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HANFORD WORKS MONTHLY REPORT

FOR

NOVEMBER 1950

Compiled By

Division Managers

35248

December 20, 1950

HANFORD WORKS
RICHLAND, WASHINGTON

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GENERAL SUMMARY

NOVEMBER 1950

MANUFACTURING DIVISIONS

Production Divisions

A total of 120 tons of metal was discharged with 67 tons being at the goal value, 7 tons at 150 percent of goal value, and 46 at 13.5 percent of goal value. In addition twelve tubes special request material were charged into the piles and eleven tubes were discharged while five casks containing irradiated special request material were shipped off site. Routine shipments of chemical 37-77 were made. The average time operated efficiency was 90.2 percent.

The pile power levels are now being maintained at the maximum allowed by current limitations on graphite temperature and tube water temperature. As a result, there is no longer a nominal power level. Maximum levels achieved during the month were 375 MW, 335 MW, 430 MW, 470 MW and 315 MW at B, D, DR, H and F Piles, respectively. Average levels were 356 MW, 321 MW, 410 MW and 301 MW in the same order.

The authorized initial charge for the H-10 loading is now completely loaded in 825 tubes.

A total of 88 tons of acceptable slugs was canned at a yield of 91.5 percent. The machining yield was somewhat low at 79.4 percent due to the use of short rods of poor surface quality and large diameter. The melt plant produced 19 tons of billets at a new record yield of 87.0 percent and a solid metal from scrap yield of 92.6 percent.

A new record total of 121 normal charges, plus 3 acid washes, was started in the Canyon Buildings, 119 runs, including 3 acid washes, were processed through the Concentration Buildings, and 131 charges were completed through the Isolation Building which also represents a new record. The average cooling time for metal processed was 72 days with a minimum of 68 days. The average purity of completed batches was 98.3 percent.

Plant Utilities and Maintenance Divisions

The Plant electrical power demands were:	Process load	66,000 KW
	Village load	29,475 KW

The process load demand is an all time high. The Village load demand is 18% over November, 1949, substantially greater than seasonal trend. Load checks on Village transformers indicate as much as 250% peak overload, reflecting increased use of electric heaters. Larger capacity transformers are being installed in seriously overloaded locations.

General Summary

The lowest rates of coagulent feed in the history of the Plant were experienced during the month, averaging 4.0 ppm for the 100 Areas.

A power outage of twenty-one minutes occurred on November 28, caused by a construction crane contacting the 13.8 KV line in the Redox Area. The buildings affected were 282-W, 231, 283-W, 224-T, one half of 221-T, and all 2700-W miscellaneous buildings. No damage resulted.

The 100-DR pile resumed operation on November 30, having been shut down since November 27 for removal of a ruptured slug in process tube #1476.

In the 100-F Area, 185 Building, the No. 8 deaerator was removed from the 40-foot level on November 22. Necessary piping work was completed; the water lines and storage tanks, isolated since October 26, were returned to normal service on November 30.

Extensive progress was made to extend the range of 100 Area instruments to meet higher power level operating requirements.

TECHNICAL DIVISIONS

Pile Technology Division

Increases in the power level of each production pile, averaging about 5% per pile, were effected during the month.

Pile aspects of the H-10 program continue favorable. The H-10 loading was increased to 825 tubes during the month. Reactivity gains from accumulation of plutonium in the natural uranium continue to balance losses from burnout of the H-10 load. Both the target slugs and the fuel slugs from one pilot tube showed satisfactory dimensional stability after six months of irradiation. However, unexpectedly low product yields were obtained in the initial extraction of target slugs from the H-10 loading.

The fourth ruptured slug in the history of the plant was encountered at DR Pile and was complicated by a water leak in the tube. This case also differed from previous cases in that a reported three slugs were stuck in the tube. It was necessary to remove the gun barrel to correct the difficulty, but the gun barrel was easily replaced in this new pile.

The water leak in the D Pile appears to have been checked, with no adverse effects except for a net loss of 30 inhours which is not definitely attributable to the leak.

Radio-metallurgical examination of one fringe tube which had been left empty in the F pile indicated that the tube could have been re-loaded. However, visual and/or borescopic examination of eight other tubes revealed an erratic presence of large amounts of water and associated extensive pitting, so it was concluded that the empty tubes in general were not re-usable.

Satisfactory measurement of the neutron attenuation of the Hanford biological shield has been obtained.

Experiments in the critical mass laboratory show that the basic critical mass of plutonium from uranium irradiated for 212 MD/ton is 655 grams, in contrast to 700 grams for 400 MD/ton materi[redacted]

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General Summary

It was decided during the month that the upstream portion of process tubes should be loaded with sacrificial magnesium dummy slugs to inhibit tube corrosion. Flow laboratory tests were satisfactory.

Work on irradiation effects in cooled graphite samples indicate that the rate of damage is accelerating with continued exposure. A 73-fold reduction in thermal conductivity of cooled graphite samples has been observed. Preliminary experiments indicate that a 2% burnout of graphite would not cause serious loss of mechanical strength.

Studies show that the incidence of non-seat reject slugs is affected by the age of the Al-Si bath and by the silicon content. The effects are not understood and an experimental program is being initiated.

Metallurgical examination indicated that the two supporting pins which failed during removal of a deaerator tank at 100-F area did not contain defective material.

The quarterly meeting of representatives from AEC laboratories to plan the program of special irradiations was held at Hanford during November.

In P-10 operations, 1172 slugs were fabricated and 72 slugs were extracted. All "hot" work in the building was suspended until November 13 because of construction activities.

Testing of the metal line for P-10 extraction was in progress in Schenectady during the month. Shipment will be delayed about one week beyond December 1 to permit elimination of leaks. Operational difficulties prevented the establishing of satisfactory material balances during the tests but performance was generally satisfactory.

Separations Technology Division

As expected, the processing of 600 MWD/ton metal at T Plant is resulting in apparently higher "losses" in the Extraction step metal waste (2.7%), because of the higher americium and curium content. A time cycle of nine hours for the lanthanum fluoride by-product step, with unchanged waste loss and decontamination, has been demonstrated by production testing. About 70 milligrams of Am^{241} have been separated from Sample Can plutonium as a special recovery task for the University of California Radiation Laboratory. The test destruction of Purification supernatant oxalate, prior to recycling to Bldg. 224, has been successfully initiated in Bldg. 234-5. New Model 110 dies have been fabricated and initially tested in Bldg. 235, giving Pressing results indicating the need for slight modifications of the ram punches.

In Redox and Metal Waste Recovery development, the preparation of Redox and TBP process Technical Manuals and Start-Up Operating Procedures has continued to receive primary emphasis. Revision of the Demonstration Unit for simulation

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of plant-type Redox operations is about 20% complete. Engineering development studies are continuing on Production Plant pumps, rotameters, transmitters, evaporators, materials of construction, and de-entrainment equipment. Laboratory studies of continuous UO_3 conversion have continued to produce favorable results.

In the research laboratory, the precipitation of plutonium (III) arsenate from F-10-P (final $BiPO_4$ Plant) solution and plutonium (III) fluoride from simulated final Redox solution are being studied as methods of coupling to Metal Fabrication. Favorable results have been obtained in studies of extracting plutonium from slag and crucible leaching solutions by Redox and TBP-CCl_4 methods. Amazing increases in extraction coefficients for uranium by TBP have been obtained by aluminum nitrate salting. Trace amounts of mercury in simulated dissolver solution have shown almost complete complexing and retention of iodine.

In the 234-5 process development laboratory, the effects of one, two, and three peroxide cycles on subsequent metal production are being studied. The Los Alamos ionization chamber is being used as the standard accepted method of plutonium core component surface monitoring. Of nine castings from the Casting operation in the R.G. line, three have exhibited significant cavities by radiographing before Pressing.

The first plant-scale Silver Reactor installed at B Plant has demonstrated iodine removal efficiencies better than 99.9%. Difficulties with condensate entrapment in sampling lines have thus far prevented accurate measurement of the particle removal efficiency of the companion Fiberglas filter simultaneously installed in the dissolver off-gas line.

Technical Services Division

Ninety separate mass spectrometirc analyses of gaseous P-10 samples were made, despite some curtailment of this work because of building shutdown and instrument maintenance. Because of the heavy demand for these analyses, personnel have been selected for training in order to put this service on a three-shift basis, and a second more suitable mass spectrometer for this work is about to be purchased. The emission spectrometer for the determination of hydrogen-to-tritium ratios was installed early in the month, and operated satisfactorily in the measurement of hydrogen-to-deuterium ratios.

The hydrogen line for determination of gas in lithium-aluminum slugs operated efficiently, and produced 110 analyses; this represents a three-fold increase in work volume over the preceding month.

A newly developed analytical procedure for the separation and determination of americium was applied successfully in support of special plant runs for the recovery of this element. The accuracy of the method was confirmed by alpha pulse analyzer tests.

Technical liaison was continued during D & C's completion of negotiations with the Rosener Company for the design of the Radiometallurgy Bldg. and the Plot Plan and Utilities for the Hanford Works Laboratory. This modification of Rosener's design contract for the Radiochemistry Building was signed November 20, and called for completion of design and specifications by July 7, 1951. At

month-end, D & C was negotiating with Rosener for an earlier completion date with suitable premium payment. Rosener's design work on the Radiochemistry Building was approximately 70% complete.

The Construction Division completed the temporary facilities and preliminary 300 Area site preparation worked covered by Part II of the Plot Plan and Utilities Project C-394. AEC approval was obtained for Project C-406-R, which covers the design and the construction (shell only) of the Mechanical Development Building, the shell of which is to be erected as promptly as possible so as to house construction forces during the main part of the Works Laboratory program.

The project proposal for the Pile Technology Bldg. was submitted to the A & B Committee and received their approval on November 27. It was then forwarded to the AEC. The design criteria for this building are being written jointly with D & C, and architect-engineer negotiations are scheduled for mid-December.

The tentative floor plans for the Library and Files Building were developed and were released to D & C for estimating. This building is planned as a two-story structure containing about 32,000 square feet of gross floor space. In addition to the Library and Classified Files, it will house the Statistics Group and associated Computing Laboratory.

A review of the efficiency of a unique statistical sampling plan adopted for the pile testing of slugs from the P-10 project revealed that to date more than 200 days of Test Pile operation have been saved by this plan.

A mathematical equation relating Test Pile reactivity to the uranium-235 content of P-10 fuel slugs was obtained statistically from data supplied by the Pile Physics and the Analytical Sections. Using this equation, the computing laboratory prepared a table of 700 entries for converting Test Pile reactivity to uranium-235 content of fuel slugs. The IBM equipment in the new technical computing laboratory also was used to obtain detailed predictions of discharge and pile inventories of H-10 material at several MWD levels for periods up to December 23, 1952.

HEALTH INSTRUMENT DIVISIONS

Removals and additions to the force resulted in a net gain of 12 employees. Two Special Hazard Incident investigations were reported. One involved the over-exposure of construction workers in the 115-D building. There were, additionally, four informal investigations. Excluding these incidents, control of radiation hazards in process areas was satisfactory.

Control functions in the Biology Division indicated a downward trend in activity observed in biological specimen samples. However, several species of upland wildlife contained activities in excess of the permissible maximum. In the Development Division, control measurements showed no change in activity of water samples but a general increase in radiation levels in the air and in I^{131} deposited on vegetation.

No confirmed positive results for Pu or fission products in urine of plant workers was found. Maximum for U and tritium content was 32/ug/liter and 30/uc/liter respectively.

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General Summary

Research programs progressed satisfactorily. Preliminary observations indicate that skin absorption of tritium can contribute to personnel contamination, but to only a small degree.

PLANT SECURITY AND SERVICES DIVISIONS

There were no major injuries during the month. There have been four major injuries for the year to date with a frequency rate of 0.29.

There were four minor fires during the month with no loss involved.

Printing volume continued at a high rate, necessitating six-day operation during the month.

Office Methods Division activities accounted for an estimated annual savings of $4,200 of which $3,600 will be on a recurring annual basis.

Test firing of anti-aircraft weapons by the Army began on November 5.

EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

The number of applicants interviewed increased from 1,210 in October to 1,384 in November. Of these applicants, 466 were individuals who applied for employment with the Company for the first time. In addition, 106 new applicantions were received through the mail. Open, nonexempt, nontechnical requisitions increased from 238 at the beginning of the month to 329 at the month end. Total plant roll increased from 7,838 to 7,865. Turnover rate decreased from 1.59% in October to 1.30% in November. During November, 42 new requests for transfers to other type of work were received in the Employment Office and 26 transfers were effected.

Two employee deaths occurred during November. Forty-eight visits were made to employees confined to Kadlec Hospital and two visits were made to employees confined at home. In addition, 29 salary checks were delivered to employees during the month of November. During November, this Group was responsible for presenting the Company's new "Security Package" to all employees at this Works. At the end of November there were 704 employees registered under the Selective Service Act and 612 reservists on our rolls.

During the week of November 6-10, the Supervisor's 40-Hour Training Program was presented with 42 supervisors participating. Two issued of the Hanford Works "SAGE" were distributed during the month. At the request of the S Division, the 17-subject Nonexempt 8-Hour Training Program was again presented on November 3 and 17. A total of 55 nonexempt employees of the S Division in the 200-W Area attended. A total of 189 Security Package Meetings was held during November, with a total of 6,554 employees, or 83% of the entire Hanford Works personnel, attending.

