nursing for communicable diseases increased by 90%. There is a total increase for all types of home nursing visits of 30%.

A meeting was attended in Seattle on civil defense called by the State medical defense director. At this meeting the medical aspects of casualties occurring following disaster were discussed. Subjects such as treatment of burns, laboratory service, hospitalization and radiological contaminations were discussed.

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MEDICAL DIVISION

DECEMBER 1950

General (continued)

A meeting on civil defense for the Tri-city area was attended, at which time the administration setup for Benton-Franklin Counties was presented. An attempt was made to correlate medical facilities in the Tri-city area through the district health department and the county medical society.

Miss Vera McCord, Director of Field Services, Washington Society for Crippled Children, visited the department. She is interested in establishing a local society for the benefit of handicapped children in the Tri-city area.

Mrs. Dunlap, social service counselor, attended the Washington State White House Conference for Children. The group included representation from all organizations working with or for the youth of the state. Discussions centered about community responsibilities to children, and recommendations were made for the establishment of programs which would best carry out these responsibilities.

Future civic improvements in Richland include the development of the well recharge basin into a park area and the use of the basin as a boating facility. The depth will be increased to three feet and stocked with game fish by the aquatic biology division. Improvement of this area will help in eliminating a source of mosquitoes, and should aid in the maintenance of the water table supplying the several wells.

Rodent control measures were commended in one of the new production areas using warfarin (compound 42). Despite the concrete construction of the building, numerous means of entry for rodents are existent, mainly where piping enters the building.

The milk supply has been satisfactory as revealed by field inspections and laboratory tests. Two producers were rejected during the month for failure to comply with sanitary requirements. At the present time the State Agricultural Department is making special studies relative to Bang's infected herds in an effort to eliminate the sources of infection in this area. There are at present two or three suspected herds in the milk shed supplying this area.

Water samples are being collected more frequently and held in the laboratory in case any one of the samples tested may indicate the need for further analysis. Also, the chlorine residual is being routinely checked in points throughout the grid system.

Approximately one thousand feet of irrigation drainage ditch was cleaned for the purpose of mosquito control and well field run-off.

Twenty restaurants have been given permits for operation in 1951. Approximately one-half of this number are in need of minor improvements prior to their being rated Grade "A".

The November financial report shows a \$716. increase, of which \$383. was due to immunization supplies used in the school immunization program.

MEDICAL DIVISIONS

DECEMBER 1950

General (continued)

Other increases are found chiefly in the division's absorption of expenses transferred from other divisions in categories such as steam and building, and equipment maintenance. The budget for the fiscal year was reduced to \$4,220. without specific notification. It is felt that this will handicap our yearly program since much of our work is seasonal and savings made in one quarter should be applied to later yearly quarters to balance our program in the fiscal year.

	<u>November</u>	<u>December</u>	<u>Year to date</u>
<u>Education</u>			
Pamphlets distributed.....	13905	25822	119038
News releases.....	18	4	68
Classes.....	2	0	47
Staff meetings.....	2	1	42
Lectures & talks.....	13	5	91
Attendance.....	668	206	3851
Conferences among section members.....	67	95	732
Films shown.....	4	3	41
Attendance.....	263	57	1601
Radio broadcasts.....	4	1	13
 <u>Immunizations</u>			
Diphtheria.....	412	295	2669
Influenza.....	0	0	1
Rocky Mt. Spotted Fever.....	0	0	13
Smallpox.....	349	543	2371
Tetanus.....	326	517	1035
Typhoid.....	0	0	20
Whooping Cough.....	6	1	115
Tuberculin Test.....	0	1	32
Total.....	<u>1093</u>	<u>1357</u>	<u>6256</u>
 <u>Social Service</u>			
Cases carried over.....	84	78	1058
Cases admitted.....	19	14	191
Total.....	<u>103</u>	<u>92</u>	<u>1249</u>
Cases closed.....	25	6	193
Remaining case load.....	<u>68</u>	<u>86</u>	<u>1056</u>
Sources of referral:			
Public Health.....	4	1	36
Doctors.....	7	7	67
Interested person...	3	2	19
School.....	1	0	9
Personnel office....	0	0	2
Personal application	3	3	33
Other agency.....	1	1	14
Miscellaneous.....	0	0	11
Total....	<u>19</u>	<u>14</u>	<u>191</u>
 <u>Sanitation</u>			
Inspections made.....	101	115	1790

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MEDICAL DIVISIONS

DECEMBER 1950

<u>Bacteriological Laboratory</u>	<u>November</u>	<u>December</u>	<u>Year to date</u>
Treated water samples.....	175	189	2293
Milk samples (inc. cream & ice cream)...	19	18	530
Other bacteriological tests.....	162	249	2573
Total.....	<u>356</u>	<u>456</u>	<u>5396</u>
 <u>Communicable Diseases</u>			
Amoebic dysentery.....	0	0	1
Chickenpox.....	103	251	512
Erysipelas.....	0	0	1
German measles.....	10	18	196
Gonorrhoea.....	1	0	3
Impetigo.....	1	1	19
Influenza.....	1	0	9
Measles.....	0	0	12
Meningitis.....	0	0	1
Mumps.....	0	2	14
Pharyngeal Infection.....	0	0	6
Pinkeye.....	7	3	27
Poliomyelitis.....	0	1	8
Ringworm.....	5	22	46
Roseola.....	0	1	5
Scabies.....	0	5	18
Scarlet Fever.....	19	26	107
Syphilis.....	3	6	40
Tuberculosis.....	1	0	6
Vincent's infection.....	0	1	1
Whooping cough.....	0	0	19
Total.....	<u>151</u>	<u>337</u>	<u>1051</u>
 Total No. Nursing Field Visits.....	 899	 1182	 11188

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MEDICAL DIVISIONS' PERSONNEL SUMMARY

Dec. 31, 1950

Area	Physicians	Nurses	Anesthetists	Nurse Aides	Orderly & Amb. Dr.	Technician - Clin. Laboratory	Tech. - X-Ray	Tech. - Bact. Lab.	Tech. - Phys. Ther.	Secretary	Cler. Work. Leader	Steno. & Typist	Office Mach. Oper.	Telephone Oper.	General Clerk	Pharmacist	Dietitian	Cook	Kitchen Worker	Soc. Serv. Couns.	Sanitarian	Health Educator	Janitors	Records Supv.	Accounting Supv.	Admn. & Assistant	Others	TOTAL
Division Admin.	2	2								2	1	1.5	2	3	9.6								2	3	2	2	2	32.1
Industrial	3.7	9		1								1.5	1		6							4.6					2	26.8
Hospital	2	51	3	24	6	9.3	3	1	2**			2			12	3	2	5	9			7.3					6	148.1
Public Health	1	8		1								3			1					3	2	1	.6					20.6
Industrial	2	1				1.4	2								8.4							.7						15.5
Public Health	2	2																				.3						2.3
100-B	.2	1																										1.2
100-D	.2	4													.4													4.7
100-F	.1	4				.1									.3													5.2
100-H	.1	1				.1									.5													1.7
241-S	.1	1				.1									.5													1.5
200-E	.1	4				.1									.5													1.7
200-W	.2	5				.6									.5													4.7
300	.3	2				.6									.3													6.3
MJ-1	.1	3				.6									1													3.2
White Bluffs		1																										4.1
TOTAL	12	99	3	26	6	13	5	1	2	2	1	8	3	3	41	3	2	5	9	3	2	1	14	2	3	2	8	279

\* (3) Nurses working part time.

\*\* (1) Physical Therapist working part time.

Number of employees on roll:  
 Beginning of month 277  
 End of month 279  
 Net increase 2

Note: T. W. Galbraith (Bacteriologist) carried on H. I. roll;  
 Howard Perry (Industrial Hygienist) carried on H. I. roll;  
 both working part time for Medical Divisions.

HEALTH INSTRUMENT DIVISIONSDECEMBER 1950Summary

Removals and additions to the force resulted in a net gain of four employees. Two Special Hazard Incident Investigations were reported. One concerned high tritium content in the urine of a glassblower, and the other involved contamination spread in a pile building.

In the Biology Division, biological monitoring indicated a downward trend in contamination. Anti-fouling paint investigations indicate "Roxalin" to be most satisfactory of those tested for retention basin algae control. A section of the F Area basin will be painted with this brand in a full-scale test. Biological hazard investigations of several radioactive elements progressed at a satisfactory pace.

Development Division control measurements on activity density in water, soil, air, and vegetation were consistent with previous findings.

A study of air-supplied respiratory devices used in the P-10 program disclosed serious inadequacies and may account for some of the personnel contamination problems in the past. The presence of tritium oxide in the P-13 circulatory water, previously detected but viewed with skepticism, was apparently determined to be real after further evaluation this month.

No confirmed positive result for Pu or fission products in urine of Plant workers was found during the month. The intake of plutonium by one individual following a laboratory accident in October was definitely established. Maximum amount for U and tritium was 42  $\mu\text{g}/\text{liter}$ , and 77  $\mu\text{c}/\text{liter}$ , respectively.

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Health Instrument Divisions

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## HEALTH INSTRUMENT DIVISIONS

DECEMBER 1950

### Organization

The composition and distribution of the force as of 12/31/50 was as follows:

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200-E</u>	<u>200-W</u>	<u>300</u>	<u>700</u>	<u>P.G.</u>	<u>Total</u>
Supervisors.	1	1	8	2	5	12	12	7	0	48
Engineers *	4	7	30	5	5	19	12	4	0	86
Clerical	0	0	3	1	1	3	3	5	0	16
Others	17	15	52	11	36	65	68	10	0	274
Total	22	23	93	19	47	99	95	26	0	424

\* includes chemists, biologists, etc.

<u>Number of employees on Payroll</u>	<u>December 1950</u>
Beginning of month	420
End of month	<u>424</u>
Net increase	4

Added to the roll were 5 inspectors, 2 technical graduates, 2 laboratory assistants, a badge worker, a personnel meters clerk, and a draftsman.

Removed from the roll were 4 technical graduates, 2 laboratory assistants, and 2 general clerks.

F.G. Tabb became superintendent of the H.I. Operational Division, and that portion of the monthly report, which deals with the affairs of that division, will henceforth be prepared by him.

### General

One Class II Special Hazards Incident was reported. This again concerned a glassblower, who showed a tritium activity density in urine of 77  $\mu\text{c}/\text{liter}$ . This was below the provisional national permissible level of 140  $\mu\text{c}/\text{liter}$ , but it was elected to report the incident as an overexposure on the Hanford standards. The most recent findings of the Biology Division suggest some evidence in favor of the more rigid standard. The only Class I Special Hazards Incident concerned contamination spread in a pile building from contaminated shoes of a maintenance employee.

Health Instrument Divisions

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

Annual Summary

Twenty Class I Special Hazards Incidents were investigated during the year. The considerable reduction from the previous year's total arose from the new policy of reporting those matters of more local interest as Informal Incidents. Of these, there were twenty-three.

There were five formal Class II investigations. Three of these referred to excessive deposition of tritium in glassblowers. The vulnerability of glassblowers to intake of tritium was a troublesome feature throughout the year. However, none of these incidents would have been reported under the present national standards, and it is virtually impossible that harm, either now or for the future, has been done to these men.

Of the remaining two incidents, one concerned uranium beta-ray overexposure to two employees. This also would not have been reported under the present national standard. At the time of the report, this new standard did not seem to have acceptable standing. The other one involved overexposure of three construction workers in a pile gas filter house, primarily due to incomplete control by the H.I. Divisions. The exposures involved were less than those normally received in the annual chest X-ray examination.

The total number of pencil readings fell from last year's record of 1,708,976 to 1,596,323. Included were 37 significant readings between 100 and 280 mr. Twenty-eight readings above 280 mr were reported. In these 65 cases, only 11 were confirmed by badge results. Three of these were the above reported overexposures.

It has always been recognized that the double off-scale readings were usually spurious. At the Clinton Laboratories, prior to Hanford startup, 0.11% of all readings were of this form. In 1945, at Hanford, the percentage was reduced to 0.025%, and for 1950 it was 0.002%. From the number of single off-scale readings can be computed the random occurrence of double off-scale readings. The three corresponding percentages were 0.06%, 0.011%, and 0.0004%. Formerly, it was known that about half of the recorded double off-scale events were due to dropping of the pencils. In the last two years, almost all the double events must have come from this or related happenings that clearly occur to both

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pencils of a pair. The total percentage of double readings above 100 mrep has fallen from 0.04% in 1945, to 0.004% in 1949 and 1950. Evaluated by such quality controls as these, the performance of the personnel meters unit has improved tenfold in the past few years. The related dollar saving is by no means insignificant, but more important is the increased validity of the permanent record and the increased general confidence in it.

Badge processing totaled 270,203 for operating personnel, and 33,322 for construction personnel. The two-week schedule was maintained, except in the 300 Area, which remained on a weekly basis. The expected national standard requiring a weekly record has not yet appeared. The Atomic Energy Commission has recognized the bi-weekly schedule. In the meantime, the Health Instrument Divisions have become more and more convinced that a monthly schedule at Hanford would be technically superior, and would, of course, be more economical.

For operations personnel, there were 3,671 badge readings between 100 and 300 mrep. Of these, 1,696 occurred in the weekly scheduled 300 Area. Readings above 300 mrep totaled 433, of which 113 were in the 300 Area. Scored for beta radiation, only 5 readings exceeded the permissible weekly limit of 1.5 rep. Four of these were ascribed to defective film or processing. The fifth was involved in a Class II incident. One hundred thirty readings were lost. Of these, 39 were due to omission of film from the packet by the manufacturer. The Hanford Works has no control over this, and the expense of non-destructive testing of all packets is prohibitive, unless a more promising system is proposed. Thirty seven other lost readings (e.g. contaminated badges, lost badges) were beyond the control of the badge group. Thus, only 54 readings (2 in 10,000) were lost by badge group mistakes. This is excellent performance in an operation in which it is impossible to recover from an operating mistake.

For the construction program, there were 60 readings between 100 and 300 mrep, and only 8 above 300 mrep. All the readings above 300 mrep occurred in the 100-DR Area.

A slow neutron pocket chamber program for pile areas was placed on a sound footing, and 18,704 pencil readings were recorded. Nine high readings were obtained, none of which represented overexposure. Substantial progress was also made in personnel monitoring for neutrons by nuclear emulsion film; 3,451 such films were read with no high reading.

There were 487,897 alpha, and 507,811 beta hand scores. About one in 1000 of the alpha, and one in 830 of the beta, scores were high. No attempt at reduction was recorded in 10 of the high alpha scores, and 21 of the high beta scores. \*

SECRET

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\* In the annual summary last year, in Doc. #HW-15550, the related figures were erroneously written as percentages. Percentages in both years were about 0.002% (alpha) and 0.004% (beta).

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## Health Instrument Divisions

In only one case was attempted decontamination of the hands unsuccessful. This exception was corrected by the second day.

Thyroid checks for accumulation of I<sup>131</sup> fell again to 1705. No significant reading occurred.

The radioactive particle problem has not been solved. The situation in this field is that the original attention given to this problem at Hanford stimulated a nation-wide interest, and much research is in progress. The policy of the Health Instrument Divisions is to participate in this only to the extent that certain local phases can be handled only at Hanford or substantially better at Hanford. The intelligent prosecution of this requires electron microscopy on the site. Equipment, but not yet personnel, has been provided for this. In the meantime, scattered evidence continued to suggest (but not yet prove) that the problem can safely be de-emphasized. It is now believed that the stack-emitted particles are essentially all water soluble, and by implication, lung-soluble. Two advantages accrue: (1) the hazard is much less than the conceivable risk of one isolated particle in the lung producing cancer; (2) accumulation can be measured by routine bio-assay. If the particle problem still exists, it is now obviously most significant in the control laboratories. This phase is being energetically investigated.

To the best knowledge of the divisions, a year of maximum production was successfully completed without significant radiation exposure of any kind.

Service work of the Operational division, as estimated by total surveys, further increased by 23%. An increase of personnel by 27% was necessary to accommodate the extra load, and to prepare forces for the planned future expansions. The personnel meter force was reduced 9%, against a load reduction of 3%. The effective gain in efficiency was greater, because the newly established neutron meter programs are relatively more complex.

In the control sections of the Development division, 51,352 laboratory samples were analyzed. This was over 3 times the work load of 1948. The Site Survey group made 112,301 tests on water, air, and solids. This was more than double the 1948 performance. The Bioassay group, in addition to making substantial refinements in technique, performed the record number of 29,515 analyses, up 82% from last year. All this was accomplished with modest increases in manpower.

There was one confirmed case of plutonium intake, following a laboratory accident. Fortunately, the initial level was such that there was no concern from the residual amount deposited in the employee's bones.

In development work, some items of interest were:

- (1) steady progress in an understanding of the underground transmission of process wastes;

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- (2) progress in many phases of neutron dosimetry;
- (3) development of apparatus and techniques for evaluation of tritium hazards;
- (4) major developments in ultra low-level plutonium analysis;
- (5) the start of a vigorous program of experimental meteorology; and
- (6) the beginning of a soil science program.

However, the total development effort was below the anticipated level, and must so remain until the new Control and Development laboratory is completed.

The Biology division developed from a planning group into a productive organization. The aquatic biology group continued and even expanded its work up to the limit imposed by inadequate laboratory facilities. The experimental animal farm proved to be well-conceived, and the major experiment on toxicology of I<sup>131</sup> in sheep proceeded smoothly. The main biology laboratory was completed, and offered generally adequate quarters for the groups engaged in analysis, physiology, plant physiology, and biochemistry. Some necessary additional facilities can be economically added in the annex, which was originally the train shed. The agricultural field station across the river at Hanford gave another year of desirable negative results. Its usefulness is approaching completion.

While substantial advances were made in directly applicable work, such as the deposition rate of chronically administered plutonium, and the uptake of tritium in animals and plants, the main returns from the investment in biology are properly to be expected in the ensuing years.

Many excellent additions to the scientific roster were made, to bring this phase of the new activity essentially to equilibrium.

Health Instrument Divisions

OPERATIONAL DIVISION

100 Areas

General Statistics

	<u>November</u>					<u>December</u>					1950
	B	D	F	H	Total	B	D	F	H	Total	Total
Special Work Permits	883	1455	321	542	3201	755	1314	355	766	3190	33,633
Routine & Spec. Surveys	412	822	457	499	2190	537	779	481	651	2448	23,403
Retention Basin	89	175	94	125	483	87	170	90	87	434	5,035
Air Monitoring Samples	176	162	146	145	629	217	171	200	88	676	7,268

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-DR</u>	<u>100-F</u>	<u>100-E</u>
Power Level (MW)	345	330	440	320	475
Average beta dosage-rate (mrep/hr)	1.3	1.2	1.9	1.2	1.1
Average gamma dosage-rate (mr/hr)	2.9	2.5	3.6	3.5	2.6
Average total dosage-rate (mrep/hr)	4.2	3.7	5.5	4.7	3.7
Average integrated dose in 24 hours (mrep)	101	89	132	113	89
Maximum integrated dose in 24 hours (mrep)	120	108	144	144	122
Maximum integrated dose in 24 hours (mrep) 1950	120	139	146	173	194

100-B Area

File and Associated Buildings

Cooling water leaks from four of the seven sample holes of the "B" experimental hole necessitated the removal of all samples from that hole at a maximum exposure rate of 2 r/hr.

P-10 Operations - 108 Building

Two employees gave urine samples greater than 20  $\mu\text{c}/\text{liter}$  of tritium oxide, one with a maximum of 77  $\mu\text{c}/\text{liter}$ , which was investigated as a Class II Special Hazards Incident.

100-D Area

105-D File and Associated Buildings

Correction of gas leaks in the #3 cooler blower room of the gas purification building produced dosage rates up to 750 mrep/hr.

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105-DR Pile and Associated Buildings

Widespread contamination to personnel and building resulted when a "puff" of gas was emitted from the open channel after the removal of the ruptured slug in tube #1476, with a maximum surface dosage rate on skin of 60 mrep/hr reported. All contamination was readily removed.

Increased effluent activity resulted when rusty water was passed through the unit from the 190 DR Tank that had been out of service. No increase was noted at the retention basin outlet.

100-F Area

Pile and Associated Buildings

An ANL #162 sample was removed from the "A" experimental hole with a maximum dosage rate of 1 r/hr at 35 feet reported.

Biology Laboratories

A spill occurred during the dilution operation of Y<sup>90</sup> resulting in surface contamination of the bottle up to 800 mrep/hr. Decontamination was successful.

P-11

Twenty-six of 46 air samples taken were above 10<sup>-11</sup> µgPu/cc. The maximum sample was 1.9 x 10<sup>-10</sup> µg Pu/cc.

100-H Area

A ruptured piece in process tube #3288 was removed with minimum spread of contamination. Exposure rates up to 15 r/hr while dislodging the piece from the funnel were reported; however, no indication of over-exposures was encountered.

200 Areas - T and B Plants

General Statistics

	234-				234-				1950
	T	231	235	B Total	T	231	235	B Total	Total
Special Work Permits	670	38	377	316 1401	715	40	288	314 1357	11,387
Routine & Spec Surveys	557	452	598	512 2119	502	421	505	555 1983	23,555
Air Monitoring Samples	607	572	1427	734 3340	554	598	1279	1074 3505	38,874
Thyroid Checks	4	--	--	53 57	106	--	--	43 149	1,705

Canyon Buildings

In the T plant, 278 of 381 air samples showed results above 10<sup>-12</sup> µg Pu/cc, with a maximum of 5 X 10<sup>-10</sup> µg Pu/cc; 76 were above 10<sup>-10</sup> µc f.p./cc, with a maximum of 1.5 X 10<sup>-7</sup> µc f.p./cc. Monitoring assistance was furnished

## Health Instrument Divisions

while taking twenty-two process samples with a maximum exposure rate of 4.5 rep/hr at one foot from the trombone in the 13-4 riser. The regasketing of a 7-1 spray connector with a dosage rate of 13.5 rep/hr including 3.5 r/hr at three feet was successful under water in cell 2R with a maximum exposure rate of 30 mr/hr at the water surface reported.

In the B plant, 464 of 726 air samples showed results above  $10^{-12}$   $\mu\text{g Pu/cc}$ , with a maximum of  $4.3 \times 10^{-10}$   $\mu\text{g Pu/cc}$ ; 246 were above  $10^{-10}$   $\mu\text{c f.p./cc}$ , with a maximum of  $3.5 \times 10^{-8}$   $\mu\text{c f.p./cc}$ . Increased maintenance work in the canyon resulted in considerable contamination of the deck with readings up to 4.5 rep/hr reported.

Concentration Buildings

Increased amounts of maintenance work in both the T and B plants was completed without incident.

Stack Area

In the T plant, replacement of 3-5 R off-gas jet and the strainer in the 4-5 L vent line was accomplished in a maximum exposure rate of 2 r/hr.

Waste Areas

The 101-U, 102-U and 103-U, tanks were uncovered with a maximum dosage rate of 145 mr/hr at two inches from the 42 inch plug reported.

Plant Laundry

Twenty-four of the 48 air samples showed positive results, with a maximum of  $7 \times 10^{-12}$   $\mu\text{g Pu/cc}$  obtained while processing T, B and 234-5 clothing.

General

All thyroid checks were below the warning level.

Isolation Building

One hundred and forty-seven air samples were above  $10^{-12}$   $\mu\text{g Pu/cc}$ ; the maximum of  $1.5 \times 10^{-10}$   $\mu\text{g Pu/cc}$  was obtained in room 6B. Thirty-two unregulated items and three floor locations were found contaminated. There was no case of skin contamination. The maximum level of gamma radiation encountered was 64 mr/hr on PR containers.

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Purification Building

Air Sample Results

Two hundred and thirty-three of 1,279 air samples were above  $10^{-12}$   $\mu\text{g Pu/cc}$ ; the maximum sample of  $3 \times 10^{-7}$   $\mu\text{g Pu/cc}$  was obtained from the duct of the composite sample hoods 8-27.

234 Building - Operating Section

A leak in the hood 8 furnace water discharge manifold resulted in Pu contamination of microgram amounts.

235 Building - Operating Section

Increased maintenance work in contaminated sections was accomplished with good special hazard control.

General Building

The Pu air concentration in the exhaust hoods 8 through 27 increased gradually to  $3 \times 10^{-7}$   $\mu\text{g Pu/cc}$ . Replacement of the filters in hood 8 reduced the concentration to  $10^{-10}$   $\mu\text{g Pu/cc}$ .

200 Areas Control Laboratories

	<u>T</u>	<u>B</u>	<u>231</u>	<u>234- 235</u>
Items contaminated - not regulated	192	118	180	144
Skin contamination - alpha	3	1	2	1
Skin contamination - beta	3	2	-	-
Contaminated floor locations	10	27	7	50

In the T plant, monitoring assistance was furnished while running three process samples with a maximum exposure rate 6 rep/hr at two feet reported during the slurping of a 13-4BP sample.

In the B plant, waste shipments from the 300 Area with a dosage rate of 30 rep/hr including 750 mr/hr at five inches were slurped at a maximum exposure rate of 5 rep/hr.

In the Isolation Building, a leaking waste trap was the source of spread of contamination in room 35.

In the Purification Building, reduced air flow of the hoods in room 35 resulted in a high air sample result of  $8.3 \times 10^{-11}$   $\mu\text{g Pu/cc}$ . Repair of the hood dampers remedied this situation.

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Particulate contamination in particles per 1000 cubic meters was as follows:

Location

		<u>November</u>	<u>December</u>
222-T	Outside	12	28
	Hallway	28	170
	Room 7	340	490
222-B	Outside	12	40
	Hallway	13	66
	Room 7	720	480

300 Area

General Statistics

	<u>November</u>	<u>December</u>	<u>1950 Total</u>
Special Work Permits	93	121	1437
Routine and Special Surveys	225	210	2205
Air Samples	212	155	1857

Metal Fabrication Plant

Eleven of 25 air samples were above  $5 \times 10^{-5}$   $\mu\text{g U/cc}$ ; the maximum of  $4.6 \times 10^{-4}$   $\mu\text{g U/cc}$  was obtained in the center of the chip recovery room.

Five contaminated aluminum cans with a maximum dosage rate of 50 mrep/hr at surface were sent through plant mail to the Inspection Section of the Purchasing Division in the 700 Area; however, no spread of contamination resulted. This incident was informally investigated.

Technical Building

Dosage rates up to 5 r/hr were obtained while machining aluminum papooses in the remote control lathe.

Hand Score Summary

There were 44,619 alpha and 47,639 beta scores reported. About 0.06% of the alpha and about 0.12% of the beta scores were high. No attempted reduction was indicated for 2 high beta scores in 222-T, and 6 high beta scores in 100-D. Where decontamination was attempted, it was successful.

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PERSONNEL METERS

<u>Pencils</u>								<u>Total</u>	1950 <u>Total</u>
	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	E&N <u>200</u>	<u>200-W</u>	<u>300</u>		
Pencils read:	17,755	15,247	13,463	9,671	19,742	37,564	32,896	146,358	1,596,323
Single Readings: (100 to 280 mr)	19	36	13	12	17	32	25	154	2,073
Paired Readings: (100 to 280 mr)	0	3	0	1	0	1	1	6	37
Single Readings: (Over 280 mr)	48	41	39	11	41	121	59	360	3,185
Paired Readings: (Over 280 mr)	0	0	1	0	1	1	0	3	28
Lost readings:	1	2	0	1	0	1	0	5	56

Of the nine significant pencil readings reported, two were confirmed by film badge results.

Investigation of lost readings revealed no possibility of an over-exposure.

Badges

								<u>Total</u>	1950 <u>Total</u>	
	<u>100-B</u>	<u>100-D</u>	P-11 <u>101-P</u> <u>100-F</u>	<u>100-H</u>	R.R.T. <u>200-E</u> <u>200-N</u>	<u>200-W</u>	<u>300</u>			
Badges Processed:	2,697	2,653	2,744	1,962	2,881	473	4,158	7,779	25,347	270,203
Number readings: (100 to 300 mrep)	63	61	63	62	40	0	63	154	506	3,671
Number readings: (Over 300 remp)	6	22	8	9	1	0	26	30	102	433
Lost readings:	6	1	3	0	2	0	2	4	18	130

Lost readings were accounted for as follows:

Film not packaged	10
Light struck	1
Lost in processing	4
Stuck film	1
Contaminated badge	2
<u>Total</u>	<u>18</u>

Investigation of the above lost readings indicated no possibility of an over-exposure.

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Badge Resume, Construction Areas

	<u>200-W</u>	<u>Total</u>	<u>1950 Total</u>
Badges processed:	2,563	2,563	33,322
Number readings: (100 to 300 mrep)	0	0	60
Number readings: (Over 300 mrep)	0	0	8
Lost readings:	0	0	16
Total badges processed 1950:			
Operations		270,203	
Construction		<u>33,322</u>	
Total		303,525	

In addition to the badge program, a total of 2,055 items of non-routine nature was processed during the month.

Slow Neutron Pencil Summary

	<u>100-B</u>	<u>100-D</u>	<u>100-DR</u>	<u>100-F</u>	<u>100-H</u>	<u>Total</u>	<u>1950 Total</u>
Number of pairs issued	44	125	91	77	160	497	9,352
Number of significant readings	0	0	21	0	29	50	841
Number of significant readings (Above 50 mrem)	0	0	0	0	0	0	9

Neutron Film

Badges Processed

	<u>100-B</u>	<u>100-D</u>	<u>100-F</u>	<u>100-H</u>	<u>200-W</u>	<u>Total</u>	<u>1950 Total</u>
Personnel	17	126	49	160	54	406	3,451
Special	6	6	7	2	27	48	357

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**DECLASSIFIED**CONTROL AND DEVELOPMENT DIVISIONCONTROL GROUPSSite Survey

Levels of radioactive contamination in drinking water and test wells were consistent with previous findings. Small increases in the activity density of beta emitters in the Columbia River were noted near the pile areas; no significant difference was observed at downstream locations including the Tri-City area. The maximum activity density measured in any river sample was  $9.5 \times 10^{-6}$   $\mu\text{c}/\text{cc}$ , as taken from the plant side of the river at Hanford. A study of the distribution of ferro-floc and activity in the Columbia River discharging from both the 100-H and 100-F Areas, simultaneously, indicated that the distribution patterns of the activity tended to agree with the distribution pattern of the ferro-floc; this suggested agreement was further strengthened when a direct correlation was found in comparing the activity with the turbidity and iron concentrations of the samples studied.

Air monitoring results during December were rather variable with some increases and decreases within a 10-mile radius of the separations area; no outstanding change from last month's levels was observed outside this radius. The maximum activity density of filterable beta emitters measured during any one week was  $1.1 \times 10^{-11}$   $\mu\text{c}/\text{cc}$  inside the 200-West Area; the average within the Tri-City Area was about  $4 \times 10^{-13}$   $\mu\text{c}/\text{cc}$ . The activity density of  $\text{I}^{131}$  in the atmosphere was about the same as noted last month, with the usual fluctuations normally expected. A maximum activity density of  $1.9 \times 10^{-10}$   $\mu\text{c}/\text{cc}$  was measured in a 16-hour scrubber sample taken on December 7 inside the 200-East Area; this result was about five times higher than any other  $\text{I}^{131}$  measurement during this period. It was found that during this collection period, the silver reactor was not in use and that both areas were dissolving metal; atmospheric dilution ratios were as low as 350:1 during this period. Monitoring for active particles did not indicate any overall change from previously known values; however, a questionable increase inside the 200-West Area was observed.

Small increases in deposited  $\text{I}^{131}$  on vegetation were noted near the separations area, and to a smaller degree in the Tri-City Area. Activity density as high as  $4.1 \times 10^{-3}$   $\mu\text{c}/\text{gram}$  was measured at the point of maximum deposition near the 200-West Area; the activity density in the Tri-City Area ranged from  $3 \times 10^{-5}$   $\mu\text{c}/\text{gram}$  to  $5 \times 10^{-5}$   $\mu\text{c}/\text{gram}$ . Off-area sampling did not reveal any outstanding deviations from the levels of last month.

Increases in the activity density of beta emitters in pile effluent water were noted in the 100-DR, F, and H Areas. The activity density of all pile effluent water varied from  $6.4 \times 10^{-4}$   $\mu\text{c}/\text{cc}$  to  $1.4 \times 10^{-3}$   $\mu\text{c}/\text{cc}$  with the latter value representing the 100-H Area.

A continuous integrating water sampler is operating under test conditions in the 300 Area principal waste line.

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A summary of the work performed by the Site Survey group during 1950 appears below:

<u>Water Monitoring</u>	<u>Number of Tests</u>
Drinking water and test wells	4,135
River water	2,558
Waste water	2,819
Rain and other water	346
Total .....	<u>9,908</u>
<u>Air Monitoring</u>	
Ionization chambers (test and actual readings)	12,130
Active particles and filter measurements	4,563
Scrubber solutions (I <sup>131</sup> analyses)	671
Integron and C.R.M. readings	73,332
Film studies	1,629
Total.....	<u>92,325</u>
<u>Solids Monitoring</u>	
Vegetation (On-area)	7,317
Vegetation (Off-area)	956
Mud and other wastes	1,386
Total.....	<u>9,659</u>
<u>Miscellaneous</u>	
Portable instrument, other surveys	409
Grand Total .....	<u>112,301</u>

Bioassay

Four hundred and eighty-seven urine samples were analyzed for plutonium during December, with 102 additional urine samples run as controls. The urine samples averaged 0.03 dis/min, and the blank samples 0.04 dis/min; the difference between these two latter figures is not significant. The average recovery yield for the month was 91%. Only one resample was required this month for a sample which exceeded the 0.33 dis/min detection limit; this resample is in process. Analyses of previous high samples are still in process with the exception of two samples taken during November; the resample values were < 0.33 dis/min in the urine analyzed. In addition, 18 urine samples were analyzed as necessitated by unusual incident cases; 64 analytical process check samples were processed; and 60 analyses were made in further evaluating the electrodeposition method of plutonium in urine.

Four hundred and seventy-six urine samples were analyzed for fission products; 70 control urine samples were analyzed in conjunction with the urine samples. No sample exceeded the current reporting limit of 10 counts per minute.

Ninety three urine samples were analyzed for uranium by the fluorophotometer method. The maximum result was 42 µg/liter, measured in a sample taken from a member of the inspection operation; the next highest sample was 24 µg/liter in a sample from a melt plant operator.

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Three hundred and fifty-nine urine samples were analyzed for tritium oxide. A glassblower had 21 samples above the detection limit, with an individual maximum of 77  $\mu\text{c/liter}$ . Another employee contributed 21 samples  $> 1.6 \mu\text{c}$  per liter, with an individual maximum of 13  $\mu\text{c/liter}$ . A distribution of the results obtained on tritium analyses is shown below:

Number Samples	$\mu\text{c/liter}$					
	<u>&lt; 1.6</u>	<u>1.6-5</u>	<u>5-10</u>	<u>10-35</u>	<u>35-50</u>	<u>50-100</u>
	187	77	41	46	3	7

A summary of the bioassay work performed during 1950 appears below:

	<u>Number of Tests</u>
<u>Plutonium-Urine</u>	
Urine	6,480
Urine Spiked	681
Urine Blank	681
Plutonium Spiko Check	476
Training	984
Electroplated	602
Special tests	90
Process Check	390
Total.....	<u>10,384</u>
<u>Fission-Product-Urine</u>	
Urine	6,420
Urine Spiked	682
Urine Blank	682
Spike Checks	416
Total.....	<u>8,200</u>
<u>Uranium-Urine</u>	
Urine	1,589
Urine Spiked	3,178
Urine Blank	3,178
Total.....	<u>7,945</u>
<u>Tritium Oxide-Urine</u>	
Urine and Control Checks	<u>2,986</u>
Grand Total .....	<u>29,515</u>

Analytical-Control Laboratory

Considerable difficulty was encountered with the low background and standard alpha counters during the month. Difficulties with the parallel plate counters were traced to the new nickel-cadmium batteries used; voltage output of these batteries can vary from 2-3 volts to 8-9 volts, depending on the techniques used in charging the batteries. If it is found that these batteries cannot supply a constant 6 volts, they will have to be replaced with the lead plate storage batteries. Studies of the statistical behavior of the low

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background counters are not complete to date, but current indications tend to confirm the belief that stricter control measures will be necessary to insure above average operation of these counters. It was found that during the month, about 2.6 hours of counting time per day was lost on each mica window set due to maintenance.

The presence of tritium oxide in the P-13 circulating water appears to be real. The presence of tritium oxide was further evaluated by a three stage distillation of the sample before measuring for tritium oxide and checked both by hydrogen and acetylene generation with positive results. No tritium oxide was found in water taken directly from the headers of the 100-H Area pile, and the tritium oxide in the makeup water appeared to be negligible. Values as high as 360  $\mu\text{c}/\text{liter}$  were measured on December 12 in the P-13 circulating water.

A summary of the samples analyzed and measurements made in the counting room during December, 1950, and for the entire year of 1950, follows:

<u>Laboratory</u>	<u>December 1950</u>	<u>Total 1950</u>
Vegetation	1,289	16,537
Water	2,049	22,226
Solids	308	3,618
Fluorophotometer	443	6,896
Survey Special Analyses	13	103
Air Sample Analyses	<u>174</u>	<u>1,972</u>
Total.....	<u>4,276</u>	<u>51,352</u>
 <u>Counting Room</u>		
Beta measurements (recounts included)	4,831	57,007
Alpha measurements " "	3,228	46,037
Control Points (beta and alpha)	1,965	26,651
Decay Curve Points	1,615	16,686
Absorption Curve Points	<u>257</u>	<u>3,298</u>
Total.....	<u>11,896</u>	<u>149,679</u>

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Calibrations

<u>Calibrations</u>	<u>Number of Routine Calibrations</u>		
	<u>November</u>	<u>December</u>	<u>Total 1950</u>
<u>Radium Calibrations</u>			
Fixed Instruments			
Gamma	352	251	4,291
Portable Instruments			
Alpha	337	269	3,467
Beta	654	614	7,329
Gamma (radium)	1,235	1,158	11,995
X-ray Instruments	3	3	28
Neutron	5	32	1,518
Total	2,234	2,076	24,337
Personnel Meters			
Beta	723	533	8,149
Gamma (radium)	7,666	8,512	88,968
X-ray	8,493	3,937	79,133
Neutron	28	13	201
Total	16,910	12,995	176,451
Grand Total.....	19,496	15,322	205,079

Meteorology

<u>Forecasts</u>	<u>December 1950</u>		<u>1950 Total</u>	
	<u>Number Made</u>	<u>Percent Reliability</u>	<u>Number Made</u>	<u>Percent Reliability</u>
Production	93	81.9%	1,094	81.7%
24-hour	59	86.6%	726	82.1%
Special	20	90.0%	180	81.7%

December 1950 was the most cloudy and foggy month at Hanford Works since the beginning of operations. Other features of the weather for the month were the frequent occurrence of precipitation, and the small amount of wind movement.

Total sky cover for the past month, on a scale of zero to 10, averaged 8.6. Only one day (Christmas) was classified as clear. Seven others were partly

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cloudy, while the remaining 23 were all classified as cloudy. Although total precipitation (0.97 inch) was not unusually high for December, only 8 days were without at least a trace. Only 10 days were without fog, and on only 3 days (the 1st, 25th, and 31st) was there a complete absence of both precipitation and fog. Freezing temperatures produced an ice glaze on the 5th, 6th, and 7th. Appreciable wind occurred only on the 1st, 30th, and 31st, and even on these 3 days the peak speeds were much lower than the highest experienced in each of 5 previous December months of record at this station.

Temperatures during the past month averaged 36.1, which was considerably above normal. Due to the large amount of cloudiness, the average daily temperature range (9.7°) was the lowest of any of the 72 months of record at this station. The extreme range for any one day was 23° on the 22nd. The overall range for the month was from a low of 22 on the 2nd to a high of 55 on the 22nd.

DEVELOPMENT GROUPSExperimental Meteorology

A program for studying trajectories of instantaneously and of continuously emitted effluents has been organized and put into operation. This program calls for an analysis of trajectories of air leaving the Hanford Works area by means of a large-scale network of upper-air wind and pressure-height reports which are received daily on the teletype. The area under consideration for this study is a circle with a radius of 400 miles centered at Hanford. Tracer techniques for the following of effluent are being considered, and these may be satisfactory up to a maximum range of 50 miles.

Industrial Hygiene

The use of air-supplied respiratory devices for the P-10 program was studied indirectly by mounting the various respirators on a mannequin head and exposing them to atmospheres contaminated with carbon monoxide. This portion of the investigation furnished data relative to pressure and airflow requirements necessary to attain protection with each device. This investigation, in conjunction with subsequent tests on the air supply system for the respirators, showed that only 4 out of 14 respirator connections furnished the minimum conditions found requisite for safe usage. A discussion of the detailed findings may be found in Document #HW-19671. Corrective measures were initiated by the appropriate division.

A study of natural atmospheric contamination was reported in an unclassified document, entitled "Natural Atmospheric Particulate Background at the Hanford Works", dated 12/19/50.

A study of welding operations at White Bluffs was conducted for the Medical Division. This operation was an unusual type of welding utilizing a gas cutting

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torch with powdered iron oxide and compressed air or nitrogen. Air samples were collected for the appraisal of oxides of nitrogen, total metal fume, iron oxide fume, chrome fume, and nickel fume.

The final details of the colorimetric method employed by the Industrial Hygiene laboratory for uranium determinations in air samples have been completed and the initial set of a considerable amount of this work has commenced. From the work so far undertaken this method seems to be sensitive and capable of producing reproducible results.

## Geology

The activity densities in the contaminated zones in the water table in the 200 Areas were within the range expected from the results of previous measurements except that slightly positive results were obtained from well 361-T-14 for the first time. This well is located about 500 feet east of the 241-T-361 reverse well which is the source of this contamination in the water table of the 200 West Area.

The activity densities of alpha emitters in the 300 Area wells remained essentially constant, except that the value for well 303-2 increased by 60% to a level of 550 dis/min/liter. This well is located between the old retention pond and the river. The alpha activity density in well 321-1 near the 321 crib is 630 dis/min/liter, which is an increase of 70% over that reported in November. Indications are that the exchange capacity of the soil has been exceeded, and that the buildup of activity in the ground water represents drainage of the saturated sands beneath the crib.