In addition to continuing work on Union Relations information for release by press and radio, Community Relations conducted a meeting in Richland during the month for all of the town's clergy and members of the staff of the superintendent of schools.

The News Bureau took advantage of opportunities to obtain interviews with Nucleonics Department people for representatives of three Northwest news-

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papers during the month. The results of these interviews are gratifying both because the newspapers have had their confidence strengthened in their knowledge that we desire to be of service to them, and because the interviews have resulted in good public relations stories in the papers represented.

In the field of Community Relations, the supervisor handling this responsibility was successful in getting the Tri-City HERALD representative and the Manager of the Municipal, Real Estate and General Services Divisions together for what turned out to be a most successful interview. The Tri-City HERALD published the results of this interview in the form of a series of two stories pointing out the complexity of the Manager's job and revealing his qualifications to fill that position.

One of the significant activities of Public Functions during November involved the setting up of sound and slide equipment at the new Uptown Theater and other arrangements necessary to furnish the information to supervisors for their use in presenting the G.E. "Security Package" to employees. The same meeting was conducted on two successive days in the Uptown Theater and was repeated the following week at the North Star Theater.

A second series of information releases concerning Union Relations activities required preparation for material for use in radio broadcasts, newspaper advertising, and in the Works NEWS.

A new booklet entitled "Opportunity for You at Hanford Works" was completed during the month for use by the Technical Personnel Office in recruiting graduates from the present mid-year graduating class.

Hanford Works NEWS provided employees information on the Red Cross Blood Program, the U. S. Savings Bond Drive, the new insurance plan as part of the G. E. "Security Package", and needs at Hanford Works for personnel to fill various job classifications. In addition, the Works NEWS was used to urge voting by employees, to promote safety at Hanford Works, and as a medium for urging participation by employees in the "Security Package".

Wage Negotiations continued during November with Federal Conciliator, Albin Peterson, in attendance, but as of November 30, a settlement had not been reached and it appeared that the Council intended to seek intervention by the President's Davis Panel. An NLRB examiner began preparations here for the union shop election though the Company is questioning the legality of such an election. Considerable time was spent drafting a reply to a letter from the NLRB wherein many questions were asked concerning the HAMTC petition covering Health Instrument Inspectors and Laboratory Assistants. Notice that a petition for representation was filed by the Hanford Guards Union was received from the NLRB.

Negotiations with Operating engineers continued with Conciliator Peterson attending three of the four meetings. Substantial agreement was reached on most of the working rules, no progress on settlement of monetary items. Information was received that the Operating Engineers have referred their demands to the Davis Committee. Withdrawal of the carpenters and plumbers from the Building Trades Council may simplify negotiations for the Master Agreement without further consideration of the Building Trades Council as a party thereto. Meetings have been held on the Isolation Pay increase demand,

but no agreement has been reached. Carpenters reopened their Schedule "A" for a new wage scale. After one meeting, it was decided to await the outcome of the Spokane negotiations (now in progress) before further meetings are held. Millwrights and roofers have requested wage negotiations; no meetings have been held. Certification of results in the Machinists UA election (52 for, 12 against) was received from the NLRB effective November 2, 1950. Technical Engineers were granted a $5 increase in all classifications (in no case exceeding the present maximum rate) effective September 22, 1950. A wildcat strike by nine Plumbers on the Early tank farm occurred on November 13; work resumed on the 15th. Ironworkers threatened to stay off the job on November 22 because of the firing of an Ironworker Foreman. However, they came to work on November 22 and the foreman was later reinstated as further investigation exonerated him from causing a major injurty to a fellow worker. On November 20 Atkinson-Jones indicated that asbestos workers are objecting to leaving for work earlier than 7:15 a.m., and that this may result in a work stoppage; there have been no new developments since that date.

Work was started on the annual Northwest Community Wage Survey and participating concerns were contacted. A special survey was made of the rates paid electric meter testers and meter readers in the Northwest. Complete card files were prepared on all employees in the HAMTC bargaining unit, all patrolmen, and all Richland and North Richland firemen. Four Reimbursement Authorizations were issued by the AEC regarding classifications and rates.

PURCHASING AND STORES DIVISIONS

The work load in the Purchasing Division continued at the high level reached in the previous month.

J. F. Spease of Design and Constructions Divisions, W. L. Sapper of the Manufacturing Divisions, and W. W. Koenig of the Technical Divisions, were assigned for an estimated period of six months to the Purchasing Division to assist in expediting critical material. These men will act in the capacity of Assistants to the Manager, Purchasing and Stores Divisions, and will be supplied with business cards to that effect. Mr. Spease is covering the West Coast and Messrs. Sapper and Koenig the Middle West and East Coast. At month end all three men were reporting satisfactory progress.

Materials, particularly stainless steel, continued to be the bottleneck in the procurement of vessels and other equipment for the current construction programs.

Arrangements were concluded whereby the United States Steel Supply Company of Pittsburgh entered into an agreement to receive, warehouse, cut to required sizes and lengths, and ship the stainless steel covered by our bulk orders. This action was necessary inasmuch as the steel mills who are producing our bulk orders were unable to do the necessary cutting to size before shipment to our fabricators. In instances where no cutting or shearing is required prior to shipment to fabricators, arrangements will be made wherever possible to ship direct from the mill thereby saving the warehousing charge.

Contracts covering our three-year requirements for nitric acid were awarded to E. I. duPont deNemours Company and the General Chemical Division, Allied Chemical and Dye Corporation. The General Chemical Division plans to construct a production unit at Hedges, Washington near Kennewick.

General Summary

Due to the shortage of phosphoric acid, we were unable to obtain offers from the various producers on our entire requirements. In order to meet our requirements, arrangements were made to procure phosphorus from the Tennessee Valley Authority for shipment to a processor for conversion into phosphoric acid.

At the request of the Commission, requirements data were being developed on a number of critical materials for the calendar year 1951; included were stainless steel, carbon steel, aluminum, and copper.

A total of 2,918 purchase requisitions was screened against project inventories with the result that 1,534 items were supplied from plant sources thus obviating the necessity for outside purchase.

Surplus materials valued at $898,908.17 were shipped during the month.

Fifty-five representatives of government and private business were escorted through our warehouses for the purpose of inspecting property being offered for sale or transfer.

Materials valued at $319,298.71 were declared to the Commission as excess.

Some difficulty was experienced by the Traffic Section in obtaining suitable freight cars for shipment of equipment from our suppliers at various locations throughout the country.

We were advised on November 8, 1950 by the Regional Representative of the Interstate Commerce Commission that the General Electric Company at Hanford Works had an outstanding record with respect to efficient use of freight cars and payment of freight charges in accordance with ICC Regulations.

As a result of reductions obtained from carriers, savings on freight charges during the month amounted to $19,732.96.

MUNICIPAL, REAL ESTATE, AND GENERAL SERVICES DIVISIONS

There was an increase of six employees in the Divisions during the month of November, 1950.

The old bridge over the Yakima River was closed November 10, 1950. All traffic is to be routed over the Bailey Bridge while the new bridge is being constructed.

The following commercial facilities began operation during the month of November: By's Burgers, Radio Station KWIE, Allene's Gift Shop, Uptown Thrifty Drugs, and Uptown Tavern.

Total housing applications pending -- 426.

MEDICAL DIVISIONS

The roll decreased from 281 to 277.

A new first aid station for construction employees at MJ-4 in the 200-West Area began operation on November 30.

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"Hearing" was the health topic for the month. Sickness absenteeism increased by 0.25% to 2.11%, while total absenteeism increased by 0.20% to 2.84%.

The average daily census increased from 85.7 to 92.0 (80.6 adults, 11.4 infants). The census was 54.2 a year ago.

Miss M. A. Miller, State Dept. of Health consultant in hospital nursing service, submitted a report covering her study here. Some procedure changes have been made and others are being given consideration as a result of this study.

The communicable disease rate increased 200% due largely to the increase in chickenpox.

Eighteen food establishments are under sanitary surveillance. General sanitation of these is satisfactory though two restaurants have as yet failed to meet Grade "A" requirements.

The net cost of operating the Medical Divisions (before assessments to other divisions and Workmen's Compensation) was $87,194, an increase of $4,884 over the preceding month and $16,958 below the budget figure.

Factors causing over-all increased costs were the 3% salary increase paid to non-bargaining unit employees and the increase in accrual rate for Continuity of Service from 10% to 12½% of gross payroll.

GENERAL ACCOUNTING DIVISION

Calculation of retroactive payments to Auxiliary Firemen, in accordance with the agreement reached between Hanford Atomic Metal Trades Council and General Electric Company, was completed in November. The payment, amounting to $21,148.85 paid to 572 employees, was included in salary checks distributed to these employees on November 10, 1950.

In connection with the new insurance plan, Payroll Division maintained a daily tabulation of the number of new enrollment cards sent in by employees. Daily reports were telegraphed to Schenectady on November 27 and 30 and December 1 indicating status of employees' enrollment in the new Plan. The reports showed the number of employees eligible, number enrolled for Personal Coverage and number enrolled for Dependent Coverage. Considerable work was performed by Payroll Divisions in connection with the campaign and in setting up routines and records.

Reimbrusements Authorization No. 122, effective July 1, 1950, covering benefits for employees entering the Armed Forces, was approved by the Atomic Energy Commission in November and supersedes Reimbursement Authorization No. 26 issued October 27, 1948. The authorization provides, among other benefits, payment of a Military Duty Allowance to employees entering the Armed Forces on or after July 1, 1950, who have at least one year of continuous service at the time of leaving the Company to enter the Armed Forces. Arrangements are now being made to make payments to those employees who have been removed from the payroll for military service and to handle future cases on a current basis.

General Summary

Revised budget estimates were completed and submitted to the AEC for Kadlec Hospital, Research and Development, P-10 Program, and Graphite Storage Costs. These estimates were accompanied by narrative justifications compiled from information furnished by division heads. Revised budget estimates were also submitted for Cash Working Capital, Inventories and Operating Equipment. Budget amounts appearing on this month's Operating Reports and Financial Statements will reflect these revisions.

Studies in connection with cost of maintaining first aid stations, physical examinations, and other services rendered by Industrial Medical neared completion this month. This information will be used for cost comparisons and in making assessments to other divisions beginning with the month of December.

Audits of Area and Village Bus Operations and Washington State Excise Tax payments were started this month. Audits continued in connection with receiving and shipping procedures in the Stores Division and Hanford Works timekeeping methods. Audits were completed covering mail distribution procedures and the handling and accounting for Excess Materials.

R. L. Warburton, General Assistant, visited Knolls Atomic Power Laboratory for one week to assist and advise accountants and representatives of engineering and accounting consulting firms in establishing Plant Accounting Records in accordance with Atomic Energy Commission requirements. Plant Accounting forms and procedures currently in use at Hanford Works were explained and discussed. Assistance was also rendered in the development of a Property Record Unit Catalog.

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

	October	November
Disbursements		
Material and Freight - GE	$1 419 222	$1 501 626
Payrolls - GE (net)	1 918 808	1 940 639
Payments to Subcontractors	3 038 775	3 065 326
Other	1 107 500	1 010 879
Total	$7 484 305	$7 518 470
Receipts		
Rents	$ 125 858	$ 118 819
Hospital	50 785	39 350
Telephones	15 812	15 784
Bus Fares	10 299	9 726
Other	130 951	51 809
Total	$ 333 705	$ 235 488
Net Disbursements	$7 150 600	$7 282 982

Advances from AEC were increased from $4,000,000 as of the end of last month to $6,000,000 on November 30, 1950.