## Soil Science

Some preliminary measurements were made on the moisture content and pH of soil samples obtained from recently drilled wells around the new Redox crib. Measurements on an apparently dry and dusty sample indicated a moisture content of as much as 2%. Soil pH values were relatively high, ranging from 8.45 to 8.75.

## Methods Development

The addition of a positively charged platinum sleeve on the inner wall of the cell used for the electrodeposition of plutonium has given a definite improvement in results. Yields of samples after TTA analysis and on direct spiking of the plating both have been reasonably consistent at 85 ± 5%.

Data on the fading of the latent image on the NTA nuclear track films in atmospheres of air and argon have indicated no valid difference up to 6 weeks. Work on sensitization of the film has not given any promising leads. A method of measuring coincidence losses on the alpha counters by using the film is being attempted.

Results on tritium oxide spikes measured in a GM counter filled with hydrogen

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are reproducible to within about  $\pm 10\%$  at a sensitivity of about 15 c/m per  $\mu\text{c/liter}$ . Backgrounds have been reproducible within the counting error at about 25 c/m.

Tests of the procedure for collecting tritium gas from the atmosphere by burning and collecting the water have given yields of 95-100% on liter quantities of hydrogen. Yields on trace quantities of tritium, however, have been on the order of 10-50% for some reason not yet known.

A study of the self-absorption of potassium salts for both particles from K-40 has led to a value of the activity higher than is consistent with literature values. Investigation of effects of self-scatter, contamination, etc., has not as yet completely explained the discrepancy.

Physics

Some refinements in calculations on the measurement of beta radiation from distant large sources have led to a somewhat better correlation with observed readings. Errors from the calculations are on the order of 5%.

Pocket meters and film badges were calibrated against a standard graphite thimble chamber for  $\text{N}^{16}$  gamma radiation. The pocket chambers gave essentially correct values. The films sandwiched in lucite gave sound readings in the "open window". The additional blackening under the shield agreed with the additional ionization calculated for a silver wall Bragg-Gray chamber.

In the same radiation, a Victoreen 25r chamber deviated by 50% from the proper response.

Instrument Development

Experimental surface monitors for alpha contamination and for tritium contamination, which were placed in the field for testing and evaluation, developed erratic performance troubles which led to some minor design changes to eliminate the faults.

A special multivibrator quench circuit was designed for use with hydrogen-filled counters in the development of a laboratory procedure for tritium analysis by the Methods group. Operation has been satisfactory.

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**DECLASSIFIED**BIOLOGY DIVISIONAnalyses Group1. Radioactivity in Carcasses

Work continued on the determination of radium in body ashes by (1) Rn separation and counting, and (2) by the chemical separation of Ra and counting. The vacuum system employed in the former method was modified in order to eliminate errors caused by the low air and water vapor tolerance of the counter tube, and further runs indicated that the method was satisfactory. The previously mentioned method for precipitation of radium with fuming nitric proved impractical, but promising preliminary results were obtained from the precipitation of  $\text{RaSO}_4$ , using Ba carrier, from a 20% methanol solution.

2. Alpha and Beta Analyses of Organic Materials

Work continued on the separation of carrier free rare earth isotopes by use of ionic migration techniques using an applied current and appropriate media. Separation was not effected, and further work was abandoned.

Work continued on the colorimetric method for determining Th. The method was applied to spiked soil, tissue, vegetation, and water samples with varying amounts of success. Further development work is in progress.

A new procedure for Sr-Y separation in vegetation was developed. The method consists of a  $\text{SrSO}_4$  precipitation from a 70% methanol solution using dimethyl sulfate as the precipitating agent. Results indicate the procedure to be reliable and easy to manipulate.

Investigations as to the possibility of counting the beta particles from tritium with scintillation counters using liquids for the crystal were started. It is hoped to incorporate the tritium in the solvent of the scintillating media to avoid absorption losses. Water solutions of  $\text{CuI}$ ,  $\text{AgI}$  in 4N  $\text{AgNO}_3$ , are currently being investigated. Proven organic mixtures will be tried on receipt of the compounds.

3. Radioelements in Organisms in Pile Effluent

A new algae sample from 100-F basin was collected and a radiochemical analysis, with special emphasis on the short-lived elements, was run.

4. Physical Processes Affecting Methods for Isotope Use

Two studies were begun of coincidence losses in beta particle counting.

Investigations were made to determine the cause of the apparent lowering of activity of the  $\text{Pu}^{238}$  solutions being employed in the investigation of the absorption of Pu from the G.I. tract. Tests show that the alpha counter used to check the activity of the solutions is in control. The possibility that the

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Pu<sup>238</sup> was plating onto the sides of the containers was investigated with negative results. Tests are now in progress to confirm the purity of the original Pu<sup>238</sup> sample.

5. Waste Disposal Methods for Biological Specimens

Literature search on the problem was continued.

6. Physical Chemical Methods for Dosimetry due to Deposited Isotopes

No progress.

Services

Analytical services to other biology groups consisted of calibrating ORNL shipments of I<sup>131</sup>; recalibrating two Y<sup>91</sup> solutions; preparing spike solutions for animal and plant feedings; and the analysis of about 1,000 samples. These are in addition to 2,600 alpha and beta counts, including decay and absorption studies.

Three samples from Kadlec Hospital were analyzed for plutonium by the standard TTA procedure. Five tissue samples and two I<sup>131</sup> solutions from the Swedish Hospital were assayed for I<sup>131</sup>. A standard curve was set up with a Coleman Junior Spectrophotometer for the determination of free chlorine in water for Aquatic Biology.

Aquatic Biology Group

1. Effect of Pile Effluent Water on Aquatic Organisms

The chinook salmon eggs incubating in dilutions of pile influent, pile effluent, and area effluent were all hatched by the middle of the month. For the incubation period a significantly high mortality, amounting to about 13%, occurred only in the most severe condition - the 10% strength, uncooled area effluent. A questionable increase in mortality, amounting to about 6%, occurred in the 5% strength, uncooled area effluent. Mortality in all other groups amounted to only about 4%. The observed higher mortalities are attributable to higher water temperatures which amounted to about 3° C in the 10% mixture.

The young fry in the 10% uncooled effluent are also suffering a higher rate of mortality (7% against 2% for the control lots) although a part of this is due to their more advanced stage of development.

2. Biological Chains

Poor growing conditions and repeated draining of the 107-F Retention Basin has eliminated the original source of supply of active algae used as a part of the food of yearling rainbow trout held in 5% strength pile effluent. Algae maintained in a pond of undiluted pile water at this laboratory has been used as a substitute but is less active by a factor of three. The activity density of

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these fish, as represented by their scales, declined from  $1.2 \times 10^{-3}$   $\mu\text{c/g}$  last month to  $0.8 \times 10^{-3}$   $\mu\text{c/g}$  during December. Trout held under the same water conditions but fed uncontaminated food similarly declined in activity (from  $9 \times 10^{-4}$   $\mu\text{c/g}$  during November to  $6 \times 10^{-4}$   $\mu\text{c/g}$  during December). No retardation in growth rate among the fish held in the 5% pile effluent is evident at this time.

### 3. Radiobiological - Ecological Survey of the Columbia River

The collection of bottom organisms was again complicated by fluctuating water levels in the river, unseasonably warm weather and rains in the headwaters producing a considerable rise during the latter part of the month. As represented by Hanford, the most active locality sampled, the activity density of the plankton increased slightly over last month (from  $1.3 \times 10^{-2}$  to  $1.5 \times 10^{-2}$   $\mu\text{c/g}$ ); algae and invertebrate organisms remained at about the same level, and small fish decreased considerably (from  $8 \times 10^{-4}$  to  $3 \times 10^{-4}$   $\mu\text{c/g}$ ). Whitefish were the only species of large fish caught during the month and a maximum activity density of  $2.4 \times 10^{-5}$   $\mu\text{c/g}$  was found in a sample of bone; a maximum of  $1.2 \times 10^{-5}$   $\mu\text{c/g}$  was found in the flesh. Plankton abundance remained virtually the same as last month at 10,000 organisms per liter in the river water at 100-F.

Arrangements have been made with the Statistics Group for processing the river survey data as well as laboratory data on I.B.M. cards. This not only effects a considerable saving in manhours in computing activity densities but also tends toward greater accuracy and ease of manipulation of the data.

### 4. Control of Algae in 107 Retention Basins

Concrete test blocks coated with anti-fouling paints which had been suspended in the 107-F Retention Basin for the past nine months were removed on December 28, when it became apparent that the growth on control blocks was waning. About 62 grams of algae per square foot remained on the unpainted blocks while no visible growth appeared on any of the painted blocks. A U.S. Navy formula paint called "Roxalin" appeared to be the most durable. A work order has been issued by the "P" Division for the painting of a section of the basin with this brand as a full scale test.

#### Biochemistry Group

##### 1. Relative Biological Effects via Biochemical Systems

The destruction of riboflavin ( $0.01 \mu\text{g/ml}$ ) by X-irradiation as determined by bacteriological assay is summarized in following table:

<u>Total Number of roentgens</u>	<u>Per cent destroyed</u>
0	0
1,000	6
3,000	33
6,000	57
10,000	86
15,000	98

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## Health Instrument Divisions

In the above experiment, the riboflavin solution was prepared by using water which had been kept under nitrogen. When water stored under oxygen was used to prepare a riboflavin solution which was irradiated with 6,000 roentgens, the per cent of the vitamin destroyed was only 19 per cent. This rather surprising observation must be confirmed before hypothesizing on relative effectiveness of ionization versus excitation.

## 2. Absorption of Pu from the G.I. tract

The routine oral daily administration of plutonium to 160 rats continues without incident. Animals are weighed periodically and growth rates of experimental and control animals will be compared. Various methods of plating out the plutonium solutions are being tried in an attempt to obtain greater accuracy in daily counts.

## 3. P-10 Hazards Biological Investigations

The retention of tritium in rats is being investigated. Forty-two rats each received 15 millicuries of tritium oxide by intraperitoneal injection. At various intervals these animals will be sacrificed in groups of 4 and the tritium present in body water as well as the bound tritium will be determined in 14 different pooled organ and tissue samples.

The experiment on the retention of tritium in mice is being continued. Twenty-two mice have received intraperitoneal injections of tritium oxide. Since in the previous experiment on mice it had been found that the activity of bound tritium was being lost with a half-life of 30 days, the current work will be carried on for a period of several months.

A litter of mice born to a mother which had received tritium oxide is being sacrificed at intervals. There is evidence that the extent of tritium binding is much greater in the young than in mature mice.

The percutaneous absorption of the vapor of tritium oxide has been investigated in two rats using methods previously described. The following uptake based on blood analyses, were found:

Rat #7-2 -- 0.12 to 0.53  $\mu\text{c}/\text{min}/\text{cm}^2$  of exposed skin per  $\mu\text{c}$  in each  $\text{cm}^3$  of tritium oxide vapor (infinite reservoir).

Rat #7-4 -- 0.44 to 1.0  $\mu\text{c}/\text{min}/\text{cm}^2$  of exposed skin per  $\mu\text{c}$  in each  $\text{cm}^3$  of tritium oxide vapor (infinite reservoir).

At the present time, we loosely use the expression "tritium oxide" for material more properly described as "tritiated water". The distribution between  $\text{H}_2\text{O}$ ,  $\text{HTO}$  and  $\text{T}_2\text{O}$  is unknown.

## 4. Possible Therapeutic Agents for Radiation Damage

*26* In order to evaluate the sensitivity of tissues, metabolites and enzymes toward various types of radiations, preliminary phases of this project have been



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initiated. The Warburg vessels and manometers have been calibrated and various biochemical procedures pertaining to this work are being investigated.

#### 5. Percutaneous Absorption of Radioelements

Work not started (except under 3, above).

#### Services

During the month of December, 761 biochemical and 708 hematological determinations were carried out in the Biological Services Laboratory in support of the Experimental Animal Farm. Routine protein-bound iodine determinations in sheep were initiated.

#### Botany Group

##### 1. Separations Area Control Plot

This problem was terminated during the month and a summary report will be issued.

##### 2. Agricultural Field Station

A second annual report on the Agricultural Field Station is being prepared.

##### 3. Translocation of Radioelements in Plants

The absorption and translocation to leaves by bean plants of yttrium from nutrient solutions containing 0.15  $\mu\text{c Y}^{91}$ /liter, a total Y concentration of 0.0001 p.p.m. and adjusted to pH's 4.0, 5.0, 6.0 and 7.0 respectively was directly proportional to the hydrogen ion concentration. The greatest uptake of Y by roots and leaves occurred at pH 4.0. At this pH the bean plant concentrated Y approximately 10 and 100 times in fresh and dry tissue, respectively when grown for four days in a nutrient containing 0.001 p.p.m. of Y.

##### 4. P-10 Botanical Investigation

Roots of Red Kidney bean plants have been kept in nutrient solution containing tritium oxide and the plant tops have been exposed to darkness or to light for varying periods of time. Tritium contents have been determined for water of transpiration, plant water, and water of combustion. Preliminary results indicate the tritium oxide concentration of the plant water, when plants are exposed to light, reaches equilibrium with the concentration in the nutrient solution in less than 24 hours. In plants exposed to darkness equilibrium between the tritium oxide concentration of plant water and the nutrient solution is not reached in 72 hours. The tritium content of the organic constituents of plants exposed to light or to darkness increases with time indicating a continual incorporation into the plant, but the rate of incorporation in the light is much greater than that occurring in darkness.

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5. Effects of Radiation on Plant Life

Inactive.

Physiology Group

1. Biological Effects of Active Particles

Inactive.

2. Bone Metabolism of Radioelements

Bleedings, removal of corpuscular elements and reinjection of plasma continue, with a noticeable response in terms of numbers of young cells found in peripheral blood.

3. Techniques in Autoradiography

No report.

Services to other groups in tissue preparation, autoradiography, and photomicroscopy continued.

Zoology

1. Biological Monitoring

Waterfowl

Off-project thyroid samples from wild waterfowl were below the MPC for radioiodine. Maximum density found was 0.001  $\mu\text{c}/\text{gram}$  in a specimen taken near Benton City.

Upland Wildlife

No sample taken.

2. Toxicology of  $\text{I}^{131}$  in Stock Animals

Breeding operations have been completed. Except for the members of the 240  $\mu\text{c}$  feeding level, the ewe lambs are making very satisfactory gains. They appear thrifty and show good "bloom". Within the 240  $\mu\text{c}$  level, however, four animals weigh less now than when weaned in September and October. These four animals especially, exhibit a stupid and lethargic attitude. They display a stiffness in gait and muscular weakness. In addition, frothing about the mouth has been observed in at least 3 lambs in the group receiving 240  $\mu\text{c}$ . Two of them show, in addition, a marked alopecia.

The ewes in the 240  $\mu\text{c}$  level still appear quite alert but at least five of

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these animals display a chronic bloated appearance. Their weight gain, however, does not vary appreciably from that of other groups.

With regard to thyroid activity, these ewes after showing a definite decrease have displayed apparent equilibrium during this month.

GENERAL ACCOUNTING DIVISION

December 1950

GENERAL

Military Duty Allowances equivalent to one month's salary were paid during December in accordance with H. W. Instructions Letter No. 53, dated October 24, 1950, to 22 Weekly Paid employees and one Monthly Paid employee who entered the Armed Forces of the United States on or after July 1, 1950. The gross payment to these employees amounted to \$6,941.56. Checks were mailed to addresses indicated by the employees.

During 1950, six employees received loans from the General Electric Employees Educational Fund in total amount of \$1300. The unpaid balance of these loans as of December 31, 1950 is \$766.50.

Under the new Insurance Plan which was made effective December 1, 1950, 97.2% of eligible Hanford Works employees elected to participate. More than 7800 insurance Enrollment cards and Waiver of Participation cards were received in Payroll Divisions in connection with the installation of the new Plan. These cards were segregated between employees participating in personal coverage, employees participating in dependent coverage and employees who signed Waiver of Participation cards. Enrollment cards for participating employees were classified with respect to annual earnings classification, amount of insurance coverage and contribution rates in order to determine the amount of paid up life insurance at December 1, 1950. These cards were also classified with respect to age classification, continuous service date, amount, and effective date of additional insurance under the former Plan. Calculation of amount of paid up insurance at December 1, 1950 was made in the case of 566 employees who were age 55 (50 for women) or over at December 1, 1950 and who first became insured under the former Group Life Insurance Plan prior to age 60 (55 for women). The total paid up life insurance for these employees amounted to \$47,329.36.

Statistical reports were furnished to the Corporate Affairs Department in Schenectady indicating the number of employees, total amount of coverage segregated by sex and age classification, amount of paid up insurance segregated by sex and year of birth and total coverage segregated by annual earnings classifications.

In calendar year 1950, 21 865 accounts payable vouchers were booked for a monthly average of 1 822. Auditing and payment of these vouchers and the submission to A.E.C. for final approval has been on a current basis.

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## General Accounting Division

As of December 31, 1950, there was a total of 1 320 vouchers on hand in the Accounts Payable Section (329 paid and 991 unpaid) requiring additional work before they could be submitted to A.E.C.

According to letter received from Atomic Energy Commission, Finance Division there were seventeen individual disbursements by General Electric totaling \$9,923 made prior to October 1, 1950 which had not been fully approved by A.E.C. as of December 31, 1950. Every effort is being made to clear these items, and as of this date seven of the seventeen have been cleared.

Replies have been made to the 48 Informal Inquiries received to date from the General Accounting Office, 40 of which have been accepted by GAO. Seven of the eight replies not yet accepted by GAO are in connection with payments on Subcontract G-151 with Giffels and Valet and one is relative to the payment of overtime to an employee while in travel status.

The Budget Accounting Section began preliminary work in connection with the Fourth Quarter Budget Review. Letters of instruction, work sheets and schedules were prepared for distribution to division heads for use in this review.

Internal auditors spent considerable time in reviewing procedures relative to the maintenance and physical checking of stores inventories. An audit of Kadlec Hospital internal cash controls was begun, and work in connection with audit of Area and Village bus revenue controls, preparation of State Business and Occupation Tax, material receiving and shipping procedures, and timekeeping procedures was continued.

Numerous requests were received during the month from other divisions by the Plant Accounting Section for information concerning recorded costs of various plant facilities. Valuation of the domestic water system in Richland, North Richland and 300 Area, and the total valuation of each plant area were included in these requests.

Advances from A.E.C. decreased from \$6 000 000 at November 30, 1950 to \$5 000 000 as of December 31, 1950. Advances are accounted for as follows:

	December	November
Cash in Bank - Contract Accounts	\$4 029 911	\$5 157 399
Cash in Transit	409 470	282 982
Expenditures Disallowed by A.E.C.	10 619	9 619
Cash in Bank - Salary Accounts	50 000	50 000
Travel Advance Funds	100 000	100 000
Advances to Subcontractors	400 000	400 000
Total	<u>\$5 000 000</u>	<u>\$6 000 000</u>

General Accounting Division

Hanford Works cash disbursements and cash receipts, excluding advances from Atomic Energy Commission for the month of December as compared with November may be summarized as follows:

	<u>December</u>	<u>November</u>
<u>Disbursements</u>		
Material and Freight - GE	\$1 874 321	\$1 501 626
Payrolls - GE (Net)	2 336 307	1 940 639
Payments to Subcontractors	2 981 771	3 065 326
Other	936 383	1 010 879
Total	<u>\$8 128 782</u>	<u>\$7 518 470</u>
<u>Receipts</u>		
Rents	\$ 105 974	\$ 118 819
Hospital	43 033	39 350
Telephone	16 076	15 784
Bus Fares	9 098	9 726
Other	44 131	51 809
Total	<u>\$ 218 312</u>	<u>\$ 235 498</u>
<u>Net Disbursements</u>	<u>\$7 910 470</u>	<u>\$7 282 982</u>

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## General Accounting Division

### STATISTICS

<u>Employees and Payroll</u>	<u>Total</u>	<u>Monthly Payroll</u>	<u>Weekly Payroll</u>
Employees on Payroll at beginning of month	7 661	1 895	5 906
Additions and transfers in	132	13	119
Removals and transfers out	(107)	(8)	(99)
Transfers from Weekly to Monthly Payroll	--	24	(24)
Transfers from Monthly to Weekly Payroll	--	(2)	2
Employees on Payroll at end of month	<u>7 686</u>	<u>1 922</u>	<u>5 934</u>

<u>Employees on Payroll at end of month</u>	<u>November</u>	<u>December</u>
Manufacturing	3 366	3 374
Design and Construction	660	670
Municipal, Real Estate & General Services	680	672
Others	3 155	3 170
Total	<u>7 661</u>	<u>7 886</u>

<u>Overtime Payments</u>		
Weekly Paid Employees	\$64 687	\$70 830
Monthly Paid Employees	19 366 (1)	20 576 (2)
Total	<u>\$84 053</u>	<u>\$91 406</u>

<u>Number of Changes in Salary Rates and Job Classifications</u>		
	644	878

<u>Gross Amount of Payroll</u>		
Manufacturing	\$1 229 109	\$1 472 003
Design and Construction	251 639	277 474
Municipal, Real Estate & General Services	222 217	260 533
Others	1 048 628	1 247 051
Total	<u>\$2 751 593 (3)</u>	<u>\$3 257 061 (4)</u>

<u>Annual Going Rate of Payrolls</u>		
Manufacturing	\$15 737 898	\$15 682 082
Design and Construction	3 123 760	3 123 999
Municipal, Real Estate & General Services	2 844 755	1 024 446
Others	13 371 374	15 391 009
Total	<u>\$35 077 787</u>	<u>\$35 221 536</u>

<u>Average Salary Rate Per Hour (5)</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	\$2.065	\$2.803	\$2.200	\$2.059	\$2.797	\$2.201
Design and Construction	1.620	2.881	2.107	1.613	2.871	2.104
Municipal, Real Estate and General Services	1.830	2.320	1.982	1.843	2.327	1.985
Others	1.717	2.628	1.936	1.718	2.629	1.939
Total	<u>\$1.876</u>	<u>\$2.687</u>	<u>\$2.066</u>	<u>\$1.873</u>	<u>\$2.685</u>	<u>\$2.068</u>

- (1) Payments cover period from 16th of previous month to 15th of current month, except that in the case of Design and Construction Divisions, payments cover period October 1, 1950 to October 31, 1950.
- (2) Payments cover period from 16th of previous month to 15th of current month, except that in the case of Design and Construction Divisions, payments cover period November 1, 1950 to November 30, 1950.
- (3) Includes payments for the four (4) week period ended November 19, 1950 in the case of weekly paid employees. Also includes \$21,254 retroactive payment to Auxiliary Firemen.
- (4) Includes payments for the five (5) week period ended December 24, 1950 in the case of weekly paid employees.
- (5) Includes shift differential and isolation pay. Excludes overtime premiums, 211 commissions, suggestion awards, etc.

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General Accounting Division

Employee Benefit Plans

Pension Plan

	<u>November</u>	<u>December</u>
Number participating at beginning of month	6 495	6 490
New participants and transfers in	33	34
Removals and transfers out	(38)	(53)
Number participating at end of month	<u>6 490</u>	<u>6 471</u>
% of eligible employees participating	94.5%	95.0%

Employees Retired

	<u>December</u>	<u>Total to Date</u>
Number	2	154 - a)
Aggregate Annual Pensions Including		
Supplemental Payments	\$ 140	\$ 37 303 - b)
Amount contributed by employees retired	\$ 349	\$ 23 236
(a - Includes 6 employees who died after reaching optional retirement age but before actual retirement. Lump sum settlements of death benefits were paid to beneficiaries in these cases.		
(b - Amount before commutation of pensions in those cases of employees who received lump sum settlement.		

Group Life Insurance (1)

	<u>November</u>	<u>December</u>
Number participating at beginning of month	5 760	5 871
New participants and transfers in	175	-0-
Cancellations	(38)	5 815
Removals and transfers out	(32)	-0-
Number participating at end of month	<u>5 871*</u>	<u>56</u>
% of eligible employees participating	78.0%	--

\*Does not include 47 pensioners who were granted lump sum pension settlements and who were paying premiums at Hanford Works.

(1) Group Life Insurance Plan was discontinued on November 30, 1950. Participants at 12-31-50 are employees absent with continuous service who are participating in the Group Life Insurance Plan. They were not actively at work on December 1, 1950, and therefore were not eligible to participate in the New Insurance Plan. However, they will become eligible upon their return to work.

Group Life Insurance Claims

	<u>December</u>
Number of Claims	1
Amount of Insurance	\$ 5 950

Group Disability Insurance

The Group Disability Insurance Plan was discontinued November 30, 1949 for all employees actively at work. However, one employee who has been absent from work since September 15, 1949, is still insured under the Group Disability Insurance Plan.



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Employee Benefit Plans (continued)

<u>Group Health Insurance (1)</u>	<u>November</u>	<u>December</u>
<u>Personal Coverage</u>		
Number participating at beginning of month	7 154	7 192
New participants and transfers in	110	-0-
Cancellations	(1)	7 166
Removals and transfers out	(71)	-0-
Number participating at end of month	<u>7 192</u>	<u>26</u>
% of eligible employees participating	95.2%	--
 <u>Dependent Coverage</u>		
Number participating at beginning of month	4 748	4 714
Additions and transfers in	61	-0-
Cancellations	(4)	4 761
Removals and transfers out	(31)	-0-
Number participating at end of month	<u>4 774</u>	<u>13</u>
 <u>Claims (2)</u>		
Number of claims paid by insurance company:		
<u>Employee Benefits</u>		
Weekly Sickness and Accident	61	75
Daily Hospital Expense Benefits	123	107
Special Hospital Services	137	123
Surgical Operations Benefits	91	106
<u>Dependent Benefits Paid</u>		
Daily Hospital Expense Benefits	146	182
Special Hospital Services	177	212
Surgical Operations Benefits	135	203
Amount of claims paid by insurance company:		
Employee Benefits	\$ 18 763	\$ 19 040
Dependent Benefits	18 043	26 020
Total	<u>\$ 36 806</u>	<u>\$ 45 060</u>
 <u>Premiums</u>		
Personal - Employee Portion	\$ 105	\$ 56
- Company Portion	51 (3)	27 (3)
- Total	<u>\$ 156</u>	<u>\$ 83</u>
Dependent- Employee Portion	\$ 53	\$ 36
- Company Portion	42 (3)	29 (3)
- Total	<u>\$ 95</u>	<u>\$ 65</u>
Grand Total	<u>\$ 251</u>	<u>\$ 148</u>

- (1) Group Health Insurance Plan was made effective December 1, 1949 and was discontinued on November 30, 1950. Participants at 12-31-50 are employees absent with continuous service who are participating in the Group Health Insurance Plan. They were not actively at work on December 1, 1950, and therefore were not eligible to participate in the new Insurance Plan. However, they will become eligible upon their return to work.
- (2) Statistics cover only claims paid and not all claims incurred during the month.
- (3) Gross company cost before dividend.

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Employee Benefit Plans (continued)

Insurance Plan (1)

December

Personal Coverage

Number participating at beginning of month	7 679
New participants and transfers in	66
Cancellations	(12)
Removals and transfers out	(42)
Number participating at end of month	<u>7 691</u> (2)
% of eligible employees participating	97.2%

Dependent Coverage

Number participating at beginning of month	5 033
Additions and transfers in	25
Cancellations	(3)
Removals and transfers out	(22)
Number participating at end of month	<u>5 033</u>

- (1) The New Insurance Plan was made effective on December 1, 1950.  
 (2) Includes 566 employees (457 men, 109 women) who were age 55 (50 for women) or over on December 1, 1950 and who first became insured under the former Plan prior to age 60 (55 for women) for whom paid up life insurance is provided in the total amount of \$47,329.36.

Claims - Disability Benefits

73 Claims for disability benefits were filed under the New Insurance Plan during the month of December, 1950, but no checks were received from Metropolitan Life Insurance Company during the month.

Claims - Death Benefits

	<u>December</u>	<u>Total to Date*</u>
Number	2	52
Amount	\$ 11 550	\$ 265 327

\*Includes all claims under the old and new Insurance Plans since September 1, 1946.

Vacation Plan

Number of employees granted permission to defer one week of their 1950 vacation to 1951

	<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	4	4	8	137	65	202-a)
Design and Construction	3	11	14	21	44	65-b)
Municipal, Real Estate and General Services	3	5	8	34	36	70-b)
Technical	2	6	8	26	53	79-b)
Health Instrument	0	0	0	4	2	6
Employee & Community Relations	0	0	0	5	5	10
Plant Security & Services	1	0	1	86	27	113
Purchasing & Stores	3	5	8	23	13	36-c)
Medical	2	1	3	14	5	19
General Accounting	4	0	4	16	4	20
General	2	0	2	2	1	3
Total	<u>24</u>	<u>32</u>	<u>56</u>	<u>368</u>	<u>255</u>	<u>623</u>

- (a - Total to date reduced by 4 cancellations  
 (b - Total to date reduced by 1 cancellation  
 (c - Total to date reduced by 2 cancellations

General Accounting Division

Employee Benefit Plans (continued)

U. S. Savings Funds	Mfg.	D&C	Municipal, Real Estate & General		Total
			Services	Other	
Number participating at beginning of month	1 668	248	288	1 363	3 572
New authorizations	21	4	5	22	52
Voluntary cancellations	(21)	(3)	(4)	(21)	(49)
Removals and transfers out	(11)	(3)	-	(12)	(26)
Transfers in	<u>1</u>	<u>2</u>	<u>5</u>	<u>-</u>	<u>8</u>
Number participating at month end	<u>1 658</u>	<u>248</u>	<u>294</u>	<u>1 357</u>	<u>3 557</u>
% Participating	49.1%	40.3%	40.5%	42.8%	45.1%
Bonds issued					
Maturity Value	\$138 650	\$ 19 900	\$ 21 875	\$101 250	\$ 281 675
Number	2 339	330	399	1 814	4 882
Refunds issued	24	2	4	25	55
Revisions in authorizations	8	5	3	15	31
Annual going rate of deductions					
G. E. Employees Savings and Stock Bonus Plan	\$681 697	\$100 509	\$109 840	\$532 302	\$1 424 348
G. E. Savings Plan	<u>216 642</u>	<u>30 267</u>	<u>37 431</u>	<u>144 670</u>	<u>429 010</u>
Total	<u>\$898 339</u>	<u>\$130 776</u>	<u>\$147 271</u>	<u>\$676 972</u>	<u>\$1 853 358</u>

<u>Annuity Certificates (For duPont Service)</u>	<u>December</u>	<u>Total to Date</u>
Number issued	-0-	74

<u>Suggestion Awards</u>	<u>December</u>	<u>Total to Date</u>
Number of awards	71	858
Total Amount of Awards	\$ 1 620	\$ 14 195

<u>Employee Sales Plan</u>	<u>December</u>		
	<u>Major Appliances</u>	<u>Traffic Appliances</u>	<u>Total</u>
Certificates Issued	69	1 014	1 083
Certificates Voided	4	38	42

<u>Salary Checks Deposited</u>	<u>November</u>		<u>December</u>	
	<u>Weekly</u>	<u>Monthly</u>	<u>Weekly</u>	<u>Monthly</u>
Richland Branch - Seattle First National Bank	731	855	719	854
North Richland Area Office - Seattle First National Bank	12	7	12	6
Richland Branch - National Bank of Commerce	182	152	188	161
Out of state banks (Schenectady Staff)	---	<u>1</u>	---	<u>1</u>
Total	<u>925*</u>	<u>1 015</u>	<u>919**</u>	<u>1 022</u>

\*Week ended 11-26-50  
\*\*Week ended 12-24-50

<u>Special Absence Allowance Requests</u>	<u>November</u>	<u>December</u>
Number submitted to Pension Board	7	5

<u>Absenteeism (Weekly Paid Employees)</u>	<u>1949</u>	<u>1950</u>
January 1 to December 24	2.37%	2.35%

General Accounting Division

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING

	<u>November</u>	<u>December</u>
Number of Employees		
On Payroll at beginning of month	177	182
Removals and transfers out	(3)	(5)
Additions and transfers in	<u>8</u>	<u>12</u>
Number at end of month	<u>182</u>	<u>189</u>
Net increase (or decrease) during month	5	7
% of terminations and transfer out	1.7%	2.7%
% of absenteeism	3.57%	2.60%

Changes by division in number of Accounting Division employees during December were as follows:

General: No change

Accounts Payable: Increase of one employee

One new hire

Cost: No change

General Accounts: No change

Plant Accounting: Increase of two employees

Four new hires

One illness removal

One termination

Weekly Payroll: Increase of two employees

Five new hires

One transfer to Monthly Payroll

One transfer to Design and Construction Division

One termination

Monthly Payroll: Increase of one employee

One new hire

One transfer from Weekly Payroll

One transfer to General Administrative

Special Assignment: No change

Budgets: No change

Internal Audit: Increase of one employee

One transfer from Plant Security and Services Division

Injuries	<u>November</u>	<u>December</u>
Major	-0-	-0-
Sub-major	-0-	-0-
Minor	-0-	1

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PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING (continued)

Number of Accounting Division employees as of December 31, 1950 were as follows:

	<u>Number of Employees</u>		
	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Total</u>
General	3	3	6
Accounts Payable	14	1	15
Cost	13	1	14
General Accounts	17	1	18
Plant Accounting	22	2	24
Weekly Payroll	67	6	73
Monthly Payroll	17	2	19
Special Assignment	2	3	5
Budgets	5	1	6
Internal Audit	2	7	9
Total	<u>162</u>	<u>27</u>	<u>189</u>

Non-exempt employees may be summarized as follows:

<u>Classification</u>	<u>Number as of</u>	
	<u>11-30-50</u>	<u>12-31-50</u>
Accounting A	1	1
Accounting B	1	1
Accounting C	5	6
Accounting D	6	6
Business Graduate	15	15
Clerical Working Leader	5	5
Cost Clerk A	1	1
Cost Clerk B	1	1
Cost Clerk C	1	1
Cost Clerk D	1	1
Field Clerk C	2	2
General Clerk A	20	19
General Clerk B	44	44
General Clerk C	17	23
General Clerk D	8	9
General Clerk E	1	0
Office Machine Operator A	8	8
Office Machine Operator B	5	6
Secretary B	1	1
Steno-Typist A	2	2
Steno-Typist B	5	6
Steno-Typist C	4	4
Steno-Typist D	1	0
Total	<u>155</u>	<u>162</u>

Open employment requests as of December 31, 1950 were as follows:

Accounting D	2
Business Graduate	4
General Clerk C	1
General Clerk E	1
Steno-Typist B	1
Total	<u>9</u>

General Accounting Division

	<u>December</u>	<u>November</u>
<u>Accounts Payable*</u>		
Balance at Beginning of Month	\$ 81 517	\$ 57 890
Vouchers Entered	977 575	1 060 108
Cash Disbursements	1 007 764	1 036 632
Cash Receipts	778	151
Balance at end of month	<u>\$ 52 106</u>	<u>81 517</u>
Number of Vouchers Entered	1 828	2 216
Number of Checks Issued	1 247	1 230
Number of Freight Bills Paid	278	392
Amount of Freight Bills Paid	\$ 5 081	\$ 6 290
Number of Purchase Orders Received	1 278	1 108
Value of Purchase Orders Received	341 696	329 034
<u>Cash Disbursements</u>		
Municipal, Real Estate & General Services	\$ 199 797	\$ 103 607
Design & Construction	3 551 127	3 338 484
General	3 491 540	3 178 686
Manufacturing	886 318	927 693
Total	<u>\$8 128 782</u>	<u>\$7 548 470</u>
Material and Freight	\$1 874 321	\$1 501 626
Lump Sum and Unit Price Subcontracts	356 061	205 690
CPFF Subcontracts		
Labor	2 113 193	2 193 826
Others	512 517	620 810
Payrolls (Net)	2 336 307	1 940 639
Payroll Taxes	320 879	365 422
U. S. Savings Bonds	147 469	171 415
General & Administrative Expenses	200 000	200 000
Travel Advance Bank Account	-0-	30 000
Miscellaneous	268 035	274 042
Total	<u>\$8 128 782</u>	<u>\$7 548 470</u>
<u>Cash Receipts</u>		
Municipal, Real Estate & General Services	\$ 97 474	\$ 118 845
Design & Construction	33 926	45 555
General	6 853 652	9 221 770
Manufacturing	16 296	10 528
Total	<u>\$7 001 348</u>	<u>\$9 396 698</u>

\*General Divisions Only

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General Accounting Division

	<u>December</u>	<u>November</u>
<u>Detail of Cash Receipts</u>		
Advances from AEC	\$6 782 982	\$9 161 210
Rents	105 974	118 819
Hospital	43 033	39 350
Telephone	16 076	15 784
Scrap Sales	20 575	14 205
Bus Fares	9 098	9 726
Miscellaneous Accounts Receivable	11 297	4 451
Refunds from Vendors	2 960	2 297
Employee Sales	665	553
Educational Program	309	514
All Other	8 379	29 789
Total	<u>\$7 001 348</u>	<u>\$9 396 698</u>
<u>Number of Checks Written</u>		
Municipal, Real Estate & General Services	180	194
Design & Construction	529	534
General	1 247	1 230
Manufacturing	649	678
Total	<u>2 605</u>	<u>2 636</u>
<u>Bank Balances at End of Month</u>		
Chemical Bank & Trust Company - New York		
Contract Account	\$1 799 383	\$1 943 045
Seattle First National Bank - Richland		
Contract Account	2 016 643	2 795 654
U. S. Savings Bond Account	217 270	72 633
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
Travel Advance Account	46 838	45 105
Seattle First National Bank - Seattle		
Escrow Account	57 496	57 496
National Bank of Commerce - Richland		
Contract Account - Manufacturing	213 682	372 307
Contract Account - Municipal, Real Estate & General Services	203	46 393
Total	<u>\$4 344 019</u>	<u>\$5 382 633</u>
<u>Travel Advances and Expense Accounts</u>		
Cash Advance balance at end of month*	\$ 27 761	\$ 29 623
Cash Advance balance outstanding over one month*	800	1 102
Traveling and Living Expenses:		
Paid Employees	23 552	24 071
Billed to Government	21 732	22 038
Balance in Variation account at end of month	12 685 Dr.	10 866 Dr.

\*General Divisions Only.

General Accounting Division

	<u>December</u>	<u>November</u>
<u>Hospital Accounting</u>		
<u>Accounts Receivable</u>		
Balance at Beginning of Month	\$ 113 263	\$ 111 177
Invoices Issued	52 698	52 673
Refunds	536	347
Cash Receipts	43 033 Cr.	39 349 Cr.
Payroll Deductions	6 898 Cr.	6 661 Cr.
Bad Debts Written Off	3 564 Cr.	-0-
Adjustments	29 Cr.	76
	<u>\$ 118 073</u>	<u>\$ 118 263</u>

Scrap Sales

	<u>December</u>	<u>Total to Date</u>
(a) Number of Sales	<u>11</u>	<u>283</u>
(b) Revenue (Not including Sales Tax)		
Revenue to G.E.	20 575	298 952
Revenue to AEC (Sale of Tract Houses)	<u>-0-</u>	<u>38 958</u>
Total Revenue	<u>\$ 20 575</u>	<u>\$ 337 910</u>



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ACCOUNTS PAYABLE

The number of vouchers booked in December was 1,828 amounting to \$977,575 as compared to 2,216 vouchers in November amounting to \$1,060,108.

Total vouchers booked during the calendar year was 21,865, an average of 1,822 per month as compared with 20,149 vouchers booked in 1949 averaging 1,679 per month.

The number of checks issued in December increased slightly over November, as indicated below:

	<u>December</u>	<u>November</u>
Chemical Bank & Trust Co.	408	441
Seattle First National Bank	<u>839</u>	<u>789</u>
Total	<u>1,247</u>	<u>1,230</u>

A total of 2,091 vouchers were paid in December, averaging 1.68 vouchers per check, slightly less than the average of 1.69 for the two preceding months.

On December 31 there were 1,320 vouchers on hand requiring additional supporting data before they could be forwarded to A.E.C. for final audit. Details are as follows:

	<u>December</u>	<u>November</u>
Number on hand - Paid	329	270
Number on hand - Unpaid	<u>991</u>	<u>1,118</u>
Total	<u>1,320</u>	<u>1,388</u>

Of the 329 paid vouchers on hand, only 9 were more than 90 days old and of the 991 unpaid vouchers, only 6 were more than 90 days old.

Number of freight bills paid in December was 278, a considerable decrease from the 392 paid in November. This was the first decrease in number of freight bills paid in the last six months.

The General Ledger Accounts Payable balance on December 31 was \$52,106.44, a considerable decrease from November and evidence that vouchers are being paid promptly. Details of this balance by months, compared with November, are as follows:

	<u>December</u>	<u>November</u>
August	\$ 1,338.85 Dr.	\$ 1,343.77 Dr.
September	4.72 Dr.	13.10 Dr.
October	1,537.46 Dr.	1,425.42
November	3,272.71	81,448.50
December	<u>51,714.76</u>	<u>-</u>
Total	<u>\$52,106.44</u>	<u>\$81,517.05</u>

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## General Accounting Division

### ACCOUNTS PAYABLE (CONTD.)

New purchase orders issued in December applying to General Divisions was 1,278, the highest number in any one month since March 1950 and indications are that this increase will still continue.

The number of purchase orders issued in 1950 pertaining to General Divisions was 12,685, averaging 1,057 orders per month as compared with 10,371 orders issued in 1949 averaging 864 per month.

### BUDGETARY CONTROL

During the forepart of the month budget amounts to be entered on General Division's operating reports were furnished the Cost Section. Assistance was also given on preparation of revised budget estimates for use on Financial Statements.

During the latter part of the month detailed schedules showing revised budget estimates of operating costs were prepared and forwarded to division heads. Comparative schedules on Research and Development programs were also completed and forwarded to division heads. These schedules were accompanied by a letter pointing out significant differences between quarterly budget reviews and amounts of current Research and Development Authorizations.

In connection with the next quarterly review of the budget, preliminary work was started in preparing letters of instructions, work sheets and statistical schedules for division managers and/or division heads use in reviewing their budgets.

### COST

General Divisions Operating Reports for the month of November were issued on December 15, 1950, detailed reports of Research and Development Costs on December 20, 1950, and consolidated Summary of Costs report for all Hanford Works Divisions on January 2, 1951.

On December 20, 1950 a letter was issued to each General Division manager analyzing the major changes in costs between October and November.

Considerable time was spent in reviewing the Summary of Costs report and several adjustments were made in the method of recording assessments between the various divisions. Continued effort is being directed toward improving this report so as to eliminate need for reconciliation with cost reports issued by the various accounting divisions.

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General Accounting Division

COST (CONTD.)

Purchasing and Stores Divisions furnished a detailed study of receiving activity at our request in order that current allocation of Stores costs incurred as a result of the major construction program could be made. Based on findings of the study, Stores assessment to Design and Construction was revised.

Arrangements were made with the Janitor Service Division for them to submit a weekly report showing hours worked in each building occupied by the Municipal, General Services and Real Estate Divisions. Costs are to be assessed by building based on the hours worked as submitted.

Salary code No. 163 - Stores Inventory Clerks and Supervisors was established to record salary costs of the stores inventory section which were previously charged to code 114 - Accounting Clerks and Supervisors, thereby restricting use of code 114 to accounting divisions only.

GENERAL ACCOUNTS

General Ledger Trial Balances were received from all Accounting Divisions by December 15, 1950. Hanford Works Financial Statements and Consolidated Financial Statements were completed on December 20 and 27, respectively. Budget amounts on both Hanford Works and Consolidated Statements were revised to reflect the latest estimates.

The General Accounting Division issued 1247 contract checks this month as compared with 1230 last month. Cash disbursements increased from \$3 178 686 to \$3 491 540, an increase of \$312 854.

Advances from A.E.C. decreased from \$6 000 000 as of the beginning of the month to \$5 000 000 as of the month's end. Advances as of December 31, 1950 may be compared with those of November 30, 1950 as follows:

	<u>December</u>	<u>November</u>
Cash in Bank - Contract Accounts	\$4 029 911	\$5 157 399
Cash in Transit	409 470	282 982
Expenditures Disallowed by A.E.C.	10 619	9 619
Cash in Bank - Salary Accounts	50 000	50 000
Travel Advance Funds	100 000	100 000
Advances to Subcontractors	<u>400 000</u>	<u>400 000</u>
Total	\$5 000 000	\$6 000 000

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GENERAL ACCOUNTS (CONTD.)

The balance of Accounts Receivable - Miscellaneous increased this month from \$7 278 to \$80 058. This increase results principally from billings in the aggregate of \$76 079 to A.E.C. Cost-Type Contractors. As of January 1, 1951 Accounts Receivable - Miscellaneous will be relieved of these charges which will hereafter be carried in General Ledger Account No. 3.9 A.E.C. Cost-Type Contractors.

The balance of Accounts Receivable - Miscellaneous may be summarized as follows:

A.E.C. Cost-Type Contractor charges	\$ 76 079
Freight Claims	2 150
Transportation Refunds	719
Other	<u>1 110</u>
Total	<u>\$ 80 058</u>

Travel Expense Reports processed this month numbered 113 and amounted to \$15 915. Reimbursement was received from the A.E.C. in the amount of \$15 340, the balance of \$575 being charged to the Travel and Living Expense Variation Account. The balance of Travel Advances to Employees decreased from \$29 623 to \$27 761 as of the month's end.

Fiscal Year to Date the Travel and Living Expense Variation Account has been charged with \$12 685 (All Divisions). This represents an increase this month of \$1 819, of which \$658 was entertainment expenses and \$1 161 the difference between expenses incurred by employees and reimbursement received from the A.E.C.

Memorandum Billings were received from Knolls Atomic Power Laboratory covering Engineering and Consulting Laboratory Assistance to Hanford in the amount of \$122 915, KAPL Assistance to Hanford of \$1 980, and Research Laboratory Assistance of \$337.

INTERNAL AUDITING

An audit of Kadlec Hospital revenue was begun in December and is being continued. The purpose of this audit is to determine if adequate internal accounting controls are being maintained relative to routines, procedures, and records in connection with the handling of revenue and cash change funds. Primarily, this audit is a follow-up of the cash change fund counts made as of June 30, 1950, in which it was indicated that certain internal controls at Kadlec Hospital should be strengthened.

Study was begun of the procedure for taking physical inventory by the Stores Division. The purpose of this study is (1) to determine the possibility of extending the taking of physical inventories to include accounts other than Account 10.2 - Stores - General Maintenance, located in Building

General Accounting Division

INTERNAL AUDITING (CONTD)

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713; (2) to review the procedure for its effectiveness in maintaining controls of material withdrawals and receipts in process, to be reconciled after completing the physical count; (3) to check the accuracy of such work previously performed by Stores Division; and (4) to establish an internal audit control system, for the taking of all physical inventories.

Investigation was made of small tools, which are physically controlled by the Stores Division, located at White Bluffs. The book balance for these tools is being transferred from the Design and Construction Divisions' records to the General Accounting Division's books as of December 31, 1950. Physical inventory was begun by the Stores Division of all small tools in their custody at White Bluffs as of January 1, 1951. From this inventory, the tools will be priced at fair market value, by condition, and set up on kardex records to be maintained by the Stores Division. Adjustment will be made between the depreciated book value now carried on the books and the adjusted value after physical count, the net difference to be charged or credited to Account 10.30, Reserve for Miscellaneous Inventory Adjustments. One auditor is assigned to follow through the taking of the physical inventory to final adjustment on the ledger.

Reconciliation of Central Stores (713 Building) Account 10.2, Stores - General Maintenance, with the General Accounting Division's ledgers as of December 31, 1950 is under way. This will coincide with the change in Stores Division cut-off date from the twenty-fifth of the month to the last day of the month, which change in cut-off date will considerably reduce the number of items to be reconciled with the ledgers. Two internal auditors will aid Stores Division in the preparation of reconciliations for the month of December, 1950.

The balance of Stores Sub-account 913 - Well Casing Pipe, has been transferred to the A.E.C., for use by the United States Geological Survey in furtherance of the work previously performed by the Health Instrument Divisions.

Auditing work is being continued on the following studies: (1) Revenue Controls for Area and Village Bus Operations; (2) Business and Occupational Tax; (3) Receiving and Shipping; and (4) Timekeeping.

Audit report covering Excess Materials was issued during December, 1950.

MEDICAL ACCOUNTING

The balance in Accounts Receivable decreased \$190 during the month, from \$118,263 in November to \$118,073 in December. Payments on account increased \$3,684 during the month and uncollectible accounts in the amount of \$3,564 were approved and written off.

Out-Patient invoices numbered 2,117 and amounted to \$8,888 as compared to 2,136 amounting to \$9,296 in November. This represented a decrease of 19 invoices amounting to \$408.

18. In-Patient revenue increased \$433 over November even though the adult patient-day census decreased from 80.6 in November to 77.7 in December.

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General Accounting Division

MEDICAL ACCOUNTING (CONTD)

A total of 31 claims in the amount of \$1,030 was submitted this month to Fort Lewis for services rendered military personnel. Reimbursement on 23 claims in the amount of \$712 on prior months billings was received during the month.

Blue Cross claims paid during the month numbered 17 and amounted to \$1,997.

Listed below is a summary of accounts submitted to date to Yakima Adjustment Service for collection:

	<u>Number</u>	<u>Amount</u>
Accounts Submitted	157	\$ 28,458
Accounts Returned as Uncollectible	13	4,690
Collections by Yakima Adjustment Service	37*	1,714
Collections on Accounts Recalled (10% basis)	7	1,320
Accounts Held by Yakima Adjustment Service as of 12/31/50	117	20,734

\* Includes 20 accounts collected in full and 17 accounts partially collected.

Work relative to arriving at standard and unit costs of maintaining first aid stations, physical examinations and other services rendered by Industrial Medical-Operations was completed. Detailed schedules were prepared showing this information and submitted for review. Upon approval, assessments to other divisions for services rendered will be on the approved standard basis.

A study is currently in progress comparing Kadlec Hospital costs, salary structure and personnel by servicing section with those at Oak Ridge. Copies of operating statements for the current fiscal year together with other data have been secured from Oak Ridge for use in connection with the study.

PLANT ACCOUNTING

Several requests for information concerning the recorded cost of Plant facilities were received during the month and one man spent full time in compiling the necessary data. Included were a request from the Power and Mechanical Division of the Construction Division, for the valuation of the domestic water system in Richland, North Richland, and the 300 Area, and a request from the Maintenance Division for information concerning Plant Investment by Areas.

At June 30, 1950, the account "Unclassified Property in Service" reflected a balance of \$1,151,000. This amount, plus the majority of additional charges received during the past six months has been classified and distributed to Plant Accounts. The balance in this account as of December 31, 1950 will be approximately \$25,000 representing charges that cannot be classified at this time.

General Accounting Division

PLANT ACCOUNTING (CONTD)

Since the Plant Appraisal, June 30, 1949, this Section has been analyzing and screening Work Orders in progress to insure proper handling of charges from a Plant Accounting standpoint. Results of this continuous study are presented below:

Total Work Orders Capitalized 6/30/49 to 12/31/50	\$295 000
Total Work Orders in Progress as of 12/31/50	124 000
Work Orders coded to Plant Accounts Reclassified as Expense	120 000
Work Orders coded to Expense Reclassified as Capital	250 000

The Atomic Energy Commission has informed us that depreciation expense will not be distributed as operating expense in Fiscal Year 1952, and should continue to be recorded in the account Costs - Undistributed Depreciation.

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## PAYROLLS

During the month of December there were 107 removals from payroll, including 8 removals due to lack of work. There were no transfers to other units of the Company. There were 132 additions to the payroll, including 4 transfers from other units of the Company. The result is a net increase of 25 employees on the Payroll.

\* \* \* \* \*

Christmas Day, December 25, 1950 was an observed holiday at Hanford Works. Due to the resulting short work week, it was necessary to deliver salary checks for employees of the outer areas to patrolmen at the area gate houses between 8 PM and 11 PM on Thursday, December 28, 1950 instead of at 2 PM on Thursday which is the normal delivery time. Preparation of the Payroll was completed without overtime during Christmas week, however, 8 hours of overtime were required for delivery of checks to the outer areas on Thursday evening.

\* \* \* \* \*

Under the new Insurance Plan, which was made effective December 1, 1950, 97.2% of eligible Hanford Works employees elected to participate.

The total amount of life insurance coverage of 7,679 participating employees insured under the plan amounted to \$47,570,500 as of December 1, 1950 or an average of approximately \$6200.00 per employee, excluding the Additional coverage of \$2000 for accidental death or dismemberment for each employee insured under the plan.

Employees who were age 55 (50 for women) or over at December 1, 1950 and who first became insured under the former Group Life Insurance Plan prior to age 60 (55 for women) and who enrolled in the new Insurance Plan as of December 1, 1950 were provided with paid-up life insurance in the total amount of \$47,329.36 paid for solely by the Company.

Claims for benefits under the Insurance Plan were filed by 454 employees. These claims were forwarded to Metropolitan Life Insurance Company during the month of December. There were 381 claims processed under the old Plan and 73 under the new Plan. There were 873 checks received from the Insurance Company amounting to \$45,060 covering payment of 569 claims submitted by employees for benefits under the old Plan.

In connection with the installation of the new Insurance Plan on December 1, 1950 over 7,800 insurance enrollment cards were analyzed and segregated between employees participating in Personal Coverage and employees participating in Dependent Coverage and employees who signed Waiver of Participation cards. Enrollment cards of participating employees were classified with respect to amount of insurance coverage, contribution rates, age classifications, etc. It was necessary in the case of 566 employees to calculate the amount of paid up insurance to which these employees were entitled as of December 1, 1950. Contribution rates were entered on individual payroll records and deductions from salary were made during the month. Statistical reports were furnished to the Corporate Affairs Department in Schenectady indicating the number of participating employees, total amount of coverage segregated by sex and age classification, amount of paid up insurance segregated by sex and year of birth and a segregation of the total coverage indicating the amount of coverage for each earnings bracket.

\* \* \* \* \*



Military Duty Allowances equivalent to one month's salary were paid during December in accordance with H. W. Instructions Letter No. 53, dated October 24, 1950, to 22 Weekly Paid employees and one Monthly Paid employee who entered the Armed Forces of the United States on or after July 1, 1950. The gross payment to these employees amounted to \$6,941.56. Checks were mailed to addresses indicated by the employees.

\* \* \* \* \*

In order to facilitate the work of the Payroll Divisions in connection with year end work, a schedule was prepared listing all work to be accomplished and scheduling the flow of work between the various sections of Payroll so that each job will be completed on or before the due date. Overtime on Saturdays is scheduled for Payroll Divisions employees during December and January to take care of the additional work load.

\* \* \* \* \*

Approximately 800 man hours were expended in connection with a special Payroll analysis.

\* \* \* \* \*

New authorization cards for check-off of Union dues were received by Weekly Payroll Division for 104 employee members of ten unions affiliated with Hanford Atomic Metal Trades Council, as follows:

<u>Union</u>	<u>Number</u>
International Union of Operating Engineers, Stationary Local #280	15
International Chemical Workers Union, Local 369	46
International Brotherhood of Teamsters, Warehousemen, Garage Employees and Helpers, Local 839	9
Building Service Employees International Union, Local 201	2
Instrument Craftsmen's Guild	11
United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, Local No. 598	8
Hanford Industrial Firemen, Local #37	8
International Brotherhood of Electrical Workers, Local 77	1
International Brotherhood of Electrical Workers, Local 77-139	2
International Association of Machinists, Lodge 1951	2
Total	<u>104</u>

In addition to the above, revised authorization cards were received for 212 employee members of the International Chemical Workers Union, Local 369, which authorized deduction of Union dues for each of these members in the amount of \$3.00 per month instead of \$2.00. Authorizations for check-off of Union dues in effect at December 31, 1950 cover 778 employee members of 14 Unions.

Three authorization cards for Medical Division employees were received from Building Service Employees International Union, Local 201. At December 31, 1950, the check-off of Union dues was in effect for 18 Medical Division employee members of Building Service Employees International Union.

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Approximately 103,000 items were addressographed during December in addition to regular routine addressograph work. Considerable extra work was done by the addressograph section this month due principally to addressographing forms for fourth quarter 1950 tax reports, year end reports and payroll forms for use during 1951.

\* \* \* \* \*

Two garnishments served on the Company had not been dismissed at November 30, 1950. Three garnishments were served on the Company during December. Four of these five cases were dismissed during December by Court Order, three with payment to the Court and one without payment to the Court. One case was pending at December 31, 1950.

\* \* \* \* \*

During December, preferential rates were eliminated in 43 instances where employees were transferred or reclassified. As of December 31, 1950 there were approximately 1,234 employees with preferential rates.

\* \* \* \* \*

Authorizations for deductions from Payroll for the purchase of safety shoes were received from 183 employees in December.

\* \* \* \* \*

U. S. Savings Bonds having a maturity value of \$44,525 were withdrawn from the G. E. Employees Savings and Stock Bonus Plan during December by 109 participating employees. There were 896 U. S. Savings Bonds withdrawn by employees.

U. S. Savings bonds and Custody Receipts covering purchases by employees through Payroll deductions in November were delivered to employees on December 29, 1950. There were 766 U. S. Savings Bonds and 2,875 Custody Receipts delivered.

As of December 31, 1950, the percentage of Hanford Works employees participating in the G. E. Employees Savings and Stock Bonus Plan and General Electric Savings Plan, and the annual going rate of payroll deductions for both Plans was as follows:

### Percentage of Participation

	<u>Mfg.</u>	<u>D &amp; C</u>	<u>Municipal, Real Estate &amp; Gen. Serv.</u>	<u>Other</u>	<u>Total</u>
G. E. Employees Savings and Stock Bonus Plan	44.2	36.0	35.8	38.3	40.4
General Electric Savings Plan	12.0	7.8	9.4	8.7	10.1
Both Plans	49.1	40.3	40.5	42.8	45.1

### Annual Going Rate of Deductions

	<u>Mfg.</u>	<u>D &amp; C</u>	<u>Municipal, Real Estate &amp; Gen. Serv.</u>	<u>Other</u>	<u>Total</u>
G. E. Employees Savings and Stock Bonus Plan	\$681,697	\$100,509	\$109,840	\$532,302	\$1,424,348
General Electric Savings Plan	216,642	30,267	37,431	144,670	429,010
Total	<u>\$898,339</u>	<u>\$130,776</u>	<u>\$147,271</u>	<u>\$676,972</u>	<u>\$1,853,358</u>

\* \* \* \* \*

During 1950, 6 employees received loans from the General Electric Employees Educational Fund in total amount of \$1300. The unpaid balance of these loans as of December 31, 1950 is \$766.50.

\* \* \* \* \*

There were only 7 time cards received late in payroll during the month of December.

\* \* \* \* \*

As of December 31, 1950, there were approximately 711 employees authorized to pick up salary checks, U. S. Savings Bonds and Custody Receipts. During December, 12 employees were added to the list of individuals so authorized.

\* \* \* \* \*

There were no cases of lost salary checks reported in December and all checks previously reported lost have either been reissued or have been found by the employees.

\* \* \* \* \*

In December, a total of 6,234 items were submitted to Weekly Payroll Division for deduction from salaries of Weekly Paid employees for rent and telephone charges as follows:

House Rents	3,246
Dormitory Rents	645
Trailer Rents	100
Barrack Rents	22
Telephone Accounts	<u>2,221</u>
Total	<u>6,234</u>

\* \* \* \* \*

A total of 307 employees were scheduled to take their 1950 vacations in December. Approvals were received during the month to defer one week of the 1950 vacation to 1951 for 24 Weekly Paid employees and 32 Monthly Paid employees. As of December 31, 1950, permission to defer one week of 1950 vacation until 1951 had been granted by Divisions Managers to 368 Weekly Paid employees and 255 Monthly Paid employees.

\* \* \* \* \*

As of December 31, 1950, there were 91 employees who had left the Company to enter the Armed Forces of the United States as follows:

	<u>Called to Duty</u>	<u>Volunteered for Duty</u>	<u>Total</u>
Reserve Officers	2	2	4
Enlisted Reserves	22	4	26
National Guard	-0-	-0-	-0-
Selective Service	<u>13</u>	<u>48</u>	<u>61</u>
Total	<u>37</u>	<u>54</u>	<u>91</u>

\* \* \* \* \*

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Employees' Withholding Exemption Certificates (U. S. Treasury Department Form W-4) were addressographed for all employees during December and were distributed to the Divisions. Employees were asked to complete these forms and return them to Payroll Divisions in order that we may have current information on each employee's claim for exemptions for withholding tax purposes.

\* \* \* \* \*

The following bank reconciliations were complete at December 31, 1950:

1. Weekly salary payrolls through Payroll No. 224 for the week ended December 10, 1950.
2. Weekly salary vacation payrolls through No. 224 for the week ended December 10, 1950.
3. Monthly salary payrolls through Payroll No. 50 for the month of November, 1950.
4. Bond account for the month of November 1950.

\* \* \* \* \*

PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - DECEMBER 1950

SUMMARY

There was one lost time injury for the month making a total of five for the year and a frequency rate of 0.33. This frequency rate is the best achieved since Hanford Works has been in operation.

There were five minor fires during the month with no loss to government property.

The new 2724-W Laundry Building was completed and occupied. The first operations began on December 18, 1950.

Activities completed by the Office Methods Division resulted in annual savings of approximately \$1,000.00 on a recurring annual basis.

Test runs on Patrol Mobilization Plan A were held in all areas during the month. Practice blackouts were held in four areas and practice evacuations were held in two areas.

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## PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - DECEMBER 1950

### 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	591	592	1 (a)	
Safety & Fire Protection	138	142	4 (b)	
Office Services (General Services, Clerical Services, Records Control and Office Methods)	233	229		4 (c)
TOTALS	965	966	5	4

NET INCREASE: 1

#### (a) - Patrol and Security

- 2 - New Hires (Patrol)
- 1 - Returned from Leave of Absence (Patrol)
- 1 - Transferred to Construction (Patrol)
- 1 - Termination (Patrol)

#### (b) - Safety and Fire Protection

- 5 - New Hires
- 1 - Transferred from Village Maintenance and Repair
- 1 - Transferred from Municipal Fire Division
- 1 - Transferred to "S" Division
- 2 - Terminations

#### (c) - General Services

- 1 - Transferred from Transportation Division
- 2 - Removed from Roll due to Leave of Absence
- 2 - Transferred to other Divisions
- 4 - Terminations

#### Clerical Services

- 6 - New Hires
- 1 - Transferred from Municipal Real Estate
- 3 - Transferred to other Divisions
- 1 - Termination

Plant Security and Services Divisions

SAFETY AND FIRE PROTECTION

Injury Statistics

Days since last Major Injury 27  
Accumulated Exposure Hours since last Major Injury 1,144,359  
Major Injury Frequency Rate (1-1-44 through 12-30-50) 0.79

	<u>November</u>	<u>December</u>	<u>Year to Date</u>
Major Injuries	0	1	5
Sub-Major Injuries	1	2	27
Minor Injuries	288	254	3,680
Exposure Hours	1,276,730	1,320,411	15,125,954
Major Injury Frequency Rate	0.0	0.76	0.33
Major Injury Severity Rate	0.0	0.02	0.003
Minor Injury Frequency Rate	2.22	1.92	2.43

Major Injury No. 72

At approximately 3:45 P.M., on December 4, an employee of the 100-DR Area, Power Division, sustained a fractured right wrist, linear fracture of right heel, lacerations of left thumb and moderate abrasions to left upper arm when a valve which he was helping to open suddenly loosened and he fell eight feet to the cement floor and grating.

Sub-Major Injury No. 191

On December 18, at approximately 9:00 A.M., an employee of the Design and Construction Division sustained a fracture of the metacarpal, right hand, when she struck the lever of a two-hole paper punch a sharp blow with her fist.

Sub-Major Injury 192

On December 19, at approximately 9:45 A.M., an employee of the Real Estate Housing Division received a fracture of the left eleventh rib when a 4" x 4" piece of lumber about 56" long rolled as he stepped backwards onto it causing him to fall backward striking his back on a pile of material stacked against the wall.

Safety Activities

On December 28, the 200-East Area completed two consecutive years without a lost time injury; time involved was in excess of 2,000,000 exposure hours.

On December 19, the 100-F Area completed another year with a lost time injury making a total of four major injury free years.

Only five major injuries occurred during 1950 resulting in a Frequency Rate of 0.33, an improvement of 53% over that of 1949.

The Severity Rate of 0.0035 for the year was exceptionally low; an improvement of 89% over that of 1949.

The fire loss for 1950 per \$100.00 evaluation is \$.0035.

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Plant Security and Services Divisions

Fire Protection Activities

Fire Protection surveys were completed on Buildings 1709-B, 313 and 282-E.

A fire protection water survey was completed for the 200-East Area.

Plans are being completed to replace all carbon tetrachloride fire extinguishers with dry compound or carbon dioxide type extinguishers.

An acceptance survey was made of the new 2724-W Laundry building. Several unsatisfactory conditions were reported.

At the request of the Design and Construction Divisions, a fire protection survey was made of construction buildings 277-S and T-50.

A survey was made of the 234-5 Construction area. Suggestions made were well received and immediate action taken.

The need for automatic fire detectors in parts of the 234-5 Building is being studied.

Eight supervisors in training were instructed in fire procedures and practices.

Phone alarm service was improved in the 100-D, H and F Areas by running extensions into the White Bluffs Fire Station.

Industrial Fire Investigations

<u>Division</u>	<u>Area</u>	<u>No. of Fires</u>	<u>Cause</u>	<u>Loss</u>
Health Instrument	100-F	1	Electrical	None
Health Instrument	100-F	1	Burning coat	None
Health Instrument	200-East	1	Electrical	None
"S" Division	200-West	1	Electrical	None
Electrical	200-West	1	Welding	None
TOTAL INDUSTRIAL FIRES		5	TOTAL LOSS	NONE

OFFICE SERVICES DIVISIONS

General Services

Plant Laundry (Building 2723)

	<u>November</u>	<u>December</u>
Coveralls - Pieces	30,767	32,453
Towels - Pieces	7,157	6,838
Miscellaneous - Pieces	78,547	76,152
Total Pieces	116,471	115,443
Total Dry Weight - Lbs.	159,345	162,528

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Plant Security and Services Divisions

General Services (Contin.)

Richland Laundry (Building 723)

	<u>November</u>	<u>December</u>
Flatwork - Pounds	48,463 Lbs.	43,529½ Lbs.
Rough Dry - Pounds	16,366 "	16,295 "
Finished - Pounds	2,143 "	2,057½ "
	<hr/>	<hr/>
Total Pieces	87,733 *	81,065 *
Total Dry Weight - Lbs.	66,972	61,882

\* Estimated Pieces

\*\* Poundage necessarily estimated due to confusion in moving from old Laundry building to the new building. Clothing was delivered from both buildings without being accurately recorded.

Monitoring Section - 2723 Laundry

	<u>November</u>	<u>December</u>
Poppy Check - Pieces	96,950	104,212
Scaler Check - Pieces	122,491	141,702
	<hr/>	<hr/>
Total Pieces	219,441	245,914

The new 2724-W Laundry Building was completed and occupied the latter part of December. The first operations began on December 18. The 4 to 12 shift was eliminated and one foreman and four weekly salaried employees were transferred to other jobs. Due to considerable lost time during the transition period of transferring equipment and personnel from the old to the new building, plus the heavy demands made upon the laundry by the process buildings simultaneous with this move, it was necessary for the laundry personnel to work overtime during the month to furnish the process areas with adequate protective clothing.

During the past month a steam economizer was installed in the 700 Area Laundry. This economizer will enable us to preheat water with steam that was formerly being wasted.

A steam meter was also installed to insure more accurate steam poundage being charged against the 700 Area Laundry and it has revealed that our past steam assessments have been considerably too high.

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## Plant Security and Services Divisions

**DECLASSIFIED**Clerical ServicesMail Room

	<u>November</u>	<u>December</u>
Pieces of Internal Mail handled	560,965	530,733
Pieces of postal mail handled	79,594	80,884
Pieces of registered mail handled	1,206	1,132
Pieces of Insured Mail handled	289	266
Pieces of Special Delivery mail handled	306	368
	<hr/>	<hr/>
Total Mail handled	642,360	613,283
Total amount of postage used	\$ 2,543.95	\$ 2,227.00
Total Teletypes handled	4,641	4,437

Office Equipment

This section is still out of office equipment and so far are unable to get deliveries from the Federal Bureau of Supply. A meeting has been arranged with a representative of the AEC and a representative of the Federal Bureau of Supply to try and settle this issue by obtaining delivery at once or returning the order to the AEC for purchase on the open market.

	<u>November</u>	<u>December</u>
Office machines repaired in shop	275	291
Office machines service calls	398	340
	<hr/>	<hr/>
Total Machines Services	673	631

Printing

Due to the overload of work, \$1,700.00 worth of printing was sent to outside printers in two weeks. Excess printing will be sent to outside vendors until such time as we have sufficient people and equipment to keep work on a reasonably current basis.

	<u>November</u>	<u>December</u>
Multilith orders received	265	278
Multilith orders completed	297	269
Multilith orders on hand	78	87
Stencil and fluid duplicating orders received	992	898
Stencil and fluid duplicating orders completed	967	881
Stencil and fluid duplicating orders on hand	58	75

Plant Security and Services Divisions

Stenographic Services

	<u>November</u>	<u>December</u>
Dictation and Transcription	:00	:00
Machine Transcription	26:20	13:45
Letters	85:55	214:55
Manual and Procedures	132:30	12:45
Duplicating - Stencils, Ditto	426:00	279:10
Special	283:55	435:50
Training	320:00	258:45
Unassigned time during the month	54:35	121:00
Meeting Time	24:00	6:00
Holiday and Vacation	104:00	88:00
Absentee Time	16:00	8:00
	<hr/>	<hr/>
Total	1,473:15	1,438:10
Employees loaned to other divisions	1,144:15	766:20
	<hr/>	<hr/>
Total Hours Available	2,617:30	2,204:30

Clerical Services - General

A meeting was held with Mr. Johnson and other members of the Design and Construction Divisions in regard to working out a permanent contract with Atkinson & Jones to handle 700 Area work that cannot be done by Community forces. Negotiations have been held up with Atkinson & Jones until a formal ruling on the Davis-Bacon Act is received. At that time negotiations for a contract will proceed.

Records Control Division

Quantity of records received, processed and stored:

Design & Construction Divisions	40	Standard Boxes
CPFF Sub-Contractors	1	"    "
Employee and Community Relations Div.	4	"    "
General Accounting Division	29	"    "
Health Instrument Operational Div.	59	"    "
Management Division	3	"    "
Manufacturing Accounting Division	11	"    "
Municipal, Real Estate & General Services	10	"    "
"P" Division	12	"    "
Plant Security and Services Divisions	1	"    "
Project Engineering Divisions	4	"    "
Stores Division	32	"    "
	<hr/>	
TOTAL	206	Standard Boxes

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## Records Control (Contin.)

Records Service provided for:	475 persons
Records reboxed and processed:	18 standard storage cartons
Records Cartons issued:	147 standard cartons
Records destroyed by burning:	123 standard boxes

Two bin sections were added in Building 712-B during the month.

Considerable time was spent cleaning up odds and ends prior to moving to the new Records Center.

All activity in the Records Center is up to date and Work Orders have been processed for the moving of the shelving and records from 712-B to the new Records Center immediately upon its completion.

Work on the new Records Center will not be complete by January 1 as was scheduled. It may be completed in another week, however the shelving has not arrived as yet. There is no way of knowing how long it will take to erect the shelving since the original contract was for the erection of only one-half of the shelving. The AEC has to arrange for the erection for the balance of the shelving. This may or may not hinder moving, depending on whether or not it is agreeable to move in as soon as the building is complete, and before the shelving is erected.

Work is progressing satisfactorily in several divisions in assisting with the installation of files in offices.

Office Methods Division

## General Activities -

	<u>November</u>	<u>December</u>
Printing Orders reviewed	365	508
Printing Orders cancelled	17	20
New numbers assigned	201	168
Forms designed	51	60

In limiting orders for forms to a six to twelve months supply, a total reduction of 176,000 copies was made on 17 orders. These forms ranged from tabulating punch cards to five-part precarboned forms which would have cost approximately \$500.00. (Not included in our records as a savings).

A series of 28 8 $\frac{1}{2}$  x 11 mimeograph forms used by 200-East and 200-West was reduced to four 8 $\frac{1}{2}$  x 11 printed forms and placed in Stores Stock. Because of limited storage space and to properly allocate costs, each area was ordering on the basis of approximately a three to four weeks supply which resulted in 390 printing orders per year. The four new forms will be ordered on the bases of a four months supply for each area, and result in twelve printing orders per year, a form more suitable for fill-in, thinner paper requiring less filing space, and an annual savings of \$617.00 in printing costs.

Plant Security and Services Divisions

Office Methods (Contin.)

Forms used for listing are being redesigned to increase their capacity or reduce size. Forms so designed have to date resulted in savings ranging from 10% to 65%

Two forms designed for use by doctors giving annual and pre-employment examinations are now being printed. These two forms will reduce the amount of writing normally required by about 75%, making it possible for each doctor to handle 25% more examinations each day. Evaluation of these forms will be made based upon actual experience.

Miscellaneous forms redesigned during the month have resulted in annual savings of approximately \$385.00.

Total estimated savings created by the Office Methods Division and evaluated during December was \$1,002.00, all of which will be on a recurring annual basis.

PATROL AND SECURITY

General

On December 3, six patrol cars established the standard road blocks for army test firing between 8:45 A.M. and 10:00 A.M., discontinued because of fog conditions.

Effective December 4, a new Patrol Post was established in the 234-5 Building, 200-West Area. The purpose of the post is to escort materials between Rooms 172 and 152 and to guard the storage of these materials.

At 5:00 P.M., December 4, hourly checks were established at the Range buildings by 101 Building Patrol personnel during off shift hours.

Two new posts were activated at the Construction Badge House and vehicle gate in the 200-East Area on December 14 on the No. 2 and No. 3 shifts. These posts will accomodate construction personnel working on the 200-East pipe line which started that date.

On December 17, the standard army test firing road blocks were established between the hours of 9:00 A.M. and 11:00 P.M. Due to weather conditions the guns were not fired.

On December 18, 700 Area Patrol started making regular off-shift checks of Dormitory W-10. At times classified technical class books are stored in this building in an approved repository.

A direct line telephone was installed between the 1701 Badge House and the Radio Room in the 100-F Area. The same plan will be followed in all outer area main badge houses as a standby emergency communications aid.

During the month a new procedure was established whereby area lieutenants will conduct training courses in the proper method of safely handling the various fire arms. This will be in addition to the regular Patrol Training School sessions.

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Plant Security and Services Divisions

## Patrol

A meeting was held at North Richland with members of the 5th Anti-Aircraft Artillery group and the Health Instrument and Security Patrol Divisions to establish procedures for notification of Army personnel in the event of a plant evacuation. A procedure was agreed upon, whereby the Security Patrol Emergency Officer would notify the 5th Anti-Aircraft Artillery group's Staff Duty Officer of a plant emergency and evacuation. The 5th Anti-Aircraft Artillery group will dispatch an officer to the Control Center in Richland to direct the activities and evacuation of Army personnel in the forward areas.

A total of 635 pat searches were made during the month. Escorts handled totalled 541.

The Patrol Division made 12 ambulance runs for the Medical Division during the month.

Practice evacuations were held as follows:

100-B	12-26-50	9:45 A.M.
100-D	12-8-50	10:07 A.M.

Practice blackouts were held as follows:

100-B	12-5-50	8:02 P.M.
100-B	12-15-50	9:21 P.M.
100-B	12-19-50	9:01 P.M.
100-F	12-29-50	8:40 P.M.

Mobilization Plan "A" (actual) was placed in effect on:

100-B	12-26-50	8:17 P.M.
100-D	12-26-50	8:17 P.M.
100-F	12-26-50	8:17 P.M.
100-H	12-26-50	8:17 P.M.
200-E	12-26-50	8:17 P.M.
200-W	12-26-50	8:15 P.M.

Mobilization Plan "A" (practice) was held as follows:

100-B	12-6-50	10:20 A.M.
100-B	12-11-50	1:04 A.M.
100-B	12-11-50	9:06 P.M.
100-B	12-12-50	9:49 P.M.
100-B	12-20-50	2:20 A.M.
100-B	12-20-50	2:20 P.M.
100-B	12-23-50	9:55 P.M.
100-B	12-30-50	8:31 P.M.
100-D	12-6-50	10:22 A.M.
100-D	12-11-50	1:04 A.M.
100-D	12-11-50	9:06 P.M.
100-D	12-12-50	9:50 P.M.

## Plant Security and Services Divisions

### Mobilization Plan "A" (practice) continued:

100-D	12-13-50	1:12 A.M.
100-D	12-23-50	9:55 P.M.
100-F	12-5-50	7:25 P.M.
100-F	12-7-50	1:15 P.M.
100-F	12-10-50	9:08 P.M.
100-F	12-11-50	1:04 A.M.
100-F	12-19-50	9:35 P.M.
100-F	12-21-50	1:56 A.M.
100-H	12-7-50	1:20 P.M.
100-H	12-8-50	2:21 A.M.
100-H	12-10-50	9:08 P.M.
100-H	12-11-50	1:28 A.M.
100-H	12-29-50	6:23 P.M.
200-E	12-11-50	1:05 A.M.
200-W	12-23-50	9:55 P.M.
300	12-2-50	7:46 P.M.
300	12-10-50	1:15 P.M.
300	12-27-50	10:15 P.M.

### Patrol Training

The following training courses were received in December:

Safety	1/2	hour
Health	1/4	hour
Security.	2	hours
Accident Investigation Class	1	hour
Class on Supervision	1/2	hour
Pistol	1 1/2	hours
Machine Gun	1 1/4	hours
Aircraft Identification Class	1	hour

An instructor inspected armored cars and equipment including machine guns throughout the areas during the month. Some minor repairs and adjustments were made. The overall condition of these units was good.

### Security

Section XXVI of H. W. Instructions Letter No. 135, "Periodic Personal Inventories of Classified Documents", was issued December 2. This procedure which applies to both documents and blueprints will substantially strengthen our control and accountability of classified documents.

Instructions were issued on December 18 to all Superintendents and Division heads on the use and completion of Visitor Report Form 3743 B. The use of this form will establish uniformity within all divisions in the completion of their monthly visitor reports.

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Plant Security and Services Divisions

Security (Contin.)

There were 115 General Electric employees given orientation talks which dealt with plant safety and security rules, also a brief resume of plans and policies of the General Electric Company for its employees

There were 104 security meetings held and attended by 3,131 General Electric employees.

A representative of the Security Division showed the film "On Guard" at 28 meetings during month covering 700 employees.

A new type "Notice of Security Violation" was placed in use during the month. The notice, to be placed in unlocked files, is adhesive and can be attached to the top of material in the file.

A poster entitled "How Security Violations Happen" was posted in all areas throughout the plant.

There were 82 employees of the General Electric Company who received a "Q" orientation talk from representatives of the Security Division during the month.

## Clearances

There were 498 badge transactions completed during December including "A", "B" and "C" and temporary type badges. This makes a total of 34,202 to date.



HANFORD WORKS  
General Electric Company  
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING DECEMBER 31, 1950

<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class.</u>	<u>Unclass Areas</u>
<b>MEDICAL DIVISION</b>						
<b>I. Visitors to this Works</b>						
S. T. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Medical consultation	W. D. Norwood P. A. Fuqua	12-21-50	12-22-50	X	
<b>DESIGN AND CONSTRUCTION DIVISIONS</b>						
<b>I. Visitors to this Works</b>						
C. D. Carroll General Eng. & Con. Lab. Schenectady, New York	Consultation on installation of 432 Project equipment	G. Thayer	12-11-50	12-13-50	X	200-W 234 235
D. J. DeMichele Gen. Eng. & Con. Lab. Schenectady, New York	Discuss strain gauge applications	J. L. Smith	11-27-50	12-3-50	X	
E. Long Gen. Eng. & Con. Lab. Schenectady, New York	Testing of Task VI-Project 432	G. Thayer	12-4-50	12-20-50	X	200-W 231 234 235
C. A. Hansen, Jr. Knolls Atomic Power Lab. Schenectady, New York	Instrumentation and liaison work between KAPL and Hanford	P. E. Lowe H. E. Grantz	12-10-50	12-22-50	X	
<b>II. Visits to other Installations</b>						



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<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</u>
G. S. Cochrane to: Gen. Eng. & Con. Lab. Schenectady, New York	Consultation on installation of 432 Project equipment	D. H. Marquis	12-2-50	12-19-50	X	
H. E. Hanthorn to: California Steel Products Richmond, California	Engineering consultation on Class I vessels	G. DeKay	12-17-50	12-23-50		X
R. R. Henderson to: Chicago Bridge & Iron Co. Greenville, Pennsylvania	Consult with fabricator of tanks and approve vendors plan at site	W. S. Nesbitt	12-15-50	12-20-50		X
G. H. Hill to: Gen. Eng. & Con. Lab. Schenectady, New York	Attend General Electric Company Drafting School	B. R. Prentice A. H. Rau	11-25-50	12-4-50		X
R. C. Hoffman to: Barrett & Logan Company Portland 1, Oregon	Liaison with Architect-Engineer Project C-364	R. E. Barrett J. E. Murtaugh	12-14-50	12-15-50		X
F. A. Hollenbach to: Kellex Corporation New York, New York	Design conferences on Project	G. White, Jr.	12-4-50	12-9-50		X
R. C. Hollingshead to: Patterson Foundry & East Liverpool, Ohio Machine	Contact with possible agitator vendor	Mr. Quillan	12-18-50	12-19-50		X
R. C. Hollinghead to: Milling Equipment Company East Liverpool, Ohio	Contact with possible agitator vendor	- -	12-16-50	12-19-50		X
R. C. Hollinghead to: Kellex Corporation New York, New York	Discussion of design details, Project C-362	J. S. Atwood	12-27-50	12-30-50		X
R. T. Jaske to: University of Washington Seattle, Washington	Consultation regarding Research Program	R. W. Moulton	11-30-50	12-13-50		X

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Areas</u>	
					<u>Class</u>	<u>Unclass</u>
W. E. Johnson to: General Electric Company New York, New York	Discussion of Kellex contract and progress of work	B. R. Prentice	12-1-50	12-1-50	X	
J. O. Ludlow to: Vulcan Copper & Supply Co. Cincinnati Ohio	Design consultation	T. Carroll	11-27-50	12-8-50		X
J. O. Ludlow to: Graver Tank Company Chicago, Illinois	Design consultation	- -	11-27-50	12-6-50		X
R. C. Mann to: Kellex Corporation New York, New York	Consultation on instrumentation for Project C-362	J. S. Atwood J. L. Shelane G. White, Jr.	12-30-50	still gone	X	
P. M. Murphy to: Kellex Corporation New York, New York	Design conferences on Project C-362	G. White, Jr.	12-2-50	12-12-50		X
H. M. Parker to: Peerless Pump Company Portland, Oregon	Demonstration and test of Redox Production Pump	T. Carter	11-26-50	12-1-50		X
M. J. Rutherford to: Gilmore Steel & Supply Co. Portland, Oregon	Engineering consultation	J. Rowan	12-11-50	12-14-50		X
R. J. Schier to: Knolls Atomic Power Lab. Schenectady, New York	Interview for new assignment	B. R. Prentice	12-5-50	12-8-50		X
R. J. Schier to: Battelle Memorial Inst. Columbus, Ohio	Discuss corrosion testing of stainless steel.	H. R. Nelson	12-9-50	12-9-50		X
W. B. Webster to: Kellex Corporation New York, New York	Design conference	J. S. Atwood	12-30-50	still gone		X

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class</u>	<u>Unclass Areas</u>
T. Williams to: Vulcan Copper & Supply Co. Cincinnati, Ohio	Design consultation	T. Carroll	11-27-50	12-8-50		X
T. Williams to: Kellex Corporation New York, New York	Design conference	J. S. Atwood	12-30-50	still gone	X	
J. W. Wood to: Wash. Machinery & Storage assembly Seattle, Washington	Discussion on conveyor	- -	12-13-50	12-15-50		X
EMPLOYEE AND COMMUNITY RELATIONS DIVISION						
I. Visitors to this Works						
L. R. Boulware General Electric Company New York, New York	Meet with Davis panel	H. E. Callahan J. N. Dupuy	12-17-50	12-20-50		X
INSTRUMENT DIVISION						
I. Visitors to this Works						
C. A. Hansen, Jr. Knolls Atomic Power Lab Schenectady, New York	Instrumentation and liaison work between KAPL and Hanford	W. M. Mathis E. S. Day	12-16-50	12-22-50		X
II. Visits to other installations						
F. M. Stratton to: Gen. Eng. & Con. Lab. Schenectady, New York	Consultation on in- strumentation for Pro- ject P-10-X	D. H. Marquis C. D. Carroll	12-15-50	12-17-50		X

PROJECT ENGINEERING DIVISIONS

I. Visitors to this Works

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data		
					Class	Unclass	Areas
C. D. Carroll Gen. Eng. & Con. Lab. Schenectady, New York	Discuss P-10-X equip- ment	W. R. Felts F. A. Bowman	12-11-50	12-12-50	X		100-B 108
II. Visits to other Installations							
C. W. Hay to: Iron Fireman Co. Portland, Oregon	Inspect sub-standard material on purchase contract	G. E. Inspector - R. Caldwell	12-12-50	12-12-50		X	
W. R. Felts to: Gen. Eng. & Con. Lab. Schenectady, New York	Discuss P-10-X equipment to be developed by GE Company	C. D. Carroll	12-15-50	12-16-50	X		
W. L. Sapper to: Atomic Energy Commission Washington, D. C.	Discuss matters with respect to priorities and material procurement to expedite construction program	Messrs. Bloch and Alger	12-7-50	12-13-50	X		
Visitors to this Works (cont'd)							
L. G. Gitzendanner Gen. Eng. & Con. Lab. Schenectady, New York	Inspection of equipment	G. R. Moore	12-6-50	12-10-50	X		300-303
MANAGEMENT							
I. Visitors to this Works							
L. R. Boulware General Electric Company New York, New York	Meet with Davis panel	F. K. McCune	12-17-50	12-20-50		X	
B. S. Havens Knolls Atomic Power Lab. Schenectady, New York	Consultation on K/APL - Hanford assistance work and inspection of HW facilities	F. K. McCune C. N. Gross	12-12-50	12-15-50	X		100-D 105 100-F 108 300 All 200-E 221-B 200-W 231, 234 200-W Const.