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STAFF

General Manager	G. R. Prout
Manager, Schenectady Office	B. R. Prentice
Assistant General Manager	F. K. McCune
Assistant to the General Manager (Technical and Education Matters)	W. I. Patnode
Assistant to the General Manager	J. R. Rue
Assistant to the General Manager and Manager of the Plant Security and Services Divisions	G. G. Lail
Department Comptroller	F. E. Baker
Counsel	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 NOVEMBER 1950

	EXEMPT		NON EXEMPT		TOTAL	
	10-31-50	11-30-50	10-31-50	11-30-50	10-31-50	11-30-50
GENERAL	19	19	29	28	48	47
LAW	2	2	3	3	5	5
DESIGN & CONST. DIV'S.						
CONSTRUCTION	2	1	36	36	38	37
CONST. ACCTG.	9	10	58	58	67	68
DESIGN	236	236	225	222	461	458
NO. RICHLAND REALTY	17	17	84	86	101	103
MANUFACTURING DIVISIONS						
GENERAL	16	16	5	5	21	21
PROJ. ENGR. CONTROL	43	44	31	34	74	78
PROJ. ENGR. DESIGN	49	50	76	81	125	131
MFG. ACCTG.	6	7	49	51	55	58
OPERATING DIV'S.						
"P"	75	75	286	284	361	359
"S"	121	125	407	422	528	547
POWER	87	88	466	476	553	564
MECHANICAL DIV'S.						
MAINTENANCE	57	56	353	349	410	405
ELECTRICAL	53	53	255	254	308	307
INSTRUMENT	53	52	216	220	269	272
TRANSPORTATION	61	59	584	569	645	628
TECHNICAL DIV'S.						
ADMINISTRATIVE	4	4	2	2	6	6
PILE TECHNOLOGY	111	113	90	88	201	201
SEPARATIONS TECHNOLOGY	107	107	36	35	143	142
TECHNICAL SERVICES	127	124	338	337	465	461
MEDICAL	49	48	232	229	281	277
H. I. DIVISIONS						
GENERAL	5	6	4	4	9	10
OPERATIONAL	57	56	159	172	216	228
DEVELOPMENT	40	40	71	72	111	112
BIOLOGY	29	31	41	40	70	71
ACCOUNTING DIVISIONS	27	27	149	152	176	179
EMPLOYEE & COMMUNITY RELATIONS	32	32	62	62	94	94
PLANT SECURITY & SERV. DIV'S.						
PATROL & SECURITY	54	55	537	535	591	590
SAFETY & FIRE	38	38	102	102	140	140
GEN. & OFF. SERV.	23	23	210	210	233	233
PURCHASING & STORES DIV'S.						
PURCHASING	50	52	72	72	122	124
STORES	21	21	220	210	241	231
COMMUNITY DIVISIONS	212	213	458	465	670	678
TOTALS	1892	1900	5946	5965	7838	7865

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PERSONNEL DISTRUBUTION NOVEMBER 1950

DIVISIONS	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
GENERAL	-	-	-	-	-	-	-	-	-	-	19	19
Clerical	-	-	-	-	-	-	-	-	-	-	28	28
Total	-	-	-	-	-	-	-	-	-	-	47	47
LAW	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	3	3
Total	-	-	-	-	-	-	-	-	-	-	5	5
DESIGN & CONST. DIVISION												
CONSTRUCTION												
Supervisors	-	-	-	-	-	-	-	-	-	1	-	1
Clerical	-	-	-	-	-	-	-	-	-	36	-	36
Total	-	-	-	-	-	-	-	-	-	37	-	37
CONST. ACCTG.												
Supervisors	-	-	-	-	-	-	-	-	-	10	-	10
Clerical	-	-	-	-	-	-	-	-	-	58	-	58
Total	-	-	-	-	-	-	-	-	-	68	-	68
DESIGN												
Supervisors	-	-	-	-	-	-	2	-	-	13	41	56
Engineers & Inspectors	-	-	-	-	-	-	35	-	-	23	108	166
Other Exempt	-	-	-	-	-	-	-	-	-	9	5	14
Draftsmen	-	-	-	-	-	-	-	-	-	-	59	59
Clerical	-	-	-	-	-	-	9	-	-	22	112	143
Others	-	-	-	-	-	-	1	-	-	7	12	20
Total	-	-	-	-	-	-	47	-	-	74	337	458
NO. RICHLAND REALTY												
Supervisors	-	-	-	-	-	-	-	-	-	17	-	17
Janitors	-	-	-	-	-	-	-	-	-	38	-	38
Clerical	-	-	-	-	-	-	-	-	-	16	-	16
Others	-	-	-	-	-	-	-	-	-	32	-	32
Total	-	-	-	-	-	-	-	-	-	103	-	103

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HW 19622 - Def

	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
MANUFACTURING DIVISIONS												
GENERAL												
Supervisors	-	-	-	-	-	-	-	-	-	-	12	12
Engineers	-	-	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	-	-	5	5
Total	-	-	-	-	-	-	-	-	-	-	21	21
PROJ. ENGR. CONTROL												
Supervisors	2	-	-	-	-	2	-	2	4	-	8	18
Engineers	2	-	-	-	-	2	-	3	9	-	10	26
Clerical	1	-	-	-	-	1	-	1	2	-	17	22
Others	2	-	-	-	-	-	-	-	3	-	7	12
Total	7	-	-	-	-	5	-	6	18	-	42	78
PROJ. ENGR. DESIGN												
Supervisors	-	-	-	-	-	2	-	-	-	1	19	22
Engineers	-	-	-	-	-	1	-	-	1	4	22	28
Draftsmen	-	-	-	-	-	7	-	-	4	4	44	59
Clerical	1	-	-	-	-	-	-	-	-	1	10	12
Others	-	-	-	-	-	-	-	-	-	4	6	10
Total	1	-	-	-	-	10	-	-	5	14	101	131
MFG. ACCTG.												
Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	-	-	51	51
Total	-	-	-	-	-	-	-	-	-	-	58	58

UNCLASSIFIED

HW 19622 - Dep

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	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
OPERATING DIVISIONS												
"P" DIVISION												
Supervisors	9	16	9	9	-	-	-	14	-	-	2	59
Supv. In Training	-	5	1	-	-	-	-	-	-	-	-	6
Engineers	2	-	-	-	-	-	-	-	-	-	8	10
Operators	34	64	34	34	-	-	-	94	-	-	-	260
Clerical	2	4	2	2	-	-	-	5	-	-	4	19
Others	1	1	-	2	-	-	-	1	-	-	-	5
Total	48	90	46	47	-	-	-	114	-	-	14	359
"S" DIVISION												
Supervisors	-	-	-	-	-	16	39	-	-	-	3	58
Supv. In Training	-	-	-	-	-	8	25	-	-	-	2	35
Engineers	-	-	-	-	-	-	18	-	-	-	14	32
Operators	-	-	-	-	-	142	229	-	-	-	-	371
Clerical	-	-	-	-	-	7	18	-	-	-	4	29
Others	-	-	-	-	-	4	18	-	-	-	-	22
Total	-	-	-	-	-	177	347	-	-	-	23	547
POWER												
Supervisors	12	20	12	12	-	6	7	7	2	-	1	79
Engineers	-	1	-	-	-	-	1	-	7	-	-	9
Opearators	76	117	75	75	8	23	46	11	6	-	-	437
Clerical	1	1	1	1	-	-	1	-	6	-	2	13
Others	4	6	5	5	-	-	5	1	-	-	-	26
Total	93	145	93	93	8	29	60	19	21	-	3	564
MECHANICAL DIVISIONS												
MAINTENANCE												
Supervisors	2	9	6	2	-	4	13	4	2	-	2	44
Engineers	-	-	2	-	-	-	2	1	-	-	7	12
Craftsmen	27	66	39	23	-	36	87	41	8	-	-	327
Clerical	-	1	3	1	-	1	2	1	2	-	1	12
Others	-	-	2	1	-	1	1	2	3	-	-	10
Total	29	76	52	27	-	42	105	49	15	-	10	405

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HW 19622 -

	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
ELECTRICAL												
Supervisors	2	1	1	3	-	1	6	2	17	-	11	44
Engineers	-	-	-	2	-	-	1	1	2	-	3	9
Craftsmen	16	20	13	14	2	11	15	11	59	-	26	187
Clerical	1	-	1	1	-	-	1	1	4	-	26	35
Operation	4	4	4	4	-	-	-	-	13	-	-	29
Others	-	-	-	-	-	-	-	-	2	-	1	3
Total	23	25	19	24	2	12	23	15	97	-	67	307
INSTRUMENT												
Supervisors	1	5	2	3	-	2	6	7	1	-	3	30
Engineers	-	1	-	-	-	-	3	11	1	-	6	22
Craftsmen	19	26	17	14	-	15	38	46	5	-	12	192
Clerical	-	1	1	1	-	1	3	5	3	-	3	18
Others	-	-	1	-	-	-	1	7	-	-	1	10
Total	20	33	21	18	-	18	51	76	10	-	25	272
TRANSPORTATION												
Supervisors	2	4	2	2	-	2	1	1	7	-	35	56
Engineers	-	-	-	-	-	-	-	-	-	-	3	3
Bus Drivers	-	-	-	-	-	-	-	-	-	-	163	163
Journeymen	2	9	7	11	-	1	4	-	12	-	67	113
Trainmen	-	-	-	-	-	-	-	-	25	-	-	25
Serviceman	1	13	4	2	-	3	5	3	10	-	14	55
Clerical	1	1	1	1	-	1	1	1	1	-	23	31
Equipment Operators	5	15	6	3	-	4	8	4	18	-	31	94
Others	8	11	2	5	-	11	4	2	9	-	36	88
Total	19	53	22	24	-	22	23	11	82	-	372	628

HW 19622

	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
TECHNICAL DIVISIONS												
ADMINISTRATIVE												
Supervisors	-	-	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	-	-	6	6
PILE TECHNOLOGY												
Supervisors	4	1	-	1	1	-	-	13	-	-	-	20
Metallurgists & Engineers	20	4	3	6	-	-	-	39	-	-	-	72
Physicists	3	1	-	3	2	-	-	12	-	-	-	21
Tech. Grads. & Engr. Assts.	10	1	2	2	-	-	-	4	-	-	-	19
Technologists	5	-	-	-	-	-	-	-	-	-	-	5
Laboratory Assts.	25	4	1	6	3	-	-	11	-	-	-	50
Clerical	4	1	-	1	-	-	-	7	-	-	-	13
Others	-	-	-	-	-	-	-	1	-	-	-	1
Total	71	12	6	19	6	-	-	87	-	-	-	201
SEPARATIONS TECHNOLOGY												
Supervisors	-	-	-	-	-	1	4	17	-	-	1	23
Chemists & Chem. Engrs.	-	-	-	-	-	5	11	66	-	-	2	84
Tech. Grad.	-	-	-	-	-	1	1	-	-	-	-	2
Clerical	-	-	-	-	-	-	3	7	-	-	1	11
Chem. Operators	-	-	-	-	-	-	1	7	-	-	-	8
Others	-	-	-	-	-	-	1	13	-	-	-	14
Total	-	-	-	-	-	7	21	110	-	-	4	142
TECHNICAL SERVICES												
Supervisors	1	-	-	2	5	7	12	25	-	-	3	55
Chemists & Engineers	5	1	1	-	9	2	12	35	-	-	4	69
Technologists, Tech. Grads.	2	-	-	2	-	9	22	21	-	1	-	56
Laboratory Assts.	4	-	-	5	-	29	61	38	-	-	-	137
Clerical	-	-	-	1	3	2	3	46	-	-	36	91
Others	-	-	-	-	33	-	-	17	-	-	3	53
Total	12	1	1	10	50	49	110	182	-	-	46	461

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	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
MEDICAL												
Supervisors	-	-	-	-	-	-	-	-	-	1	27	28
Physicians	-	-	-	-	-	-	-	-	1	2	9	12
Other Exempt	-	-	-	-	-	-	-	-	-	-	8	8
Technicians	-	-	-	-	-	-	-	-	2	2	14	18
Nurses	2	4	4	1	-	4	9	2	-	2	53	81
Clerical	-	-	-	-	-	-	1	-	3	10	45	59
Others	-	-	-	-	-	-	-	-	-	1	70	71
Total	2	4	4	1	-	4	10	2	6	18	226	277
H. I. DIVISIONS												
GENERAL												
Supervisors	-	-	-	-	-	-	-	-	-	-	4	4
Engineers	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	-	-	10	10
OPERATIONAL												
Supervisors	1	1	1	2	-	1	4	8	-	-	3	21
Engineers	4	8	5	4	-	3	7	3	-	-	1	35
Clerical	-	-	-	1	-	-	1	1	-	-	1	4
Others	17	14	13	12	-	17	37	48	10	-	-	168
Total	22	23	19	19	-	21	49	60	10	-	5	228
DEVELOPMENT												
Supervisors	-	-	-	-	-	2	7	4	-	-	-	13
Engineers	-	-	-	-	-	3	13	9	-	-	2	27
Clerical	-	-	-	-	-	1	2	2	-	-	-	5
Others	-	-	-	-	-	15	29	12	-	-	11	67
Total	-	-	-	-	-	21	51	27	-	-	13	112
BIOLOGY												
Supervisors	-	-	7	-	-	-	-	-	-	-	-	7
Engineers	-	-	24	-	-	-	-	-	-	-	-	24
Clerical	-	-	3	-	-	-	-	-	-	-	-	3
Others	-	-	37	-	-	-	-	-	-	-	-	37
Total	-	-	71	-	-	-	-	-	-	-	-	71

	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
ACCOUNTING DIVISIONS												
GEN. ACCTG. ACCTG.												
Supervisors	-	-	-	-	-	-	-	-	-	1	7	8
Other Exempt	-	-	-	-	-	-	-	-	-	1	9	10
Clerical	-	-	-	-	-	-	-	-	-	-	71	71
Total	-	-	-	-	-	-	-	-	-	2	87	89
GEN. ACCTG. PAYROLL												
Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Other Exempt	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	81	81
Total	-	-	-	-	-	-	-	-	-	-	90	90
EMPLOYEE & COMM. RELATIONS												
Supervisors	-	-	-	-	-	-	-	-	-	-	24	24
Employee Rel. Counselor	-	-	-	-	-	-	-	-	-	-	1	1
Other Exempt	-	-	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	-	-	49	49
Others	-	-	-	-	-	-	-	-	-	-	13	13
Total	-	-	-	-	-	-	-	-	-	-	94	94
PLANT SECURITY & SERVICE DIVISIONS												
PATROL & SECURITY												
Supervisors	5	6	6	5	-	5	8	7	5	-	4	51
Other Exempt	-	-	-	-	-	-	-	-	4	-	-	4
Patrolman	53	49	67	49	-	57	134	73	3	-	29	514
Clerical	-	-	-	-	-	-	-	-	16	-	2	18
Seamstress	-	-	-	-	-	-	-	-	2	-	-	2
Tech. Grad.	-	-	-	-	-	-	-	-	1	-	-	1
Total	58	55	73	54	-	62	142	80	31	-	35	590
SAFETY & FIRE												
Supervisors	13	-	-	-	-	-	4	4	8	-	-	29
Engineers	-	2	-	1	-	2	-	2	-	-	2	9
Firemen	49	-	-	-	8	-	16	14	9	-	-	96
Clerical	-	1	-	1	-	1	-	1	-	-	2	6
Total	62	3	-	2	8	3	20	21	17	-	4	140