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Class</u>	<u>Restricted Data</u>	<u>UnClass</u>	<u>Areas</u>
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**MANUFACTURING MANAGEMENT**

**I. Visitors to this Works**

A. J. Schwertfeger E. I. du Pont de Nemours & Co. Wilmington, Delaware	Inspection of general Co. facilities	C. N. Gross H. D. Middel	12-4-50	12-6-50	X			300 All 100-F 105 100-H 105 200-W 221-T 231
J. D. Ellett E. I. du Pont de Nemours & Co. Wilmington, Delaware	Study design features for separation in P-10 facilities	C. N. Gross	12-11-50	12-14-50	X			100-B 106 200-W 221-T, 231, 234 200-E 221-B 300 321
H. A. Fritze E. I. du Pont de Nemours & Co. Wilmington, Delaware	Study design features for separation in P-10 facilities	C. N. Gross	12-11-50	12-14-50	X			100-B 106 200-W 221-T, 231, 234 200-E 221-B 300 321
E. E. Wilson E. I. du Pont de Nemours & Co. Wilmington, Delaware	Study design features for separation in P-10 facilities	C. N. Gross	12-11-50	12-14-50	X			100-B 106 200-W 221-T, 231, 234 200-E 221-B 300 321
H. B. Coats Bjlaw-Knox Corporation Pittsburgh, Pennsylvania	Study design features for separation in P-10 facilities	C. N. Gross	12-11-50	12-14-50	X			100-B 106 200-W 221-T, 231, 234 200-E 221-B 300 321

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<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</u>	<u>Areas</u>
W. W. Jones Blaw-Knox Corporation Pittsburgh, Pennsylvania	Study design features for separation in P-10 facilities	C. N. Gross	12-11-50	12-14-50	X		100-B 108 200-W 221-T, 231, 234 200-E 221-B 300 321
P. L. Smith Blaw-Knox Corporation Pittsburgh, Pennsylvania	Study design features for separation in P-10 facilities	C. N. Gross	12-11-50	12-14-50	X		100-B 108 200-W 221-T, 231, 234 200-E 221-B 300 321
C. D. Bierman Blaw-Knox Corporation Pittsburgh, Pennsylvania	Study design features for separation in P-10 facilities	C. N. Gross	12-11-50	12-14-50	X		100-B 108 200-W 221-T, 231, 234 200-E 221-B 300 321
C. G. Strove Blaw-Knox Corporation Pittsburgh, Pennsylvania	Study design features for separation in P-10 facilities	C. N. Gross	12-11-50	12-14-50	X		100-B 108 200-W 221-T, 231, 234 200-E 221-B 300 321
F. A. Danewood E. I. du Pont de Nemours & Co. Wilmington, Delaware	Discussion of proposed test schedule	C. N. Gross	12-4-50	12-9-50	X		100-B 108 200-W 221-T, 231, 234 200-E 221-B 300 321
K. W. Millett E. I. du Pont de Nemours & Co. Wilmington, Delaware	Discussion of proposed test schedule	C. N. Gross	12-4-50	12-9-50	X		100-B 108 200-W 221-T, 231, 234 200-E 221-B 300 321

POWER DIVISION

I. Visitors to this Works

A. J. Schwertfeger  
E. I. du Pont de Nemours & Co. facilities  
Wilmington, Delaware

H. F. Measley  
[REDACTED]

100-D XXX

X

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Name - Organization

Purpose of Visit

Person Contacted

Arrival

Departure

Restricted Data  
Class   Unclass   Areas

"P" DIVISION

I. Visitors to this Works

F. Neuman      Consultation on earth-quake indicating devices as applicable in 100 Areas      E. P. Lee      H. T. Wells      12-15-50      12-15-50      X      100-H 105  
100-D 105

"S" DIVISION

I. Visits to other Installations

F. A. Hollenbach      Design conference on Project C-362      G. White, Jr.      12-5-50      12-8-50      X

PURCHASING AND STORES DIVISIONS

I. Visitors to this Works

E. Bradley      Deliver material on order HW 73616      H. H. Hart      12-4-50      12-4-50      X      200-E  
221-B

Potlatch Lumber Yards  
Kennewick, Washington

E. Bradley      Deliver material on order HW 73616      H. H. Hart      12-4-50      12-4-50      X      200-M  
221-T

Potlatch Lumber Yards  
Kennewick, Washington

G. Zank      Deliver material on order HW 71647-M      H. H. Hart      12-7-50      12-7-50      X      100-B 105  
100-D 105

Lee & Estes  
Kennewick, Washington

H. Callacher      Deliver material on order HW 70503-M      H. H. Hart      12-7-50      12-7-50      X      300 XXX

Lee & Estes  
Kennewick, Washington

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data</u>		<u>Areas</u>
					<u>Class</u>	<u>Unclass</u>	
H. White Richland Transfer Richland, Washington	Deliver load of material on order HW 71662-M	H. H. Hart	12-12-50	12-12-50	X	X	300 303-J
M. Brill Lee & Estes Kennewick, Washington	Deliver material on order H. H. Hart	H. H. Hart	12-12-50	12-12-50	X	X	100-B 105
E. Winkelman Richland Transfer Richland, Washington	Deliver material on order HW 71662-M	H. H. Hart	12-13-50	12-13-50	X	X	300 303-J
H. Anderson Dix Steel Building Company Yakima, Washington	Deliver material on order H. H. Hart	H. H. Hart	12-15-50	12-15-50	X	X	200-W 242-T
E. Winkelman Richland Transfer Richland, Washington	Deliver material on order H. H. Hart	H. H. Hart	12-18-50	12-18-50	X	X	300 303-J
G. Zank Lee & Estes Kennewick, Washington	Deliver material on order H.H. Hart	H. H. Hart	12-18-50	12-18-50	X	X	100-B XXX 100-D XXX
M. Brill Lee & Estes Kennewick, Washington	Deliver material on order H. H. Hart	H. H. Hart	12-18-50	12-18-50	X	X	100-B 105 100-D 105
R. A. Taylor Associated Transfer Company Seattle, Washington	Deliver boat	H. H. Hart	12-19-50	12-19-50	X	X	Hanford Ferry
H. Moses, Jr. Associated Transfer Company Seattle, Washington	Deliver boat	H. H. Hart	12-19-50	12-19-50	X	X	Hanford Ferry
D. A. Westermeyer Consolidated Freightways Kennewick, Washington	Deliver material on order HW 71670-M	H. H. Hart	12-19-50	12-19-50	X	X	200-W 271-T

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<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</u>	<u>Area</u>
W. Freuhling United Truck Lines Kennewick, Washington	Deliver material on order H. H. Hart	H. H. Hart	12-19-50	12-19-50	X	X	200-E 275
M. Brill Lee & Estes Kennewick, Washington	Deliver material on order HW 71680-M	H. H. Hart	12-21-50	12-21-50	X	X	100-D 105
G. Zank Lee & Estes Kennewick, Washington	Deliver material on order HW 71680-M	H. H. Hart	12-21-50	12-21-50	X	X	100-D 105
P. McDonald United Truck Lines Kennewick, Washington	Deliver material on order HO-952	H. H. Hart	12-21-50	12-21-50	X	X	300 303
A. Schuman United Truck Lines Kennewick, Washington	Deliver material on order HW 70491-M	H. H. Hart	12-22-50	12-22-50	X	X	200-W 221-T
W. Freuhling United Truck Lines Kennewick, Washington	Deliver material on order H. H. Hart HW 70491-M	H. H. Hart	12-22-50	12-22-50	X	X	200-W 221-T
D. Sievort United Truck Lines Kennewick, Washington	Deliver material on order H.H. Hart OGT 11007	H.H. Hart	12-26-50	12-26-50	X	X	100-D 105
G. Sievort United Truck Lines Kennewick, Washington	Deliver material on OGT 10909	H. H. Hart	12-26-50	12-26-50	X	X	100-D 105
G. A. Wallace U.S. Pipe & Mfg. Co. San Francisco, California	Inspection of material	C. S. Powers	12-20-50	12-20-50	X	X	

II. Visits to other Installations

<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</u>

G. H. Wright to: Patterson Foundry & Machine Works East Liverpool, Ohio	Place order for agitators	C. S. Quillen	12-15-50	12-18-50		X	
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R. V. Lawson to: Research Welding & Eng. South Gate, California	Investigate order placed by U. of C. which GE might assume	J. H. Toland J. W. E. Bennett	12-4-50	12-4-50		X	
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J. C. Hamilton to: Southwest Welding & Eng. Alhambra, California	Inspection of equipment on order	Mr. Lindmo	12-11-50	12-11-50		X	
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J. C. Hamilton to: Southwest Engineering Co. Los Angeles, California	Inspection of equipment on order	Mr. Miller	12-13-50	12-13-50		X	
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J. C. Hamilton to: Standard Steel Los Angeles, California	Inspection of equipment on order	Mr. Love	12-13-50	12-13-50		X	
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J. C. Hamilton to: Pacific Coast Eng. Oakland, California	Inspection of equipment on order	Mr. Ramsden	12-14-50	12-14-50		X	
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J. C. Hamilton to: California Steel Co. Oakland, California	Inspection of equipment on order	Mr. DeKay	12-14-50	12-14-50		X	
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TECHNICAL DIVISIONS

I. Visitors to this Works

C. E. Stilson NEPA - Oak Ridge National Lab. Oak Ridge, Tennessee	In-pile creep test	J. B. Lambert	12-5-50	1-20-51		X	100-D 105 100-F 105 100-H 105 101 300 3706
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<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</u>	<u>Areas</u>
C. D. Carroll Gen. Eng. & Con. Lab. Schenectady, New York	Electrical heater for gas reaction	S. S. Jones	12-8-50	12-9-50	X		300 3706 100-D 105
L. F. Coffin Knolls Atomic Power Lab. Schenectady, New York	Consultation on special request KAPL-105	J. B. Lambert	12-16-50	12-20-50	X		300 3706 100-F 105 100-H 105
H. Hurwitz Knolls Atomic Power Lab. Schenectady, New York	Technical consultation on physics and Hanford assistance	P. F. Gast D. W. Pearce	12-11-50	12-15-50	X		300 3706 100-B 106
F. J. Dunn Los Alamos Scientific Lab. Los Alamos, New Mexico	Discussions regarding production of materials and P-10 consultation	H. F. Zuhr A. R. Matheson	12-13-50	12-15-50	X		300 3706 100-B 105,108
H. W. Matraw Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	W. M. Marty A. R. Matheson	12-11-50	12-15-50	X		300 3706 100-B 105,108
O. N. Salmon Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	W. M. Harty A. R. Matheson	12-11-50	12-15-50	X		300 3706 100-B 105,108
C. G. Kruse International Business Machines Kennewick, Washington	Repair IBM equipment in International Business Machines Kennewick, Washington	P. M. Thompson	12-26-50	12-26-50		X	101
R. A. Hanson International Business Machines Richland, Washington	Repair IBM equipment in International Business Machines Richland, Washington	P. M. Thompson	12-4-50	12-7-50		X	101
C. Manna Knolls Atomic Power Lab. Schenectady, New York	Hanford liaison work	D. W. Pearce W. K. Woods W. M. Harty A. R. Matheson	12-4-50	12-8-50	X		300 3706 100-B 108 100-D 105

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<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>Uncl. Areas</u>
C. A. Hansen, Jr. Knolls Atomic Power Lab. Schenectady, New York	Liaison work between KAPL and Hanford	D. W. Pearce W. M. Harty J. C. L. Chatten G. E. McCullough	12-18-50	12-22-50	X	100-B 105, 106 100-D 105 100-F 105 100-H 105 200-W 234, 235 300 3706
R. M. Girdler E. I. du Pont de Nemours & Co. Wilmington, Delaware	Separations processes	R. H. Beaton	12-6-50	12-6-50	X	300 3706, 321
F. W. Hurd Carbide & Carbon Oak Ridge, Tennessee	Redox and TBP production specifications	R. H. Beaton	12-16-50	12-20-50	X	300 3706 321 200-W 221-T, 221-U, 231
R. E. Gustison Carbide & Carbon Oak Ridge, Tennessee	Redox and TBP production specifications	R. H. Beaton	12-18-50	12-19-50	X	300 3706, 321 200-W 221-T, 221-U, 231
C. A. Keinburger Carbide & Carbon Oak Ridge, Tennessee	Redox and TBP production specifications	R. H. Beaton	12-18-50	12-19-50	X	300 3706, 321 200-W 221-T, 221-U, 231
H. F. Henry Carbide & Carbon Oak Ridge, Tennessee	Redox and TBP production specifications	R. H. Beaton	12-18-50	12-19-50	X	300 3706, 321 200-W 221-T, 221-U, 231
G. T. Arnold Oak Ridge National Lab. Oak Ridge, Tennessee	Attend conference on con- taminated feed specifica- tions	R. H. Beaton	12-18-50	12-19-50	X	300 3706, 321 200-W 221-T, 221-U, 231
S. T. Benton Carbide & Carbon Oak Ridge, Tennessee	Redox and TBP production specifications	R. H. Beaton	12-18-50	12-19-50	X	300 3706, 321 200-W 221-T, 221-U, 231
C. G. Gieszl Applied Research Laboratories Glendale, California	Service Company's in- struments	F. W. Albaugh P. R. Anderson	12-11-50	12-13-50	X	300 3706 200-W 234

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Name - Organization      Purpose of Visit      Person Contacted      Arrival      Departure      Class      Restricted Data      UnClass      Areas

II. Visits to other Installations

A. B. Greninger to: U. S. Atomic Energy Comm. Washington, D. C.	Meeting for discussion and consultation on Hanford Operations	W. J. Williams	12-19-50	12-21-50	X			
O. H. Greager to: Mallinckrodt Chem. Wks. St. Louis, Missouri	Discussion of problems concerning separations processes	Mr. Fistere	12-4-50	12-4-50	X			
O. H. Greager to: Gen. Eng. & Con. Lab. Schenectady, New York	Discussion on problems in separations pro- cesses	M. A. Edwards	12-5-50	12-8-50	X			
O. H. Greager to: Knolls Atomic Power Lab. Schenectady, New York	Discussions on problems in separations pro- cesses	K. H. Kingdon	12-5-50	12-8-50	X			
R. H. Beaton to: Knolls Atomic Power Lab. Schenectady, New York	Separations Process Research Unit discus- sions	L. B. Bragg	12-11-50	12-13-50	X			
R. H. Beaton to: Gen. Eng. & Con. Lab. Schenectady, New York	432 Project discussions	D. H. Marquis	12-11-50	12-13-50	X			
M. D. Fitzsimmons to: Argonne National Lab. Chicago, Illinois	Investigate loading of P-13 equipment	H. Etherington	12-18-50	12-19-50	X			
J. F. Fletcher to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	C. Mannal J. Marsden	12-1-50	12-9-50	X			
J. F. Fletcher to: Gen. Eng. & Con. Lab. Schenectady, New York	P-10 consultation	D. H. Marquis	12-1-50	12-9-50	X			

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<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</u>	<u>Area</u>
F. W. Kleimola to: Argonne National Lab. Chicago, Illinois	Consultation on thermo- couple experiment	G. Anderson A. Amorosi	12-11-50	12-13-50	X		
L. A. McClaine to: Knolls Atomic Power Lab. Schenectady, New York	Technical consultation on graphite	J. P. Howe	12-5-50	12-6-50	X		
G. E. McCullough to: North American Aviation Corp. Downey, California	Graphite committee meet- ing	S. Siegel	12-27-50	12-8-50	X		
P. H. Reinker to: Knolls Atomic Power Lab. Schenectady, New York	Technical consultation on graphite	J. P. Howe	12-5-50	12-6-50	X		
P. H. Reinker to: North American Aviation Corp. Downey, California	Graphite committee meet- ing	S. Siegel	12-27-50	12-28-50	X		
R. B. Richards to: Knolls Atomic Power Lab. Schenectady, New York	Separations Process Research Unit discus- sions	L. B. Bragg	12-12-50	12-14-50	X		
W. L. Schalliol to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	A. U. Soybolt	12-11-50	12-12-50	X		
R. A. Stella to: Argonne National Lab. Chicago, Illinois	Consultation on controlled temperature	G. Anderson A. Amorosi	12-11-50	12-13-50	X		
A. T. Taylor to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	C. Mannal J. Marsden	12-1-50	12-9-50	X		
A. T. Taylor to: Gen. Eng. & Con. Lab. Schenectady, New York	P-10 consultation	D. H. Marquis	12-1-50	12-9-50	X		

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<u>Name - Organization</u>	<u>Purpose of Visit</u>	<u>Person Contacted</u>	<u>Arrival</u>	<u>Departure</u>	<u>Restricted Data Class</u>	<u>Unclass Areas</u>
F. W. Woodfield, Jr. to: Knolls Atomic Power Lab. Schenectady, New York	Separations Process Research Unit discussions	L. B. Bragg	12-12-50	12-14-50	X	
H. F. Zehr to: Los Alamos Scientific Lab. Los Alamos, New Mexico	P-10 consultation	E. S. Robinson	12-1-50	12-3-50	X	
R. E. Nather to: Chalk River Ontario, Canada	Consultation on special irradiation	I. Langmuir	12-14-50	12-15-50	X	
A. C. Blasewitz to: Columbus, Ohio	Attend A.I. Ch.E. meeting	--	12-4-50	12-6-50	X	
E. R. Irish to: Columbus, Ohio	Attend A.I.Ch.E. meeting	--	12-4-50	12-6-50	X	
W. C. Healy to: Ann Arbor, Michigan	Attend meetings of Am. Statistician Assn. and Inst. of Math. Statistics	Prof. P. S. Dwyer	12-27-50	12-29-50	X	
C. R. McCully to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on P-10 spectrometric analysis	J. Marsden H. C. Matraw	12-4-50	12-6-50	X	
G. R. McCully to: University of Minnesota Minneapolis, Minnesota	Consultation on mass spectrometric methods of analysis	A. O. C. Nier	12-1-50	12-2-50	X	
E. F. Gates to: Eck & Krebs Scientific Glass Co. New York, New York	Effect modification of Glass Co. valves furnished by this firm	Mr. Eck	12-11-50	12-19-50	X	



PURCHASING AND STORES DIVISIONS  
SUMMARY  
DECEMBER, 1950

**DECLASSIFIED**

Personnel of the Purchasing and Stores Divisions showed a net decrease of two as indicated by the tabulation below:

	<u>Total Personnel</u> as of 11-30-50	<u>Total Personnel</u> as of 12-31-50	<u>Net Change</u>
Exempt	67	69	-2
Non-Exempt	281	277	-4
	<u>348</u>	<u>346</u>	<u>-2</u>

The work load in the Purchasing Division continued at a high level.

The dollar value of purchase orders placed \$2,741,690.63 of which \$2,187,219.84 was for construction equipment and materials.

The material situation continued to grow worse with longer delivery times and higher prices over a wide range of materials. Even with the use of preference ratings it was still difficult to get prompt shipment of many items.

In order to expedite the Redox Program it was necessary to cancel an order held by California Steel Products Company and replace it with the Pacific Coast Engineering Company.

Shipping instructions were issued on all bulk orders for stainless steel. In those instances where the end use was known shipment was effected directly from the producing mill to the fabricators; however, in those instances where the end use had not yet been determined, the steel was shipped to the U. S. Steel Supply Company's warehouse in Pittsburgh.

A contract was awarded the American Agricultural Chemical Company for our estimated requirements of ammonium silicofluoride for the calendar year 1951.

Contracts were awarded the Hooker Electrochemical Company and Pennsylvania Salt Manufacturing Company for our estimated requirements of caustic soda for the calendar years 1951, 1952 and 1953. The business was divided equally between these firms.

The National Production Authority issued new controls on rubber, steel production and distribution, use of aluminum, nickel, zinc, copper, copper base alloys, cobalt and cadmium.

At the request of the Atomic Energy Commission, studies were completed of our 1951 requirements for alloy steels other than stainless, carbon steel, aluminum and copper.

3744 purchase requisitions were processed through screening with the result that 2078 items were supplied from project inventories thus obviating the necessity for outside purchase and the expenditure of new funds.

31 items of stainless steel were supplied from our inventories to fabricators in order to expedite shipment of vessels.

PURCHASING AND STORES DIVISIONS  
SUMMARY

Materials valued at \$48,187.16 were excessed during the month.

Maintenance materials and supplies disbursed from operations inventories during the month amounted to \$293,961.68.

Receipts of incoming shipments remained at a high level.

Materials valued at \$180,330.78 were disbursed to construction forces from Account 10.20, "Materials held for Possible Future Use".

Materials and equipment valued at \$245,288.12 were withdrawn from Account 10.10, "Excess Materials" for use on the project. The bulk of these materials were for construction use.

Excess materials valued at \$247,476.85 were shipped during the month.

Total revenue from the sale of scrap for the year 1950 amounted to \$201,005.

A project proposal for converting Building 186-D in the Clearwell Section was being drafted at month end for submission to the A&B Committee.

The work load in the Traffic Section increased substantially due to the accelerated purchasing program and disposition of excess materials.

The Traffic Section was able to obtain rate reductions on elemental phosphorus which resulted in a net saving of \$1,900.

As a result of rate reductions obtained from carriers total savings in freight charges amounted to \$24,783.38.

PURCHASING AND STORES DIVISION  
STAFF SECTION  
DECEMBER 1950

**DECLASSIFIED**

ASSIGNMENTS

The procedure for Disposition of Damaged Material was approved.

The procedure for Transfer of Materials between Stores Accounts was completed and presented to Stores supervision for approval.

The Screening Procedure, developed last May was reviewed, to be incorporated as part of the Accountability Procedure.

Existing procedures for Receiving, Disbursing and Shipping of the Surplus, Salvage and Scrap Section were reviewed for improvement and approval by the Stores supervision.

On request of Project Engineering, the estimated Office Space Requirements in the new central warehouse were submitted to them.

An Audit and Inventory of the Cash Sales Account 906 was completed.

On the request of the 300 Area, Technical Division, a survey was made and recommendations were submitted, pertaining to Store Order Forms Handling and Customer Order Receipt.

As requested by the Cost Section of the General Accounting Division, a review of the Stores personnel by caption and warehouse was submitted as a basis for determining assessments to other divisions from Code 132.

An analysis of the Third Quarter Budget Review as prepared by the Budget Section, General Accounting Division, reflects a total budget balance as of November 30, 1950 of \$73,775 for Purchasing & Stores Divisions. The new budget appears adequate to cover our costs for the balance of the fiscal year. However, any adjustments necessary may be made in January when a new review is scheduled.

To more readily differentiate between accounting personnel and inventory personnel, salary code 163 was set up for Stores Inventory clerks and supervisors. A list of employees in Stores assigned to this code was forwarded to General Accounting.

The average monthly stock values and yearly turnover figures for all captions other than Caption 903-27, Stationery, covering the period from December 1, 1949 to December 1, 1950, was submitted to the Stores supervision to be forwarded to Project Engineering for use in the warehouse study. Caption 903-27 data covers only period March thru November, as money controls were installed in March 1950.

PURCHASING AND STORES DIVISIONS  
STAFF SECTION

The following reports were submitted during the month:

- Inventory Valuation Report
- Force Report
- Force and Overtime Forecast Report
- Weekly Overtime Requests
- Recapitulation for November 1950 of Inventory Balances as per Financial Statement & Inventory Accounts Controlled by Purchasing and Stores and Others.
- Balance Sheet Budget Progress Report

The following graphs and tabulations were kept current:

- Buyers Weekly Purchase Order Data
- Indirect Labor Analysis
- Back Order Statistics
- Purchase Order Data for Mr. G. R. Prout

PERSONNEL

	As of 11-30-50			As of 12-31-50			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Methods-Procedure									
Cost Budget Cont'l	2	3	5	2	2	4	0	-1	-1
Audit Section	<u>2</u>	<u>11</u>	<u>13</u>	<u>2</u>	<u>10</u>	<u>12</u>	<u>0</u>	<u>-1</u>	<u>-1</u>
Total	4	14	18	4	12	16	0	-2	-2

SAFETY & SECURITY

- Safety and Security Meeting scheduled - 1
- Number of employees attending - 12

The following accounts were physically inventoried and audited:

906	Cash Sales	100%
904E	Spare Parts	100%
904F	Spare Parts	100%
904G	Spare Parts	100%
904H	Spare Parts	100%
904J	Spare Parts	100%
904K	Spare Parts	100%
904L	Spare Parts	100%
904M	Spare Parts	50%
904N	Spare Parts	50%

In connection with the 906 Cash Sales Account, a new Form Inventory Work Sheet was developed to maintain receipts, sales and physical inventories.

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PURCHASING AND STORES DIVISIONS  
PURCHASING DIVISION  
DECEMBER, 1950

## GENERAL

The work load increased sharply during the last half of December after being relatively light the first two weeks of the month. 3230 requisitions were received and assigned as compared to 3113 in November. Orders placed totaled 1896 as compared with 2162 the previous month. Requisitions on hand at the end of the month had increased from 821 on November 30, to 1332 on December 31.

The dollar value of orders placed during December totaled \$2,741,690.63 of which \$2,187,219.84 was for construction materials. Of the 427 construction requisitions received during the month 55 were for Projects C-187-D and C-187-E, 62 for Project C-362 and 13 for Project C-361. The balance of the construction purchase requisitions were for MS Stores material and miscellaneous D&C projects.

Material shortages continued to be a major problem. Longer delivery time is required on virtually all material and equipment being purchased. Prime producers of such materials as stainless steel, zinc, lead, copper, aluminum and chemicals are quoting four to six months delivery after receipt of order. Equipment manufacturers are adding two to four months for fabrication time which extends delivery time on equipment from six to ten months after receipt of purchase orders.

A survey made of the West Coast fabricators' shops doing work for this Project resulted in the cancellation of one Redox vessel order held by California Steel Products Company and replacement of the order with the Pacific Coast Engineering Company.

Shipping instructions were issued on all bulk orders of stainless steel. In all instances where the D&C Divisions had furnished the breakdown of materials ordered for specific vessels, the material was shipped directly from the producing mill to the fabricator's location; however, where actual use of the steel was not known, instructions were given to the mills to ship to the General Electric Company, % of United States Steel Supply Company, Pittsburgh, Pennsylvania. Seven additional bulk orders for steel were placed during the month of December.

The American Agricultural Chemical Company was awarded a contract for our estimated requirements of ammonium silicofluoride for the calendar year 1951. Contracts were awarded to the Hooker Electrochemical Company and the Pennsylvania Salt Manufacturing Company of Washington covering our estimated requirements of caustic soda for the calendar years 1951, 1952, and 1953. Each contract covered 50% of our requirements. Other essential material procured by spot purchases are being ordered on an extended basis wherever possible. Periods ranging from three to twelve months are being covered in this way with material deliveries scheduled monthly.

The National Production Authority issued new controls on rubber, steel production and distribution, use of aluminum, nickel, zinc, copper, copper base alloys, cobalt and cadmium.

# DECLASSIFIED

## PURCHASING AND STORES DIVISIONS PURCHASING DIVISION

### GENERAL (continued)

Requirement studies were completed and reports submitted to the Atomic Energy Commission covering 1951 requirements of alloy steels other than stainless, carbon steel, aluminum and copper.

### PERSONNEL

	As of 11-30-50			As of 12-31-50			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	1		1	1		1			
Purchasing	13	17	30	14	17	31	✓1		✓1
Expediting	8	11	19	8	11	19			
Inspection	20	2*	22*	21	4*	25* <sup>2</sup>	✓1	✓2	✓3
Clerical	1	19	20	1	18	19		-1	-1
Priorities	1	2	3	1	2	3			
TOTALS	44	51	95*	46	52	98*	✓2	✓1	✓3

\*The above figures do not include 4 rotational trainees assigned to Inspection.

### SAFETY AND SECURITY

Safety and Security Meetings Scheduled - 4  
 Number of employees attending ----- 90  
 Minor Injuries ----- 0

### STATISTICS

	<u>G</u>	<u>D</u>	<u>Total</u>
Requisitions on hand 12-1-50 (Includes 109 assigned to Government)	648	173	821
Requisitions assigned during December	2803	427	3230
Requisitions placed during December	2312	407	2719
Requisitions on hand 12-31-50 (Includes 104 assigned to Government)	1139	193	1332

	<u>Number</u>	<u>Value</u>
HW Orders placed	1375	\$ 551,227.68
HW Alterations placed	120	8,243.11
TOTAL	<u>1495</u>	<u>\$ 559,470.79</u>
HWC Orders placed	309	2,141,024.08
HWC Alterations placed	92	46,195.76
TOTAL	<u>401</u>	<u>\$2,187,219.84</u>
AEC Orders placed	133	104,187.98
DC Orders placed	22	48,509.32

PURCHASING AND STORES DIVISIONS  
PURCHASING DIVISION

	<u>OR</u>	<u>ORC</u>	<u>Total</u>
Government Transfers	6	1	7

	<u>Number</u>
Return Orders Issued	89

Dollar Value of Orders to which Priority Rating was applied:

	<u>4th Quarter 1950</u>	<u>1st Quarter 1951</u>	<u>2nd Quarter 1951</u>	<u>3rd Quarter 1951</u>
DC-40	\$ 272,280.54	\$306,659.00	\$41,423.82	\$7,135.62
DO-41*	6,876,205.68			

\*Includes Contract Section, Design & Construction Divisions

OPEN ORDERS

HW Orders ----- 1324  
HWC Orders ----- 781  
Government Orders - 58

Number of New Orders requiring inspection during month ----- 76  
Number of Orders requiring inspection completed during month ----- 69  
Number of Orders outstanding requiring inspection at month's end - 296

**DECLASSIFIED**  
PURCHASING AND STORES DIVISIONS  
STORES DIVISION  
DECEMBER, 1950

GENERAL

3744 purchase requisitions were processed through screening and 2078 items were furnished from plant sources. 31 items of stainless steel not immediately available on the open market were furnished to fabricators from plant inventories.

Materials valued at \$48,187.16 were declared excess from active inventories during the month. This was accomplished by the discontinuance of 403 obsolete stock items.

Maintenance materials and supplies disbursed from active inventories during the month were valued at \$293,961.68. This represents the largest monthly withdrawal since October 1948.

Receipts of incoming shipments remained relatively high for the month reflecting a total of 5,303 receiving reports issued.

Materials valued at \$180,330.78 involving seventeen captions in the 10.20 Account (Construction Held Materials) were disbursed to construction forces during the month. In addition to the disbursements to construction, materials valued at \$168,906.08 were shipped from the same account to other government agencies as directed by the Commission. In view of the foregoing, materials excessed during the past month from the 10.20 Account were limited to \$38,929.33.

Materials and equipment valued at \$245,288.12 were withdrawn from Excess (Account 10.10) and returned for use on the Project. Of the above amount, construction forces withdrew material and equipment valued at \$194,993.85 and Operations forces withdrew \$50,294.27.

390 units of construction equipment were shipped as directed by the Commission and 42 shipping documents valued at \$247,476.85 for excess material were processed and shipped during the month.

35 representatives of government and private business were escorted through our warehouses and scrap yard for the purpose of negotiating the sale of scrap and the transfer of excess properties.

The total revenue from the sale of scrap during 1950 amounted to \$201,005.

Six formal excess lists totaling \$276,947.31 were submitted to the Commission during the month.

Items of inventory maintained in the Design & Construction stores (Account 10.16) were becoming more complete at month end but were not entirely sufficient to satisfy all requirements of the field. Lack of adequate warehousing facilities was one of the factors involved; however, it is anticipated that additional space will be made available within the next 30 to 60 days. Personnel at month end in the Design & Construction Stores numbered 1 exempt employee and 15 non-exempt employees (General Electric - 4; Subcontractors - 12).

A project proposal for the rewarehousing of graphite in the 186-D Building, Clearwell Section, was being drafted at month end. It is anticipated that the proposal will be submitted to the A&B Committee early in January.



PURCHASING AND STORES DIVISIONS  
STORES DIVISION

PERSONNEL

	As of 11-30-50			As of 12-31-50			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	4		4	4		4			
Construction Matl. Sect.	2	35	37	2	36	38	/ 1	/ 1	
Operations Matl. Sect.	4	103	107	4	105	109	/ 2	/ 2	
Surplus, Salvage & Scrap Materials Section	5	64	69	5	60	65	- 4	- 4	
TOTALS	15	202	217	15	201	216	- 1	- 1	

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	10
Number of Employees Attending	171
Minor Injuries	3

STATISTICS

INVENTORY CONTROL SECTIONS

Construction Materials Section

Items in Stores Stock	41,413
Items in Small Tools (Estimated)	8,044
Items added to Stock	653
Items Completely Liquidated from Stock	172
Store Orders Posted - Materials (Items)	5,827
Store Orders Posted - Tools (Items)	940
Number of Requisitions Screened - A.J.	651
Number of Items Screened - G.E.	4,474
Number of Items furnished from Stock	882
Number of Items Excessed	5
Value of Disbursements - Materials	\$246,416.18
Value of Disbursements - Tools	34,809.33
Inventory Valuation at Month End - Materials	7,755,379.15
Value of Materials Shipped	68,906.08
Value of Materials Excessed	38,929.33
Value of Materials Received	299,937.16

Operations Materials Section

Number of Items added to Stores Stock	150
Number of Items deleted from Stores Stock	403
Items in Stores Stock at Month End	46,530
Store Orders Posted	24,970
Number of Requisitions Screened this month - G.E.	3,093
Number of Items furnished from Plant Sources this month	1,196

# DECLASSIFIED

## PURCHASING AND STORES DIVISIONS STORES DIVISION

### STATISTICS (Continued)

Inventory valuation at month end (903-all captions, 906 & 912)	\$1,164,204.76
Inventory valuation at month end (Spare Parts)	1,642,472.47
Inventory valuation at month end (Special Materials)	3,162,394.95
Total value Inventory Accounts	5,969,072.18
Value of Disbursements, not including cash sale items	292,076.36*
Value of Cash Sales	574.15
Value of Sales, Payroll Deduction	1,311.35
Value of Materials Declared Excess	48,137.16
Value of Materials Returned to Stores Stock for Credit	2,401.91

\* Includes \$25,239.70 disbursed to Construction and CPFF Subcontractors

### Surplus, Salvage and Scrap Materials Section

Balance of Account 10.10 as of 11-25-50 \$7,882,770.63

#### Receipts 11-25-50 to 12-31-50

Automotive Equipment	\$ 52,856.51	
Office Furniture	84.68	
Material and Supplies	137,002.28	
Miscellaneous Equipment	62,252.06	
Machine Tools & Equipment	773.22	
Household Furniture & Equipment	281.10	253,249.85

#### Adjustments - Classes & Current Market Prices

5,694.85  
8,141,715.33

#### Disbursements 11-25-50 to 12-31-50

##### On Project

Lumber	16,377.00
Automotive Equipment	56,821.33
Machine Tools & Equipment	58,330.64
Office Furniture	180.85
Material and Supplies	88,205.44
Miscellaneous Equipment	25,372.88

\$245,288.12\*  
226,460.34

##### Transfers from Excess to Account 10.20

##### Off Project

Lumber	4.92
Automotive Equipment	33,541.95
Machine Tools & Equipment	435.87
Office Furniture	757.38
Material and Supplies	175,695.37
Miscellaneous Equipment	37,041.36

247,476.65

##### Balance of Account 10.10 as of 12-31-50

719,225.31  
\$7,422,490.02

\*Includes Disbursements to Construction \$194,993.85

PURCHASING AND STORES DIVISIONS  
STORES DIVISION

STATISTICS (Continued)

Total Receipts to Date	\$33,893,594.99
Total Disbursements to Date	26,471,104.97
 <u>Scrap and Salvage Disbursed</u>	
Scrap Sales Completed	20
Scrap Sales in Process	6
 Scrap Sales Revenue for month of December	
	25,202.55
Total Scrap Sales Revenue to Date	201,105.00

WAREHOUSING, RECEIVING, DISBURSING & SHIPPING SECTIONS

<u>Construction Materials Section</u>	
Store Orders Filled	4,767
Items Excessed	5
<u>Operations Materials Section</u>	
Receiving Reports Issued	5,303
Emergency Store Orders Filled	6
Shipments Processed (Containers & Material)	291
Shipments Received	5,913
Store Orders Registered	27,808
<u>Surplus, Salvage &amp; Scrap Materials Section</u>	
Store Orders Filled	200
Truckloads of Material Shipped	50
Carloads of Material Shipped	18

D&C CONSTRUCTION STORES

Account 10.16 as of December 29, 1950

Account No.		Total Accum. Receipts	Total Accum. Disbursements	Balance
10.16-101	Cement	\$ 93.00	\$ 27.90	\$ 65.10
10.16-103	Plaster, etc.	40.43	19.40	21.03
10.16-104	Lumber	8,946.72	6,174.80	2,771.92
10.16-105	Reinforced Steel	797.15		797.15
10.16-106	Misc. Stores	13,611.01	3,569.67	10,041.34
10.16-107	Plumbing	39,542.96	784.08	38,758.88
10.16-108	Electrical	21,669.03	3,410.02	18,259.01
10.16-110	Paint, Glass	767.56	97.72	669.84
10.16-111	Welding Rod	1,396.29	694.13	702.76
10.16-112	Structural Steel	144.14		144.14
10.16-115	Roofing Supplies	258.80	225.13	33.67
10.16-118	Automotive	6,723.11	6,247.49	475.62
10.16-133	Small Tool Repair Parts	83.43	37.50	45.93
10.16-134	Clothing	1,991.14	2,347.51	356.37 Cr.
	Totals	\$96,065.37	\$23,635.35	\$72,430.02

PURCHASING AND STORES DIVISIONS  
TRAFFIC SECTION  
DECEMBER, 1950

**DECLASSIFIED**

GENERAL

The work load of the Traffic Section increased considerably due to the accelerated purchasing program and disposition of excess materials.

The Purchasing Division advised that the Atomic Energy Commission would secure 1,000,000 pounds of elemental phosphorus from the Tennessee Valley Authority for shipment from Sheffield, Alabama to South Gate, California, for conversion into phosphoric acid to fill our requirements during the coming year.

A study disclosed that the freight rate on elemental phosphorus from Sheffield, Alabama to South Gate, California was too high. Negotiations with the rail carriers resulted in prompt publication of a Section 22 Quotation which reduced the rate 19 cents per cwt and will effect savings of \$1,900 in freight charges on this transaction.

The Purchasing Division requested that we determine whether railroad clearance could be obtained for 16 oversize and overwidth stainless steel vessels which will be fabricated at Alhambra, California for shipment to Richland on Project C-362. Investigation disclosed that the only method of rail shipment would be on depressed center flat cars. Although this class of equipment is extremely scarce, definite assurance has been received from Southern Pacific Railroad officials that these cars will be furnished providing sufficient advance notice is given which will permit them to obtain and move the cars to Alhambra for loading.

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 \$24,783.38. This makes a total savings from September 1, 1946 to date of \$1,425,917.73.