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	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
GEN. & OFF. SERVICES												
Supervisors	-	-	1	-	-	1	2	1	1	-	17	23
Laundry Operators	-	-	-	-	-	-	2	-	-	-	1	3
Janitors & Servicemen	7	5	5	6	2	5	17	13	4	-	34	98
Clerical	-	-	-	-	-	-	-	-	-	-	30	30
Others	-	-	-	-	-	-	29	-	-	-	50	79
Total	7	5	6	6	2	6	50	14	5	-	132	233
PURCHASING & STORES DIVISIONS												
PURCHASING												
Supervisors	-	-	-	-	-	-	-	-	-	-	16	16
Other Exempt	-	-	-	-	-	-	-	-	17	-	19	36
Clerical	-	-	-	-	-	-	-	-	-	-	66	66
Rotational Trainee	-	-	-	-	-	-	-	-	5	-	1	6
Total	-	-	-	-	-	-	-	-	22	-	102	124
STORES												
Supervisors	2	-	-	-	-	-	-	-	-	3	16	21
Clerical	13	-	-	-	-	-	-	-	-	30	42	85
Others	27	-	2	-	-	-	1	-	-	14	81	125
Total	42	-	2	-	-	-	1	-	-	47	139	231
MUNICIPAL REAL ESTATE & GEN. SERVICES												
Supervisors	-	-	-	-	-	-	-	-	-	14	103	117
Other Exempt	-	-	-	-	-	-	-	-	-	-	31	31
Fireman	-	-	-	-	-	-	-	-	-	28	37	65
Patrolmen	-	-	-	-	-	-	-	-	-	14	25	39
Journeymen	-	-	-	-	-	-	-	-	-	-	177	177
Servicemen	-	-	-	-	-	-	-	-	-	-	40	40
Truck Drivers	-	-	-	-	-	-	-	-	-	-	40	40
Power Operators	-	-	-	-	-	-	-	-	-	-	36	36
Clerical	-	-	-	-	-	-	-	-	-	-	82	82
Others	-	-	-	-	-	-	-	-	-	-	51	51
Total	-	-	-	-	-	-	-	-	-	56	622	678
GRAND TOTAL	516	525	435	344	76	488	1110	873	339	419	2740	7865

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MANUFACTURING DIVISIONS

NOVEMBER 1950

SUMMARY

Production Divisions

A total of 120 tons of metal was discharged with 67 tons being at the goal value, 7 tons at 150 percent of goal value and 46 at 13.5 percent of goal value. In addition twelve tubes special request material were charged into the piles and eleven tubes were discharged while five casks containing irradiated special request material were shipped off site. Routine shipments of chemical 37-77 were made. The average time operated efficiency was 90.2 percent.

The pile power levels are now being maintained at the maximum allowed by current limitations on graphite temperature and tube water temperature. As a result there is no longer a nominal power level. Maximum levels achieved during the month were 375 MW, 335 MW, 430 MW, 470 MW and 315 MW at B, D, DR, H and F Piles, respectively. Average levels were 356 MW, 321 MW, 410 MW and 301 MW in the same order.

The authorized initial charge for the H-10 loading is now completely loaded in 825 tubes.

A total of 88 tons of acceptable slugs was canned at a yield of 91.5 percent. The machining yield was somewhat low at 79.4 percent due to the use of short rods of poor surface quality and large diameter. The melt plant produced 19 tons of billets at a new record yield of 87.0 percent and a solid metal from scrap yield of 92.6 percent.

A new record total of 121 normal charges, plus 3 acid washes, was started in the Canyon Buildings, 119 runs, including 3 acid washes, were processed through the Concentration Buildings, and 131 charges were completed through the Isolation Building which also represents a new record. The average cooling time for metal processed was 72 days with a minimum of 68 days. The average purity of completed batches was 98.3 percent.

Plant Utilities and Maintenance Divisions

The Plant electrical power demands were:	Process load	66,000 KW
	Village load	29,475 KW

The process load demand is an all time high. The Village load demand is 18% over November, 1949, substantially greater than seasonal trend. Load checks on Village transformers indicate as much as 250% peak overload, reflecting increased use of electric heaters. Larger capacity transformers are being installed in seriously overloaded locations.

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Manufacturing Divisions

The lowest rates of coagulent feed in the history of the Plant were experienced during the month, averaging 4.0 ppm for the 100 Areas.

A power outage of twenty-one minutes occurred on November 28, caused by a construction crane contacting the 13.8 KV line in the Redox Area. The buildings affected were 282-W, 231, 283-W, 224-T, one half of 221-T and all 2700-W miscellaneous buildings. No damage resulted.

The 100-DR pile resumed operation on November 30, having been shut down since November 27 for removal of a ruptured slug in process tube #1476.

In the 100-F Area, 185 Building, the No. 8 deaerator was removed from the forty foot level on November 22. Necessary piping work was completed; the water lines and storage tanks, isolated since October 26, were returned to normal service on November 30.

Extensive progress was made to extend the range of 100 Area instruments to meet higher power level operating requirements.

C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

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MANUFACTURING DIVISIONS

PATENT REPORT SUMMARY
FOR
MONTH OF NOVEMBER 1950

Richland, Washington
December 11, 1950

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

INVENTOR	TITLE
W. A. Lewis Engineering and Control Division Project Engineering Divisions	ROD DOLLY - Invention is a novel wheeled cart used for transporting uranium rods.
R. H. Albright Engineering and Control Division Project Engineering Divisions	TOOL HOLDER FOR PARTING TOOL - Improved type tool holder whereby very thin parting tool is supported in novel manner and coolant is fed to blade in novel manner.
F. D. Atkinson and R. H. Albright Engineering and Control Division Project Engineering Divisions	WEIGHT INDICATING TONGS - Invention relates to tongs used for handling slugs under 20' of water. Invention consists of mounting a small screen balance with indicator or tong handle to show approximate weight of slug held by tongs. Invention used to differentiate slugs by weight.
H. J. Bellarts and P. E. Lowe Design Division, Project Engineering Divisions, and Reactor Division, Design and Construction Divisions, respectively.	TUBE CUTTER, EMERGENCY (CENTRIFUGAL) - This cutter is electrically controlled such that tube forms center of motor shaft, centrifugal force forces cutter into process tube to cut off tube without damaging contents of tube. Emergency release is provided in case of any failure.

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C. N. GROSS

MANAGER, MANUFACTURING DIVISIONS

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Section 10 Approved By: W. K. Woods

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

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December 6, 1950

P DIVISION

NOVEMBER, 1950

I. GENERAL

The B, D, DR, F, and H Piles operated throughout the month except for the outages listed under Area Activities. During the month, additional increases in pile operating levels attained under Production Test 105-388-P were as follows: B Pile - 10 MW, D Pile - 5 MW, DR Pile - 40 MW, H Pile - 30 MW and F Pile - 20 MW. Power levels attained during the month were: B Pile - 375 MW, D Pile - 335 MW, DR Pile - 430 MW, H Pile - 470 MW and F Pile - 315 MW. The piles operated with a time operated efficiency of 90.1%

A new record billet yield of 87.0% was established in the melt plant operation during the month.

The H-10 program initiated in June (document number HW-18221-A) was continued during the month at H Pile, a total of 825 tubes having now been loaded. This completes the authorized initial charge for the H-10 loading. No unusual operational effects other than those previously reported have been observed.

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - November, 1950

Beginning of Month	360
End of Month	359
Net Decrease	1

S. M. Gill, Supervisor-in-Training, was promoted to Shift Supervisor effective November 1 and assigned to the 300 Area.

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P Division

Two operators were hired in the 300 Area. One operator was transferred from the 300 Area to the S Division and one operator was transferred to the Fire Department. Two operators terminated voluntarily - one from the 300 Area and one from the 100 Areas.

One Steno-typist C was hired for the DR Area.

J. H. Warren, Assistant Superintendent, and K. T. Perkins, Area Supervisor, visited the General Engineering and Consulting Laboratory in Schenectady on November 13 and 14 to observe the test operation of equipment related to the P-10 program. Mr. Warren also visited the Bohn Aluminum and Brass Company in Detroit on November 15 to discuss a process related to the fabrication of P-10-A slugs.

III. AREA ACTIVITIES

Pile Summary	Pile B	Pile D	Pile DR	Pile H	Pile F
Time Operated Efficiency (%)	93.6	91.0	79.7	89.7	96.7
Maximum Power Level (MW)	375	335	430	470	315
Average Power Level (MW)	356	321	410	445	301
*Inlet Water Temperature (°C)	10.3	10.6	10.5	10.6	10.4
*Outlet Water Temperature (Max. °C., 10 tubes, 0.240" Zone)	57.4	56.4	76.6	59.6	56.4
Number of Scrams	0	0	3	2	1
Number of Purges	2	1	1	2	1
Helium Consumption (cu. ft.)	-	-	-	-	-
CO_2 Consumption	64,872	102,408	96,288	18,199	35,904
CO_2 Concentration	97	98	99	90	91
Metal Discharged (tons)	28.47	12.39	46.66	20.04	12.29
Inhours Gained (this month)	-24	+35	-3	-10	-4
*Inhours Poisoned	596	55.3	83	80	478
*Inhours in Rods	53	57	80	130	67
Max. Calc. G Temperatures	378	367	257	372	380

* Month end figures.

PILE BUILDING

Outage Breakdown

Date of Outage	Scheduled Metal Discharged	Scheduled Maintenance	Unscheduled	Length of Outage (Hrs.)
11-2-50	B			23.1
11-3-50	DR			30.0
11-7-50	DR			34.8
11-7-50	H			30.1
(1) 11-8-50			F	0.1
(2) 11-9-50			H	1.3

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P Division

Outage Breakdown (Continued)

Date of Outage	Scheduled Metal Discharged	Scheduled Maintenance	Unscheduled	Length of Outage (Hrs.)
(3) 11-10-50			DR	0.1
11-14-50	F			23.9
11-15-50	D	D		64.5
(1) 11-18-50			DR	0.2
11-21-50	B			23.3
(4) 11-27-50			DR	81.5
11-28-50	H	H		42.0
(5) 11-30-50			H	0.6

(1) Unscheduled outage due to panellit alarm which could not be reset.
(2) Unscheduled outage due to failure of instrument power to P-13 equipment (ANL-140 experiment in "A" Test Hole at F Pile).
(3) Unscheduled outage due to unexplained Beckman surge.
(4) Unscheduled outage due to failure of uranium slug jacket.
(5) Unscheduled outage due to faulty #1 Beckman chamber.

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 indicated:

1.485"	1.490"
4674-F	4574-B

105-103-P (Corrosion Rates at Elevated Temperatures)
On November 14, the valved pigtail was removed from tube 2971-F and the tube returned to normal service. At month end, twenty-one tubes were operating at reduced flow under the provisions of this test without operational difficulty.

105-388-P (Pile Test of Special Step Plug and Gas Seal)
A Kanne chamber was installed on top of D Pile to test the effectiveness of the modified gas seal designed to fit a knuckle jointed vertical safety rod presently installed in position No. 20. The chamber showed no gas leakage with the rod either in the upper or lower positions, indicating that the seal is effective. This installation will be submitted to an additional test in December when

steel balls will be dropped in this hole to further test the practicability of a ball 3X system.

105-351-P (Charging High Exposure P-10 Into H-10 Tubes) Tubes 1784-H and 1785-H containing H-10 loadings, including previously exposed P-10-A slugs, were discharged during the outage of November 7. This discharge provided a practical test for the special equipment and procedures developed for use in discharging P-10 material. The results indicated that the equipment and procedures are satisfactory.

105-354-P (Operation of ANL-140 with Fuel Installed) The P-13 equipment operated satisfactorily throughout the month, except for failure of instrument power on November 9 which resulted in an automatic pile shutdown and an unscheduled outage of 1.3 hours duration. Operation of the safety devices was satisfactory. Details are reported by the Pile Technology Section of the Technical Divisions. Total production loss attributable to this project to date is now 2153 MWD.

105-381-P (Irradiated Creep Tests of Annealed 2-S Aluminum) The NEPA Creep Test apparatus was installed in tube 2680-D November 16 but was removed after 12½ hours of exposure because the excessive heat generation in the test slug, caused by irradiation, damaged the equipment. No lost production time resulted.

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.

The volume of work associated with the special request program was normal during the month with approximately 150 manhours of time expended by the P Division on this work. Twelve tubes of special request material were charged into the piles for irradiation. Eleven tubes of irradiated special request material were discharged for shipment off site. Seven casks containing irradiated special request material were shipped off site.

A total of 119.85 tons of uranium slugs was discharged during the month; of this amount 66.79 tons was at 100% of goal value, 6.65 tons was at 150% of goal value and 46.41 tons was at 13.5% of goal value.

On November 27, an unscheduled outage occurred at the DR Pile when the pile was shut down on an emergency basis due to indications of high effluent water activity in the sample rooms,

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and high pressure and high exit water temperature on tube 1476-DR. Subsequent investigation confirmed the presence of a ruptured uranium slug in the tube. The slug was removed with considerable difficulty as it had apparently swelled to the extent that the tube was enlarged and would not go through the rear gunbarrel. Removal of the rear gunbarrel was necessary before the tube containing the piece could be pushed out. (The gunbarrel was subsequently replaced by sliding it back into the pile over a specially designed mandril.) 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 DR Pile was started up again on November 30 after an outage of 81.5 hours. By using the drain crib at the 107-DR retention basin, the contaminated effluent water was disposed of without using both sides of the retention basin. This allowed one side to be kept clean and ready for operation after removal of the ruptured slug. This incident will be discussed in detail in a separate report.

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. The rod will be replaced in December.

(b) Horizontal rods 6-DR and 9-DR failed to enter the pile on emergency shutdown on two occasions during the month. Investigation into the cause of the failures is planned for a subsequent outage.

(c) Vertical rod 13-F binds and is tied out of service pending repair.

(d) Vertical rod 27-F binds when operated under power. It is serviceable under emergency conditions.

During the month, repairs were completed on horizontal rod A at D Pile. Vertical rod thimble 22-D was replaced with a thimble equipped with special thermocouples to be used in a comparison of thimble and graphite temperatures; the rod was returned to service. Prior to the installation of the new tube, the graphite channel was borescoped and found to be in good condition.

The semi-annual pressure testing of all vertical rod thimbles at D Area was completed during the month. No leaks were found.

A detailed inspection of the inner joints and surfaces of the 107-H retention basin was made during the month. (The expansion joints in the west basin are badly deteriorated with general damage in all sections sufficient to acccunt for the leakage previously observed. (See Document HW-19325-A). The east basin, which has not been used to date, was found to be damaged only in the outlet section and the buckling of the floor slabs was less severe than had been expected. During the outage of November 28

and 29, temporary repairs were made to the east basin and it was placed in service. Materials used in this repair work were chosen to permit evaluation of various substances and types of assembly for possible use in subsequent and more permanent repairs to both sides of the basin.

Examination of rear face thermocouples at F Pile revealed that the insulation and saran tubing has deteriorated to such an extent that their continued satisfactory operation is doubtful. Steps are being taken to provide spare thermocouples for use in an emergency and a preliminary investigation is being made to determine whether or not large scale thermocouple replacements will be required.

The central water supply tube in the B-Test hold facility at D Pile broke about 2 feet in from the pile face when the assembly was being pulled out for repair. Installation of a smaller water supply line inside the broken one is planned.

During the month, continued efforts were made to isolate and repair the water leak in the D Pile. The repair program is reported in Documents HW-19201 and HW-19325. A total of 91 front nozzles and 42 rear nozzles were repaired by installing thicker gaskets at the Van Stone flanges. At month end, D Pile had recovered approximately 35 of the remaining 40 inhours of reactivity loss attributed to the water leak. However, little unit reactivity is associated with this gain and the value represents corrections in the method of calculating predicted reactivity. Rate of water collection from the gas system driers at month end is normal and indications are that all leaks have been located and corrected.

On November 16, the rate of water collection from the gas system driers at F Area had increased to 70 pints per day giving evidence that a leak had reappeared. The location of the leak has not been determined and a program of investigation is under way.

Pile Development

At H Area during the November 7 outage, a test circuit was installed on the water pressure monitor system. Use of this circuit permits an operational check of all relays in the panellit system and a visual check of all panellit alarm lights.

At D Area, the use of chromic acid for decontaminating recoverable dummy pieces was investigated and found practical. This has resulted in the recovery of one additional dummy per tube discharged.

Gas Processing Building

Number 4 Drier Room in the 115-D Building, for DR Pile gas, was completed and put into service November 13. The number 5 Drier

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P Division

Room was taken out of service while the temporary steam turbine and blower were removed and the permanent electric driven blower was installed. The removed steam turbine and blower assembly was reinstalled in the 115-B Building from which it had been temporarily borrowed. The DR Pile filter and number 3 blower room were completed and placed in operation. All major items of construction are complete at month end.

Special Hazards

Radiation intensities on the X-2 experimental level of the DR Pile were reduced from 690 mrem/hr. to 65 mrem/hr. in the vicinity of the Y Test hole by use of additional shielding installed during the month.

Special hazards experience in connection with the removal of the ruptured uranium slug from tube 1476-DR will be reported in detail when all surveys have been completed.

A radiation survey of the 105-B Building was made during the month to determine the effect of increased power level on radiation hazards. Only the B Test Hole exit water line required additional shielding.

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).

C-330 (Improved Ventilation, Building 313-314)
Development work is being continued. An extension of the directive date has been requested.

C-339 (Rolling Mill)
Termination of this project is proceeding in accordance with a directive received from the Atomic Energy Commission on August 3, 1950.

C-347 (Nozzle Replacement)
Work at F Pile has been postponed pending receipt of sufficient aluminum nozzles to complete the job.

C-355 (Pile Clearance, Near Side)
Studies are currently under way to determine the disposition of this project since, in the light of present data, the need for doing this work has become questionable.

M-713 (Flexible Vertical Rod)
Fabrication of the full scale rod awaits material delivery.

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M-723 (Repairs to 107-B Basin)
All possible repairs are being made consistent with project specifications and funds.

C-321 (Effluent Diversionary Outlet)
Drawings are complete and the project proposal is nearing completion.

B-554-R (Steel Process Sewer, 105-107-B)
Recommendations are being prepared based on investigations made during October at B Area.

B-803 (High Tank Control Valves, 100-B, D, F, and H Areas)
Drawings are complete and the project proposal is nearing completion.

B-814 (CO_2 Bulk Handling Facilities)
Project is being circulated for signatures.

B-806 (Flexible Horizontal Rod)
Project scope has been defined and preparation has started.

B-1841 (Ball 3X System)
Development work on the Ball 3X system continues.

B-812 (Algae Filter)
The pilot equipment was removed due to imminent freezing weather.

B-865 (Repairs to 107 Retention Basins)
Inspection of the basins is in progress to determine the extent of repqirs required.

C-388 (P-10X)
Scoping of the production facility in 108-B Building is proceeding as follows:

1. During the month, drawing H-1-2615, "P-10-X Project, Scope Plot Plan 108-B" and H-1-2586, "P-10-X Project, Scope General Arrangement", were approved by the Scope Committee and the Atomic Energy Commission.

2. The facility is to be designed and constructed as three separate projects: (a) the extraction facility and associated equipment in 108-B Building, (b) the J slug handling and shipping facilities in the 105 and 212-N Buildings, and (c) the pile safety devices, i.e., charging control center, et cetera.

   The "Design Features" documents describing projects (a) and (b) above have been written

and are being studied by the Working Committee for approval early in December.

300 AREA METAL FABRICATION

Production Statistics

Production for the month of November was as follows:

Billets Produced	19 Tons
Rods Machined	107 Tons
Bare Pieces Machined	85 Tons
Acceptable Pieces Canned	88 Tons

Melt Plant

The casting yields were as follows:

	October	November	To Date 1950
Billet (Avg. per furnace run)	86.0	87.0	76.4
Billet (Yield from total scrap processed)	90.9	90.2	84.7
Solid Yield	93.5	92.6	90.1

No reject billets were produced during November.

Machining

The machining yields were as follows:

October	November	To Date 1950
81.6	79.4	78.7

The decrease in the November yield as compared to October is due to short rods of poorer surface quality and larger diameter.

A total of 822 "M" slugs was machined from 25 rods that had been rolled from billets cast in Mallinckrodt's experimental furnace. This material is being studied by the Technical Divisions to determine the effect of a very low furnace vacuum (10 microns or less) on metal quality.

Chip Recovery

The chip recovery yield was as follows:

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	October	November	To Date 1950
	87.7	88.9	88.6

The entire chip recovery process was operated four shifts and the press was operated an additional nine shifts. A total of 24,771 pounds of TXB was produced.

On November 22 the briquetting press was shut down for repairs which are expected to be complete by December 5, 1950.

Oxide Burning

The material burned was as follows:

	Weight Out - Pounds		
	October	November	To Date 1950
	5,427	5,343	152,377

Oxide on Hand at Month End (Metal Content)

To be burned	2,338
To be analyzed	1,037
To be shipped	23,490
Total	26,865

Canning Operation

The canning yield was as follows:

	October	November	To Date 1950
	89.1	91.5	92.6

Canning rejects, by cause, were:

	Per Cent		
	October	November	To Date 1950
Non Seating	5.0	1.4	1.8
Marred Surface	2.3	2.8	1.9
Al-Si on Outside of Can	0.8	1.2	1.0
Frost Test	0.3	0.4	0.7
Bad Welds	0.8	0.8	0.7
Miscellaneous	1.7	1.9	1.3
	10.9	8.5	7.4

The major factor contributing to the improvement in the canning yield was a marked reduction in non seating rejects. This re-

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sulted when the following steps were taken:

1. Substitution of aluminum silicon from another vendor.

2. Maintaining the silicon content of the Al-Si canning bath near the minimum specification limit.

3. Raising the maximum canning bath temperature from in instances where it appeared that the fluidity of the bath caused difficulty in the proper seating of slugs.

Further statistical tests are being made to establish the correlation between non seating and Al-Si from the two vendors, silicon content of the canning bath, and the length of Al-Si usage.

The increase in marred surface rejects resulted primarily from approximately 0.8% of the cans supplied by the Victor Corporation having small blistered or raised areas on the outside of the can which do not become apparent until the can has passed through the canning process.

Eight hundred and twenty-two slugs fabricated from billets cast in Mallinckrodt's experimental furnace were canned during the month.

Special Request Pieces Canned

Request Number	Content	No. of Pieces

In addition, 484 poison, 1460 bismuth, 78 receptacle and 65 papoose pieces were canned during the month.

Slug Recovery

	Per Cent Recovered		Avg. Wt. - Lbs.	
	November	To Date 1950	November	To Date 1950
Z Slugs	98.5	87.0	3.907	3.902
X Slugs	0.0	11.3	--	3.858
Rejects	1.5	1.7		
Total	100.0	100.0		

Inspection and Testing

Autoclave results were as follows:

	October	November	To Date 1950
	0.29/M	0.56/M	0.25/M

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P Division

There were twenty-five autoclave failures during the month, 14 were complete and 11 were partial.

A major portion of autoclave failures was due to minute pin holes through the weld bead extending into unbonded areas between the cap and the can side wall. It is suspected that this condition results from poor cap braze at canning operation. Substantial efforts are being made to improve this condition.

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:

	Per Cent Usable		
	October	November	To Date 1950
Aluminum Caps	99.4	99.6	98.4
Aluminum Cans	94.6	96.5	94.0
Steel Sleeves	*	96.3	85.7

* No sleeves were inspected during November.

The re-inspection of P-10-A slugs returned from the 105-DR test was completed during the month. One thousand thirty-two (1032) of these slugs were found to be satisfactory for normal pile irradiation. This represents 96.5 per cent of the slugs inspected.

Material Handling

During the month, 87 tons of alpha rolled rods were received from Simonds Saw and Steel Company.

Fifty-one (51) tons of billets were shipped to Simonds Saw and Steel Company for alpha rolling.

A total of 135 U_{235} alloy slugs was transferred to the 100 Areas making a total of 7,495 pieces transferred to date. Only 41 acceptable canned pieces remain in storage for transfer.

305 Test Pile

Calibration of a 30 inch section of the control rod was completed during the month, requiring approximately two shifts of operating time.

A total of 498 tests was run during the month, 11 on billet eggs, 61 on regular slugs, 312 on P-10-A material, 12 on "J" Al-Si bath material and the following special work requests:

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P Division [redacted] DECLASSIFIED

Request No.	Title	No. of Tests
161	To irradiate gold foil.	1
162	To determine the cross section of Aqua-dag.	2
163	To measure the reactivity of two samples of uranium.	2
164	To measure the absorption cross section of magnesium.	6
166	To measure the inhour value of P-10 pieces used in DR test.	15
103	To test bare and canned slug reactivity.	76

Special Hazards

Two railroad box cars which contained rods shipped from Simonds Saw and Steel Company arrived in a severely contaminated condition. Extensive decontamination measures including the replacement of sections of the flooring were required before the cars were successfully decontaminated to less than 4 mrep/hr.

Development

A new procedure was devised by the Statistical Group for the sampling and testing of P-10-A material which is expected to result in a 40% reduction of the testing time. Details of the procedure are described in Document No. HW-19530.