PERSONNEL

	<u>Total Personnel</u> <u>as of 11-30-50</u>	<u>Total Personnel</u> <u>as of 12-31-50</u>	<u>Net Change</u>
Exempt	2	2	0
Non-Exempt	7	7	0
TOTALS	9	9	0

SAFETY AND SECURITY

Safety and Security Meetings Scheduled - 1  
Meetings Held ----- 0  
Minor Injuries ----- 0

PURCHASING AND STORES DIVISIONS  
TRAFFIC SECTION

STATISTICS

1. Rate reductions obtained from Carriers:

<u>Commodity</u>	<u>Crigin</u>	<u>Savings for</u> <u>December</u>	<u>Savings 9-1-46</u> <u>through 11-50</u>	<u>Total Savings</u> <u>9-1-46 to date</u>
Coal	Kemmerer, Wyoming	\$12,106.08		
Coal	Roslyn, Washington	3,793.50		
Coal	Superior, Wyoming	1,896.96		
Lime	Evans, Washington	132.44		
Iron and Steel	San Francisco, Cal.	909.95		
Caustic Soda	Willbridge, Oregon	4,454.13		
Soda Ash	Trona, California	757.50		
Phosphoric Acid	South Gate, Cal.	464.16		
Railway Express	Various	268.66		
		<u>\$24,783.38</u>	<u>\$1,401,134.35</u>	<u>\$1,425,917.73</u>
2. Freight Bill Audit		1,507.26	53,929.24	**55,464.50
3. Loss and Damage and Overcharge Claims		322.51	100,504.87	100,827.38
4. Ticket Refund Claims		245.95	10,997.17	11,243.12
5. Household Good Claims		246.52	14,135.08	14,381.60
		<u>\$27,105.62</u>	<u>\$1,530,728.71</u>	<u>\$1,607,834.33</u>

\*\* Includes \$19,495.23 for A.E.C.

Work Volume Report

Reservations made                      Rail - 93  
   Air - 43  
   Hotel - 59

Expense Accounts Checked ----- 137

Household Good & Automobiles	Movements Arranged Inbound	1
	Shipments Traced	1
	Movements Arranged Outbound	5
	Insurance Riders Issued	6
	Furniture Repair Orders	3
	Claims Filed	9
	Claims Collected - Number	9
	Claims Collected - Amount	\$246.52

Ticket Refund Claims	Filed	11
	Collected - Number	16
	Collected - Amount	\$245.95

Freight Claims	Filed	2
	Collected - Number	5
	Collected - Amount	\$322.51

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## PURCHASING AND STORES DIVISIONS TRAFFIC SECTION

Freight Bill Audit Savings	\$1,507.26
Freight Shipments Traced	122
Quotations	148
Freight Rates	226
Routes	
Bills Approved	
Air Freight	2
Boat	5
Air Express - General Electric	39
Air Express - A. E. C.	36
Carloading	144
Express	146
Rail	114.6
Truck	276
Over and Short Reports Processed	19
Damage Reports Processed	11
Carload Shipments	
Inbound - General Electric	1235
- Others	11.2
Outbound- General Electric	22
- Others	10

### Report of Carloads Received

	MILW	N.P.	U.P.	TOTAL
General Electric Company:				
Ammon. Silico Fluoride	1			1
Air Compressors		1		1
Liquid Chlorine	1	1		2
Coal		195	942	1137
Electrical Equipment			1	1
Light Fixtures	1			1
Hydrated Lime	1	1		2
Nursery Stock			1	1
Nitric Acid	3	13	8	24
Oxalic Acid	1			1
Phosphoric Acid		1	1	2
Pipe	1			1
Roofing Material			1	1
Salt	1	1	1	3
Nitrate of Soda			1	1
Sodium Nitrite	3			3
Soda Ash	1	1	3	5
Caustic Soda	4	6	4	14
Ferric Sulphate	1			1
Steel	8			8
Tanks	1			1
Steel Tubing	1		1	2
Express	4			4
Merchandise	3	4	1	8
TOTALS	36	224	965	1225

PURCHASING AND STORES DIVISIONS  
TRAFFIC SECTION

STATISTICS (continued)

<u>Report of Carloads Received (Continued)</u>	<u>MIW</u>	<u>N.P.</u>	<u>U.P.</u>	<u>TOTAL</u>
<b>Atomic Energy Commission:</b>				
Acid	2			2
Anti-Freeze		1		1
Insulation			1	1
Lead Articles		1		1
Lumber	3			3
Machinery	1			1
Plywood	1			1
TOTALS	<u>7</u>	<u>2</u>	<u>1</u>	<u>10</u>
<b>Atkinson &amp; Jones Construction Company:</b>				
Cement		19		19
Fans	1			1
Gravel			3	3
Insulation	2			2
Partitions			3	3
Clay Pipe			1	1
Steel Pipe	3			3
Roofing Material	1			1
Sand			8	8
Steel	9	2	1	12
Merchandise	8			8
TOTALS	<u>24</u>	<u>21</u>	<u>16</u>	<u>61</u>
<b>Baldwin &amp; Dunham:</b>				
Lumber		12	4	16
<b>Richland Fuel and Lumber Company:</b>				
Coal		4	11	15
<b>Waale Camplan Company:</b>				
Heaters			3	3
Insulation			2	2
Steel		2		2
Poles		1		1
TOTALS		<u>3</u>	<u>5</u>	<u>8</u>
<b>Hagin &amp; Wolff:</b>				
Gypsum lath			2	2
Plaster			3	3
TOTALS			<u>5</u>	<u>5</u>
<b>F. J. Early Company:</b>				
Clay Pipe			2	2
Steel		5		5
TOTALS		<u>5</u>	<u>2</u>	<u>10</u>
<b>Pioneer Insulation Company:</b>				
Insulation		1		1

# DECLASSIFIED

## PURCHASING AND STORES DIVISIONS TRAFFIC SECTION

### STATISTICS (continued)

<u>Report of Carloads Received</u> (continued)	<u>MILW</u>	<u>N.P.</u>	<u>U.P.</u>	<u>TOTAL</u>
E. P. Erwin Company: Plasterboard			1	1
S. S. Mullins Company: Plasterboard		1		1
U. S. Army: Trailers		4	14	18
J. P. Head Plumbing & Heating Company: Pipe	2			2
Dix Steel Company: Steel Beams		1		1
Murray Construction: Merchandise			1	1
TOTAL - SUBCONTRACTORS	26	52	64	142
TOTAL - ENTIRE PROJECT	69	278	1030	1377



EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

SUMMARY - DECEMBER, 1950

The number of applicants interviewed decreased from 1,384 in November to 1,069 in December. Of these applicants, 357 were individuals who applied for employment with the Company for the first time. In addition, 528 new applications were received through the mail. Open, nonexempt, nontechnical requisitions increased from 329 at the beginning of the month to 376 at the month end. Total plant roll increased from 7,865 to 7,896. Turnover rate decreased from 1.24% in November to 1.13 % in December. During December, 32 new requests for transfers to other type of work were received in the Employment Office, and 25 transfers were effected.

Three employee deaths occurred during December, and one employee retired. During the month, 184 visits were made to employees confined to Kadlec Hospital, and 37 salary checks were delivered to employees. At the end of December, there were 706 employees registered under the Selective Service Act and 618 military reservists on our rolls.

The News Bureau Supervisor, accompanied by the representative of the Advertising and Publicity Department in San Francisco, spent four days early in December contacting some two dozen newspaper representatives in Portland, Seattle, and Tacoma. Criticism of News Bureau services were requested and additional services that could be performed were outlined.

A program for better coordination between the Nucleonics Department and the office in San Francisco in the distribution of news concerning Hanford Works to media on the West Coast is being mapped out.

During the month 39 news releases were written and distributed, and a total of 274 column inches was obtained in Pacific Northwest newspapers.

Community Relations reviewed, public relations-wise, two letters to be sent to Richland residents, one from the Housing Division and the other from Tenant Relations.

Community Relations publicized the award of a \$250 scholarship received by a Richland policeman to attend the Northwestern University Traffic Institute.

Public Functions produced and recorded two scripts and one quiz program for radio broadcast. This section also booked a number of speaking engagements for the early part of 1951 and reviewed manuscripts for these engagements.

Automatic contact printing equipment was installed in the Photo House to increase efficiency and output of identification prints.

Special Programs placed recruiting classified advertisements in 11 mid-western newspapers and in Portland, Oregon, papers. Employment Division

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received a total of 1,891 replies, 1,600 of which were received during the first week after the ads were published.

"Guide to Richland," the Parks and Recreation Divisions booklet which was produced by Special Programs, and which contains information about each of the organizations in Richland, was received from the printer and is ready for distribution.

Hanford Works NEWS provided employees information on the change in procedure for ordering G-E items from the employee store in Schenectady, adult evening classes, Red Cross Blood Program, and the American Legion's drive for Christmas gifts for veterans at Walla Walla hospital.

Four Women's Pages, prepared by the woman publicity writer in the News Bureau, were published in the Works NEWS during December. This writer also prepared a feature story on the IEM electronic Brain for the Works NEWS and the "Local" and "Daily" lists of newspapers.

The "Share A Ride" column which in the past has been handled by the women's feature writer has been turned over to Employee Services Division.

During the week of December 11-15, the Supervisor's 40-Hour Training Program was presented with 36 supervisors participating. A total of 80 supervisors, enrolled in PMS, completed their conferences in December. At the request of "S" Division, the 17-subject 8-Hour Training Program was again presented on December 8, with 28 nonexempt employees in attendance. Two issues of Hanford Works "SAGE" were distributed during the month. Eleven additional handbooks were distributed to new supervisors. A total of 109 employees attended Orientation; 91.8% elected to participate in the Group Insurance Plan.

In response to a request from the HAMTC, President Truman's Davis Panel visited the Project for a three-day hearing beginning on December 18, for the purpose of reviewing facts in the current wage dispute between the Company and the Council. As the Council requested additional time before the final recommendation to prepare new data, the Panel agreed to delay its decision until January 10. In view of the unsettled wage dispute, action in the pending arbitration cases has been temporarily postponed. An understanding was reached with the Council which will offer permanent protection of seniority to employees promoted from the bargaining unit. The NLRB advised the Company that it desires a hearing on the petition for representation submitted by Project Guards. The Company has questioned the authority of the NLRB in this case.

Teamsters' settlement followed Spokane pattern, viz. wage increase approximating 15¢ an hour, time and one-half for work during lunch on second and third shifts, a statement extending the Master Agreement until August 10,

Employee and Community Relations Divisions  
Summary

1951, (can be opened for negotiations of isolation pay), minor changes in working rules. Operating Engineers continued negotiations with their International, the Davis Panel and Washington AEC being brought into the picture. Local Union's demand was for (1) six-day week starting January 1, 1951, (2) Spokane January 1, 1952, rates effective January 1, 1951, to July 1, 1951, (six months). Contractors rejected this offer and submitted a counter-proposal with Spokane rates and working rules acceptable to the contractors. The Union will consider and notify Negotiating Committee when they desire to meet again. On December 6, Boilermakers were granted a 10¢ increase (no other change) in accordance with their Seven Western States Agreement. Reopening notice to negotiate wage increases was received from Painters and Laborers. No meetings held. Electrician Linemen are expected to request an increase as a result of the recent I.B.E.W.-N.E.C.A. settlement granting a 15¢ increase. The Plumber's October 20 statewide agreement has been changed somewhat by Master Plumbers east of the mountains. It now appears the vacation plan will be administered by the Employers. The Asbestos Workers on December 29 threatened Jenkins with a work stoppage unless their wage demands were agreed to that day. This office was consulted. We were called into a dispute among the Corps of Engineers, its subcontractor Walle-Camplain, and the Building Trades Council.

During the month of December, representative large refineries and one heavy chemical plant were visited in the San Francisco Bay Area to determine the general relationship between operating jobs and craft jobs in these industries on the West Coast. This information procured indicated that the relationship at Hanford Works was comparable to that maintained in the industries surveyed. Work continued on the annual Northwestern General Electric community wage rate survey. Two meetings were held with representatives of the HAMTC in reference to grievances brought by Instrument Division employees who claimed they were discriminated against when employees were considered for upgrade. It was felt that further investigation was needed before a decision could be reached. The AEC approved the reimbursement authorization request for the Glass Technician classification.

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EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

DECEMBER, 1950

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ORGANIZATION AND PERSONNEL

Employment and Employee Services

Effective 12-26-1950, a General Clerk "D" was engaged and assigned to the Investigation and Files Group as a replacement.

Effective 12-26-1950, a General Clerk "C", assigned to the Procurement and Procedures Group, terminated voluntarily.

On December 1, 1950, one General Clerk "B" assigned to the Termination Section terminated voluntarily because of pregnancy.

Community and Public Relations

Effective December 26, 1950, one Publicity Writer was added to the roll.

Effective December 4, 1950, one Reproduction and Photographic Assistant "A" was transferred from the Design and Construction Divisions to work in the H.W. Photo House.

Training and Program Development

Effective December 3, 1950, one Field Clerk "A" was upgraded from the non-exempt roll to the exempt roll as a Training Instructor

Union Relations

There were no organizational changes in the Division during the month.

<u>Number of Employees on Roll</u>	<u>December, 1950</u>
Beginning of Month	93
End of Month	94
	<hr/>
Net Gain	1

Employee and Community Relations Divisions

ACTIVITIES

Employment and Employee Services

Employment

	<u>November, 1950</u>	<u>December, 1950</u>
Applicants interviewed	1,384	1,069

357 of the above applicants interviewed during December were individuals who applied for employment with the Company for the first time. In addition, 528 new applications were received through the mail.

	<u>November, 1950</u>	<u>December, 1950</u>
Open requisitions		
Exempt	6	2
Nonexempt	329	376

Of the 329 open, nonexempt, nontechnical requisitions at the beginning of the month, 159 were covered by interim commitments. Of the 376 open, nonexempt, nontechnical requisitions at the end of the month, 230 were covered by interim commitments. During December, 100 new requisitions were received requesting the employment of 124 nonexempt employees.

	<u>November, 1950</u>	<u>December, 1950</u>
Employees added to the rolls	130	127
Employees removed from the rolls	103	96
Net gain or loss	+ 27	+ 31

Of the 96 employees removed from the rolls, only 8 were removed due to lack of work. All of these employees were in the bargaining unit.

Turnover:	<u>November, 1950</u>		<u>December, 1950</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>

Excluding employees laid off for lack of work	.99%	2.57%	.88%	2.08%
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Over-all Plant Turnover:	<u>November, 1950</u>	<u>December, 1950</u>
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Excluding employees laid off for lack of work	1.24%	1.13%
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During December, 18 employees terminated voluntarily to accept other employment, 13 terminated for personal reasons, and 11 terminated to enter military service.

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Employee and Community Relations Divisions

At the end of December, there were 90 employees in lack of work status, divided into the following categories:

	<u>November, 1950</u>	<u>December, 1950</u>
Nonbargaining unit employees	31	29
Bargaining unit employees	59	61

Transfer Data

Accummulative total of requests for transfer received since 1-1-50	473
No. of requests for transfer received during December	32
No. interviewed in December, including promotional transfers	46
Transfers effected in December, including promotional transfers	25
Trans. effected to date since 1-1-50, including promotional transfers	359
Transfer requests active at month end	57
Transfers effected in December, for employees given lay off notices	3
Transfers effected since 1-1-50, for employees given lay off notices	55
No. of stenographers transferred out of Steno. Pool in December	5

During December, 12 people whose continuity of service was broken while in an inactive status were so informed by letter.

In view of our forecasted requirements for personnel (stenographers, clerks and typists, instrument mechanics, designers and draftsmen, production operators and health instrument inspectors), on December 9, 10 and 11, advertisements were placed in newspapers in the following cities: Oklahoma City, Oklahoma; Denver, Colorado; Kansas City, Missouri; St. Louis, Missouri; Des Moines, Iowa; and Portland, Oregon. To date 1,858 replies have been received, and from this number 395 applications have been received of which 57 have been placed in process.

Employment Statistics

<u>Number of employees on rolls</u>	<u>11-30-1950</u>	<u>12-31-1950</u>
Exempt		
Male	1,852	1,869
Female	48	52
	<u>1,900</u>	<u>1,921</u>
Nonexempt		
Male	4,485	4,476
Female	1,480	1,499
	<u>5,965</u>	<u>5,975</u>
TOTAL	7,865	7,896

Employee and Community Relations Divisions

ADDITIONS TO THE ROLLS

	<u>Exempt</u>	<u>Nonexempt</u>	<u>Total</u>
New Hires	6	107	113
Re-engaged	1	1	2
Reactivations	0	9	9
Transfers (from other plants)	2	1	3
Actual additions	9	113 <sup>b</sup>	127
Payroll Exchanges	23 <sup>a</sup>	1 <sup>b</sup>	24
GROSS ADDITIONS	32	119	151

TERMINATIONS FROM THE ROLLS

Actual Terminations	10	64	74
Removals from the rolls (deactivations)	0	2	22
Payroll Exchanges	1 <sup>c</sup>	23 <sup>d</sup>	24
GROSS TERMINATIONS	11	109	120

84% of all terminations were on a voluntary basis, and most of these were for the following reasons: (a) Another job (b) Personal Reasons

GENERAL

	<u>11-1950</u>	<u>12-1950</u>
Applicants interviewed	1,384	1,069
Photographs taken	301	199
Fingerprint impressions taken (in duplicate)	377	298

ABSENTEEISM STATISTICS  
(Weekly Salary Rolls)<sup>e</sup>

Male	2.56%	2.26%
Female	2.69	3.74
Total plant average	2.84	2.64

INVESTIGATION STATISTICS

Cases received during the month	248	306
Cases closed	201	216
Cases found satisfactory for employment	212	229
Cases found unsatisfactory for employment	3	7
Cases closed before investigations completed	5	5
Special investigations conducted	33	23

- a Transferred from Weekly Payroll
- b Transferred from Monthly Payroll
- c Transferred to Weekly Payroll
- d Transferred to Monthly Payroll
- e Statistics furnished by Weekly Payroll Division

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Employee and Community Relations Divisions

PRIVACY ACT MATERIAL REMOVED

Employee Services

The following visits were made with employees during the past month by a representative of the Employee Services Group:

Employees visited at Kadlec Hospital	184
Salary checks delivered to employees confined to Hospital	37

During December, three notices were posted on all bulletin boards throughout the plant, namely: Christmas and New Year's Holidays, Bond posters, and "America" series posters.

As of the end of December, participation in Company Benefit Plans was as follows:

Pension Plan	95.0 %
Life and Health Insurance	97.3
Employee Savings and Stock Bonus	40.4

Four publications of Employee Benefit Plans Information were prepared for release in the Works News during December.

Three employee deaths occurred during December, namely:

Purchasing and Stores Divisions;  
Design Division; and  
Power Division.

One employee retired during the month, namely:

Benjamin H. Fuller, Plant Security and Services Divisions.

During December, 17 letters were written to retired employees giving them information of a general nature which affects them, and three pension checks were delivered to retired employees.

Military Reserve and Selective Service

Employees registered under the Act	706
Employees registered who are veterans	436
Employees registered who are nonveterans	270
Employees classified as 1-A	141
Deferments requested to date	72
Deferments granted	31
Deferments denied and appealed	16
Deferments requested, employees later reclassified*	5
Deferments still pending	20

The statistics with respect to employees who are members of the military reserve are as follows:

Number of reservists on roll	618
Number who have returned to active duty to date	25
Number who have returned to active duty in December	3
Deferments requested to date	34
Deferments granted	32
Deferments pending	2

\*Reclassified to categories such as 4-F and 1-D.

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Employee and Community Relations Divisions

Community and Public Relations Division

PUBLIC INFORMATION - News Bureau

Media Contacts

The News Bureau supervisor spent four days early in December contacting some two dozen newspaper representatives in Portland, Seattle and Tacoma. One or more representatives were contacted from the OREGONIAN, the Oregon JOURNAL, the Portland DAILY JOURNAL OF COMMERCE, the Tacoma NEWS TRIBUNE, the Seattle POST-INTELLIGENCER, the Seattle TIMES, the Seattle DAILY JOURNAL OF COMMERCE, DAILY CONSTRUCTION REPORTS, the PACIFIC BUILDER AND ENGINEER, and Associated Press in Seattle.

It was determined that releases were being addressed to the proper person, criticism of our services was requested, additional services that the News Bureau can perform were outlined. A great deal of extremely valuable information was gained.

Letters were written during December to 20 of the media representatives confirming agreements made and following-up the personal contacts.

Interviews

Don Carlson from the Walla Walla UNION-BULLETIN visited Hanford Works to interview G. A. Huff and Harold Petty in Community Divisions. Carlson received information for a story on Richland's water system. A member of the News Bureau sat in on the interview and helped Carlson get photographs to illustrate his story.

Coordination

R. W. Jackson, representative for the Advertising and Publicity Department for the 14 western states, accompanied the News Bureau supervisor on a trip to the coast. A program for better coordination through the Nucleonics Department and Jackson's office in the distribution of news on the Coast is being mapped out. This should result in better distribution of public information from Hanford Works to media in all the 14 western states.

Coverage

A total of 39 news releases were written and distributed by the News Bureau during December. Of these, 31 were sent to the "local list" which includes: Columbia Basin NEWS, Tri-City HERALD, Lind LEADER, Yakima Morning HERALD, Walla Walla UNION-BULLETIN, Works NEWS, Spokane CHRONICLE and radio stations KPKW, KWIE, KALE, KREW and KIT. The rest were sent to approximately 75 daily newspapers and wire services throughout the Northwest. Following is a sampling of news release subjects during the month:

Union Negotiations-- It was explained that the Davis Panel was intervening in negotiations with the HAMTC.

Employee and Community Relations Divisions

Speakers from Hanford Works who spoke out of town during December included George R. Prout and Ted Galbraith. Their talks were publicized through stories and pictures distributed through the News Bureau.

Employee Benefit Plans--Award of \$610 to F. S. Robinson for a suggestion was announced. A photograph of the first monthly premium being presented to Metropolitan Life Insurance for the new G.E. employee insurance plan was given to Columbia Basin NEWS only.

Construction work was the subject of eight releases. Three bid openings were publicized and stories were written about the extension of Swift Boulevard, resurfacing Duane Avenue, installation of new drainage facilities, remodeling 633 prefabs and adding a wing to Kadlec Hospital.

The fall recreation program was publicized with 9 news releases.

Housing--At the request of the Tri-City HERALD cost data on the A-J and Ranch-type houses was released exclusively to that paper. Before and after photos of the prefabs and an explanation of an amendment to tenants' leases concerning liability for window glass breakage were released.

Two feature stories were also released about construction of the shelter belt and the installation of an IBM calculator machine called "The Brain." Photographs of glass blowers at work at Hanford Works were sent to Bob Reed of the SPOKESMAN-REVIEW who obtained a story on this subject in November.

Newspaper space report--See last page of C & PR report.

PUBLIC INFORMATION--Community Relations

The publisher of a Kelso, Washington newspaper requested and was loaned a copy of the Richland "Town Plan." He said the city commissioners are considering the development of a town plan for Kelso, and believed they would benefit from examining the one for Richland.

A letter to residents concerning window breakage due to natural causes was reviewed at the request of the Housing Division Superintendent. He said he wanted to be certain the letter contained what public information men consider pertinent information. A statement on the subject was written and released through the News Bureau to local newspapers.

A letter concerning remodelling of pre-fabricated houses was reviewed at the request of the Tenant Relations supervisor. He sought to determine if the letter was sound, public relations-wise. The letter offered desirable information regarding the remodelling program, and was mailed to pre-fab renters concerned.

A library "open house" was discussed with Richland's chief librarian and the Division Head, Community and Public Relations. It is planned

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Employee and Community Relations Divisions

to hold an open house event when Richland's new library is opened to the public. The Community and Public Relations Division will help plan and execute the affair.

A \$250 scholarship awarded to a Richland policeman was publicized through newspaper stories, pictures, and radio newscasts. The Community and Public Relations Division cooperated with the local representative of the Lumbermens Mutual Casualty Company, the firm sponsoring the scholarship, in publicizing the accomplishment. The officer was one of two in the State to win a scholarship to the Northwestern University Traffic Institute.

Christmas tree safety tips on boxes containing G-E tree bulbs was suggested as a means of contributing to the safety of families who use this product. The suggestion was offered by a member of the Community and Public Relations Division and forwarded to the Lamp Department.

Formation of a community relations committee at Hanford Works was discussed in a letter to the Division Head, Community and Public Relations, from the standpoint of accomplishing four objectives: (1) To measure the "pulse of the people"; (2) To further acquaint top management with the activities of the Community and Public Relations Division and the benefits of a sound community relations program; (3) To give recognition to those employees who are active in community affairs; (4) To "formulate plans, projects, and policies in the broad field of community relations."

PUBLIC INFORMATION--Public Functions

Papers and Speakers

A considerable number of speaking engagements were booked during the month for the early part of 1951 and a number of manuscripts for these engagements reviewed and processed.

Mr. T. W. Galbraith of the H.I. Biology and Medical Divisions attended the Northwest Scientific Meetings in Spokane, Washington and delivered a lecture on the subject "Some Biological Characteristics of Staphylococci."

"You Can Change the World," a film produced by the Christophers and promoting the brotherhood of man, is being booked by this group in behalf of the Municipal Divisions' Recreation Section.

One C.E. film was shown during December before a group of Company employees.

Radio

"Deck the Halls," an original script on Christmas Safety by the Supervisor of Community Relations, was produced by this group.

## Employee and Community Relations Divisions

A forty-five minute quiz program written and produced by this group was recorded for the Community Chest on tape, then edited down to thirty minutes, released and broadcast by KWIE.

The theoretical reactions of two supervisors and two employees toward the Company's stand in the current wage negotiations with the HAMTC were developed into a ten minute original manuscript for radio.

"Are You Listening" continued to appear in the Hanford Works NEWS.

### Program Development

The Supervisor of Public Functions prepared and submitted a program of events for an American Chemical Society--General Electric "get acquainted" series of meetings at the request of H.E. Curtis of the Technical Education Matters office.

A visitation to our Division was made by Captain Earl C. Van Cleave, Post TI and E officer and tentative arrangements formulated for speaking engagements by Hanford Works Personnel for the next three months.

Ground work was laid by Dr. Fuqua and John Olson of the Medical Divisions with this group for the production of a sound-slide film (color) depicting the services extended by that unit.

### Art Work

Five editorial cartoons were drawn for the Hanford Works NEWS.

A 4" x 5" employment ad layout was prepared and lettering was done for a proposed wage negotiation advertisement.

Two layouts of newspaper advertisements on wage negotiations were prepared.

An illustration for the next printing of "You and G.E. at Hanford Works" was prepared.

A layout for an attendance award certificate was made; and the Supervisors' Association membership cards were redesigned.

Rough color sketches were made for an accountability poster.

Lettering and art work for 12 visualizer charts were executed for the use of the Manager and the Division Head of Employee and Community Relations in forthcoming speaking engagements in Spokane and Seattle.

### Photo House

Normal black and white photographic services to all divisions were performed.

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## Employee and Community Relations Divisions

Three thousand two hundred seventy-five (3,275) prints were made this month, and assignments during December were held at a minimum because of a temporary absence of two employees.

One employee was added to the section to print and process identification photographs.

Automatic contact printing equipment was installed to increase efficiency and output of identification prints made for Employment and Security.

### EMPLOYEE INFORMATION--Special Programs

Kadlec Hospital public information prepared by Special Programs during December included one photo with caption showing a Cub Scout presenting Christmas toys to the Hospital's sick children; a news story on the new Medical-Dental Building wings; and captions for photos of a Hospital fire drill and of the new hospital hydrotherapy tank. These last two items were referred to the News Bureau for release only to local media.

A new Hanford Works' Security Handbook was rewritten and submitted to the Security Division for approval, along with finished page layouts of the booklet.

A paragraph describing the housing situation at Hanford Works, for inclusion in letters to prospective new employees, was prepared by Special Programs at the request of the Employee Relations Division.

A reprint of the G.E.-HAMTC Agreement booklet was arranged, 1000 copies being ordered.

A Kadlec Hospital patient's booklet was revised, page layouts with rough art work prepared, and approvals obtained during December.

Printing of the employee benefit plans statements, which are to be mailed to each employee on March 9, is being arranged.

Printing of the Supervisors' Association 1951 membership cards, and writing of a letter to all supervisors from the membership chairman, were arranged.

A report on G.E.--HAMTC wage negotiations from October to December 15 was assembled. Copies contain photostats of news stories; and copies of news releases, radio scripts, newspaper advertisements, Works NEWS messages and news stories.

A letter from Mr. Prout to all G.E. Employees at Hanford Works to accompany the G-E Security Program booklet, the final employee relations activity of the original promotion plan, was prepared.

To assist in standardizing G.E. identification signs in and around the 700--1100 and 3000 areas, an instruction letter covering preparation of the signs was prepared.

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The office reference book, "This Way, Please--," neared completion during December. Original and final page proofs were corrected and returned to the printer; delivery is expected early in January. A revised proof of the cover binder was received and approved; delivery is expected on January 5. Approvals were obtained from Records Control, on both the covers and the insert materials.

Apparatus Department publications and reports will be sent to eight Hanford Works G.E. people who requested that they be placed on the mailing list.

Assistance in redesigning a bar chart to show a comparison of G.E. wage rates with those paid in the Pacific Northwest, which was for presentation before the Davis Panel, was rendered at the request of Union Relations.

The Employee and Community Relations Divisions' six months report was reprinted, with 20 additional copies being produced.

Recruiting classified advertisements were written and placed in eleven mid-western newspapers and in the Portland, Oregon papers for the following job classifications: stenographers, typists, H.I. inspectors, production operators, instrument mechanics, designers, and craftsmen. A total of 1,891 replies were received by Employment Division, 1,600 of which were received during the first week after the ads were published.

A Christmas message to all employees from the General Manager was written, and distributed.

Letters to local clergy and educators, and to Richland businessmen, were written and mailed with the "Security Package" brochure sent previously to employees' homes.

Payment for advertisements concerning G.E.--HAMTC wage negotiations, which appeared in the Columbia Basin NEWS on November 17 and 18, and in the Tri-City HERALD on November 17 and 19, was arranged.

The December Health Topic, "Ears that Hear," was publicized through a news story placed in the Hanford Works NEWS.

A letter informing supervisors of the Davis Panel's coming to Hanford Works was produced and distributed.

A letter to all employees from Mr. Frout concerning the Davis Panel's intervention in the wage dispute between G.E. and the HAMTC which was prepared during November was mailed during December.

"Guide to Richland," the Parks and Recreation Divisions booklet on organizations in Richland, was received from the printer during December. Special Programs is assisting with the distribution; revising of the copy; preparing art work and layout; and printing of the booklet.

Employee and Community Relations Divisions

Production and assistance in preparing a review of negotiations between G.E. and the HAMTC for distribution to the "Management A" list was rendered.

A letter to supervisors explaining the Company's position, as presented to the Davis Panel, was prepared.

EMPLOYEE INFORMATION--Works NEWS

During the month the following programs in the plant and the community were publicized:

New insurance plan publicity was concluded during the month with lead stories covering acceptance by employees at Hanford Works, the entire Company, and the official announcement of its acceptance by the President of the Company. Final enrollment figures for the entire Company have been published, and final figures of total participation here will be run soon.

Suggestion system promotion was given through front page stories of awards plus a banner headlined story of the second largest award of \$610 to be given here at Hanford Works. The large award story was accompanied by a picture.

Employment needs at Hanford Works were reviewed from time to time during the month. It is anticipated these needs will continue to be publicized as requirements are made known.

Community activities included information on the way in which employees could purchase Christmas gifts for veterans sick in the Walla Walla hospital. This was done in cooperation with the American Legion which sponsored the Drive.

Safety promotion was given through a week to week coverage of the Safety Limerick contest being conducted by the "P" Division in 100-F Area. Highlights of the rules governing the Maintenance Division Safety Derby were published, and arrangements have been made to give continual publicity on the progress of the Derby.

Training of supervisors in the current PMS classes received feature treatment by pictures and the first four classes to complete the course and a story covering the main features of the course.

Employee sales plan information was given through a lead story acquainting employees with changes in procedure for ordering G-E items from the employee store in Schenectady. Announcement was also made that a new store was opened in Richland which would also sell G-E appliances.

Educational opportunities for employees were publicized in a story announcing courses available in the Adult Evening Classes at the Columbia High School.

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Best features during the month included pictures and story on twins in the Health Instrument Divisions and on the electron calculator called "The Brain."

Red Cross Flood Program received front page material urging more employees to donate their blood due to the increased quotas being requested for the Korean Theater and the Civil Defense Program.

Holiday issues were printed on green paper to give a more festive appearance. The Christmas issue was twelve pages and was almost entirely devoted to activities of employees during the Yuletide. The additional pages were devoted to including all reporters' copy which was submitted at the request of the Works NEWS. This was done as an additional incentive to reporters to become more active, and was the result of a concentrated drive by the staff to gain new reporters in cases where the old ones were inactive.

A special message was prepared for top management of A.E.C. and G.E. for the New Year's issue.

Fillers have been adopted in the form of jokes. This was done as a means for saving time at the printers by eliminating unnecessary justifying of pages, to improve appearance by eliminating "leading," and to provide humor to the paper.

#### EMPLOYEE INFORMATION--Women's Activities

Four women's pages appeared in the Hanford Works NEWS during the month of December. Three patterns to fill last minute gift lists were offered in the December 1 women's page. About 85 patterns were mailed out to readers as a result of this feature.

On December 8, recipes for Christmas candy and cookies were printed along with ideas for packing them as gifts. Ski togs were featured on the December 22 women's page. The Christmas issue featured a picture and short article on how the holidays were celebrated in the dormitories at Hanford Works. An accompanying feature was a group of holiday ice cream recipes recommended by the G.E. Consumers Institute.

"What's Doing" featured the following organizations during the month: P.T.A., Treble Clef, Allied Arts Association, Junior Basketball Clinic, Leathercraft classes, Choral Society, Projecteers, Spalding Recreation, Naval Reserve, Community House, Chess Club, and Community Activities movie.

A feature story on the Treble Clef concert appeared in the December 1 Works NEWS, which played up the role played by husbands of singers in the chorus.

A feature story on the I.B.M. Electronic Brain appeared on December 15 in the Works NEWS and was released the same day to local and daily newspapers.

About 260 calls were handled for persons wanting rides or riders for week end or vacation trips through "Share a Ride" column. "Share a Ride" was turned over to Employee Services Division on January 2.



Employee and Community Relations Divisions

Hanford Works Photo House

	8" x 10"	5" x 7"	2" x 4"	2" x 2"	Negatives	Black & White Slides	Color Slides	A Badges Laminated	11" x 14" Portraits	Hand Prints
<u>EMPLOYEE &amp; COMMUNITY RELATIONS</u>										
Employment	-			796	199			1999		
Public Functions	6	14			4					
Special Programs		42			2					
News Bureau	7	59			7					
Works NEWS		123			117					
Community Relations	12	74			7					
<u>MANAGEMENT</u>										
Rotational Training					7				7	
<u>MEDICAL</u>										
					36		8			36
<u>MUNICIPAL, REAL ESTATE &amp; GENERAL SERVICES</u>										
Community Safety	6	2			2					
Community Activities		4			5					
Community Patrol	11	19			22					
Community Fire	20	2			2					
<u>MANUFACTURING DIVISIONS</u>										
Transportation	25				3					
S Division						35	57			
Project Engineering							240			
<u>DESIGN &amp; CONSTRUCTION</u>										
Reactor Division	12				7					
Design	64				32					
Pile Technology	32				4					
<u>TECHNOLOGY DIVISION</u>										
Separations					11	11				
<u>HEALTH INSTRUMENT</u>										
Operational							12			
<u>PLANT SECURITY &amp; SERVICES</u>										
Safety & Fire Protection	4	2								
TOTAL	196	241	0	796	471	46	317	1999	7	36

	Oct.	Nov.	Dec.
Total Prints	5,476	5,177	3,275
Total Negatives	800	824	471
Total Assignments	121	90	86

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NEWSPAPER SPACE REPORT

November, 1950

As compiled from Nucleonics Department News Bureau Clipping Files

1223019

SUBJECT	DATE	NEWSPAPERS	COLUMN INCHES	PHOTOS
Union Negotiations	Nov. 2	Columbia Basin NEWS	5 1/2	
	Nov. 2	Tri-City HERALD	6 1/2	
	Nov. 15	Columbia Basin NEWS	8 1/2	
	Nov. 16	" "	7 1/4	
	Nov. 16	Walla Walla Union BULLETIN	5 1/2	
	Nov. 17	Columbia Basin NEWS	9	
	Nov. 17	C "	5	
	Nov. 18	" "	11 1/2	
	Nov. 21	" "	6 1/2	
	School of Nuclear Engineering	Nov. 19	Walla Walla Union BULLETIN	6 1/2
F. K. McCune Speech at Yakima	Nov. 1	Columbia Basin NEWS	5 1/4	
	Nov. 1	Walla Walla UNION-BULLETIN	6	
	Nov. 1	Yakima REPUBLIC	10	
	Nov. 2	SPOKESMAN-REVIEW	4	
	Nov. 1	Yakima HERALD	6 1/2	
	Nov. 29	Spokane CHRONICLE	2 1/2	1
	Maurice Gardner's speech in Spokane	Nov. 8	Spokane CHRONICLE	1 1/2
McKinnon's speech in Spokane	Nov. 8	SPOKESMAN-REVIEW	6 1/2	
	Nov. 9	Columbia Basin NEWS	1 3/4	
	Nov. 9	Tri-City HERALD	3	
	Nov. 10	Walla Walla UNION-BULLETIN	4 1/2	
	Nov. 9	Tri-City HERALD	2 1/2	
Cancellation of G.E. Contract	Nov. 9	Columbia Basin NEWS	3	
	Nov. 10	Walla Walla UNION-BULLETIN	5	
	Nov. 2	Columbia Basin NEWS	4	
	Nov. 3	Tri-City HERALD	3	
	Nov. 3	Walla Walla UNION-BULLETIN	3	
	Nov. 4	Boise Idaho STATESMAN	3	

SUBJECT	DATE	NEWSPAPERS	COLUMN INCHES	PHOTOS
Cancellation of G.E. Contract (Continued)	Nov. 4	Yakima HERALD	2	
	Nov. 4	Coeur d'Alene PRESS	1½	
Hiring at Hanford	Nov. 2	Prosser BULLETIN	5	
	Nov. 5	SPOKESMAN-REVIEW	3	1
	Nov. 9	Tri-City HERALD	8½	
	Nov. 16	Columbia Valley ADVOCATE (Washougal, Wash.)		
Classification of Atomic Workers	Nov. 3	Tri-City HERALD	9½	
	Nov. 4	Yakima HERALD	5	
	Nov. 2	Walla Walla UNION-BULLETIN	3	
Organization changes	Nov. 3	Walla Walla UNION-BULLETIN	1	
	Nov. 4	Columbia Basin NEWS	3	
	Nov. 4	Walla Walla UNION-BULLETIN	3	1
	Nov. 11	Columbia Basin NEWS	3	
G.E. Insurance Plan	Nov. 12	Tri-City HERALD	2	
	Nov. 12	Walla Walla UNION-BULLETIN	8½	
	Nov. 12	SPOKESMAN-REVIEW	5½	
	Nov. 12	Walla Walla UNION-BULLETIN	2	
Low bidder for radio shortwave	Nov. 12	SPOKESMAN-REVIEW	1	
	Nov. 12	Columbia Basin NEWS	2	
	Nov. 11	Walla Walla UNION-BULLETIN	2	
Design work on aquatic lab.	Nov. 15	Walla Walla UNION-BULLETIN	2	
	Nov. 15	Seattle Daily JOURNAL OF COMMERCE	2	
Low bidder on Health Instrument lab.	Nov. 16	Seattle Daily JOURNAL OF COMMERCE	5	
	Nov. 16	Yakima REPUBLIC	1	
	Nov. 16	Tri-City HERALD	4½	
	Nov. 17	Columbia Basin NEWS	3	
	Nov. 17	Portland Daily JOURNAL OF COMMERCE	3½	

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SUBJECT	DATE	NEWSPAPERS	COLUMN INCHES	PHOTOS
Low bidder on Health Instrument lab (Continued)	Nov. 19	Walla Walla UNION-BULLETIN	1	
	Nov. 23	Prosser BULLETIN	2 1/2	
Rehabilitation of office buildings	Nov. 28	Columbia Basin NEWS	3	
Nov. 30	Nov. 30	Walla Walla UNION-BULLETIN	2 1/2	
	Nov. 30	Seattle Daily JOURNAL OF COMMERCE	3 1/2	
	Nov. 30	Tri-City HERALD	2 1/2	
Miscellaneous (includes recreation, safety, street repair releases)				
TOTAL			18	

27 1/2 sq. in. 3

(Union Relations Statements) 62 3/4 sq. in.

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Employee and Community Relations Divisions

TRAINING AND PROGRAM DEVELOPMENT

The Supervisor's 40-Hour Training Program was held during the week of December 11-15, 1950. A total of 36 supervisors attended this program. During this program, the G-E film, "The Inner Man Steps Out" was shown to the group, and at the request of our New York office, the special questionnaires prepared by Richardson, Bellows, Henry, and Company, were used as a survey and results tabulated and returned to New York. On Friday of this week, a special luncheon was given for the group members, attended by six members of senior management as guests. An anonymous questionnaire was used for research survey, in which the tabulation indicated an outstanding achievement of objectives.

Groups 5, 6, 7, and 8, consisting of a total of 80 members of Supervisory-Management, completed their conferences in the study of Principles and Methods of Supervision. A dinner meeting was held on Wednesday, December 20, 1950. A total of 76 members of the groups, and 16 members of the Advisory Committee and Education Committee, were present. The dinner meeting was held at the Desert Inn in Richland, and the principal speaker was F. K. McCune, Assistant General Manager of the Nucleonics Department. Completion Certificates were presented by Dr. W. I. Patnode, and members of the groups presented two skits, which completed the dinner meeting. To date, a total of 160 supervisors have completed PMS conferences; while an additional 80 members, divided into Groups 9, 10, 11, and 12, are currently attending. Additional groups will be started soon, including supervisors working shifts.

Again, on December 8, the Non-Exempt 8-Hour Training Program was presented to a group of 28 employees of the "S" Division in the 200-W Area. This seventeen-subject program has been found a successful method of disseminating information of interest to employees, as well as an effective method to objectively improve employee morale and attitude. Tabulation of an anonymous questionnaire indicates results achieved in this special presentation.

Two issues of the Hanford Works "SAGE" were prepared and mailed to all members of Hanford Works Supervisory-Management. This medium is proving extremely successful as a method of communication with all supervisors at the Hanford Works.