As part of a program to recover the uranium oxide from MD-4 material (miscellaneous graphite parts containing less than 1% uranium used in the melt plant) a small temporary furnace was constructed near 314 Building for burning the graphite so that the uranium oxide may be recovered from the ash. Two thousand three hundred ninety pounds (2390) of material were burned in November. It is estimated that by the use of this furnace the present inventory of 100 barrels of this material can be burned in the next four months.

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December 5, 1950

S DIVISION

NOVEMBER, 1950

OPERATION SECTION

I. GENERAL

One hundred twenty-one charges were started in the Canyon Buildings, one hundred nineteen charges were processed through the Concentration Buildings and one hundred thirty-one charges were completed through the Isolation Building. In addition to the regular production shown above, three acid washes were completed through the Canyon, Concentration and Isolation Buildings and ten miscellaneous charges through the Isolation Building. The average purity for completed charges was 98.3 per cent.

	B Plant		T Plant		Combined	
	Normal	Acid Wash	Normal	Acid Wash	Normal	Acid Wash
Charges started in Canyon	65	1	56	2	121	3
Charges completed thru 224	64	1	52	2	116	3
Charges completed thru 231	66	1	52	2	118	3
Special charges thru 231	-	-	-	-	-	10

The average cooling time for metal processed was approximately 72 days with the minimum cooling reached for any one push processed during the period being 68 days. The over-all time cycle for the process, including the processing of three acid washes, was 11.2 hours based on a 29 day production month.

Canyon and Concentration Building Production Performance Data - (11-1-50 thru 11-30-50, inclusive)

For Completed Charges	B Plant	T Plant	Combined
Percentage of starting product in waste:			
This month	3.2 (a)	3.6 (a)	3.4
Last month	3.4 (b)	3.0 (b)	3.2
Cumulative to date	4.0 (c)	3.8 (c)	3.9

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	B Plant	T Plant	Combined
Percentage of starting product recovered:			
This month	96.7	97.1	96.9
Last month	96.2	97.4	96.8
Cumulative to date	96.8	95.7	96.2
Percentage of starting product accounted for:			
This month	99.9	100.7	100.3
Last month	99.6	100.4	100.0
Cumulative to date	100.8	99.5	100.1
Gamma decontamination factor (Log.)			
This month	7.05	7.32	7.14
Last month	7.03	7.27	7.14
Cumulative to date	7.31	7.34	7.33

(a), (b), (c): Includes waste from processing recycle. The recycle wastes are estimated as: (a) 0.010%-T Plant; 0.015%-B Plant. (b) 0.025%-T Plant; 0.015%-B Plant. (c) 0.072%-T Plant; 0.010%-B Plant.

Isolation Building Performance Data (11-1-50 to 11-30-50, inclusive)

	Prepared for Shipment	Recycle	Waste	Retained Samples	Material Balance
Average for this month	92.87	5.00	0.05	0.04	97.9
Average for last month	91.54	6.88	0.05	0.03	98.5
Average to date	95.42	4.83	0.05	0.014	100.3

II. ORGANIZATION AND PERSONNEL

Number of employees on payroll:

Beginning of month	535
End of month	551
Net increase	16

Changes which occurred:

1 transfer from weekly roll to monthly roll
2 transfers from other divisions (Technical Graduates-weekly roll)
2 transfers to other divisions (Technical Graduates-weekly roll)
18 transfers from other divisions (weekly roll)
2 terminated (weekly roll)

F. C. Black and T. C. Kilgress were promoted from Shift Supervisors to Senior Supervisors, November 1.

W. E. Burlingame, A. J. Low, Jr., T. H. Lyons, A. Motyka, G. H. Temple and D. S. Thompson were promoted from Supervisors-in-Training to Shift Supervisors, November 1.

B. Anderson, Jr. was promoted from Engineer on Assignment to Shift Supervisor, November 1.

D. L. Peterson was promoted from Technical Graduate to Supervisor-in-Training, November 1.

O. F. Beaulieu, Area Supervisor, was transferred from Operations to the Expansion Section on November 20 and will assume the responsibilities of Contact Engineer for the 234-5 facility on December 1.

III. AREA ACTIVITIES

Production Performance

B Plant operations for the month, with the exception of the failure of an encased metal waste line just outside the canyon, were relatively trouble free; accordingly, the sixty-one charges scheduled to start in the Canyon process were exceeded by four charges. Fifty-eight charges were scheduled to be started in the T Plant Canyon during the month; but due to a combination of retarding occurrences, including the development of several process leaks and failure of two agitators in the Canyon Building the runs started fell two short of the schedule. In both Plants an additional precipitator, located in cell 20L, was activated for use in parallel with the existing second cycle product precipitator, and the theoretical over-all time cycle for the Canyon and Concentration Processes was thus reduced to ten hours. The additional precipitator was placed in use in B Plant on November 4 and in T Plant on November 8.

Extraction Waste Losses - B and T Plants

Significant data on extraction waste losses are tabulated below:

	B Plant		T Plant	
	November	October	November	October
Analyses before rework	1.83	1.64	2.40	1.46
Analyses after rework (throw-away)	1.30	1.25	1.78	1.12
Average MWD/Ton	400	420	537	416

The average losses for T Plant reflect the higher percentage of Americium and Curium contained in the 600 Program material being processed.

Acid Washes - B and T Plants

One acid wash was completed through one parallel line in the Canyon Building and through the Concentration Building in B Plant. The only unusual pick-up made by this run was from the extraction section where the recovery (17.43%) was approximately double that normally obtained.

In preparation for processing of 600 Program material at T Plant, an acid wash was processed simultaneously through each of the parallel lines in the Canyon Building and through the Concentration Building with no unusual recovery of product; however, an acid pre-flush of equipment in Cells B, E and F recovered approximately 55% of a normal charge with about one-half of the material being picked up from the precipitator in F Cell. At month-end this problem was being thoroughly investigated. The following data detail the product recovery by the three washes:

Run	Extraction	Sect. 12 & 1st Cycle	2nd Cycle	221 Bldg.	224 Bldg.	Total thru Process	Preflush B E&F Cells
B-10-10-AW-1	17.43	17.28	5.53	40.24	7.30	47.54	26.8
T-10-10-AW-1	7.48	17.71	6.00	31.19	11.43	42.62	54.76
T-10-10-AW-2	1.37	19.11	5.28	25.76	-1.14	24.62	--
Recovery from F Cell by a special flush at month end.							12.30

Production Tests - B and T Plants and Isolation Building

Coating Waste Losses - (Production Test 221-B-8)

Evaluation of the use of water flushing of bare slugs following coating removal operations was continued at B Plant. At month-end the use of acid flushes was resumed temporarily to obtain more control data. The data obtained to date still indicate that a savings of product and uranium can be realized by the use of water flushes instead of 5% nitric acid flushes.

Thermal Decomposition of Peroxide in Supernatants from Peroxide Precipitations (Production Test 231-11)

No process difficulties were experienced in carrying out thermal decompositions of peroxide supernatants while using a 40 minute heating cycle to bring the temperature to 70°C. As in other phases of this test, the rate of decomposition was safe, although the time required from run to run was quite variable.

The filter cartridge in the 4 E position filter box for cell 4, in which the peroxide decomposition production test is being conducted, was removed for inspection after four months of operation. Although the CWS type filter paper had not failed, there was evidence that moisture is condensing on the filter. The possibility of using a de-entrainment trap in the system is being investigated.

Extraction Process Time Cycles - B and T Plants

In order to reduce the extraction process time cycle to ten hours, the extraction rework procedure was shortened by the following changes:

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a) a more rapid chemical addition rate, b) shorter digestion periods, c) lower precipitation temperatures, d) less cooling prior to start of centrifugation and e) increased centrifugation rate. No adverse effect on waste losses have been noted from the use of the altered rework procedure.

Concentration Building Process Time Cycles - B and T Plants

In order to reduce the time cycle through the lanthanum fluoride by-product and product cells to ten hours for each of these steps, the following changes in process were made in the Concentration Building at both B and T Plants: a) the volume of process charges was lowered by reducing the amount of dilution in the bismuth phosphate byproduct step by 1200 pounds; b) the digestion time during the lanthanum by-product precipitation was reduced 50%; c) centrifugation rates through the lanthanum fluoride byproduct step were increased from 70 lbs/minute to 90 lbs/minute; and d) displacement washes were substituted for slurry washes for the lanthanum fluoride byproduct cake. Only the reduction of charge volumes affected lanthanum fluoride product time cycles by reducing the volume of material requiring centrifugation. No adverse effects have been noted on waste losses.

Process Leak Problem - T Plant

Operation of T Plant Canyon process was handicapped during the month by process leaks which made it necessary to visually inspect many of the cells and portions of the pipe trench frequently. Leaks were found in the centrifuge to precipitator jet assemblies in both Sections 8 and 17. It was necessary to retain 46,000 pounds of cell drainage water containing 2.21% of a standard charge from these leaks and return it to the extraction step as dilution water. Later in the month, a leak was found in the pipe trench on the metal waste disposal system which was successfully repaired by reimpacting one of the pipe connectors. A total of 36,000 pounds of cell drainage waste containing high fission product activity originating from the metal waste leak was returned to extraction as dilution water. At month-end T Plant Canyon appeared to be free from process leaks.

Americium Recovery - Isolation Building

Late in the month processing of plutonium nitrate, which had been held for 10 months in sample cans, through a third peroxide precipitation for recovery of Americium (Document #GEH-17,585) was started at the Isolation Building. Based on analysis, the quantity of Americium obtained far exceeded the amount anticipated since it was necessary to process only eight of the twenty-five cans held for this purpose. The Americium bearing supernatants from the peroxide precipitation will be concentrated at the 234-5 Building in one of the recovery units early in December.

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WASTE DISPOSAL

Cribbing of Second Cycle Waste - T Plant

A total of 349,250 gallons of second decontamination cycle waste supernatant was cribbed from the X-112-T tank in the 200 West Area during the month.

Metal Waste Lines - B Plant

At the middle of the month the catch tank at the 154-BX diversion box was observed to be filling slowly with metal waste solution. Subsequent investigation disclosed that a leak had developed somewhere in the encased line between the canyon trench and the diversion box. Metal waste was rerouted from the canyon to the diversion box through a spare underground line.

Twice during the month the underground metal waste lines showed evidence of plugging. On 11-8-50 the jetting rate of metal waste batches suddenly rose from a normal of one hour to four hours. The line was freed with a 10,000# flush of 10% sodium bicarbonate. A few days after the metal waste had been rerouted because of the leak described above, nine hours was required to jet a waste due to partial plugging of the new line. Two bicarbonate flushes of 10,000 lbs. each were required to clear the line. At month end the cause for plugging had not been determined and was under investigation.

Waste Status

The status of the Waste storage areas as of November 30, 1950 is indicated in the following table.

200 East Area Waste

Tank Farm	Gallons (10^3) in Storage B	C	BX	BY	Total	Reserve Capacity in Batches to Process B	C	BX	BY	Total
Metal	1579	3374	3180	1675	9808	0	0	0	1245	1245
1st Cycle	2645	3170	2515	0	8330	0	0	189	647	836
2nd Cycle	1275	0	0	0	1275	Cribbed as necessary				
TBP Reserve	-	-	-	-	-	-	-	-	109 BY (758,000 gals)	

200 West Area Waste

Tank Farm	Gallons (10^3) in Storage T	U	TX	Total	Reserve Capacity Batches to Process T	U	TX	Total
Metal	1579	4737	2386	8702	0	0	1045	1045
1st Cycle	3170	1585	2894	7649	0	0	902	902
2nd Cycle	1154	0	0	1154	Cribbed as necessary			
TBP Reserve							115-TX (758,000 gals)	
Waste Evap. Reserve							116-TX (758,000 gals)	

MECHANICAL PERFORMANCE

Canyon Equipment Failures - B and T Plants

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

a) In B Plant the Section 16 precipitator motor shorted between phase windings. The entire agitator assembly was replaced with a new one.

b) In B Plant the precipitator to centrifuge "A" jet assemblies for both Section 8 and Section 13 were replaced because of severe steam leaks at the jet.

c) The Section 8 spray-distributor in B Plant was replaced due to a leaking steam flange on the jet.

d) In T Plant the precipitator to centrifuge "A" jet assemblies for Section 8 and Section 17 developed process solution leaks at the jet discharge flange and were replaced. The assembly from Section 17 will be repaired, but the one from Section 8 must be discarded.

e) In T Plant the Section 16 centrifuge to cake dissolution tank jet assembly became inoperative and was replaced. This assembly will be repaired if radiation levels permit.

f) In T Plant the agitators in Section 6 precipitator and the one in Section 8 cake dissolution tank failed and were replaced. The failure in Section 6 appeared to be due to mechanical troubles in the Phillie gear box while the failure in Section 8 appeared to be electrical in nature.

Concentration Building Mechanical Difficulties - B and T Plants

No serious mechanical difficulties were experienced during the month with B Plant Concentration Building equipment. Difficulties experienced with T Plant Concentration Building equipment are described below:

a) The motor on the A Cell precipitator agitator failed due to a fractured ball in the lower bearing. The motor was replaced with a spare. The failed motor will be repaired and held as a spare.

b) A series of high recycles from the Isolation Building process for T Plant runs led to an investigation of the sprays in B and E Cell centrifuges. The spray nozzles were found to be severely corroded and considerably enlarged. The sprays assemblies were replaced and have given satisfactory performance since the change.

IV. SPECIAL HAZARDS

Isolation Building Stack Gas Contamination

Samples taken throughout the month of air being exhausted through the Concentration Building 903 System showed that product contamination of this air stream continues to be constant at 1 x 10^{-11} ug/cc. Spot samples being taken from the various filter legs on this system have failed to disclose unusual activity being contributed from any one source.

V. PROCESS CONTROL

Dissolver Off-Gas Filter (Project C-337) and Silver Reactor (Project C-378)

The first dissolver off-gas filter - silver reactor installed in cell 4-L at 221-B Building in October continued to give satisfactory mechanical performance during the month. Efficiency figures have not yet been developed for the unit due to difficulty with the sampling system at the stack; however, based on studies of stack recontamination resulting from the dissolvers, the unit is performing as expected.

At month-end the second filter-reactor unit was being installed in Cell 3-R in T Plant. The third unit has been moved into the shop mock-up cell for connector fabrication, and it is expected that this unit will be installed in Cell 4-L in T Plant during December.

First Decontamination Cycle Waste Evaporation (Project C-369)

Design

The design phase of this project is complete with the exception of a few minor changes.

Construction

The over-all construction phase of the project is on schedule with no procurement problems being encountered to date.

Special Samples

Two 100 ml samples from the 3-5L dissolver in T Plant were obtained and delivered to the Separations Technology Division.

VI. EXPANSION SECTION

TBP Project (C-362)

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Essential Materials

The low bidder for supplying the nitric acid demand for the Expansion Projects was the General Chemical Co. who will erect a plant at Hedges, Washington and ship to the project via tank truck.

The percolation neutralization of condensate wastes will require use of Aragonite, a high-grade $CaCO_3$ as determined by the Separations Technology Division. The Purchasing and Stores Division was requested to purchase an initial inventory of 105 tons of Aragonite on a no substitute basis unless competitive products could be satisfactorily proven equal or better by the Chemical Research Section.

The Design and Construction Divisions agreed to provide additional dry chemical storage based on the Manufacturing Divisions request showing a shortage of storage area. A temporary construction building is being considered for this service.

Design

Phase I - Metal Removal - One Cascade

1. To date 279 of a total 481 prints have been received. This month 140 prints, indicating an increase in print receipts, were received.

2. The contract award to the Johnston Pump Company was made for all of the Phase I and II pump installations with the exception of the sludge pumps which, it is expected, will be awarded to the Nagel Pump Company. The pumps will incorporate the same design features requested for Phase IV pumps.

3. The 50,000 gallon 241-WR Diversion Vault tanks, originally to be fabricated by A & J, are being bid on by the Chicago Bridge and Iron Company and the Willamette Iron Company. The need for experience in this fabrication was recognized.

4. A change in scope (by the Kellex Corporation), based on economics, recommended substitution of individual filter cartridges, exhaust fan and stack at each cascade tank instead of headering this vent system to the 291-UR stack. The Stack Gas Disposal Group of the Separations Technology Division was given the responsibility of supplying design specifications for the glass wool media.

Phase II - Metal Removal - Remaining Cascades

1. Work authority C-362 (2), Release No. 10 was issued by the Design and Construction Divisions this month. The release authorizes the Kellex Corporation to proceed with the preparation of detailed design of Phase II subject to revision upon review and final approval of the scope material upon which they are based.

2. Twelve scope drawings were received consisting of engineering and Process Flow Diagrams for the three waste removal units in Phase II. A comment meeting was subsequently held on these prints. Since they paralleled the Phase I material very closely, comments were in general confined to details and drafting errors.

Phase III - Design of Underground Pipe Lines

1. Work authority C-362 (11) Release No. 7 authorized A & J Construction Company to proceed with the construction of the fluid transfer system between East and West Areas. Excavation was begun on 11-21-50 and is to be completed by September 1, 1951.

2. A proposal by D & C, based on savings, to substitute an arched Armco steel roof for the HW Standards Committee concrete slab cover for the east-west pipe line was not accepted by the Manufacturing Divisions. The insignificant over-all savings failed to impress the need for relaxation from a proven standard.

3. Revision Request 362-16 authorizing the use of $CaCO_3$ neutralization for condensate wastes was approved 11-28-50. This method, involving percolating these wastes through a bed of $CaCO_3$, replaces the originally scoped method of batch neutralization in the condensate sampler tanks using NaOH or Soda Ash. Better pH control is anticipated.

Phase IV - Reactivation of 200 U for TBP

1. The design of the free nut to be used in mounting pumps and agitators on vessels for Project C-362 includes the present problem of handling and retaining these nuts as found in the $BiPo_4$ operation. The Manufacturing Divisions suggestions were given to Kellex who are currently studying this problem.

2. At month-end the Pulse Generator status is summarized as follows: 1) all design prints have been authorized, 2) preliminary work by the vendor has begun on casting and machining, and 3) sub-vendor parts are on order.

   Trial operation of this equipment is planned for January, 1951.

3. Graphic panel layout prints were submitted to six vendors this month for bids.

4. RA and RC column design prints were reviewed by the Manufacturing Divisions, D&C, Kellex, and the Separations Technology Divisions. Prints changes were requested to require less detail of column design so that the vendor could apply his own established methods.

   Vendors were requested to supply bids of alternate designs of a) trays and tray supports removable through the top manhole as a

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bundle or bundles, and b) unitized design in which no internals are removable.

5. Need for 275-W Building for $BiPO_4$ dry chemical storage required re-evaluation of storage areas for TBP requirements. Present thinking is to convert a temporary construction building to TBP storage needs.

6. Lists of the miscellaneous operating supplies to be required for operation of Projects C-361 and C-362 were prepared. This data will be reviewed and issued in final form by the Training and Procedures Group of the S Division Expansion Section.

7. The Johnston Pump Company received the order for Phase IV pumps. Their prototype, to arrive here approximately December 10, is similar in design to the Peerless Pump. It was generally agreed that the previously successful tests of the Peerless prototype at this site will be applicable to the Johnston Pump.

8. During the month 144 miscellaneous Phase IV prints were received and reviewed. At month end 176 prints had been received.

Construction

Phase I

Layouts for 241 UR, 244 UR, 241 WR, and 151 UR were made this month and excavation work begun on these facilities at the 241 U Tank Farm area. To accomodate contaminated earth removal, the area fence was extended 100' westward. At month end the following work status exists.

1. The top soil has been removed from the first cascade series.

2. Excavation work at 244 UR is 90% complete.

3. The bottom, east wall, and half of the south wall of 151 UR Diversion Box has been poured.

4. Approximately 65% of the excavation work has been completed on 241 WR.

Phase III

The 200 East Area to 200 West Area pipeline survey was completed this month.

Excavation on the east-west pipeline began 11-21-50 and at month-end 25% of the excavation work required between the 154 UX and 151 ER Diversion Boxes was completed.

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Phase IV

All work on underground piping in 277-U was completed this month. At month-end the floor is approximately 60% complete. The building is estimated to be 10% finished.

Phase V

Stripping of the U Plant Buildings has progressed on schedule this month. It is anticipated that this work will be completed by January 1, 1951. The following data summarizes the progress at month end.

Location	Stripping Complete
221 U Pipe Gallery	70%
Operating Gallery piping	70%
Instruments and panels	95%
Canyon	75%
Over-all building	77%
224 U Over-all building	20%

UO_3 Project

1. On the basis of information received from AEC, the use of non-returnable drums and pallets will be adopted for shipment of UO_3 off the site. Design instructions were issued for facilities for handling and storage of this type container.

   Seven prints of the storage building have been received and approved at month-end and bids were recently received on the fork lift loading truck. Completion is forecasted for April or May, 1951.

2. A directive was issued by C. N. Gross to W. E. Johnson this month authorizing $5,000 for the additional study of a continuous method of decomposing UNH to UO_3.

   Messrs. J. M. Frame of the D&C Divisions and M. Harmon of the Separations Technology Division visited the Mallinckrodt UO_3 Plant in order to obtain plant data on the continuous process.

   At month-end the continuous process investigation and plans for the UO_3 pot line were both being continued. The UO_3 pot line necessarily will be continued. It is recognized that the continuous process, if adopted, may involve the installation of both the continuous and batch processes.

Redox (Project C-187-D)

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Design

1. Part II of the Redox Project Proposal was issued by the Design Division for signature on October 31, 1950. A more accurate cost estimate for the Redox facilities (based on essentially complete design and approximately 25% complete construction) was included in this document. The estimate indicated that the expected cost would be some $7,032,500 under that originally estimated and recorded in HDC-1609 (Redox Project Proposal). AEC Directive HW-99, Modification No. 4 reducing the funds available for Redox Construction to $44,000,000 has been received.

2. Testing activities by the Separations Technology Division on a simulated plant installation of the Proportioneer injection pump and the Architect-Engineer's design of acid-organic mixing chamber and piping have pointed out some potential difficulties with the installation as presently shown on the construction prints. Based on these findings, meetings were held with representatives of the Design Division, the Separations Technology Division, the Instrument Division, and the S Division to discuss results and to determine what changes in the system were desirable. By agreement of all concerned, it has been decided to test several modifications of the system in the 300 Area to determine exactly the magnitude and extent of the changes required in the Production Plant piping prior to the time a Field Change Request is issued.

3. Discussions were held during the past month by the representatives of the Separations Technology Division, the Purchasing and Stores Division, the Shell Oil Company, and the S Division to determine whether the present solvent purchase specifications could be relaxed to permit advantage to be taken of the lower price of commercial grade solvent as prepared by the Shell Oil Company. A decision on this matter is pending the exchange of additional information by the Shell Oil Company and the Separations Technology Division.

4. In accordance with information received during the past month from the Separations Technology Division, cobalt nitrate has been removed from the list of essential materials from the Redox Plant and potassium permanganate has been added. The cobalt nitrate was to be used as a catalyst in the ozonization step, and the potassium permanganate is intended as an essential material in the probable substitution of an MnO_2 scavaging step for the super-filtrol step currently shown on the flow sheet.

5. Based on recommendations of the Fire and Safety Division and the Manufacturing Chemists' Association, a decision has been made to handle the unloading and storage of Redox solvent as a flammable liquid although the open cup flash point (81°F) does not fall strictly within the definition of flammable solvents as outlined by ICC regulations (open cup flash point 80°F and below). It is

felt that the minor variation in flash points does not justify the handling of the material as anything but a flammable solvent. To meet acceptable operating practice for solvent handling, the Design Division has placed on order the necessary Protectoseal tank car manhole cover recommended by the Manufacturing Chemists' Association, and minor alterations to the solvent unloading spot piping are under way.

A study was made during the past month of the material handling problems to be encountered in the chemical storage and aqueous make-up portion of the 202-S Building. As this study is issued, a request will be made of the Design Division to procure specific items of equipment such as Mercury Jeep, pallets, and barrel handling and unloading equipment. An analysis of the storage space available in the 202-S Building indicates that 5 months' supply of all dry chemicals can be stored in the building without excessive crowding, and without the use of so called "storage gallery" beneath the south sample gallery of the building.

6. A key listing of all connectors in the cells and silo area of the 202-S Building was issued by the S Division Expansion Section during the past month. This listing includes the operating numbers assigned to the cell wall connectors as well as an indication of line routing and/or the service to which each connector has been placed. Work is continuing on the modification of certain Architect-Engineer's cell layout drawings by adding identification, connector numbers, etc., to provide a ready reference in book form for both construction checking and subsequent operation of the building. Approximately 25 drawings are involved.

7. Because of the lack of available data to indicate what corrosion effects might be experienced in the induction heating of the cross country UNH transfer line, this type of heating has definitely been discarded in favor of the system whereby electrical heating cable is embedded in the insulation of the pipe. Design is now progressing on this basis.

8. The question of the advisability and necessity of heat treating short radius pipe bends for the 202-S Building has been raised. Based on recommendations from the Operations Maintenance Division and on plant experience to date, it has been tentatively proposed by the Design Division that heat treating of short radius pipe bends in 202-S Building cell jumpers be waived. However, until a more definite determination can be made of the heat treating involved in the pipe tunnel piping, this waiver does not extend to short radius bends in this location.

Construction

1. 202-S Building

a. Building Structure is estimated to be 60% complete. Concrete work at the crane cab level progressed rapidly during the past month with all crane cab way floor pours essentially complete. Crane rail has been laid at the east end of the building and a 10-ton construction crane has been set in place. Concrete finishing work has started in the silo tower shaft and is continuing in the pipe tunnel and in the sample galleries. Concrete in the silo and in the aqueous make-up portion of the building has been generally poured to the 142 foot level. Pouring of the north pipe shaft and the elevator shaft has been completed to the 135 foot level.