During the month of December, an additional eleven Supervisor's Handbooks on Employee Relations were distributed to new supervision, at the request of Division Heads. Orientation was given to three re-engaged, three transferred, and 109 new employees; a total of 115 during the month of December. This resulted in a total of 91.8% employees signing to participate in the new Group Insurance Plan. Also, during December, orders were taken for a total of about 50 copies of "Men and Volts" and additional copies are being secured from Schenectady on consignment.

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Employee and Community Relations Divisions

TRAINING AND PROGRAM DEVELOPMENT

The Division Safety Meeting was held in the lobby of 705 Building on December 8, and was attended by approximately 75 members of the Employee and Community Relations Divisions. The program was so designed that it could be recorded and used for future presentations on local radio stations. This was an effective presentation of safety relative to holiday decorations in the home.

Special data was gathered during this period in preparation of the Annual Report for Training and Program Development. It is expected that this report will be distributed the week of January 15.

"You and Labor Law" Training Program will be presented in the Nuclear Department in 1951, probably following the presentation of the "HOBSO" course.

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Union Relations and Wage Rates

Union Relations - Operations Personnel:

In response to a request from the HAMTC, President Truman's Davis Panel visited the Project on December 18, for the purpose of reviewing facts in the current wage dispute between the Company and the Council. L.M. Boulware, Vice President of Employee and Community Relations, New York, was the prime spokesman for the Company during the three-day hearing. After the presentation of evidence by both parties, the Panel indicated that it would offer its recommendation within a few days. The Council requested additional time to prepare new data and the Panel agreed therefore to delay its decision until after the deadline date of January 10.

The Company and the Council have agreed upon the selection of Mr. Charles Moriority as the third party arbitrator in the pending arbitration cases. In view of the unsettled wage dispute, action on these cases has been temporarily postponed.

There have been no new developments on either the Council's appeal to the National Labor Relations Board for a union shop election, or on the petition by certain Health Instrument employees to be represented by the HAMTC.

An understanding has been reached with the Council which will clarify the problem of seniority for employees promoted from within the bargaining unit. In brief, the Council has agreed that bargaining unit personnel can accumulate seniority without reservation when promoted to either a related or an unrelated job, regardless of the tenure of such promotion.

The NLRB advised the Company that it desires a hearing on the petition for representation submitted by Project Guards. This hearing will probably be conducted within the next thirty days. The Company has indicated that it questions the authority of the NLRB to assert jurisdiction over municipal police since such personnel are not engaged in an activity affecting interstate commerce.

Grievance Statistics

Eight grievances were received during the month, bringing the total received this year to 204. Three hundred eighty grievances have been received since the grievance procedure was established in April, 1949. Grievances were received this month from the following divisions:

Mfg. Instrument	2
Mfg. Transportation	2
Mfg. "S" Division	3
Village Maintenance	<u>1</u>
Total	8

Employee and Community Relations Divisions

Employee grievance reports received during the month of December were regarding the following subjects:

Discrimination	1
Jurisdiction	1
Health, Safety	2
Overtime Rates	1
Wage Rates	<u>3</u>
Total	8

The status of all grievances received to date is as follows:

	<u>1949</u>	<u>1950</u>	<u>Total</u>
Settled satisfactorily, Step I	56	56	112
Settled Step I - Time Limit	59	73	132
Pending at Step II	--	22	22
Settled at Step II	61	49	110
Pending - Arbitration	<u>--</u>	<u>4</u>	<u>4</u>
	176	204	380

Eleven per cent of the total grievances received this year have been submitted by employees outside the bargaining unit.

There were no meetings held during the month with the Council Grievance Committee for the purpose of discussing grievances at the Step II Level.

Union Relations - Subcontractor Personnel:

A Teamster agreement was reached on December 28, 1950, after negotiations throughout the month. The new agreement includes (1) approximately 15¢ an hour across the board increases, (2) a provision for time and one-half for work during lunch on second and third shifts, (3) a statement which provides continuance of the Master Agreement until August 10, 1951, except that isolation pay may be negotiated prior to that time.

Operating Engineers - Negotiations were held on December 5 with a conciliator in attendance. The matter of having referred negotiations to the Operating Engineers International office, to the Davis Panel and to the AEC Washington office was discussed. The Union stated that according to word from the East there was some possibility of a settlement by agreement on one or more of three points: (1) increase in isolation pay, (2) increase in workweek, (3) Spokane January 1 rates to be effective on the Project sooner than that date, preferably December 1. The Unions stated they were instructed by their International to negotiate further at the Local level and if no settlement was accomplished to then go to the Davis Panel. After a negative response from the contractors on each of those three items, the Union demanded all of the following points:

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1. Six-day week starting January 1
2. Spokane January 1, 1952 rates to be effective on the Project January 1, 1951
3. Isolation pay doubled
4. The contract to run January 1, 1951 to July 1, 1951 (six months)

The contractors rejected this offer and submitted as a counterproposal the Spokane rates and working rules acceptable to the contractors. The Union stated they would take the matter under advisement before scheduling further negotiations. No further meetings were held during the month.

A settlement was reached with the Boilermakers granting a 10¢ increase which is in line with their Seven Western States Agreement.

The Painters and Laborers have served notice of their desire to negotiate new wage scales. No meetings were held.

Notice of an increase of 15¢ granted to Electrician (Linemen) in recent negotiations applicable to the surrounding 2½ State area was received.

The Plumbers' vacation plan, negotiated October 20, 1950, has been changed in some respects by Master Plumbers East of the mountains. On December 29, this office obtained, unofficially, a copy of the amended vacation plan which now stipulates that it will be administered by the employer rather than by the Union as originally planned. The plan is currently under study.

This office was called into a dispute among the Corps of Engineers, its subcontractor Walle-Campain, and the Building Trades Council.

Requests for Reimbursement Authorization handled during the month:

1. Technical Engineers - Wages
2. Teamsters - Wages, classification revisions and additions

Reimbursement Authorizations received during the month:

1. Teamsters - Wages, classification revisions and additions

Work Stoppages - Threatened

This office was consulted in regard to a threatened work stoppage by the Asbestos Workers. Jenkins (Atkinson-Jones' CFFF insulation contractor) reported on December 29 of that craft's insistence on a contract that day in order to prevent a possible work stoppage on January 2.

Wage Rates:

During the month of December, representative large refineries and one heavy chemical plant were visited in the San Francisco Bay Area to determine the general relationship between operating jobs and craft jobs in these industries on the West Coast. This information procured indicated that the relationship at Hanford Works was comparable to that maintained in the industries surveyed.

## Employee and Community Relations Divisions

Work continued on survey rates paid Electric Meter Servicemen, Installers and Meter Readers in the Northwest Area.

Work continued on the annual Northwestern General Electric community wage rate survey.

Two meetings were held with representatives of the HAMTC in reference to grievances brought by Instrument Division employees. The Union claimed that Instrument Technicians who were experienced in the maintenance of mechanical instruments were discriminated against when employees were considered for upgrade to the classification of Instrument Specialist. The discussions pointed out the need for further investigation of the work load, work assignment, etc., of the group before a decision could be reached.

On December 11, representatives of the Operating Engineers Local of the HAMTC met with wage rate personnel to discuss the Union's claim that an employee assigned to operate a hand-fired boiler was improperly classified. The Union accepted the Company's classification of the job.

A review was made of jobs in the 101 Shops. As a result of this review, it was determined that five employees were improperly classified. The division was asked to initiate the necessary changes.

A study was made of Power Operator jobs in the 100-DR Area. This study was preliminary to a discussion with representatives of the Council. The Union claims that the jobs studied are improperly classified.

Datums was compiled giving more current information on General Electric community rate comparisons. This information was prepared for the Union Relations Division. Jobs performed by bargaining unit employees in the Medical Division were reviewed.

On December 15, the Atomic Energy Commission approved the reimbursement authorization request for the Glass Technician classification. This is a Grade 24 job and increases are on a merit basis.

Insurance, Workman's Compensation, and Suggestion System:

### Suggestion System

	<u>November, 1950</u>	<u>December, 1950</u>	<u>Total since 7-15-47</u>
Suggestions received	140	142	5,839
Investigation Reports completed	142	130	5,609
Awards granted by Suggestion Committee	27	48	923
Cash Awards	\$ 325.00	\$ 1,295.00	\$ 14,270.00
Estimated Savings	3,848.46	15,053.25	

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The second largest award ever made at Hanford Works was made during December to an employee who was a clerk in the Community Accounting Division at the time the suggestion was submitted. The employee suggested a reduction in toll ticket handling by increasing the customer rate based on a yearly average of toll charges to Pasco and Kennewick and thus eliminating individual toll ticket charges. The suggestion was not adopted as written; however, it led directly to a solution to the problem of General Electric handling Accounts Receivable which normally should have been handled by Interstate since Interstate derived the revenue from the toll charges.

#### Insurance and Compensation

One case was closed during the month.

#### Life Insurance

Code information which is known only to Home Office Life Underwriters Association has been furnished 57 insurance companies and investigation agencies during the month of December, 1950. This is in accordance with an arrangement with the Underwriters whereby employees on this project might be insured on the same basis as those working elsewhere.

#### Insurance Statistics

	<u>November, 1950</u>	<u>December, 1950</u>	<u>Total since 9-1-1946</u>
Claims reported to the Department of Labor and Industries	79	81	3,896
Claims reported to Travelers Insurance Co.	7	3*	473

\* Of the above claims reported during December to the Travelers Insurance Company, two were property damage claims and one was a bodily injury claim.

MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS  
SUMMARY-DECEMBER, 1950

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ORGANIZATION AND PERSONNEL

Number of employees on roll:	<u>Beg. Of Month</u>	<u>End Of Month</u>
Administration	11	11
Accounting	31	30
Engineering & Contracts	31	32
<u>Municipal Divisions</u>		
Public Works	115	110
Parks & Recreation	35	34
Patrol (Richland)	45	45
Fire (Richland)	57	58
Public Safety	3	3
<u>Real Estate Divisions</u>		
Housing & Real Estate Maintenance	199	202
Commercial & Other Property	13	13
<u>General Services Divisions</u>		
Steam & General Maintenance	79	81
Patrol (North Richland)	19	19
Fire (North Richland)	37	36
	<u>675</u>	<u>674</u>

There was a decrease of one employee in the Divisions during the month of December, 1950.

GENERAL

Richland was awarded sixth place in the National Fire Prevention Week Contest.

The following commercial facilities began operation during the month of December: Don's Men's Wear (Midstate Amusement Building) and Davis-Pleiss Inc., (Automatic Laundry Building #2).

Total housing applications pending - 434.

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## MUNICIPAL, REAL ESTATE AND GENERAL SERVICES ACCOUNTING DIVISION

MONTHLY REPORT FOR DECEMBER, 1950

### ORGANIZATION

Employees - Beginning of month	31	Exempt	5	Male	11
Transfers In		Non-exempt	25	Female	19
Transfers Out	1		30		30
New Hires					
Terminations					
Total end of month	<u>30</u>				

### RENTS

<u>House Leases Processed</u>	<u>December</u>	<u>November</u>
Total active leases beginning of month	5705	5679
New leases	85	163
Cancellations	80	137
Total active house leases end of month	<u>5710</u>	<u>5705</u>
Modifications	9	11

<u>Dormitory</u>	<u>December</u>	<u>November</u>
Total occupancy beginning of month	964	963
New assignments	96	114
Removals	96	115
Total occupancy end of month	<u>964</u>	<u>964</u>

### Rental Revenue was as follows

	\$ 18.80	\$ 18.80
Equipment		
Houses		
Basic Rent	199,911.91	197,485.27
Electricity	48,803.80	48,205.50
Water	8,078.51	7,980.11
Steam	1,056.93	1,095.68
Dormitory	13,401.06	13,689.70
Facility		
Basic Rent	44,689.10	28,746.61
Electricity	3,433.92	3,433.92
Water	490.00	490.00
Steam -	- 7,169.83	10,416.67
Utilities-Electrical	1,696.40	-0-
	<u>\$328,750.26</u>	<u>\$311,562.26</u>
Unoccupied Dormitory revenue loss	1,231.44	942.80
Unoccupied House revenue loss	5.70	3,120.39
	<u>\$329,976.00</u>	<u>\$315,625.45</u>

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Municipal, Real Estate and General  
Services Accounting Division

<u>Telephone</u>	<u>December</u>	<u>November</u>
Number of work orders processed	272	291
Number of working telephones	5095	5070
Revenue including services	\$ 18,654.24	\$ 18,708.15

Miscellaneous

Invoices prepared during month	239	214
Revenue derived from invoices	\$ 5,572.76	\$ 7,351.22

Building permits paid during December		
Westside U.P. Church	\$ 154.70	
Previously reported	7,011.97	
	<u>\$ 7,166.67</u>	

General

Eighty-seven collection letters were written resulting in the collection of thirty-five delinquent accounts totaling \$274.30.

No accounts were submitted to the Yakima Adjustment Service.

Previously submitted 33 accounts	\$481.76
Collected by Yakima Adjustment Service	7.99
Collected by General Electric	<u>71.34</u>
Balance agency accounts	\$402.43

Seven minor balance accounts totaling \$.23 were written off.

Forty-nine of the fifty-six active telephone accounts, delinquent thirty days or more as of November 30, 1950 were paid during December.

ACCOUNTS PAYABLE

Statistics

Accounts payable vouchers	203	226
Freight Bills processed	13	12
Purchase orders received	71	53
Net amount of purchase orders	\$ 20,285.83	\$ 17,226.06
Receiving Reports received	80	91
Total net amount disbursed	\$199,796.87	\$103,607.10
Number of checks issued	174	185

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A summary of Active 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>
Newland Cafeteria	----- *	139.60	12.30	139.60	-0-
Richland Maint. Co.	----- *147,	627.09	6,705.36	147,627.09	-0-
Associated Eng., Inc.	G=305	113,732.05	41,978.04	108,870.99	5,730.05
Empire Electric Co.	G=310	16,760.00	-0-	-0-	-0-
Grant, Algot C.	G=318	26,956.59	2,495.99	23,100.54	615.00
Amer. Steel & Wire Co.	G=319	7,688.67	7,688.67	7,688.67	-0-
Packard Pipe & Pump Co.	G=326	10,248.50	-0-	2,169.22	241.03
C&E Construction Co.	G=328	168,045.45	90,206.57	155,154.26	8,402.27
F. O. Repine Co.	G=329	29,263.00	-0-	3,950.50	438.95
Pasco Electric Co.	G=331	7,035.70	-0-	1,203.10	±33.68
Baldwin-Dunham Co.	G=343	652,080.00	-0-	-0-	-0-
		1,179,576.65	149,086.93	449,903.97	15,560.98

\* Total amount of contract will be total of estimates as submitted.

COST

Reports

The November Operating Report was issued December 21, 1950. The Comptroller's Appropriation Report and Supplemental Report was issued December 26, 1950. The Construction Budget Status Report will be issued January 3, 1951.

Budget

Operations

The third quarter budget review was completed. This review entailed recomputations as

- 1) 1st quarter actual cost became 1st quarter budget
- 2) Personal Services increased due to wage increases
- 3) Continuity of Service cost increased
- 4) Work programs were rescheduled

Construction

Appropriation Requests Written

- 1) Fencing Riverside Park
- 2) Acquisition of Books and Equipment for library
- 3) Additional Water Service and Fire Protection Facilities
- 4) Additions and Alterations to Existing Streets and additional sidewalks, curb and gutter construction, new school areas
- 5) Exterior painting of 243 Conventional Type Houses
- 6) Interior Painting of Richland Housing
- 7) Park Development

3.





ENGINEERING AND CONTRACTS DIVISION  
MONTHLY REPORT  
DECEMBER 1950

ORGANIZATION AND PERSONNEL

	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Total</u>
Number of employees on payroll:			
November 30, 1950	17	14	31
December 31, 1950	17	15	32

GENERAL

Difficulty is being experienced in finding engineering replacements for W. N. Baskette and G. A. Huff, as well as a draftsman to replace D. C. Ford who will be leaving shortly. Besides, two additional engineers are needed and efforts are being made to find them on the project as well as off.

Report on extended engineering services requests:

	<u>Completed during December</u>
ESR-97-CH Electrical & Structural Inspections	5
ESR-118-CF Approved Alteration Permits	3
ESR-159-CH Survey Work to Check Tenant Drainage	1

The following engineering service requests were completed and closed out:

<u>ESR No.</u>	<u>Description</u>	<u>Remarks</u>
263-PW	Investigation--Installing Sand Traps on 14" and 24" Water Mains	Completed 12-11-50
331-PW	Diagram of Steam Distribution System	Completed 12-11-50
332-PW	Influent Controller on Secondary Clarifier of #2 Disposal Plant	Completed 12-11-50
346-CF	Super Food Market	Closed out 12-18-50
361-SS	Change Steam Lines to Hot Water Heaters in Buildings in 700 Area	Completed 12-11-50
389-CF	Drive-In Restaurant	Closed out 12-18-50
399-PW	Installation of Steam Meters--Columbia High and Carmichael Schools	Completed 12-11-50
404-PW	Shelterbelt Planting	Closed out 12-8-50
434-CF	Automatic Laundry Addition #1	Closed out 12-18-50
441-CF Parts I and II	Recreation Hall Remodeling	Closed out 12-14-50

Engineering and Contracts Division (cont'd)

<u>ESR No.</u>	<u>Description</u>	<u>Remarks</u>
475-H&PW	Alleyways, Inner-block Areas	Completed 12-11-50
480-RC	Service Drive, Rear of Uptown Theater	Completed 12-8-50
488-AEC	Fourth Housing Addition	Closed out 12-18-50
495-RC	Medical-Dental Building	Closed out 12-18-50
498-MD	Study--Kadlec Hospital	Closed out 12-18-50

Progress report on ESRs that will become projects:

<u>ESR No.</u>	<u>Title and Remarks</u>
262-CA) 44C-MU) 479-MU)	Utilities for Churches, Wellsian Way, and Chief Joseph Junior High School: Project proposal completed with cost estimated and submitted to Manager, Municipal Divisions, 12-8-50.
379-CH	Interior Painting, Scheduling, and Contracting: Project proposal sent to Manager, Real Estate Divisions, 12-8-50.
398-FW	Sidewalks, Curbs, and Gutters for Chief Joseph School: Project proposal submitted to Manager, Municipal Divisions, 12-8-50.
400-FW	George Washington Way from Gillespie to Coordinate Club: Project proposal submitted to Manager, Municipal Divisions, 12-8-50. Sent back to Engineering Division 12-21 to increase scope of work to four-lane street.
401-FW	Van Giesen from Perkins to Jadwin: Project proposal submitted to Manager, Municipal Divisions, 12-8-50. Returned to Engineering Division 12-21 to delete section from Jadwin to Goethals.
402-FW	Wright Avenue from Thompson to Duportail: Project proposal submitted to Manager, Municipal Divisions, 12-8-50. Returned to Engineering Division 12-21 to reduce quantities to minimum and resubmit.
403-FW	Symons from Goethals to Jadwin: Project proposal submitted to Manager, Municipal Divisions, 12-8.
429-CH	Prefab Shower Stalls: Work progressing; 50% complete.
450-CA	New Fencing--Riverside Park: Project proposal sent to Manager, Municipal Divisions, 12-8-50.
459-SS	Removal of Hutments 712-A and 712-B: Work progressing; 5% complete.
468-SS	Lighting Study--703 Building: Preliminary project proposal sent to Hennigar for approval.
477-RM	Relocation of Access Panels, "U" and "V" Houses: Project proposal sent to Manager, Real Estate Divisions 12-4-50.

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Engineering and Contracts Division (cont'd)

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<u>ESR No.</u>	<u>Title and Remarks</u>
478-PW	Sidewalk Improvement, George Washington Way (Goethals to Van Giesen): Project proposal submitted to Manager, Municipal Divisions, 12-8-50.
482-PR) 473-PR)	Playground Equipment and Park Development: Project proposal submitted to Manager, Municipal Divisions, 12-8-50.

Private Construction Progress Report (Plans were reviewed and regular field inspections were made in compliance with building permit requirements):

<u>Facility</u>	<u>Started</u>	<u>Remarks</u>
Theater	12-14-49	Final inspection 12-14-50.
Catholic Church Site		Awaiting information.
Re-organized LDS Church	8-22-49	Work progressing slowly.
Northwest United Protestant Church	9-25-50	Work progressing.
Westside United Protestant Church		Awaiting start of construction.
Letter Day Saints Church	2-5-49	Final inspection 12-14-40.
Assembly of God Church	5-23-50	Work temporarily held up.
First Baptist Church		Awaiting start of construction.
Episcopal Church		Awaiting information.
Redeemer Lutheran Church	8-21-50	Work progressing.
Central United Protestant Church		Awaiting information.
Morgan & Olberg Drugstore	8-7-50	Final inspection 12-4-50.
Christian Science Society		Awaiting information.
Richland Laundry & Cleaners Addition	9-22-50	Work temporarily held up.
Addition to Masonic Temple	8-11-50	Work progressing.
Outdoor Roller Rink	9-1-50	Work temporarily held up.
Automatic Laundry Bldg.	8-10-50	
Free Methodist Church		Awaiting information.

Engineering and Contracts Division (cont'd)

<u>Facility</u>	<u>Started</u>	<u>Remarks</u>
Richland Lutheran Front Addition		Reviewing plans and specifications.
Richland Investment Company Building	12-8-50	Foundation plans approved. Detailed plans and specifications for the building will be submitted in the near future.

The status of "C" projects (over \$20,000) is as follows:

- C-232 Carmichael Junior High School: Work completed except lowering of heads. Part 2R
- C-233 Spalding Grade School Irrigation: Construction completion notice completed ready for issuing. Part 2R
- C-282-R Grass Seeding--Columbia Playfield: No further work will be done on this project until Spring.
- C-351-R Installation of Irrigation Systems--Public Grounds: Modification of directive requested to extend completion date to June 30, 1951. Modification issued December 13, 1950.
- A. Frankfort Playground: Irrigation system completed. Final acceptance will be made of this area as soon as grass is established.
  - B. Columbia Playfield: Irrigation system is under construction in small areas around parking lot. Balance of work completed with exception of lowering heads.
  - C. Riverside Park: Completed and ready for final testing and acceptance.
  - D. Marcus Whitman Grade School: Irrigation system approximately 85% complete.
- C-353 Richland Water Study: Directive modification issued December 27, 1950, extending completion date of Part I to March 1, 1951.
- C-356R2 Recreation Facilities--Schools and Public Parks: Construction progressing. Directive modification issued December 13 extending completion date to June 30, 1951.
- C-357 Additional Capacity--Sewage Lift Station: GE procurement of materials for job complete except impellers and three 50 HP electric motors. Impellers scheduled for delivery January 1, 1951. No schedule on electric motor delivery. Directive modification issued December 14 extending completion date to June 30, 1951.
- C-359 Duane Avenue Street Improvement: All work completed except top-soiling and grass seeding. Construction completion notice issued 12-21-50.
- C-363 Exterior Rehabilitation of Prefabs: Construction started 11-28-50. Job 1% complete.

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Engineering and Contracts Division (cont'd)

- C-367 Moving Ten Prefabs from Columbia Camp to Richland: Construction completion notice issued December 15, 1950.
- C-372 Exterior Painting of Houses: Work suspended until April, 1951. Job 15% complete.
- C-374 Casey Street Improvement: All work completed except top-soiling and grass seeding. Construction completion notice issued 12-21-50.
- C-375 Site Development--Clubs and Organizations: Specifications written and plans 95% complete. Design work stopped at request of Real Estate Division.
- C-382 Well 1100-D, Duke Well Field: Field Order #3 to complete work on drilling has been approved by Subcontractor. Field work scheduled for 1-15-51.
- C-387 Interior Painting of Dormitories: Bids opened 11-28-50. Awaiting approval of low bid.
- C-400 Reroofing, Painting and Siding--700 Area Buildings: Out for contract.
- C-407 Bathtub, Tileboard, and Linoleum Installation--206 Conventional Houses: Directive HW-207 issued 11-28-50. Field Release #1 issued 12-5-50.
- C-408 Shelterbelt Planting and Irrigation: Field Release #1 issued 12-5-50. Work started on planting By-pass shelterbelt--approximately 25% complete. Field cross-sectioning of south shelterbelt, Howell, and sand dune has been completed. Design work is 50% complete.

The status of "S" projects (\$5,000 to \$20,000) is as follows:

- S-244 Irrigation Ditch Fencing--Wright to Van Giesen: Plans and specifications to be complete 1-5-51.
- S-255-A Levee Irrigation, Newton Street to Gowan: Request to extend completion date to 12-30-50 approved by AEC 12-14-50. Work completed 12-29-50.
- S-255-B Grass Seeding--Marcus Whitman and Frankfort Playgrounds: Site grading at Marcus Whitman in progress and will be completed in time for grass seeding operations in the Spring. Frankfort Playground grass seeding will have to be spot-reseeded in the Spring. Request to extend completion date to June 30, 1951, approved by AEC December 14, 1950.
- S-255-D Parking Lot at Columbia Playfield: Construction of curbs completed. Placing of base rock 98% complete. Oiling operations and final clean-up postponed until favorable weather in the Spring. Request to extend completion date to May 15, 1951, approved by the AEC December 18, 1950.
- S-269 Fencing Water Recharge Basins: Request to increase authorized funds and extend completion date to October 16, 1950, was approved by AEC December 14, 1950.

Engineering and Contracts Division (cont'd)

- S-290 Automatic Traffic Control Signals--Richland: Request to extend completion date to January 15, 1951, approved by AEC December 14, 1950. Work 55% complete.
- S-299 Radio Communication System for Fire Division: Awaiting approval of bids.
- S-321 Steam Pits to Dormitories: Held up pending determination of dormitory disposition.
- S-333 Air Conditioning Controls in Dormitories: Work held up awaiting receipt of material. 35% complete. Request to extend completion date to February 15, 1951, approved by AEC December 14, 1950.
- S-350 Improvement of Lighting in Building 7C5: Work request issued. Awaiting material.
- S-362 Water Service Alterations--Prefab Houses: Project out for bids.
- S-366 Exterior Painting of Hospital, Medical-Dental, and Municipal Buildings: Plans and specifications issued December 11, 1950. Request to extend completion date to June 30, 1951, approved by AEC December 14, 1950.
- S-394 Moving Hutment 1125-1: Negotiations are continuing for disposition of warehouse. Several bids have been received and we are awaiting further bidders.
- S-397 Radio Communication System for Tenant Service: Project proposal sent to A & B Committee.
- S-405-B Street Trees: Eight streets have been staked for trees, and 225 trees were planted in December where residents have dug the holes.
- S-415 Hospital Soft Water Line: Drawings and specifications completed and forwarded to Contract Section.
- S-432 Extension of Swift Boulevard to By-pass Highway: Construction completion notice issued December 21, 1950. Staking and field supervision were performed during the month. Subcontractor completed project 12-14-50.

The status of "L" projects (\$2,000 to \$5,000) is as follows:

- L-307 Guthrie-Williams 8" Water Main: Drawings and specifications completed and forwarded to Contract Section.
- L-330 Install New Oil Burners in "T" Houses: Project proposal sent to Manager, Municipal Divisions, for approval.
- L-406 Installation of Cyclone Fence Around Barth Playlot: Held up for inclusion with other fence jobs into one contract.

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Engineering and Contracts Division (cont'd)

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The status of "K" projects (under \$2,000) is as follows:

- K-430 Exterior Painting of Catholic Church: Plans and specifications issued December 11, 1950.
- K-480 Service Drive--Uptown Theater: Prepared estimate and design and supervised construction on this project. Completed 12-14-50.

MUNICIPAL DIVISIONS

SUMMARY

DECEMBER

ORGANIZATION AND PERSONNEL:

	<u>BEGINNING OF MONTH</u>		<u>END OF MONTH</u>	
	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Exempt</u>	<u>Non-Exempt</u>
Fire	56	1	57	1
Parks & Recreation	11	24	11	23
Patrol	16	29	16	29
Public Works	19	96	19	91
Public Safety	<u>2</u>	<u>1</u>	<u>2</u>	<u>1</u>
	104	151	105	145

E. E. Miller, Patrol Sargeant was awarded a \$250.00 scholarship to the Northwestern Traffic Institute by the Kemper Foundation for Traffic Safety, an organization sponsored by the Lumbermen's Casualty Company. Edward Ortiz, local representative of the firm, made the award on December 29, 1950.

Cpts. J. S. Johnson and W. A. Ziegler and Lts. A. F. Novotny and F. J. Schultz attended a meeting conducted by the F. B. I. on Communism in Wenatchee on December 8, 1950.

The new Public Works Headquarters, Building 1184, near the main reservoir area, was occupied on December 6, 1950 by Public Works administrative personnel.

Richland was awarded sixth place in the National Fire Prevention Week contest. Some 2312 cities participated in the contest.

R. H. Hopkins, Manager, Municipal Divisions attended a conference of representatives of the three A. E. C. installations with Washington, D. C. A. E. C. staff in Oak Ridge from December 13 through December 15, 1950.

The total personnel of the Municipal Divisions has steadily been reduced since the reorganization date, September 18, 1950, when there were 280 in the group to a total of 250 at the end of December 1950, or a reduction of 30 employees in a three months period. Contemplated reorganization of certain divisions is expected to effect further economies in the near future.

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PUBLIC WORKS DIVISION  
MONTHLY REPORT  
DECEMBER 31, 1950

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ORGANIZATION AND PERSONNEL

		<u>Preceding Month</u>
Number of Employees on Roll:		
Beginning of Month	115	125
New Hires (Re-Activations)	-	1
Transfers In	7	4
Terminations	3	2
Transfers Out	9	13
End of Month	110	115

GENERAL

The Public Works Division operated throughout the month of December without any industrial injuries.

The Public Works hutment, now designated as the 1184 Building, was occupied on December 6th; work on the building is completed.

SANITATION

Collection and disposal of garbage and trash were carried out routinely during the month. All work was suspended on Christmas, and routes scheduled for collection on that day were picked up on the following day by crews borrowed from other sections of the Public Works Division. Total weight of garbage and trash collected during December was 903 tons, as compared to 918 tons in November.

EROSION CONTROL

The setting of the last two rows of trees on the east side of the "West Shelterbelt" was started on December 5th, and a total of 282 trees had been placed in this area at the close of the month. The inner row, (of these last two rows), will consist of approximately 525 leaf trees of various species, and the outside row will contain about 700 assorted evergreens. Completion of this tree planting is scheduled for February, 1951, and at that time the "West Shelterbelt" will have five full rows of trees, which is its designed size.

EROSION CONTROL (CONTINUED)

Work on the 1951 street tree planting project was begun on December 12th, and by the end of the month 225 trees had been set along the streets in the northwest section of the ranch house area. This project is a cooperative effort, in which the tenant digs the holes, and company forces set, fertilize, and water the trees, back-fill the holes, and re-set the sod.

ROADS AND STREETS

Routine maintenance of roads, streets, sidewalks, and storm drainage and street sweeping was carried on according to schedule.

A catch basin was installed in the parking lot southeast of the Desert Inn to carry off surface water which drained to this area from the surrounding slopes.

Four street marker signs and forty-two traffic control signs were fabricated and installed during the month.

At the request of the Real Estate Divisions, all driveways and parking lots in the women's dormitory area, and the recreation hall parking compound were graded, gravelled, and repaired as necessary.

All construction work was completed on improvements to Duane Avenue, Goethals Drive, Davenport, and Casey Streets, and the extension of Swift Boulevard to the By-Pass Highway. The Roads and Streets Section has formally accepted these projects from the C. and E. Construction Company, who performed the work. The repair and re-seeding of tenants' lawn areas, which were disturbed during this construction, has been post-poned until spring when the weather is more favorable for this type of work. A two-to-one slope from curb to lawn areas was created on the east side of Goethals Drive in the 500 block - where the grade of the road was lowered considerably - and the establishment of grass on so steep a gradient presents a difficult problem. As a suggested solution to this problem, a 12' section of temporary retaining wall was laid up in this area for the observation of interested parties.

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Municipal - Public Works

DOMESTIC WATER

Normal operations were carried on during the month, and water consumption averaged 4.7 million gallons per day, which is an increase of .2 million gallons per day over the November consumption.

Wells Nos. 13 and 14 have been returned to service after a general overhaul, and Nos. 2, 15, and 4 are off the line for similar complete overhaul.

The one million gallon storage reservoir at North Richland was drained, cleaned, and returned to service. The amount of sand removed was considerably less than found on previous occasions.

All equipment at the Columbia Well Field Pumphouse was cleaned and painted.

Seven water service valves failed during December and were replaced.

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	80.9300	2.6106	85.8866	2.7705
North Richland	30.3160	0.9779	36.6331	1.1817
Columbia Field	35.2800	1.1381		
300 Area			<u>23.4072</u>	<u>0.7551</u>
Totals	146.5260	4.7266	145.9269	4.7073

IRRIGATION SYSTEM

The annual overhaul of irrigation pumping equipment has been started at No. 6 Station, and this work is scheduled for completion prior to the irrigation season.

The removal of silt and debris from the supply canals was continued this month, and good progress has been made through utilization of a farm tractor-dozzer and a "10-B" clam shovel. Approximately 25% of the canal mileage has been completed.

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## SEWERAGE SYSTEM

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Routine operations were carried on throughout the month.

A break occurred in the 10" south trunk sewer on the slope west of the Richland recharge basin and caused a wash-out of some 60' of pipe and a manhole. Temporary repairs have been made by filling of the area and setting in a section of spiral weld pipe. After proper settlement of the disturbed earth, the temporary pipe will be removed and permanent repairs will be made.

An inspection of all sewer manholes is in progress for the purpose of removing trash and other foreign material that may cause stoppages. During this inspection, 4" x 4" marker posts are being installed at all outlying manholes for better identification during emergencies.

The 6" check valve on the No. 2 pump at the Sewage Lift Station was repaired, and an air chamber was installed in the discharge header in an attempt to eliminate frequent failures of these check valves.

Samples are being taken from various locations in the sewerage system and dissolved oxygen tests of these samples are being made for determination as to whether sewage may be septic in any part of the collection system.

Carpentry repairs and painting of the laboratory at the treatment plant were completed this month.

The effluent ditch at the sewage disposal unit was partially blocked by construction work at the dike lift station, and as a result the recordings of the Parshall flume meter are somewhat inaccurate.

Sewerage

	Total Sewage Flow <u>Million Gallons</u>	Average Daily Flow <u>Million G. P. D.</u>	Average Rate Flow <u>Gals. per Min.</u>
Plant No. 1	32.940	1.0626	738
Plant No. 2	<u>57.178</u>	<u>1.8445</u>	<u>1,281</u>
Totals	90.118	2.9071	2,019

Municipal - Public Works

MAINTENANCE

In addition to the work performed for the Municipal Divisions, services rendered during December by this section also include - construction of concrete sand boxes at the Jefferson School; installation of seven 4" tee connections for irrigation system at Marcus Whitman School; lowering and repair of a 6" water main at Swift and Elm; and installation of nine service valve boxes on Duane Avenue for the Engineering and Contracts Division - work in connection with setting up and testing of an air horn for use in Civilian Defense - and miscellaneous sign work for various divisions.

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MONTHLY REPORT  
 PARKS AND RECREATION DIVISION  
 DECEMBER, 1950

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ORGANIZATION AND PERSONNEL

	<u>December</u>	<u>November</u>
Beginning of Month	35	33
New Hires	0	2
Terminations	2	1
Transfers - IN	7	1
- OUT	6	1
	<u>34</u>	<u>35</u>

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of December 31, 1950:

Administration	6
Principals & Supervisors	15
Clerical	24
Teachers	251
Health Audiometer	1
Building Custodians	44
Cooks	36
Nursery School and Extended Day Care	11
Bus Drivers	2
Farm Manager	1
	<u>391</u>

CLUBS AND ORGANIZATIONS

As of December 31, 1950, organizations' personnel, exclusive of those included in the Real Estate-Commercial Facilities Division report, include:

Youth Council - Chest	1
Boy Scouts	1
Camp Fire Girls	2
Hi-Spot Club	2
Girl Scouts	2
Justice of the Peace	1
Y.W.C.A.	1
	<u>10</u>

The Recreation Advisory Committee held their regular monthly meeting on December 12. The minutes of the November 14, 1950, meeting were approved as written on December 5, 1950, by the Atomic Energy Commission. The Hi-Spot Membership Board and Hi-Spot Advisory Board were discussed with regard to their relationship with the Parks and Recreation Division. The Advisory Committee also reviewed the proposed policies for the operation of the Community House, recommending that these matters be considered by the Parks and Recreation Board. This meeting is

Parks and Recreation Division

the last meeting to be held by the Recreation Advisory Committee. The Committee has been disbanded in favor of the proposed Parks and Recreation Board. The minutes of this meeting were approved by the Atomic Energy Commission on December 29, 1950.

On December 1 and 2, the Treble Clef Concert was presented in the Carmichael Junior High School auditorium before a near capacity house. The concert was under the direction of Mrs. Evelyn Wageley.

"A Pair of Country Kids" was presented in the Marcus Whitman Grade School on December 1 and 5. These presentations were made by the PTA for funds to buy playground equipment for the school.

The Bloodmobile collected 75 pints on its December 6, visit.

On December 7 and 8, "Black Flamingo" was presented in the Columbia High School auditorium by the High School Thespians.

The Junior Chamber of Commerce sponsored a basketball game at Columbia High School on December 19, between Central Washington College of Education and Whitman College. The attendance for this game was estimated at one thousand people.

On December 17, the Richland Choral Society presented the "Messiah" in the Carmichael Junior High School. The program was presented before a capacity audience.

Mrs. Lilly Peterson was named "Woman of the Year". This honor is presented to a woman in Richland each year by the Richland Toastmistress Club.

On December 25, the Richland Basketball Association sponsored a game between the Harlem Globe Trotters and the Richland All Stars before a large crowd in the Columbia High School gymnasium.

A five-man Park Board has been named to replace the Recreation Advisory Committee. This Board consists of five members of the community appointed by the Municipal Manager on the recommendation of the Community Council. Members of the Board are: Mrs. Lilly Peterson, Paul Allen, Bert Sellin, Lowell S. Johnson, and Fred C. Olsen. The Board will represent the people of Richland in all matters pertaining to parks and recreation activities.

The number and types of organizations presently served by the Parks and Recreation Division include:

Business and Professional Clubs	20
Churches & Church Organizations	26
Civic Organizations	5
Fraternal Organizations	24
Music & Art Associations	8
Recreation & Hobby Groups	42
Schools & Parent Teachers Assoc.	13
Social Clubs & Organizations	11
Veteran & Military Organizations	12
Welfare	6
Youth      Boy Scouts	20

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Camp Fire Girls	36
Girl Scouts	49
Misc.	10
Miscellaneous	9
	<u>291</u>

RECREATION

On December 21, a six weeks Junior Archery Instruction Course, which was presented by the Recreation Division with the cooperation of the Roving Bowmen, was completed with a grand total of 215 young boys and girls receiving instructions. These classes were held in the Columbia High School girls' gymnasium on six successive Saturdays. Certificates were awarded to 30 who attended five of these six sessions.

The Recreation Program which is to begin January 1, 1951, through May, 1951, has been released for newspaper and radio publicity. Mimeographed schedules have been sent to the schools for distribution to the students. The program consists of courses in arts and crafts; social dancing, square dancing, dramatics, music, physical activities, including special contests.

Attendance figures for the Month of December were as follows:

<u>Community House</u>	<u>Boys</u>	<u>Girls</u>	<u>Total</u>	<u>Sub-Total</u>
Physical Activities Room (25 days)	2,063	253	2,316	
Textile Painting (3 nights)	6	15	21	
General Crafts (2 nights)	54	25	79	2,416

<u>Servicemen's Center</u>	<u>Rec. Count</u>		<u>Actual Peak</u>		
	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>	
12/3/50	28	22	10	5	
12/10/50	172	37	46	10	
12/17/50	116	35	30	39	
12/24/50	94	38	30	9	
12/31/50	28	11	10	5	
	<u>438</u>	<u>143</u>	<u>126</u>	<u>68</u>	581

<u>Spalding Program</u>	<u>Total</u>	
Badminton (1 night)	12	
Co-Recreation (1 night)	33	
Men's Recreation (2 nights)	67	
Weight Lifting (2 nights)	25	
Women's Recreation (2 nights)	26	
Fencing (2 nights)	11	
	<u>174</u>	174

<u>Columbia High School</u>	<u>Total</u>	
Jr. Archery Instruction (3 nights)	103	
Jr. Basketball School (5 days)	570	
	<u>673</u>	673



Parks and Recreation Division

<u>Lewis and Clark</u>	<u>Boys</u>	<u>Girls</u>	<u>Sub-Total</u>
Square Dancing 12/2	63	76	
12/9	84	99 - Elementary Grades	
	71	87 - Junior High	
12/16	52	66 - Elementary Grades	
	47	59 - Junior High	
12/23	29	41 - Elementary Grades	
	33	38 - Junior High	
12/31	63	79 - Elementary Grades	
	67	83 - Junior High	
	<u>509</u>	<u>627</u>	<u>1,136</u>
		GRAND TOTAL	4,880

LIBRARY

The Children's Librarian and the Reference Librarian have accepted the positions in the Richland Community Library and will arrive in Richland approximately January 15. Clearance has been requested for two applicants for the position of Order-Catalog Librarian.

Initial supplies and equipment orders have been placed and approximately 5,000 cards are ready for the book dealer when final clearance for the actual placing of the order is received. Arrangements are being made to move the Library Staff into the new building as soon after the first of January, 1951, as possible.

MAJOR EVENTS DURING THE MONTH

December 1	Treble Clef Concert	Junior High School
1 & 5	"A Pair of Country Kids" - Play	Marcus Whitman
6	Bloodmobile	Recreation Hall
7- 8	"Black Flamingo" - Play	High School
17	"Messiah"	Junior High School
19	CWCE vs. Whitman College - Basketball Jaycee sponsored	Junior High School
25	Harlem Globe Trotters vs. Richland All-Stars	High School

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## RICHLAND FIRE

December 1950

### ORGANIZATION AND PERSONNEL

<u>Number of Employees on Roll</u>	<u>Present Month</u>	<u>Preceding Month</u>
Beginning of Month	57	57
New Hires	1	0
Terminations	0	0
Transfers In	0	0
Transfers Out	0	0
End of Month	<u>58</u>	<u>57</u>

### FIRE PROTECTION

Response to Alarms	10	17
Fire Loss (Estimated): Hanford Works	0	247.40
Personal	<u>17.00</u>	<u>31.75</u>
Total	<u>17.00</u>	<u>279.15</u>
Investigation of Minor Fires and Incidents	10	7
Safety Meetings	8	8
Security Meetings	3	4
Inside Drills and Schools	31	46
Outside Drills	6	12
Fire Alarm Boxes Tested	183	183

Used and broken toys donated by Richland residents were re-assembled, repaired and refinished. Renovated toys were distributed before Christmas through welfare and church agencies to 62 Tri-City families.

Fire apparatus was dispatched five times during the month to stand by at the A.E.C. Airport for aircraft landings and take-offs.

Following an inspection of six fire hydrants, a work order was issued for the repair of one.

FIRE PREVENTION

Fire Inspections:		Fire Extinguishers:	
700 Area Buildings	83	Inspected	430
1100 Area Buildings	122	Installed	29
Commercial Facilities	63	Refilled	16
A.E.C. Airport Buildings	7	Removed	12
Schools	1	Winterized	123
Clubs	5	Hose Reels	67
Dormitories	<u>27</u>		
Total	308		
Fire Inspection Reports Submitted:			
Real Estate Division	25		
700 Area (General)	19		
1100 Area (General)	8		
A.E.C. Airport	1		
Acceptance of new construction	<u>3</u>		
Total	56		

All fire extinguishers subject to freezing were winterized and arrangements made for servicing light bulb heaters in foam houses and boxes.

At request of Pacific Coast Firemen's Journal, prepared an article summarizing Fire Prevention Week activities in Richland.

Compiled and posted in all dormitories special "Holiday Fire-Safety Suggestions".

Numerous inquiries handled relative to fire-safe Christmas decorations and data on this subject provided for press release.

Consultations held with A.E.C., D & C and Community Engineers on contemplated addition to 703 Building, addition to Clinic, alteration of Recreation Hall and other proposed construction for the purpose of obtaining the maximum fire protection features.

Failure of the new fire alarm system in the Clinic when tested and presence of a substandard disconnect switch on the evacuation horns resulted in efforts to obtain correction and standardization of future installations.

Conferences held with Commercial Division on hazard report filed on a local drug store.

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RICHLAND FIRE

December 1950

Reviewed with Kadlec Hospital Administrator report of survey made October 23rd by an engineer of the National Board of Fire Underwriters. All hazards, with exception of two minor items, had previously been reported in writing by this office.

Assistant Fire Marshal and Public Safety Supervisor made survey of Men's Dormitories 9-14 inclusive for purpose of reporting to A.E.C. their recommendations for improving fire protection of these buildings.

Exit doors in all major office buildings inspected for swelling due to moisture.

Sold 100 pumpcan fire extinguishers to D & C Safety Division.

Provided one member of an investigating committee studying a near accident resulting from the fall of a fluorescent light fixture in the 770 Building.

Assistant Fire Marshal, a member of the Richland Traffic Control Committee, attended a meeting of that group on December 1st.

MUNICIPAL DIVISIONS  
 RICHLAND PATROL DIVISION  
 DECEMBER 1950

ORGANIZATION AND PERSONNEL

Number of Employees on Roll:		<u>Preceding Month</u>
Beginning of Month	45	45
New Hires	0	0
Terminations	0	0
Transfers In	0	0
Transfers Out	0	0
End of Month	45	45

GENERAL

On December 4, 1950, Capt. J. S. Johnson of the Crime Prevention Section appeared on the "Hi, Neighbor" series of radio programs sponsored by the Richland Health Council. The topic was "How to relax while taking care of small and growing children".

On December 8, 1950, Capt. J. S. Johnson, Capt. W. A. Ziegler, Lt. A. F. Novotny, and Lt. F. J. Schultz attended a meeting at Wenatchee, Washington, on Communism. This program was conducted by the F. B. I.

On December 14, 1950, a group of students from the police science class at Washington State College were escorted through headquarters on a tour of patrol communication facilities.

Sgt. E. E. Miller of the Traffic Control Section has been selected as one of the two officers in the state and one of 32 in the nation to attend the Northwestern University Traffic Institute spring session. He was awarded a \$250 scholarship to the school by the Kemper Foundation for Traffic Safety, an organization sponsored by the Lumbermens' Mutual Casualty Company. Edward F. Ortiz, local representative of the insurance firm, made the award on December 29.

On December 31, 1950, Patrol discontinued the maintenance and operation of the Patrol photo laboratory and are using plant photo facilities for developing pictures.

During the month, 154 traffic violation reports were received. These consisted mainly of speeding and illegal parking cases. A total of 108 other reports were received. These consisted mainly of petit larceny cases.

During the month, a total of 263 letters were received, compared to 127 last month. These consisted of 257 inquiries on arrests and 6 requests for assistance.

During the month, 31 prisoners were processed through the Richland Jail.

During the month, 11 gun registrations were recorded.

**DECLASSIFIED**

During the month, 57 bicycle registrations were recorded.

TRAFFIC

There were 29 reportable accidents in Richland for the month of December. This is seven more than the last month and thirteen more than the same month last year. There were no fatalities, but there were five persons who received minor injuries requiring medical treatment and one major injury resulting in hospitalization.

Causes of the above accidents were: one reckless driving, six negligent driving, three unsafe speed, ten failure to yield right of way, seven following too close, one hit and run, one illegal U turn.

Property damage caused by accidents increased from an average of \$224 to \$315 per accident. This and other statistics indicate that traffic speeds increased over the holidays with less thought to traffic safety.

School Boy Patrol meetings were conducted at all six of the schools. We now have 193 boys on active duty. One hundred and twenty ear muffs were distributed to the boys and an order placed for enough to equip the rest.

Bicycle safety lectures were arranged at the five grade schools. A bicycle safety film was shown in conjunction with a lecture of about 15 minutes duration by Ptm. D. F. Metz on safe bicycle riding. This program was given to 3,667 grade school children.

Traffic safety meetings were conducted for two plant groups. These meetings included lectures and the showing of the safety film "And Then There Were Four".

The installation of traffic lights was started at Richland's main arterials, and all of them are expected to be in operation by January 15, 1951.

Resurfacing of Duane Avenue was completed during the month and centerlining was started.

Swift Boulevard was extended from Elm to the By-Pass on December 8, 1950.

TRAINING

Subjects covered in the lieutenant's training classes for the month were as follows:

Traffic Law Enforcement	Camera Instruction	Zones
Traffic Controls	Contacts with Merchants	Town Patrol
Public Relations	Care of Equipment	Bulletins
Tactfulness	Arrest Procedure	Flag Details
Appearance	School Details	

Advance training at the small arms range for the period in field instruction was as follows:

Pistol	1 hour
Machine Gun	1 hour

Richland Patrol Division - Continued

Qualifications on the Army-L Course were as follows:

<u>Score</u>	<u>No. Men</u>	<u>Per Cent</u>
Expert	7	44%
Sharpshooter	2	13%
Marksman	4	25%
Unqualified	3	18%

Qualifications on the Machine Gun Course were as follows:

<u>Score</u>	<u>No. Men</u>	<u>Per Cent</u>
Expert	3	50%
Sharpshooter	2	34%
Marksman	0	0
Unqualified	1	16%

A total of 16 men reported to the Range for training.

ACTIVITIES AND SERVICES

	<u>October</u>	<u>November</u>	<u>December</u>
Persons assisted *	154	122	203
Doors & windows found open	31	29	53
Lost & found children	4	13	9
Ambulance runs	20	19	25
Ambulance driver provided	5	0	2
Lost dogs reported	8	10	13
Dog, cat, loose stock complaints	46	44	47
Persons injured by dogs	7	5	4
Bank escorts & details	39	38	35
Fires investigated	20	17	15
Miscellaneous escorts	41	36	35
Complaints investigated	42	37	28
Deaths reported	6	0	2
Lost & found articles	<u>20</u>	<u>40</u>	<u>37</u>
Totals	439	412	508

\* Includes assisting other departments, assisting outside police agencies, assisting private persons, delivering emergency messages, etc.

MONTHLY REPORT  
 RICHLAND PATROL DIVISION  
 DECEMBER, 1950

**DECLASSIFIED**

OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
<u>PART I</u>				
1. Murder	0	0	0	0
2. Rape	0	0	0	0
3. Robbery	0	0	0	0
4. Aggravated Assault	0	0	0	0
5. Burglary—Break & Ent.	2	1	1	0
6. Larceny—Over \$50.00	1	0	1	0
Larceny—Under \$50.00	18	1	3	5
Bicycle Theft	37	0	0	37
7. Auto Theft	<u>1</u>	<u>0</u>	<u>1</u>	<u>0</u>
TOTAL PART I CASES	59	2	6	42
<u>PART II</u>				
8. Other Assaults	0	0	0	0
9. Forgery & Counterfeit.	0	0	0	0
10. Embezzlement & Fraud	1	1	0	0
11. Stolen Prop:Buy:Rec:Poss:	0	0	0	0
12. Weapons:Carrying:Poss:	2	0	1	1
13. Prostitution	0	0	0	0
14. Sex Offenses	0	0	0	0
15. Offense Ag.Fam. & Child.	5	0	2	3
16. Narcotics—Drug Laws	0	0	0	0
17. Liquor Laws	0	0	0	0
18. Drunkenness	6	0	6	0
19. Disorderly Conduct	6	0	3	3
20. Vagrancy	0	0	0	0
21. Gambling	0	0	0	0
22. Driving While Intoxicated	5	0	5	0
23. Violation Rd. & Dr. Laws:				
Speeding	29	0	29	0
Stop Sign	1	0	1	0
Reckless Driving	0	0	0	0
Right of Way	8	0	8	0
Negligent Driving	8	0	8	0
Defective Equipment	2	0	2	0
24. Parking	23	0	23	0
25. All Other Traffic Viol.	34	0	34	0
26. All Other Offenses:				
Public Nuisance	0	0	0	0
Prowlers	4	0	0	4
Dest. of Pers. Property	5	0	2	3
Dest. of Govt. Property	1	0	0	1
Malicious Mischief	7	0	2	5
Vandalism	5	0	1	3
Car Prowl	5	0	0	1
Illegal Use of Firearms	3	0	3	0
27. Suspicion	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>
TOTAL PART II CASES	163	1	130	27

(Continued on Page Two)



OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
<u>PART III</u>				
28. Missing Persons	15	0	0	15
Lost Persons	8	0	0	8
Lost Animals	21	0	0	21
Lost Property	9	0	0	9
29. Found Persons	1	0	0	1
Found Animals	9	0	0	9
Found Property	<u>41</u>	<u>0</u>	<u>0</u>	<u>41</u>
TOTAL PART III CASES	104	0	0	104
<u>PART IV</u>				
30. Fatal Mot.Veh.Traf.Acc.	0			
31. Pers.Inj.Mot.Veh.Traf.Acc.	5			
32. Prop.Dam.Mot.Veh.Acc.	24			
33. Other Traffic Accidents	0			
34. Public Accidents				
35. Home Accidents	No Accurate Statistics Kept			
36. Occupational Accidents				
37. Firearms Accidents	0			
38. Dog Bites	0			
39. Suicides	0			
40. Suicide Attempts	1			1
41. Sudden Death & Bodies Fd.	1			1
42. Sick Cared For	0			
43. Mental Cases	<u>1</u>			<u>1</u>
TOTAL PART IV CASES	32			3
<u>COMPOSITE TOTALS</u>				
PARTS I, II, III, IV CASES	358	3	136	103

\*Cases listed under "Cleared Other" are those cleared by various means other than arrest, such as: orders from prosecutor, juvenile probation officer or other situations in which a mutual agreement is obtained. They are definitely "cleared" cases and differ from the arrest column only in that there were no arrests.

Property Reported Stolen During Month \$1,222.78 (37 bikes)  
Property Reported Recovered During Month \$1,367.79 (37 Bikes)

JUVENILES INVOLVED

Grand Larceny—1 Case 4 Juv. Ages 12 & 14.(Males)  
Petit Larceny—3 Cases 5 Juv. 1 Age 11; 1 Age 14, & 3 Ages 15,16.&17.(Males)  
Malicious Misch.—3 Cases 6 Juv. Ages,10,11,12, 17 & 19(5 Males 1 Female)  
Pub. Nuisance—1 Case 1 Juv. Age 16(Male)  
Vandalism—2 Cases 5 Juv. Ages 4,9,11, & 19. (Males)  
Dest. of Pers.Prop.—1 Case 1 Juv. Age 17(Male)  
Illegal Use of Firearms—3 Cases, 4 Juv. Ages 4,7, & 14(Males)

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RICHLAND PATROL DIVISION  
DECEMBER, 1950

**DECLASSIFIED**

Number of offenses known to police per 25,000 inhabitants in cities of 25,000 persons:

Class. (July-Dec. 1949)	Wash. Oregon & Calif.		Richland	Richland	
	Six Months	One Month	Six Months	Nov. 1950	Dec. 1950
	Average		(July-Dec. 1949)		
Murder	.68	.11	0	0	0
Robbery	18.95	3.15	0	0	0
Assault	8.37	1.39	0	1	0
Burglary	200.7	33.4	33.	3	1
Larceny	654.07	109.01	175	26	18
Auto Theft	76.8	12.8	2	1	1
Bike Theft			109	28	37

Number of offenses known to police per 25,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

Class. (July-Dec. 1949)	State of Washington		Richland	Richland	
	Six Months	One Month	Six Months	Nov. 1950	Dec. 1950
	Average		(July-Dec. 1949)		
Murder	.91	.15	0	0	0
Robbery	25.7	4.4	0	0	0
Assault	7.5	1.2	0	1	0
Burglary	167.3	27.8	33	3	1
Larceny	509.0	84.8	175	26	18
Auto Theft	81.2	13.5	2	1	1
Bike Theft			109	28	37

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

Class. (July-Dec. 1949)	National Average	Richland	Richland	
	Six Months	Six Months	Nov. 1950	Dec. 1950
		(July-Dec. 1949)		
Robbery	54.1	0	0	0
Burglary	59.5	3	0	0
Larceny	44.8	43	4	4
Auto Theft	67.0	1	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 group because of the practice of some jurisdictions not to fingerprint youthful offenders."

RICHLAND PATROL DIVISION  
RICHLAND JUSTICE COURT CASES  
DECEMBER 1950

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VIOLATION	NO OF CASES		NO OF NO OF		CASES		CASES		CASES		CASES		CASES		FINES	FI SU
	CONV.	FORF.	FORF.	CONT.	PEND.	LISM.	WARR	JAIL	SENT	LIC	ORIG.	PREV.	OTHER	MON.		
Dr. Lic.	9	6	1			2							4		\$ 27.50	\$ 22.00
Def. Equip.	2	1		1									1			
Drk. Driving	5	3		2		1									182.50	12.00
F.T.S.&.I.	3	2								3					115.00	27.00
F.T.Y.R.O.W.	9	4	1	4						1					42.50	27.00
F.T. Obey Officer	1	1													7.50	
F.T. Give Prop. Signal	1	1													7.50	
Ill. Parking	23	17	6										1		59.50	35.00
Ill. Stopping	14	7	7										2		21.00	3.50
Ill U Turn	1	1													5.00	
Lic. Plates	4	2		1		1							1		5.00	
Neg. Dr.	9	6	3												52.50	7.50
Speeding	30	13	12	3			2						1		118.50	157.50
Stop Sign	2	2	2										1		5.00	
Throw. glass obj. from motor vehicle	1	1														
Auto Theft	1	1	1													
Grand Larceny	1	1														
Petit larceny	2	2													25.00	25.00
Public Intox.	6	3	3												37.50	10.00
Second Deg. Burglary	1	1	1													
TOTALS:	125	72	35	12	4	2	2	1	1	4	4	10	4	10	\$268.00	\$853.00

NOTE: One Drunken Driving Case taken to Superior Court  
One Drunken Driving Case amended to Negligent Driving

PATROL DIVISION - TRAFFIC CONTROL STATISTICS  
December, 1950

MOTOR VEHICLE ACCIDENTS:

	<u>Total Number</u>		<u>Fatalities</u>		<u>Major Injuries</u>		<u>Minor Injuries</u>	
Richland	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.
	22	29	0	0	0	1	2	2

ACCIDENT CAUSES:

	<u>Negligent Driving</u>		<u>Failure to Yield Right of Way</u>		<u>Reckless &amp; Drunken Driving</u>		<u>Other Cause:</u>	
Richland	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.
	7	5	6	9	3	1	6	14

PLANT WARNING TRAFFIC TICKETS ISSUED:

	<u>Speeding</u>		<u>"Stop" Sign</u>		<u>Parking</u>		<u>Imp. License</u>		<u>Def. Equipment</u>		<u>Other Violations</u>		<u>Tc</u>	
Richland	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.
	2	0	0	0	52	24	1	1	4	5	1	0	4	60

TRAFFIC CHARGES AND COURT CITATION TRAFFIC TICKETS ISSUED:

	<u>Speeding</u>		<u>"Stop" Sign</u>		<u>Drunk Dr.</u>		<u>Reckless Dr.</u>		<u>Right of Way V.</u>		<u>Meg. Dr.</u>		<u>Parking V.</u>		<u>Other V.</u>		<u>To:</u>	
Richland	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.	Nov.	Dec.
	28	26	9	1	0	6	3	0	3	8	7	8	11	24	17	38	78	78

TRAFFIC VOLUME: Average 24-hour Traffic Volume Count for week ending on 12-28-50, on Thayer Drive just north of Roberdeau Street - 5,193 Motor Vehicle

Note: Traffic Control Statistics show ORIGINAL CHARGES ONLY.

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MUNICIPAL DIVISIONS  
PUBLIC SAFETY DIVISION  
DECEMBER 1950

**DECLASSIFIED**

ORGANIZATION AND PERSONNEL

number of employees on roll:		Preceding month
Beginning of month	<u>3</u>	<u>2</u>
New hires	<u>0</u>	<u>1</u>
Terminations	<u>0</u>	<u>0</u>
Transfers	<u>0</u>	<u>0</u>
End of month	<u>3</u>	<u>3</u>

STATISTICAL AND GENERAL

The National Safety theme for the month, "Holiday Hazards", was stressed throughout December with several newspaper articles and in the Richland Safety Council meetings and other civic clubs and organizations. Several spot announcements with extra caution against "Holiday Hazards" were forwarded to the local radio stations. Newspaper coverage for the month totalled 116 column inches.

A very interesting theme, sponsored by the Richland Safety Council and the Public Safety office and coordinated by the Hi-Spot Teenage organization, was carried out during the rush shopping periods just prior to the Christmas holidays, in the following manner: One of the teenagers, draped in a shroud, with a gruesome face representing the Grim Reaper, rode around town on a convertible, with signs on the front and both sides of the car cautioning drivers to be careful and "Don't let death take your holiday".

Articles of Incorporation and the By-Laws of the Richland Safety Council have been completed and are ready to be approved by the Board of Directors for submission to the National Safety Council to obtain a charter.

Several reports of "unsafe conditions" in various parts of the Village have been turned over to the proper division for correction, and all have been corrected.

Thirteen children's stories, written by Betty Szulinski for the Richland Safety Council, have been printed to be forwarded to the National Safety Council to be broadcast on a nation-wide basis.

A caution sign for motorists on holiday trips reminding them to drive safely was placed at each end of the city.

Specifications for the Lutheran Church were reviewed for compliance with fire and safety codes, and the Jason Lee School specifications were reviewed.

337

1223062

Public Safety

The sub-contractors' safety program is in progress, having made the first monthly summary report to A. E. C. for November.

The Fire Survey is now under way for estimates.

Several new Public Safety films were shown to various civic organizations and at Safety meetings. Attendance was approximately 1,000. Five safety films are on hand in the Public Safety office for the use of the various organizations.

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## MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS

### HOUSING AND REAL ESTATE MAINTENANCE DIVISION

December, 1950

#### ORGANIZATION AND PERSONNEL

Number of employees on payroll		December
Beginning of month	23 exempt employees <u>176</u> non-exempt employees 199	199
End of month	23 exempt employees <u>180</u> non-exempt employees 203	203

#### RICHLAND HOUSING

##### Housing Utilization as of Month End

Houses Occupied by Family Groups	<u>Conven</u> <u>tional</u>	<u>Block</u>	<u>T</u>	<u>Pre</u> <u>Out</u>	<u>Ranch</u>	<u>Pre</u> <u>Fab</u>	<u>Art</u>	<u>Tract</u>	<u>Total</u>
G. E. Employees	2222	259	8	382	842	1162	56	41	4972
Commercial Facilities	93	9	2	27	70	63	5	5	274
Community Activities	9	—	—	1	7	3	—	1	21
Medical Facilities	6	13	—	2	—	1	—	—	22
Post Office	7	—	—	2	3	9	—	3	24
A.E.C. and Other Government	97	30	—	14	40	23	4	4	212
School District	43	—	—	5	12	50	1	—	111
Kellex Corporation	6	5	—	5	7	2	1	—	26
Atkinson-Jones	9	15	—	6	12	4	4	—	50
Newberry-Neon	3	1	—	1	—	—	1	—	6
Vernita Orchards	—	—	—	—	—	—	—	4	4
J. G. Turnbull	—	—	—	—	1	1	—	—	2
Fred J. Early Co.	—	—	—	—	1	—	—	—	1
V. S. Jenkins Co.	—	—	—	—	1	—	—	—	1
<b>Total Houses Occupied</b>	<u>2495</u>	<u>332</u>	<u>10</u>	<u>445</u>	<u>996</u>	<u>1318</u>	<u>72</u>	<u>58</u>	<u>5726</u>
Houses assigned-Leases written	—	1	—	1	—	1	—	—	3
Houses assigned-Leases not written	3	—	—	1	1	4	—	—	9
Houses available for assignment	2	—	—	3	3	*19	2	—	29
<b>Total Houses</b>	<u>2500</u>	<u>333</u>	<u>10</u>	<u>450</u>	<u>1000</u>	<u>1342</u>	<u>74</u>	<u>58</u>	<u>5767</u>

\* 10 houses received from Columbia Camp

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Housing and Real Estate Maintenance Division

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Difference	
Conventional Type	2439	27	21	2495	Plus	6
Block Type	331	3	2	332	Plus	1
"T" Type	9	1		10	Plus	1
Precut Type	443	12	10	445	Plus	2
Ranch Type	995	16	15	996	Plus	1
Prefab Type	1319	24	25	1318	Minus	1
Apartments	73	2	3	72	Minus	1
Tract	58	--	--	58		--
<b>Total</b>	<b>5717</b>	<b>85</b>	<b>76</b>	<b>5726</b>	<b>Plus</b>	<b>9</b>

Dormitory Statistics

Dormitories

	<u>Occupants</u>	<u>Vacancies</u>	<u>Total Beds</u>
Men Occupied 14	536	30	566
Men Unoccupied			
Women Occupied 12	***413	**113	*531
Women Unoccupied 1			

Women's Dormitories  
occupied by:

G. E. Offices	2
Education	1
Apartments	<u>1</u>
	31

\* Fifty beds that were formerly reported in the total above, in W-20, have been turned over to the Municipal, Real Estate and General Services Divisions for temporary office space.

\*\* This includes 50 beds in Standby Condition in W-17.

\*\*\* This includes space of 4 beds in W-9 used for supply rooms and dormitory offices.

GENERAL

Allocation Section Statistics

Houses Allocated to new tenants	43	Voluntary Terminations	22
Exchanged houses	14	R. O. F.	5
Moves (Within the Village)	17	Discharge	1
Turnovers	7	Transfers	1
Total Leases Signed	85	Retirement	3
Terminations	42	Houses Assigned "As Is"	25
Total Cancellations	76	Move Off Project	6
Applications Pending	434	Houses sent to renovation	45

2.

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## TENANT RELATIONS

### Processing of Service Orders, Work Orders, and Service Charges

	<u>Orders Incomplete As of 11-30-1950</u>	<u>Orders Issued From 11-30 to 12-31</u>	<u>Total Orders incomplete as of 12-31-1950</u>
Service Orders	279	2722	168
Work Orders	3658	864	4069
Service Charges	55	221	67
Renovation Work Orders	39	40	17

### Principal Work Order Load

	<u>Incomplete as of Nov. 30, 1950</u>	<u>Incomplete as of Dec. 31, 1950</u>
Laundry Tub Replacement	94	110
Bathroom Renovation(Tub-linc-tile)	272	287(206 Sub- Contract)
Tileboard Only (Bathroom)	37	12
Kitchen Cabinet Linoleum	233	231
Kitchen Floor Linoleum	39	59

### MAJOR WORK PROGRAM

Repair to prefab Foundations		414
Relocation of Prefab Stop and Waste	(374 completed)	259

### WORK ORDERS COMPLETED DURING THE MONTH OF DECEMBER

20 Two bedroom prefab utility rooms were lined with wallboard and linoleum installed.

20 Two bedroom prefabs had sliding cupboard doors changed to swining doors.

64 Bathtubs were installed

129 Linoleum repair jobs were completed.

60 Shower stalls were installed in prefabs.

12 Blacktop walks were replaced.

51 Blacktop step orders were completed.

20 Basement walls were waterproofed.

9 Hot water tanks were replaced.

24 Locations, raised sod and filled low spots.

21 Parking compounds graded and filled with gravel.

68 Interior touch-up paint jobs were completed.

1 "M" type house was painted due to fire damage.

13 Tract houses were painted.

TENANT RELATIONS (continued)

Alteration Permits issued during the month of December totaled 57 compared to 50 in November.

Change location of bookcase	1	Coal furnace to oil	5
Automatic clothes dryer	7	Automatic washer	17
Furnace stoker	2	Back door in prefab	3
Longer cord on range	1	Basement excavation	6
Patio Construction	1	Broom closet removal	2
Water softener installation	2	Removal laundry tubs	1
Refinish floors	1	Driveway construction	1
Additional wiring	3	Basement partitions	1
Glass window in front door	1	Automatic dishwasher	2
Fence	1		

1183 Inspections were made during the month of December as compared to 1095 made during the month of November.

Alteration Permits	92	Bathubs	71
Cupboards	12	Drainage	6
Driving on Grass	4	Floor Boards	15
House Siding	2	Jack and Shim	20
Leaking Basements	26	Linoleum	195
Lot Lines	3	Paint	23
Porch and Steps	21	Screen Doors	9
Shades	50	Shower Stalls	48
Sinks	19	Tileboard	76
Toilet Seats	8	Top Soil	8
Trailers	3	Walls	39
Windows	43	Miscellaneous	367

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## MAINTENANCE (HOUSING AND REAL ESTATE) FOR MONTH OF DECEMBER, 1950

### HEAVY MAINTENANCE STATISTICS

<u>Man-Hour Backlog Non-Routine</u>	<u>Man-Hour Backlog Routine</u>	<u>Craft</u>	<u>Non-Exempt Manpower</u>	<u>Crew Days</u>
18,072	—	Carpenters	58	38
2,041	832	Millwrights	4	26
4,347	1,000	Painters	17	15
1,872	900	Plumbers & Fitters	11	61
1,656		Servicemen	9	38
623	300	Sheetmetal	4	52
80		Truck drivers	3	38
		Upholsterers	1	10
Sub-Total 28,696	3,032		107	278

### RENOVATION STATISTICS

1,319		Carpenters	1	
		Painters	16	
		Truck Drivers	1	8
		Janitresses	3	
Sub-Total 1,319			21	8

### SERVICE ORDER STATISTICS

160		Carpenters	2	10
64		Electricians	5	2
48		Locksmiths	1	6
288		Plumbers	3	9
Sub-Total 560			11	27
GRAND TOTAL 30,575	2,940		139	360

MAINTENANCE TRANSPORTATION FACILITIES

HEAVY MAINTENANCE

<u>Truck Type</u>	<u>Number in Possession</u>	<u>Craft</u>	<u>Requisitioned for Replacement</u>
1 1/2 Ton Flatbed	10	Carp.	
3/4 Ton Power Wagon	1	Carp.	
1/2 Ton Pickup	4	Carp.	
Cushman Scooter	1	Carp.	
2 1/2 Ton Dump trucks	2	Labor	
1 1/2 Ton Flatbed (Hydraulic Lift)	1	Labor	
1/2 Ton Pickups	1	Labor	
1 1/2 Ton Flatbed (Chain Hoist)	1	Millwrights	
1/2 Ton Pickups	3	Millwrights	2-Walk-In Type
1 1/2 Ton Flatbed (Chain Hoist)	1	Painters	
1/2 Ton Panels	2	Painters	
1/2 Ton Pickups	2	Plumbers	
3/4 Ton Pickups	4	Plumbers	
1/2 Ton Panel	<u>1</u>	Sheet Metal	
Sub-Total	33		2

RENOVATIONS

29 Passenger Bus	1	Painters
Station Wagon	1	Painters & Janitresses
1/2 Ton Pickup	<u>1</u>	Carpenters
Sub Total	3	

SERVICE ORDER

1/2 Ton Pickups	2	Carpenters
1/2 Ton Pickups (Service Body)	3	Electricians 3 3/4 Ton Pickups (Serv. Body)
1/2 Ton Pickup	1	Locksmith
1/2 Ton Pickup (Service Body)	3	Plumbers 3 3/4 Ton Pickups (Service Body)
Sub-Total	<u>9</u>	<u>6</u>
GRAND TOTALS	<u>45</u>	<u>8</u>

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MAINTENANCE NARRATIVE - DECEMBER, 1950

Approximately 100 shower stalls were fabricated and 60 were installed in prefabs. Installation of 66 stop and waste valves on prefabs were completed and 240 cast iron valve box covers were installed. Tree roots were removed from 12 sewer lines. Two catch basins were installed for yard drainage. The steam system was overhauled in 2 dormitories and 2 commercial facility buildings.

The necessary painting was completed in the Medical Clinic after alterations were made.

Routine checking of furnaces (lubrication and repair) in the 333 A & J houses was completed and work has started in the precut units.

Twenty-one parking compounds have been filled, graded and coated with gravel.

Carpentry repairs to the ten prefabs moved in from Columbia Camp have been completed. Sidewalks have been raised at 15 ranch type houses. The foundations of 91 prefabs have been repaired, 86 of these were on Project C-3630. Alterations were made as required to offices in the Medical-Dental Clinic building.

M. S. WAREHOUSE SUMMARY FOR November 25, thru December 25, 1950

TOTAL INV. \$115,755.93  
\$71,317.36

<u>RECEIVED IN INVENTORY</u>	<u>CODE</u>	<u>INVENTORY ITEMS AMOUNT</u> <u>AMOUNT</u>
ON STORE ORDERS	-----	<u>\$2,268.25</u>
ON PURCHASE ORDERS	-----	<u>350.00</u>
FROM EXCESS	-----	-----
FROM HOUSING	<u>61-20</u>	<u>355.12</u>
FROM DORMS	<u>64-20</u>	<u>408.61</u>
FROM <u>Dorm.Furniture</u>	<u>64-20</u>	<u>85.32</u>
		TOTAL RECEIPTS <u>\$ 3,467.30</u>

INVENTORY DISBURSED

MISC. CHARGE	-----	<u>364.78</u>
FREE ISSUE	<u>61-20</u>	<u>1,295.31</u>
CASH ITEMS	<u>61-20</u>	<u>64.54</u>
DORM SUPPLIES	<u>64-20</u>	<u>569.10</u>
DORM LINENS	<u>64-20</u>	<u>3,970.37</u>
DORM SHADES & REFLECTOR	<u>64-20</u>	<u>32.29</u>
DORM FURNITURE	<u>64-20</u>	<u>403.61</u>
WHSE. SUPPLIES	<u>63-20</u>	<u>57.61</u>

TOTAL DISBURSED \$ 6,757.61

INVENTORY ITEMS BALANCE

\$68,027.05

PLANT ITEMS AMOUNT 44,438.57

CODE AMOUNT

RECEIVED \$1,235.79

DISBURSED 1,303.43

PLANT ITEMS BALANCE

\$44,370.93

GRAND TOTAL INVENTORY

\$112,397.98

	<u>PIECES</u>
DORM FURNITURE EXCHANGED	<u>118</u>
RANGES EXCHANGED	<u>4</u>
REFRIGERATORS EXCHANGED	<u>8</u>
PRE FAB HEATERS EX.	<u>27</u>
SENT TO MAINTENANCE	<u>22</u>
RECEIVED FROM MAINT.	<u>100</u>

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DORMITORY REPORT

Minor grading and repairs to roads in women's dormitories were completed this month. These roads were designed as service roads but are being used as public roads, which accounts for bad condition of same. Sidewalks were being edged in women's dormitories. They are in bad condition because grass was allowed to grow over them, which rooted through blacktop. A number of rotten bumper logs were replaced on roads in women's dormitories. Extensive repairs to blacktop roads and walks will be made when weather will permit.

Laundry changed in dormitories during the month as follows:

7410 Sheets  
3930 Pillow Cases  
247 Spreads  
42 Bed Pads  
306 Shower Curtains

One hundred Sheets and one hundred Pillow Cases were added to each dormitory as a safeguard against laundry delays. The cost for each dormitory was \$217.00.

Approximately 800 pieces of upholstered furniture were cleaned last month in ten dormitories. Cleaning equipment is being moved to the dormitories to perform this operation, whereas in the past the furniture was moved to the warehouse. It is thought that this will minimize handling and movement of furniture and reduced costs will result.

A truck was equipped with necessary replacement parts, light globes etc. and as trash is dumped all items are replaced. As a result of consolidating these jobs one serviceman has been eliminated.

Six hundred forty-two light globes were replaced this month.

An inventory of all dormitories was completed last month and notes made on condition of furnishings and rooms. The amount of inventory is \$143,270.22, which includes all furnishings in dormitories operating at this time.

There are 1142 pieces of furniture in need of refinishing and 952 pieces in need of upholstering. Considerable damage was noted to walls and floors from cooking. A system was devised of contacting individuals responsible by the matrons, who were assigned to correct this situation.

Mixed parties are now allowed in dormitory reception rooms, with matrons making an occasional check through the evening. A number of parties were held last month, with an apparent improvement in moral of tenants.

Floors were refinished in two and one-half dormitories, which amounts to 17,410 square feet. Floors have been refinished in a total of twelve and one-half men's dormitories.

The Christmas season found the matrons very busy checking Christmas decorations for fire hazards, assisting new comers to dormitories and giving orientation talks to new residents.

One hundred eighteen pieces of furniture were exchanged last month in dormitories.

Painting of rooms damaged by cooking and water damage was completed in W-2 and W-3. These dormitories, being the closest to the cafeteria, have a higher turnover in occupancy, which accounts for need.

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COMMERCIAL AND OTHER PROPERTY DIVISION

DECEMBER, 1950

DIVISIONAL PERSONNEL:

Number of Employees on Payroll:	December
Beginning of month	13
End of month	13
Net difference	0

COMMERCIAL AND NONCOMMERCIAL PERSONNEL:

Number of Employees on Payrolls:			
	<u>Commercial</u>	<u>Noncommercial</u>	<u>Total</u>
November	1,192	85	1,277
December	1,213	82	1,295
Net Increase			18

SUMMARY OF ROUTINE ITEMS PROCESSED:

Work Orders	44	5	49
Back Charges	1	0	1
Service Orders	25	1	26

CONTRACTS AND NEGOTIATIONS:

A. Commercial:

1. Supplemental Agreements:

(a) Seattle Tent and Awning Company - to provide for subleasing in the Facility.

(b) Amusement Enterprises, Inc. - to provide for subleasing in the Facility.

B. Noncommercial:

1. Lease:

American Red Cross - to provide for the maintenance and operation of a Red Cross Chapter in a Government-owned building.



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COMMERCIAL AND OTHER PROPERTY DIVISION

DECEMBER, 1950

## 2. Contract of Sale:

Richland Youth Council - to provide for the sale of certain furniture, fixtures and equipment located in Tract House H-1137, 100 Falley Street, Richland, Washington.

## SUMMARY OF OCCUPANCY AND EXPANSION STATUS:

	<u>November</u>	<u>December</u>
A. Commercial:		
1. Number of Government-owned buildings	37	37
(a) Number of businesses operated by prime lessees	45	41
(b) Number of businesses operated by sublessees	13	13
(c) Total businesses operating in Government-owned buildings	58	54
2. Number of privately-owned buildings	36	41
(a) Number of businesses operated by prime lessees	35	37
(b) Number of businesses operated by sublessees	26	26
(c) Total businesses operating in privately-owned buildings	61	63
3. Total number of businesses in operation	119	117
4. Doctors and dentists in private practice, leasing space in Government-owned buildings	21	21
5. Privately-owned buildings under construction	2	2
B. Noncommercial:		
1. Government-owned buildings		
(a) Churches	4	4
(b) Clubs and organizations	10	10
(c) Government agencies	3	3
Total	17	17
2. Privately-owned buildings		
(a) Completed and in use	5	5
(b) Under construction	4	5
(c) Sites tentatively allocated or leases in process of negotiation	10	9
Total	19	19
3. Grazing leases	43	41

GENERAL:

## A. Commercial:

1. Midstate Amusement Corporation - Don's Men's Wear commenced operation under the management of Mr. Don Jones.
2. Automatic Laundry Company Building #2 - Davis-Pleiss, Inc. commenced operation of a rug and electric appliance store under the joint management of Messrs. G. B. Pleiss and L. Roy Davis.
3. Desert Inn - Helen Kerr Gleason, of Gleason Advertising Company, terminated her sublease with Vance Properties, Inc.
4. Invitations to submit proposals for the operation of a soft drink vending machine service were mailed to prospective applicants, with bids to be opened on January 9, 1951.
5. Invitations to submit proposals for establishment and operation of a golf driving-range were mailed in October to prospective applicants, with bids to be opened November 9, 1950.
6. The Richland Investment Company was awarded a contract to construct a building for the purpose of subleasing space for the operation of a variety store and a department store.

## B. Noncommercial:

West Side United Protestant Church commenced construction of a new church building at the intersection of Wright and Lee Avenues.

COMMERCIAL PROSPECTS:

A number of applicants, the majority of which were not interested in constructing privately-owned buildings, expressed an interest during the month to establish and operate businesses in Richland. Inquiries were received covering the following types of establishments:

Drugstore  
Veterinary Service  
Jewelry Store

Service Station  
Soft drink vending machine service

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## GENERAL SERVICES DIVISIONS MONTHLY REPORT DECEMBER, 1950

### ORGANIZATION AND PERSONNEL

Number of Employees on Roll:	<u>Beginning of Month</u>			<u>End of Month</u>		
	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Total</u>	<u>Exempt</u>	<u>Non-Exempt</u>	<u>Total</u>
North Richland Patrol Division	5	14	19	5	14	19
North Richland Fire Division	37		37	36		36
Maintenance & Operation Division	9	70	79	9	72	81
Total	51	84	135	50	86	136

### Personnel changes during month:

	<u>Non-exempt</u>
Transfers to Power Division	2
Transfers to Plant Security & Services Division	1
Transfers from Real Estate Divisions	1
Transfers from Plant Security & Services Division	1
New Hires	2

### STEAM AND GENERAL MAINTENANCE DIVISION

#### General Maintenance:

All pending requisitions for personnel have been filled with the exception of one carpenter trainee. One machinist and one serviceman were received during the month.

Several Hauserman partitions were installed in 762 and 703 Buildings to provide additional office space.

Alterations were made to provide more office space in the 770 Building.

A new small garage door was installed at 1131 Garage and all other doors were checked. Changes were made to ladies restroom and fixtures relocated.

The ceiling vents in 760 Building were lowered approximately five inches and suspended by chains, to permit circulation of air from rooms to attic.

Crating and preparing Excess Materials for shipment requires ten man days per week.

Miscellaneous services performed by the Machine Shop consisted of making chatter bars for traffic lanes, restrictors for carburetors, car door supports, ladder repairs on electrical repair trucks and revisions of bus heating system.

Thirty-nine fluorescent light fixtures were installed to replace regular bulb lighting in 700 Area buildings where lighting conditions were poor. In the interest of safety, the mountings of fluorescent fixtures are being checked and made secure to prevent falling.

Crew-Days Work on Hand:

Carpentry	44	Glazing	1	Millwright	30
Painting	4	Electrical	25	Welding	15
Sign Painting	20	Machinist	10	Sheetmetal	55
				Pipefitting	14.5

Steam Operation

Steam meter removed from commercial laundry has been installed in 723 Plant Laundry. All steam traps in Plant Laundry were overhauled at the same time, and trap bypass lines were removed from equipment.

Steam operation at 1131 Area and 784 Building was normal. One boiler was in operation at 1131 Area, and three boilers at 784 Building were in service until December 22. Two boilers handled load requirements for the remainder of the month.

Painting of equipment in Powerhouse in 75% complete.

Car mover has been received and installation started.

Steam generated - 28,277.1 M. lbs.: steam leaving plant - 24,096.0 M. lbs.; coal consumed - 2,175.1 net tons.

NORTH RICHLAND PATROL DIVISION

Total North Richland population is 4,460 - Bremerton Houses 634, Trailer Camp 2,814, Men's Barracks 971, Women's Barracks 41. A total of 1,011 lots are occupied in the Trailer Camp.

Nine soldiers who were causing disturbances in North Richland were picked up and turned over to M. P. Detachment.

Twenty-three inquiries regarding formerly employed construction personnel were answered during the month. These inquiries came from the Army, Navy and Civil Service Commission.

Two parole violators, Betty Enger, age 15, and Wanda Grubbs, age 17, were picked up for loitering around the U. S. Army Barracks Area. They were taken to Prosser and turned over to the Sheriff's office. Both girls were from Yakima.

Sixteen persons from North Richland were incarcerated in the Richland jail. Charges were for public intoxication, public nuisance, drunken driving, reckless driving and vagrancy.

Twenty-three traffic violation reports were received. These violations consisted mainly of operating without driver's license, stop sign violations, speeding, and negligent driving.

Three automobile accidents occurred in North Richland, with no serious injuries.

All buildings were checked on No. 1 and No. 3 shifts daily, and on all shifts on Sundays and Holidays.

All fire, safety and traffic hazards observed by Patrol were reported to proper authorities.

Flare pots have been provided for the intersection at 8th Street and Stevens Drive. They are placed at this intersection every morning, Monday through Friday, at 6:30 a.m. by the No. 1 shift, and are picked up by the No. 2 shift at 8:15 a.m.

Three escorts were provided for wide and high loads to the Richland Barricade.

An appearance officer was assigned to Judge E. W. Brown's court, every Thursday at 7:00 p.m., to handle the violations that occurred in North Richland.

An investigation into the death of John Allen Anglin, age 7 months, 1022 F Avenue, revealed that death was accidental, resulting from burns.

#### Unusual Incident Reports

Public Intoxication	9	Accidental Death (Burning)	1
Public Nuisance	2	Public Disturbance	1
Vagrancy	1	Possible Attempted Assault	1
Drunken Driving	2	Apprehension of Parole Violators	1
No Operator's License	1	Children Left Alone in Trailer	1
Reckless Driving	2	Operating Motor Vehicle During	
Entering Trailer and Stealing Bank	1	revocation of permit	1
		Petit Larceny	1

#### Special Services Performed:

Emergency Messages Delivered	31
Emergency Long Distance Telephone Calls Handled	57
Western Union Telegrams Handled	5
Fires (Sign. 12)	6
False Fire Alarms	2
Pick-up for State Police	1
Unusual Conditions Reported to Maintenance	6
Escort to First Aid	4
Bicycles Reported Stolen	4
Bicycles Found	6
Bicycles Returned to Owner	6
Automobiles Reported Stolen	2
Recovered Automobiles	1
Automobiles Impounded at North Richland Headquarters	4
Personnel Locked out of Barracks Rooms	8
Firearms Checked into Contraband Room	13
Firearms Checked out of Contraband Room	18
Firearms Registered with Arsenal Officer	3
Dogs Impounded	2

#### Complaints

There were five grand larceny, three petit larceny, and two miscellaneous complaints during the month.

#### NORTH RICHLAND FIRE DIVISION

There were ten responses to alarms during the month.

Estimated personal fire loss during the month was \$427.16.

Seven investigations of minor fires and incidents were made.

Four Safety and Security meetings were held.

Nine inside and two outside drills were conducted.

Seventy-five fire alarm boxes were tested.

North Richland Area was inspected for fire hazards.

Eight water pump cans were recharged and winterized.

School on Master Streams, Relaying Water with Pumps and Reverse Lays was held for the officers.

All salvage covers were hung in hose tower to air, and were refolded.

Sixteen faulty hydrants were retested and put in service.

Five one-quart C.T.C. extinguishers were filled for Safety Division.

Number 3 Company investigated top of water tank at North Richland Pump' House and found gauge stuck. Repair was made.

School on "Hydraulics" was held for all companies.

Fire Alarm System in Hospital was tested.

Extension ladder on T-2 Tanker was sanded and varnished.

New auxiliary box was installed in Record Storage Building, and connected to Master Box 412, on Narrow Lane.

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DESIGN & CONSTRUCTION DIVISIONS

I. ORGANIZATION AND PERSONNEL

Employees on D&C Payroll:

	<u>December</u>		
	<u>Beginning</u>	<u>End</u>	<u>Net Change</u>
	664	667	/3

Employees on Loan or Under  
Contract from:

Instrument Division	9	9	
"S" Division	1	1	
Scholectady	1	1	
File Technology Division	1	1	
Kellex Corp.	0	2	
	<u>12</u>	<u>14</u>	

Total D&C Divisions                      676              681              /5

II. INVENTIONS AND DISCOVERIES

All persons engaged in work that might reasonably be expected to result in inventions or discoveries have advised 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 such inventions or discoveries.

None



ACCOUNTING DIVISION

I. SUMMARY

Financial Closing statements were prepared and issued on Project C-165-A, Construction of "H", and GED-45, Unitization of property.

In December shipping directives were issued by Purchasing to U. S. Steel Mills for shipment of various items of stainless steel to our leased warehouse in Pittsburgh, Pennsylvania, and to fabrication vendors. Accounting controls have been established to record quantities of receipts and issues of material by the warehouse, receipts and consumption of material furnished fabrication vendors. This will permit accurate control of costs on final fabricated material.

During the month a representative from the D&C Accounting Division made a trip to Pittsburgh for the purpose of discussing the accounting procedure with U. S. Steel Supply covering warehousing and handling of stainless steel on Purchase Order HWC 9924.

Total cash disbursed during the month of December was \$3,551,127 compared with \$3,338,484 disbursed during November.

II. STATISTICAL AND GENERAL

Accounts Payable Distribution Summary follows:

	<u>December</u>	<u>November</u>
General Electric Purchases	\$ 704,548	\$ 408,602
Reimbursement - Atkinson-Jones CPFF		
Subcontract - Construction	2,382,150	2,169,864
Reimbursement - Atkinson-Jones CPFF		
Subcontract - Service	146,415	131,255
Reimbursement - Other CPFF Subcontracts (Architect Engineers)	418,774	374,977
Partial Payments to Lump Sum Subcontracts	118,909	162,907
Trevel (General Electric)	2,612	5,155
Miscellaneous	28,787	40,118
	<u>                    </u>	<u>                    </u>
Total Credited to Accounts Payable	<u>\$3,802,195</u>	<u>\$3,292,878</u>

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Subcontractors Payroll Statistics:

	<u>December</u>	<u>November</u>
Total number of employees reported by CPFF Subcontractors	4,964	4,827
CPFF Construction Subcontractors Payrolls	\$1,730,437	\$1,505,902
CPFF Service Contract Payroll	161,081	110,165
Architect Engineers Payrolls	<u>323,094</u>	<u>272,357</u>
Total CPFF Payrolls	<u>\$2,214,612</u>	<u>\$1,888,424</u>
Average per week (4 week period excluding Architect Engineers)	\$ 472,880	\$ 404,017
Average weekly earnings per employee	\$ 95.26	\$ 90.26

A study was made to determine the adequacy of the amount set up as a reserve for closing out the construction program after projects have been completed and transferred to operations.

An attempt is being made to record all known commitments chargeable to DR Water Works with the view of closing out the project in December if possible.

III. PERSONNEL

Employees on Payroll:

<u>DECEMBER</u>		
<u>BEGINNING</u>	<u>END</u>	<u>NET CHANGE</u>
70	74	/4

CONTRACT DIVISION

I. SUMMARY

Request made to A.E.C. to perform construction of 234-5 Expansion Program on CPFF basis.

Negotiations were completed with Chas. T. Main, Inc. for a lump sum Architect-Engineer subcontract covering the design of the Pile Technology Building for the Hanford Works Laboratory Area. Also, preliminary negotiations were opened with Chas. T. Main, Inc. covering the design of the Library and Files Building for the Hanford Works Laboratory Area.

A modification to Subcontract G-304 was negotiated with Leland S. Rosener to provide premium payments for the early completion of design of the Radiometallurgy Building and the outside service facilities for the Hanford Works Laboratory Area.

Contracts for tanks for Waste Metal Recovery Program have been awarded.

II. STATISTICAL AND GENERAL

Fifteen contract items, totaling \$18,861,950.00, were completed during December.

Amount per contract type is indicated below:

CPFF	\$17,161,992
Fees (Constr.)	381,235
L.S. & U.P.	<u>1,318,723</u>
Total	\$18,861,950

Seven contract items showing an increase of \$233,506.59 and one contract item showing a decrease of \$83.75 were estimated to be completed in December.

III. PERSONNEL

Number of employees on payroll:

December

<u>Beginning</u>	<u>End</u>	<u>Net Change</u>
30	31	1

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CONSTRUCTION DIVISION

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I. SUMMARY

New work authorized to the Construction Division, D&C, during December, 1950, consisted of (1) Charging Machine Test, Building 189-D, (2) Installation of Fire Alarm System, Building 102, 3000 Area, (3) Exterior Painting of New Laundry, 200 West, (4) Testing #2, 3½" S/S Line, 241-U, (5) Steam Pipe Insulation to Complete 100-DR, Warehouse in White Bluffs and repairs to Steam Lines in White Bluffs.

The project proposal for constructing Construction Division permanent fabrication shops facilities at the old M&M shop area in White Bluffs was forwarded to the Atomic Energy Commission November 28, 1950, and to date it has not been approved. When the project is approved and construction of the fabricating shop facilities are completed this Division will be in a position to complete the majority of the shop fabrication work. During the month of December 1950, it was necessary to write work orders to Atkinson-Jones to perform \$21,000 of shop fabrication work.

No inventions or discoveries were reported.

II. STATISTICAL AND GENERAL

C-362

Excavation for pump and sluice pits on tanks 101, 102 and 103 has been completed. Floor slabs have been poured for tanks 101 and 102 and framowork for walls is in progress. Floor slab for diversion box 152 has been poured and forming for walls is in progress. Excavation for heel pit process pipe line is in progress.

C-295

Work on the 230 KV By-Pass Line at 251 Substation is progressing and is about 25 percent physically complete.

LEVI-15

Charging Machine Test in 189-D Building, 100-D Area was started December 18, 1950, and is expected to be completed by January 19, 1951.

CC-2385

Partitions installed in 101 Building at Hanford completed.

MTI-13 - Repair of Excess and Reserve Equipment for AEC

75 units shipped, 45 additional units completed, 110 additional units in process.

Safety

Final draft of Construction Division's Safety Manual has been sent to printing.

No major or sub-major injuries were reported.

19 minor injuries reported to date; 9 insurance investigations made to date.

Control Engineering

A scheduling and material control section has been established.

Layout service was furnished to Project Engineering Division on Projects C-349, C-368 and C-369 and to Power and Mechanical Division for Project C-294 and C-295. In addition layout work continued on construction assignments, Project C-362. Two additional men have been assigned to the layout group.

Cost Control

The following is an analysis of the D&C Construction Division cost for September through November, 1950.

<u>Direct Cost</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>Total to Date</u>
Labor	\$ 21,062	\$ 63,596	\$ 88,972	\$ 173,630
Material	195	7,118	9,893	17,206
Equip. Usage	5,730	20,610	25,672	52,012
<b>Total Direct Cost</b>	<b>\$ 26,987</b>	<b>\$ 91,324</b>	<b>\$124,537</b>	<b>\$ 242,848</b>
<u>Indirect Cost</u>				
Start-up Construction Div.	\$ 13,528-a)	\$ 4,426	\$ 3,159	\$ 7,585
Sub & Sub-subcontractor Fee	8,735-a)	\$23,743-a)	\$19,822	\$ 57,093
	8,735-a)	8,735-a)	8,735	26,205
<b>Total Indirect</b>	<b>\$ 22,263</b>	<b>\$36,904</b>	<b>\$51,718</b>	<b>\$ 90,885</b>

Ratio to Direct Labor Current Month	September	October	November	Total to date
Start-up Cost		6.96%	3.55%	4.37%
Construction Div. Indirect	64.22%	37.33%	22.28%	32.88%
Sub & Sub-subcontractor fee	41.47%	13.74%	9.82%	15.09%
	<u>105.69%</u>	<u>58.03%</u>	<u>38.65%</u>	<u>52.34%</u>

(a- At the close of September and October a predetermined amount was deferred as start-up cost and not applicable to current month work in progress.

<u>Undistributed Cost</u>		<u>Sept.</u>		<u>Oct.</u>
Const. Div. Indirect	35%	\$ 4,735	10%	\$ 2,374
Sub & Sub-subcontractor fee	50%	<u>4,368</u>	10%	<u>873</u>
	40.9%	<u>\$ 9,103</u>		<u>\$ 3,247</u>

During the month of November a portion of the deferred costs for start-up, construction indirect and subcontractor fees were distributed to November work in progress costs.

	<u>November</u>
Start-up Cost	\$ 4,424
Construction Div. Indirect	3,555
Sub & Sub-subcontractor fees	<u>2,621</u>
	<u>\$ 10,600</u>

Ratio to Direct Labor <u>Actual Distributed</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>Total to Date</u>
Start-up Cost			4.97%	4.97%
Division Indirect	41.75%	33.04%	26.27%	30.83%
Sub & Sub-subcontractor fee	<u>20.73%</u>	<u>12.36%</u>	<u>12.76%</u>	<u>13.58%</u>
	<u>62.48%</u>	<u>45.40%</u>	<u>44.00%</u>	<u>49.38%</u>

III. PERSONNEL

	<u>December</u>		
	<u>Beginning</u>	<u>End</u>	<u>Net Change</u>
General Electric	21	24	3
Sub & Sub-subcontractors			
Non-Manual	27	32	5
Manual	<u>365</u>	<u>412</u>	<u>47</u>
	<u>392</u>	<u>444</u>	<u>52</u>



ENGINEERING AND CONSTRUCTION SERVICES DIVISION

I. SUMMARY

Mr. J. Durbin has been appointed Administrative Assistant, Construction Services; Vico W. A. Monihen, resigned; J. C. Sandlin was appointed Office Services Supervisor to replace Mr. Durbin.

The demand for blueprints has been high the past month, production being equivalent to an area of 14 acres. Production for the week ending December 17 was at the highest rate in the history of the Reproduction Section, amounting to 182,969 square feet or 4.2 acres.

Personal inventories of classified materials were initiated to comply with Security Division's request to assure tighter control of classified matter.

Preparation and assembly of charts and books for the Rodox Plant Review meeting.

II. STATISTICAL AND GENERAL

NORTH RICHLAND CAMP

Population\*

Trailers	2,813	
Barracks	1,009	
Houses	<u>634</u>	
Total	4,456	Net Increase 199

\*Note: This does not include U. S. Army personnel.

ARMY

Building #34, former commercial bus depot, was released to the Army.

Steam Generating Plant

Steam generated, M lbs.	49,605.00
Oil consumed, gallons	9,241.00
Coal consumed, tons	3,241.35
Boiler efficiency, average %	74.98

Steam cost, per M lbs. \$.886\*

\*A figure of \$2,000 for Administration costs was used in arriving at this steam cost figure. Charges of \$3,722.00 in ex-

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Loss of this amount in the November operating statement are being investigated.

Water consumption for the month was 34,584,900 gallons or an average daily consumption of 1,152,350 gallons.

Commercial Facilities

There were nineteen commercial facilities operating in North Richland during the month.

The Western Union Telegraph Company gave notice of termination of their lease, to be effective January 10, 1951.

Community Activities

A Christmas Party for the children was attended by approximately 775 children. It was a huge success.

The recreation nights in the Richland gym continue to gain momentum with increasing participation by the adult groups.

The Friday night activities of the teen-age group may be discontinued due to lack of interest.

The religious group continued their activities with 56 religious and 62 social meetings held during the month.

SECURITY

Statistical Information

Total lost badges during December	25
Total number of Subcontractor and Vendor employees as of December 27, 1950	5,566
Total hires	688
Total terminations	354
Visitor clearances requested this month	21
Total clearances requested this month	697
Total clearances received this month	628

During the month 416 Security Meetings were held for the Subcontractors' forces. Four bulletins were issued.

SAFETY

<u>Construction Injuries</u>	<u>Contractors</u>
Major Injuries	3
Sub-Major Injuries	9
Minor Injuries	366

One fire was reported from White Bluffs Area--extinguished without loss.

DRAFTING SECTION

Drafting Production:

New Drawings	108
Miscellaneous	44
Drawing Revisions	344
Drafting efficiency index, man-days/drawing	6.8

Thirteen draftsmen are working on RDA-D&C-1 developmental designs.

ESTIMATING AND STANDARDS SECTION

Estimating:

Estimates Scheduled	20	
Estimates Completed	10	
Estimates to be Completed	9	
Estimates Cancelled	1	
Total Estimated Value		\$20,000,000.00

REPRODUCTION SECTION

Production Group Activity:

December

Prints Produced	168,002
Originals Handled	15,902
Square Feet of Paper	618,666
Average Square Feet Per Employee	36,392

Control Group Activity:

Drawings for the Hospital Addition and for the Lump Sum portion of the 251 Substation have been released as bid assemblies to the Contract Division.

PERSONNEL, RECORDS AND HISTORY SECTION

Security Clearances Processed:

Requests for Area Badges	78
Area Badge Cancellations	4
Requests for Access Authorization	8
Requests for Material and Package Passes	22

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D & C Payroll Additions, Terminations and Transfers:

Additions	31
Terminations	14
Transfers within D & C Divisions	3
Transfers Out of D & C Divisions	6

Secret and Confidential Documents Procossed:

Documents Issued, Routed and/or Destroyed 1916

Procedures Issued:

D & C Instructions Issued 36

Status of Histories:

Histories Issued	1
Histories ready for issue	19
Others in process	100
	<hr/>
Total to be issued	120

Reports Issued:

Nine, covering Weekly and Monthly Forces, Visitors, Destroyed and Classified Documents.

PROJECT COST AND PROGRESS ANALYSIS SECTION

Forecasts, Charts, Analyses and Reports were developed and issued to show status of D&C Progress.

III. PERSONNEL

Number of employees on payroll:

	<u>December</u>		
	<u>Beginning</u>	<u>End</u>	<u>Net Change</u>
	302	305	73



PRINCIPAL ENGINEERS

I. SUMMARY

The activities of the Principal Engineers consisted of reviewing and commenting on drawings, design instruction letters, specifications, preparation of special reports, and recommendations on utilities such as steam, water, electric power serving several projects in one operating area, special advisory and consulting services requested by Design and Construction and other divisions.

No inventions or discoveries were reported.

II. STATISTICAL AND GENERAL

Special Reports:

C-394 - Plot Plan and Utilities for Hanford Works Laboratory Area

Completed investigation into expansion of 384 Building Capacity. Made decision to specify the addition of two 30,000 pounds/hour boilers.

RDA-D&C-1 - Design and Development of New Pile Area "G"

"Supply Voltage for Process Beckman Installations" was issued in final form.

Army Installations - North Richland

Outline Specifications and Design Analysis for Buildings and Utilities, with respect to (a) possible conflict with "Hanford Codes", (b) unit stresses and basic design data, (c) evaluation of design standards specified for extensions to sanitary sewers and sanitary water supply system (including fire mains, connections and hydrants), (d) estimates of sanitary water requirements, based on Population Curve, (e) adequacy of Richland-North Richland water supply and distribution systems, as well as sewage collection, conveyance, treatment and disposal works to supply and service the proposed army installations with concurrent other demands, (f) steam facilities to serve North Richland.

Future Aggregate Requirements

Letter report to W. E. Johnson, setting forth estimates and recommendations.

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C-114 - Hanford Works Laboratory - File Technology Building

Letter report to J. R. Kelly, recommended modification for Title Criteria Sec. F Design Codes.

Consulting and Advisory Services

Educational Program

General information on the problems of designing, operating and maintaining electrical power and communication utility systems for AEC installations of the Hanford type.

Design Criteria

Status of standardization of "Design Criteria" and desirability for further standardization.

Sanitary Water Requirements for 300 and Hanford Works Laboratory Areas

Development of prospective future requirements for title areas, based on maximum day demand curve.

Study GET 19 Library and Files Building for Hanford Works Laboratory Area

Past "Design Criteria" used for subcontracting and guidance of Architect-Engineer work and explanation of basic modifications in form of nomenclature deemed advisable.

C-257 - Health Instrument Control and Development Laboratory

The possibility of radiation from the electrical power equipment, affecting the performance of sensitive counting instruments. Recommended test be arranged.

C-342 - DR Water Works

Final unit cost report.

C-362 - Waste Metal Recovery Facilities (TBP)

Discussed with GE & CL the welding specifications for equipment to be supplied.

C-394 - Plot Plan and Utilities for Hanford Works

Laboratory Area

Information on the iteration and expansion of the electrical equipment, for preparation of design criteria for expansion of boiler plant. Explanations and recommendation for location of buildings.

Review and Comments

Steam and water requirements for 200 W Area on revised basis including operation of T-plant.

C-295 - Enlarging 251 Substation

Drawings for the expansion and rebuilding of substation.

C-361 - Metal Conversion Facilities

The electrical furnace equipment proposed for the continuous calcining operation.

C-362 - Waste Metal Recovery Facilities (TBF)

Construction drawings for electrical heating of the chemical pipe line between the 224-U and 203-S buildings.

C-414 - Pile Technology Building

Design Criteria.

III PERSONNEL

Employees on payroll:

<u>Beginning</u>	<u>December</u>	<u>Net Change</u>
<u>4</u>	<u>End</u> <u>4</u>	<u>0</u>

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POWER AND MECHANICAL DIVISION

I. SUMMARY

The work load for Design Engineering group for December remained heavy with approximately 75% of the total man-hours spent on engineering assistance for other divisions.

No Power & Mechanical Division projects are currently under construction.

No inventions or discoveries were reported.

II. STATISTICAL AND GENERAL

Following is a brief summary of active projects:

C-199, Expansion of 300 Area Sanitary Sewer Disposal System: Part II Project Proposal was transmitted by the A & B Committee to the Atomic Energy Commission on November 14th, and is awaiting approval.

C-204-B, Additions and Alterations to Kadlec Hospital & Medical Arts Building: The final inspection and acceptance of the extension of Medical Arts Building and outside utilities, subject to minor exceptions, was held December 6, 1950.

Bids for the construction of the additions and alterations to Kadlec Hospital will be opened January 17, 1951.

C-257, Health Instrument Control Laboratory: Notice to proceed on the construction of this building was issued on December 21 to the low bidder, Sound Construction and Engineering Company of Seattle. The Subcontractor's plans presently call for breaking ground early in February, the delay being due to inability to get structural steel sooner. All GE purchased equipment has been requisitioned.

C-289, Additional Laundry Facilities, 200-West: Construction on this project was completed early in December subject to minor exceptions covered by Work Orders, and a Stop Charge Notice was issued effective December 21st.

C-295, Enlarging 251 Substation: Approved plans and specifications for lump sum bidding were issued to the Contract Division on December 12, 1950, together with a list of GE furnished materials. Construction of the 230KV temporary by-pass line is being performed by GE Construction Division.

- C-342, DR Water Works: All phases of the close-out of this project have been completed with exception of work remaining on outstanding Work Orders which will be completed by March 1st. This project will be dropped from future reports.
- C-353, Richland Water Supply: All information required by Alvord, Burdick & Howson for their study report due January 20, 1951, has been furnished to them.
- C-364, Aquatic Biology Laboratory: Design work by Barrett & Logan, architect-engineers, is about 30% completed. Part II Project Proposal requesting construction funds was delayed for approximately six weeks in Design & Construction Division awaiting re-calculation of the estimated construction cost. It was, however, cleared on January 2nd and is now in the hands of the Using Division.
- C-381, Radiochemistry Building: Plans and specifications are approximately 90% complete and the architect-engineer is commencing his estimate of construction cost.
- C-385, Radiometallurgy Building: Preliminary plans and specifications are in process by Leland S. Rosener, architect-engineer. Preliminary plans have been received and comments made on two pieces of complex special equipment.
- C-394, Plot Plan and Utilities - HW Laboratory: Check prints have been received from Rosener on several elements of outside utilities, and comments made.
- A definite plan for the construction of the 384 steam plant addition has been agreed to by all concerned, and preparation of design criteria is in process.
- C-406, Mechanical Development Building: Phase I of this project, which includes only the building shell, was advertised on December 7, with bid opening scheduled for January 4th.
- C-414, Pile Technology Building: Directive authorizing design and construction funds was issued by the Commission on December 6, and approval obtained to negotiate with Chas. T. Main, Inc. This resulted in an agreement with the architect-engineer and the contract was mailed on December 21st.

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GET-19, Library & Files Building: A Project Proposal requesting design and construction funds for this building was submitted to the Using Division on December 20, and is presently under revision. If AEC approval is obtained it is planned to negotiate with C.T. Main, Inc. for design of this building.

III. PERSONNEL

Employees on payroll:

<u>December</u>		
<u>Beginning</u>	<u>End</u>	<u>Net Change</u>
55	55	0

REACTOR DIVISION

I. SUMMARY

Through December the design and development program has progressed according to schedule. The test program was slightly behind schedule due to restricted manpower and concentration on the necessary authorization and procurement papers for future test.

An analysis of cost data was begun preparatory to a comprehensive mid-year budget review.

No inventions or discoveries were made by members of the Reactor Division during the month of December.

II. STATISTICAL AND GENERAL

1. Process Tube Heat Transfer Tests

The testing equipment and procedures are now fully developed and the tests can now be performed in a very straightforward organized manner. Most of the difficulties experienced during initial tests have been corrected and the major effort is now being directed toward performing the tests and analyzing the data. The results being obtained are reported in detail in document IDC-1974. It was decided that the Test Section will have full responsibility for performing the tests which will be outlined by the Design Staff on a weekly basis. The Design Staff will continue to perform the analysis and the preparation of Test Reports.

2. Materials Development

A. Process Tubes

Creep tests on 2S-114-72S clad process tubes (Hanford) and 2S-114 aluminum sheet (at BMI) continue to show very low creep rates. The creep test (Hanford) of USBM sheet zirconium at 2500 psi and 100°C was discontinued, as the secondary creep rate for 1600 hours was zero per cent. Creep tests on zirconium tubing have been started. Test Request No. 54 for an in-pile test of corrosion of aluminum process tubes and slugs has been submitted.

One-hundred pounds of USBM zirconium was obtained from Pittsburgh this month. This material will be shipped to Battells, remelted and cast into extrusion ingots for use in the zirconium tube development program. The exact grade and hafnium content of the material Pittsburgh is shipping is not known, but will be forwarded when the material is shipped.

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B. Control and Safety Rods

Nickel-gadolinium oxide studies are underway at KAPL. This program will consist of the fabrication of a 300 lb. ingot at Brush Beryllium by powder metallurgy techniques, extrusion of this ingot at International Nickel and final reduction of tubing at the Tube Reducing Corporation. It has now been decided that zirconium-oxide - not aluminum-oxide - will be used as a stand-in for gadolinium-oxide during these studies.

A bellows pump is now being designed for use in the gas corrosion furnace. Design and fabrication should be completed by February 15.

3. Metal Handling

The manufacture of the discharging machine and the prototype charging machine is on schedule. These machines are due to arrive at Hanford by January 19, 1951.

All of the equipment such as conveyor belts and loading devices for the tests of these machines has been received and the test stands are being constructed.

4. Recirculation Water System

The installation of all equipment has been completed and the system is now being flushed.

5. Water System Design

The studies of power recovery from the effluent water indicate that it may be possible to develop at least as much power as the total demands of the entire "G" area. Thus, it is anticipated that the "G" area will not increase the present total power demands from the Bonneville system if the gains indicated by the initial power recovery studies can be realized.

6. Control Rod Drive

The tests of the rod drive assembly in the 189-D building are continuing. Two sets of bronze friction rings and one set of steel rings have been tested to date.

The full length control rod and decelerating piston has been received from the Bremerton Navy Yard and will be tested with the inverted thimble as soon as the rod drive assembly can be released from the 189-D tests.

7. Control Rod Cooling

The calculations for gas cooling of the vertical control rods have been completed. The results indicate that gas cooling will be satisfactory even with boron stainless steel rods. These results are summarized in report HDC-1964.

Material is being accumulated and the plans have been completed for the in-pile tests to determine the heating of various control rod materials.

8. Instrumentation

The GE&CL was authorized to proceed with the manufacture of the prototype rod position indicator which will be used on the vertical tests in White Bluffs.

A conference was held to review the proposed Leeds and Northrup power level indicator which is proposed for the 6 Reactor in place of the Bailey system now in use in existing areas. This conference was attended by C. A. Hansen, Jr. from Schenectady and members of the Hanford Instrument Division. Another meeting will be held in January to obtain the final comments of the Instrument Division on this proposed system.

9. Third Safety System

The design of the system for removing the balls from the rod slots has been completed. The preparation of the test authorization has been delayed by other higher priority projects.

10. Shielding

A. Construction Tests of Front Face Crate

The final report is scheduled to be completed on January 31, 1951.

B. Thermal Cycling Tests

A test authorization is now being prepared for subjecting this 36 tube front face crate assembly to thermal cycles that will be experienced during scram conditions. The crate is fully instrumented so that the temperature can be determined around the gun barrel tubes and throughout the concrete.

C. Concrete Irradiation Tests

The first thermal irradiation tests were completed with limited success. The tests will be resumed in the "Y" test hole in H.

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D. Attenuation Tests of Iron-Limonite Shielding

A bulk section of the proposed "G" shield will be installed in the large test opening in the DR pile. The test authorization has been written and is being circulated for approval. The necessary materials have been ordered and the design work has been completed.

11. Process Tube "O" Ring Seal Test

The "O" ring seal which was installed on a process tube in the F area in November is operating satisfactorily without any signs of water leaks.

12. Graphite Drying

The University of Washington has been provided with graphite blocks which they will use in performing the drying tests outlined by the Reactor Division. A schedule for these tests will be obtained as soon as the University has had time to fully plan the test program.

III. PERSONNEL

Number on Payroll (Excluding Rotational Engineers):

<u>DECEMBER</u>		
<u>BEGINNING</u>	<u>END</u>	<u>NET CHANGE</u>
40	42	2



SEPARATIONS DIVISION

I. SUMMARY

Directive HW-211 was received from the AEC during the month authorizing \$5,000,000 for expansion of the 231-5 Facility. This expansion is being carried out under a new project (C-413), and Work Authority FM 2064 was issued authorizing design, procurement, and negotiation of a construction subcontract. The second line (termed RLB) will be a duplicate of the first RM line excepting for Tasks I, II and III which will be omitted. GE&CL will design and fabricate equipment for this new line as well as modifications to the original line contemplated under this expansion program.

AEC Directives HW-215 and HW-216, dated December 19, 1950 were received, authorizing design, procurement, and negotiation of subcontract for construction of two 6-tank farms, 241-BZ and 241-TY in the 200 East and West Areas, respectively. This work is being accomplished as Projects C-417 and C-418 for the 200 East and West Areas, respectively. Design, layout, and preparation of scope and construction drawings was well underway at month's end, and steel plate and shapes required for the tank liners were requisitioned and issued for bids by Purchasing on December 28.

The construction subcontract for Project C-361 (Metal Conversion) was submitted to the AEC, and approval is anticipated by January 4. Construction work in the field will start immediately thereafter.

Design of the Waste Metal Recovery Facility by Kollox (Project C-362) proceeded satisfactorily, ahead of schedule. Construction on Phase I, III, IV and V is proceeding and overall project completion was 3.7% at month's end. A construction contract for Phase II, the remainder of IV and VI was approved December 29, 1950.

Construction of the Rodox Production Facility attained 42.5% compared to 45.6% scheduled. The lag behind schedule is directly attributable to delays in delivery of equipment required for installation. The canyon structure was closed in December 27 two days ahead of schedule. Construction work on the 241-S Tank Farm and associated facilities under subcontract G-302 attained 26.5%. This compares to 30% scheduled in a revised construction schedule submitted by the Fred J. Early, Jr. Company on December 11. The construction completion date remains unchanged as June 13, 1951.

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Construction of the Redox Analytical and Plant Assistance Laboratory (Project C-187-E) attained 75% completion, about 5% behind schedule. The Waste Disposal System attained 60% completion, 1% behind schedule for an overall project completion of 72.9%. This lag behind schedule, the first occasioned since the start of construction, was caused by transfer of pipe and steam fitters to the Redox Production Facility and by delay in receipt of metal partitions from the Hauserman Company due to recent adverse weather conditions in the east. It is anticipated that additional pipe and steam fitters will be available early in January to speed-up this phase of construction.

The March 5 delivery date of hoods for the Laboratory precludes possibility of having this facility "ready for use" prior to March 30, 1951, as scheduled. A February 1 delivery date would have been required, but the additional premium payment of \$43,000 required to meet this date was not considered justifiable.

## II. STATISTICAL AND GENERAL

### A. Project C-187-D - Redox Production Plant

Kellex total design, including field inspection is approximately 92.5% complete, which is considered on schedule.

Power and Mechanical Division design work is approximately 99% complete. As of December 26, 262 drawings had been approved and issued to the field. Separations Division design work is 100% complete, and as of December 26, 125 drawings had been approved and issued to the field and to the Fred J. Early, Jr. Company.

The preparation of Acceptance Test Procedures is approximately 90% complete.

A resurvey of equipment procurement has been made, with members of Separations Division Design and Construction Groups, Purchasing and Stores Divisions, and the construction sub-contractor's staff participating. The resurvey shows that late delivery of equipment, as expected, is the major factor which may hinder completion of the job by July 1, 1951. Additional manpower and/or overtime can be utilized only if equipment is available to the sub-contractor on the job site.

The results of the resurvey were compiled and presented to the AEC and Company management, Subcontractor, and Architect-Engineer in a general meeting held December 27. The equipment and materials procurement difficulties, together with suggested methods of over-coming these difficulties, and the effects of

late equipment and material deliveries on completion of construction were discussed. Additional meetings will be held to decide the course of action required to expedite equipment and materials for completion of the Redox Program by July 1, 1951.

Approximately 92.7% of the concrete to be poured in the 202-S Building structure was placed by December 22nd. The canyon roof was poured by December 27th. Footings, columns and grade beams for the south, west and north service sides are approximately 98% complete. Floor slabs, walls and roof slabs for the service areas are approximately 10% complete.

CONSTRUCTION PROGRESS STATISTICS  
(As of December 29)

Improvements to Land	10%
Temporary Construction	72%
202-S Building	37%
211-S Building	7
240-S Building	43%
276-S Building	6%
277-S Building	98%
282-W Building	98%
284-W Building	52%
291-S Building	58%
2702-S Building	99%
2726-S Building	16%
Waste Facilities	68%
Electrical Distribution	43%
Water Distribution	64%
Steam Distribution	76%
Railroads	51%
Overall Redox Production Facility	42.5%

The construction schedule calls for 45.6% completion as of this date. The increased lag behind schedule is directly attributable to delays in delivery of purchased equipment to the Project.

The construction work on the 241-S Tank Farm and associated facilities under sub-contract G-302 was approximately 26.5% complete December 29th (compared to 30% scheduled). The Fred J. Early, Jr. Company construction schedule was revised December 11; the construction completion date remains unchanged as June 13, 1951.

B. Project C-187-E - Redox Analytical and Plant Assistance Laboratory

Construction of the Laboratory is 75% complete, 5% behind schedule; the Waste Disposal System is 60% complete, 1% behind schedule; over-all project completion is 72.9%. The principal delinquent items contributing to schedule delay are

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metal partitions and piping. Lack of satisfactory progress in piping work has been caused by a transfer of pipe fitters and steam fitters to work on the Redox Production Plant. Shipment of metal partitions by the Hauserman Company was delayed because of the recent storm in the eastern United States.

Also, the rate of installation of partitions has started more slowly than was expected.

It is anticipated by Atkinson-Jones that additional steam fitters and pipe fitters will be available shortly after the first of the year. Only if this expected increase in manpower materializes in sufficient quantity will it be possible to complete the piping on schedule. Piping work is 78% complete as compared to a scheduled 90%, and progress during the month was 3% as compared to scheduled 15%.

Because it would have cost an additional \$43,000 to obtain laboratory hoods by February 1, it was decided to accept a March 5 delivery. The Vendor's procurement of 304 ELC stainless steel has been difficult and shipping promises have been very unreliable. This late delivery of hoods precludes any possibility of having the Laboratory "ready for use" prior to March 30, 1951 the presently scheduled completion date. The last item of furniture is scheduled for shipment from New York on February 1.

C. Project C-198 - 234-5 Facility

Based on the last Atkinson-Jones estimate to complete Project C-198, it appears that funds will be available to cover the cost of including some of the modifications previously requested by the "S" Division but not included in Project C-413. In a joint conference with the Operating Division on December 18, 1950, modifications to be included were agreed upon.

Progress statistics for the month of December are as follows:

	Percent Complete		
	<u>Basic Design</u>	<u>Overall Design</u>	<u>Constr.</u>
Phases II & III (Richland)	73.2%	57.5%	30%
Phase III (Schenoctady)	-	-	92.5%

The overall installation of the RM Line equipment is estimated to be 35% complete, the electrical work 28% complete, and piping 29% complete.

Shipment No. 7 was received December 20, and essentially all the equipment will be shipped by February 1, 1951 when the ninth car is scheduled to leave Schenoctady.

D. Project C-361 - Metal Conversion

Progress statistics at the end of the month are as follows:

Scope	100%
Detailed Plans	69%
Construction	0%

The 69% completion of detailed drawings compares with a scheduled 93%. Contingent upon receipt of vendor's drawings as now scheduled, all construction drawings excepting four electrical drawings and two structural drawings should be submitted for approval by the Power and Mechanical Division by January 31, 1951 and receive approval by the Separations Division by February 15, 1951.

E. Project C-362 - Waste Metal Recovery Facilities

Progress statistics at the months end are as follows:

<u>Phase</u>	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>	<u>Total</u>
Scope	100%	90%	100%	100%	100%	100%	97%
Design	95	18	91	46	100	35	49%
Construction	7	0	10.3	0.7	81	0	3.7

The status of Project C-362 was reviewed with representatives of the Manufacturing Divisions and other interested parties on December 19, 1950.

Representatives of the Separations and Manufacturing Divisions visited New York during the month for consultation and review of Kollex design. A representative of Separations Division visited the Patterson Foundry together with a representative from Purchasing and Stores, to negotiate the acceptance of an order for the remainder of the Phase IV agitators. At the present time, this representative is visiting Proportioners Inc. to expedite the pulsing mechanism design and construction.

The purchase orders for certain Class I tanks placed with Southwest Welding are being considered for cancellation and placement elsewhere in order to obtain the required delivery dates for these critical equipment items.

F. Project C-413 - Expansion of 234-5 Facilities

A joint meeting between GE&CL and Richland personnel for the purpose of scoping the Schenectady portion of Project C-413 was concluded December 1, The agreements reached are covered in Document HDC-1962.

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Permission was obtained from the AEC to expedite procurement, and GE&CL have proceeded with the preparation of purchase orders to cover fabrication of a second line, RLB, which will be a duplicate of the modified RMA Line except for Tasks I, II, and III which will be omitted. The AEC were also requested to aid in expediting security clearances for the additional GE&CL personnel required.

Directive HW-211 was issued by the Commission authorizing funds to cover the 234-5 Expansion Program. Permission was also given to present the project proposal in February, thus allowing Engineering and Procurement to proceed immediately in both Schonectady and Richland.

GE&CL are to design and fabricate the RM Line equipment for RMB and specified portions of the RMA modifications as covered in Document HDC-1962. Hanford is to make the necessary layout for installation of this equipment, fabricate and install certain portions of GE&CL designed RMA modifications, design and fabricate additional RMA modifications, and install all the necessary equipment and facilities in the expansion program.

Stainless steel for hoods, a very critical item, was located by Hanford and is immediately available. This material will be shipped directly to fabricators upon notification by GE&CL. The first shipment is to move by express January 2, 1951.

G. Projects C-417 & C-418 - Additional Waste Storage Facilities -  
241-BZ & 241-TY

Pursuant to Work Authority GEO-13 (1) dated December 19, 1950, preliminary planning was started on the design, scheduling, project proposals and estimates for additional waste storage facilities 241-BZ Tank Farm, 200 East Area, Project C-417 and 241-TY Tank Farm, 200 West Area, Project C-418. Actual design, layout and preparation of scope and construction drawings were started on December 20, 1950.

Pursuant to AEC Directives HW-215 and HW-216, dated December 19, 1950, authorizing design, preparation of project proposals, negotiation of contracts and the procurement of steel plate, all of the steel plate and shapes required for the steel tank liners of the two 6-Tank Farms (241-BZ and 241-TY) was requisitioned and issued for bid purposes by Purchasing and Stores Division on December 28.



Topographic surveys were made at the site of the 241-3Z Tank Farm and the survey notes necessary for design were received December 29, 1950. The 241-TY farm is presently being surveyed.

Requirements for security control and subcontractor employee protection were tentatively established with the Security and MI Divisions.

III. PERSONNEL

Number of employees on payroll:

<u>December</u>		
<u>Beginning</u>	<u>End</u>	<u>Net Change</u>
115	115	0

~~DECLASSIFIED~~

PROJECT & RELATED PERSONNEL

DECEMBER 1950

	11-30-50	12-29-50
<u>GOVERNMENT EMPLOYEES</u>		
Civilian Personnel-Atomic Energy Comm.	340	341
Civilian Personnel- G. A. O.	7	7
Total	347	348
<u>RICHLAND VILLAGE PERSONNEL</u>		
Comm. Facilities (Includes No. Rich.)	1192	1213
Cov. Agency, Churches, Clubs, Etc.	85	83
Schools	390	392
Organizations	9	9
Total	1676	1697
<u>CONSTRUCTION SUB-CONTRACTORS</u>		
Atkinson & Jones	3617	3953
Newberry Neon	286	358
Urban, Smyth, Warren Co.	138	206
Hanley & Company	373	421
Kellex Corp.	555	490
No. Electric Mfg. Co.	1	1
J. Gordon Turnbull	4	4
Edmond P. Erwin	48	23
Creamer Electric	3	5
J. P. Head	7	3
Royal Co. Inc.	1	2
Phare Paint Store	3	2
E. J. Bartell	4	0
Fred J. Early, Jr.	37	40
Steel Const. Co. & Gilmore Fabricators Inc.	54	75
Valley Roofing	4	0
Lewis & Queen	2	0
J. G. Shotwell	12	0
V. S. Jenkins	21	20
Custodis Const. Co.	8	0
Empire Electric Co.	11	1
Morrison & Knudsen Co. Inc.	37	48
Leland S. Rosener	20	36
Associated Engrs. Inc.	26	11
Algot C. Grant	3	0
L. A. Hopkins	5	6
C. E. Construction Co.	47	7
Asbestos Supply Co, Seattle	6	8
Johnson Service	6	1
Monterey County Plumbing Co.	12	16
Seldons Inc.	2	2
Acme Electric Co.	1	1
Swede Color Bar	3	1
Barrett & Logan	5	5
L.E. Baldwin & Frank Dunham Co.	0	40
Hausermen	0	14
X-Ray Products	0	6
Alvard, Burdick & Howson	0	2
Total	5362	5808
General Electric Total	7865	7896
GRAND TOTAL	15250	15749

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