Work has continued on the installation of temporary wooden cell covers on all cells and swinging scaffold has been installed in the covered cells for the convenience of the concrete finishers.

b. Process Equipment is estimated to be 14% complete. This estimate includes the installation of all kick plates and the accompanying pipe through concrete.

c. Building Piping is estimated to be 19.5% complete. Work is continuing on piping installations in the north and south sample galleries. Erections of floor drain headers and chemical drain headers has been started in the south pipe gallery.

d. Building Electrical Work is estimated to be 20% complete. The installation of conduit continued ahead of the concrete pours and the pulling in of some lighting circuits in the lower portions of the building has been accomplished.

e. Over-all Building Completion is estimated to be 29% complete.

2. 277-S Building

Over-all building completion is estimated to be 91% complete. The rolling doors at the railroad entrances of the building are scheduled for receipt and installation during the first part of the coming month. The placement and painting of mock-up steel was completed during the past month, however, progress continues to be slow on the fitting of the Y frame rails in the mock-up pits. Acceptance Tests are continuing on the electrical portions of the building. Punch lists of uncongested building items are at present being prepared by the Expansion Section.

3. 291-S Building

Work on the 291-S facilities is estimated to be 47% complete. All concrete for the 200 foot ventilation stack has now been placed.

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Concrete pouring is in progress for the ventilation duct work from the sand filter to the fan base and for the line encasement surrounding the tank vent lines to the stack jets. Forming and reinforcing steel installation is under way for the jet pit adjacent to the stack. The shell of the sand filter including the prefabricated cover blocks is essentially complete, however, no clean up work on the interior of the filter has been started.

4. 241-S Building

Work on the 241-S facilities is estimated to be 23% complete. Repairs to the knuckle plate sections of tank 110 are completed and are in the process of examination by X-ray. Reports from the initial X-ray indicate quite satisfactory repair work has been done and very little re-weld will be necessary. The last shipment of knuckle plates received is considerably improved in both plate fitting and in welding. Knuckle plate sections are being set for tanks 101, 104, and 107, and five sections of vertical side shell have been prefabricated and are ready for final placement.

The placement of gravel underneath the waste cribs has been started and two wall sections of the 207-S retention basin have been poured. Concrete covers are being placed on tested sections of 240-S waste line so that backfilling and the installation of water lines over the encasement may take place.

5. Outside Lines

The status of completion of outside lines is estimated as follows:

Water	42% complete
sanitary tile field	91% complete
sanitary sewers	55% complete
process sewers	50% complete
241-S Waste Lines	35% complete
Steam	65% complete

The placement of insulation on the main steam line to the 202-S Area has been started and steam has been turned into the header mainly to supply the 241-S construction area with this service. An area water shutdown was made on 11-11-50 for the installation of pumps and valves in the 282 Building, the installation of isolation valves in the water lines supplying the U Area, and the tie-in of new water lines supplying Redox plant at the U Area Road. Backfilling is essentially completed on all accepted portions of the raw and sanitary water lines.

6. Pipe Shop

To date 37 assorted pipe jumpers have been fabricated in the pipe shop. This work is continuing at an increasing rate as more experience in jumper fabrication is accumulated.

7. Slab Yards

Cover blocks cast to date are as follows:

1. Canyon - Type A 35 (complete)
   Type B 15 of 26 complete
   Type C 2 (complete)
   Type D 1 (complete)

2. Silo - Type G 1 (complete)
   Type H 1 (complete)

3. 240-S 1 Encasement block (complete)

In addition to the above, a number of diversion box blocks have been poured.

Training and Procedures

1. Training

The training manual "An Introduction to the Redox Plant" has been completed and is being distributed to S Division Supervision. The training manual "An Introduction to the TBP-UO_3 Plant" is nearly completed and will be issued early in December.

The Training Lectures started, as scheduled, on November 13, and are being given three afternoons a week in 200 West Area. These lectures are being given for S Division supervision on topics pertinent to the operation of the Redox and TBP-UO_3 plants.

Alterations are in progress on the demonstration and scale-up test columns at the Chemical Development Section's 321 Building. These columns will be used, late in the winter, for operational training of Redox and TBP-UO_3 plant forces.

2. Procedures

a. General

The major effort, during this month has been devoted to the Introductory Manuals and the Training Lecture Series, above. Major effort will henceforth be directed toward accumulation of the operating procedures, forms and supplies required for plant start-up.

b. Redox

A preliminary draft of flushing and testing procedures on equipment and piping has been written. Work is in progress

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on the writing of safety rules, emergency procedures, and essential material control procedures. Check lists of operating supplies required for plant operation have been prepared.

c. TBP-UO_3

Work is in progress on the writing of safety rules and emergency procedures. A rough draft of the accountability procedure has been written. Check lists of operating supplies needed for plant operation have been prepared.

POWER DIVISION
NOVEMBER 1950

GENERAL

Water treatment was satisfactory for the month, notwithstanding two sudden changes in raw river water quality which made necessary an increase in cogulant dosage.

The lowest rates of coagulant feed in the history of the plant were experienced in the 100 Areas during the month, averaging about 4.0 ppm for the five 100 Areas. Coagulant feed was reduced to such a point in some of the areas that no lime was required for pH control.

PERSONNEL AND ORGANIZATION

No. of employees on payroll - November

Beginning of month	556
End of month	565
Net Increase	9

The indicated net increase is the result of five employees leaving the Division, the transfer into the Division of thirteen employees, and the reinstatement of one supervisor who had been removed from the payroll on account of illness. Those leaving the Division included two terminations, and three transfers to other Divisions.

100 AREAS

The No. 1 process pump motor in the 190 Process Pump House in the 100-B Area, which failed on October 4 was repaired and returned to service on November 1.

The removal of concrete at the base of the deaerators and disconnecting of deaerator piping preliminary to actual removal of deaerators was in progress in the 100-D Area 185 Deaeration Building during the latter part of the month. This work is being done on the C-172 Deaerator Removal Project.

The emergency generator in the 184 Power House in the 100-D Area was not available for service from 10:45 a.m. to 2:40 p.m. on November 17 while repairs were made to the Cochrane Multiport valve on the exhaust line.

The Fire and Sanitary elevated water storage tank in the 100-F Area was out of service from 8:45 a.m. to 3:30 p.m. on November 16 while leaks in the tank were repaired.

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Power Division

In the 100-H Area on November 14, the 10-inch normal water supply line to the 184 Power House was out of service from 8:30 a.m. to 11:00 a.m. to repair a leak in a pipe joint.

Additional Zeo-Dur media was added to water softeners in the 100-H Area, 184 Power House, on November 13 and 14 to restore the beds to their original depth.

In the 100-DR Area, the Fire and Sanitary waterline between the 190-DR Process Pump House and the 105-DR Pile Building was out of service on November 24 and again from November 27 to November 29 in order to repair leaks.

In the 100-DR Area, the No. 4 process water storage tank was taken out of service and drained on November 24 and again on November 28, 29, and 30, while unsuccessful attempts were made to find leaks in the floor of the tank. Further exploratory work is planned at the month's end.

The installation of an electric hoist in the 185 Deaerator Building in the 100-D Area on November 22 completes Project No. C-396 for the transfer of dichromate equipment from the 108 Chemical Mixing Building.

In the 100-F Area, 185 Deaerator Building, the No. 8 deaerator which fell to the forty foot level when rigging facilities broke on October 26, was successfully lowered to the ground on November 22. After necessary piping work, water lines and storage tanks, which had been isolated since October 26, were returned to normal service on November 30.

200 AREAS

The 225 psi steam line to the new 2724 Laundry Building in the 200 West Area, was placed in service on November 2.

An additional boiler was put into service on November 8 in the 200 West Area, 284 Power House, because of colder weather and additional construction area loads.

The raw and sanitary water lines supplying the Redox construction area, "U" Separations Area, 231 Isolation Building, and 234-5 Facility were out of service from 6:00 a.m. to 3:00 p.m. on November 11, while construction forces made the tie-in for connection of the new water pump, and installed a 20-inch valve in place of the blank flange at the end of the main water header in the 282 Reservoir Building.

During this same shut-down, the tie-in of the raw and sanitary water lines serving the Redox Area was made and new 12-inch valves were installed in the water lines serving the "U" Separations Area near Third Street. Minimum sanitary water requirements were supplied to

Power Division

the 234-5 Facility and 231 Isolation Building from the 234-5 Facility high tank. The 225 psi steam line serving the "U" Separations Area was removed from service for five hours in order to make a 6-inch connection to serve the construction slab yard. All work accomplished during the shutdown was in connection with Project C-187-D, with the exception of the steam tie-in, which was done on Project C-362.

A total electrical outage to the 222-U Health Instrument Laboratory was in effect from 8:00 a.m. to 4:00 p.m. on November 13 at the request of the Electrical Division to allow relocation of construction area distribution lines. All ventilation equipment was out of service during this period. This work is being done on Project C-362.

In the 284 Power House, at 10:20 a.m. on November 24, battery cell No. 21 exploded. This group of batteries provides emergency power for lights and controls. Further study to determine the cause is being made.

The 20-inch raw water line to the Redox Area was placed in service on Novembe 21.

Work under Project C-187-D is in progress in the 284 Power House on the relocation of auxiliary equipment, switchgear and battery room; work has also been started on the foundations for the new emergency generator.

Satisfactory performance tests were completed on the new 3,000 gpm raw water pump in the 282 Reservoir Building on November 22.

A power outage for twenty-one minutes occurred November 28 as a result of a construction crane contacting the 13.8 kv lines in the Redox Area. This outage affected all electrical equipment in the 282 Reservoir Building, 283 Filter Plant, 231 Isolation Buulding, one-half of th 221-T Canyon Building, as well as the compressors and ventilation units in the 224 Concentration Building and the 271 Service Building. Normal service was restored by 11:30 a.m., but at 11:35 a.m. the same circuits again tripped out. Service was restored at 11:45 a.m.

300 AREA

The relocation of water lines from No. 3 and No. 4 wells to the 321 Cold Separation Laboratory has been completed as required for the construction of the Health Instrument Control and Development Laboratory under Project C-394-II.

101 SHOPS

The second boiler was placed in service on November 9, due to the increased steam demand.

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Power Division

Work continues on the preparation of roof-mounted ventilation units for winter service. High wind and rain damage to the insulation on these units has necessitated fairly extensive repairs.

The gasoline motor on No. 7 well was disconnected on November 27 and the coupling removed for repairs. The pump can be operated by electric motor until repairs have been completed. Emergency standby service is being maintained by the Hanford Booster Station.

POWER ENGINEERING SECTION

The review and correction of Acceptance Test Procedures for Redox Buildings is in progress and is nearing completion.

A preliminary study for expansion of power facilities in the 300 Area has been made and tentative conclusions reached in regard to the scope of this work.

A summary of estimated future steam loads and other operational data has been furnished to the Project Engineering Divisions for assistance in a study to determine the feasibility of converting power houses to use natural gas as fuel.

Data for the Achievement Report of the Power Division covering the period September 1946 to October 1950 has been completed and submitted.

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[redacted] POWER DIVISION STATISTICS

From November 1, 1950

Through November 30, 1950

		AREAS				
		100-B	100-D	100-DR	100-F	100-H
RIVER PUMP HOUSE (Bldg. 181)						
River Elevation (msl ft.)	(max)	390.3	381.9		368.4	374.0
	(min)	386.8	379.0		365.5	371.0
	(avg)	388.6	380.5		367.0	372.5
River Temperature	avg. °F.	51.6	52.2		52.5	52.2
Water to Reservoir	gpm avg. rate	41,540	54,011		38,830	47,089
Water to 183-DR	gpm avg. rate		26,737			
RESERVOIR (Bldg. 182)						
Flow to Filter Plant	gpm avg.rate	35,347	44,997		34,645	42,223
Flow to Cond. System	gpm avg.rate	4,115	3,424		3,548	4,233
Flow to Cond. System (DR)	gpm avg.rate		3,540			
Flow to Export System	gpm avg. rate	2,078	2,050		637	628
Flow to Export System	gpm nor.rate	5,393	5,393		5,393	5,393
Chlorine, Added (#1 Inlet)	Pounds	9,950	9,000		15,000	11,000
FILTERED WATER (Bldg. 183)						
Flow to Power House	gpm avg.rate	283	488		250	230
Flow to Process (190)	gpm avg.rate	32,739	33,428	33,432	29,991	40,450
Flow to DR	gpm avg.rate		7,066			
Flow to Fire & Sanitary	gpm avg.rate	184	219	--	223	108
WATER TREATMENT (Bldg. 183)						
Chlorine - Consumed	pounds	3,800	4,900	9,305	3,000	4,000
	ppm avg.	.97	.77	.97	1.31	.91
Lime - Consumed	pounds	4,700	15,300	12,300	7,000	12,000
	ppm avg.	.4	.9	1.3	.6	.8
Coag - Consumed	pounds	44,400	60,000	40,000	45,000	57,520
	ppm avg.	3.5	3.7	4.2	3.6	3.8
Raw Water pH	ppm avg.	8.09	8.02	8.16	8.00	8.10
Finished Water pH	ppm avg.	7.70	7.72	7.67	7.75	7.77
Alkalinity, M.O. - Raw	ppm avg.	55	57	55	60	60
Finished	ppm avg.	53	53	53	58	58
Residual Chl. - Settled	ppm avg.	.25	.20	No Anal.	.19	.19
Finished	ppm avg.	.14	.09	.14	.10	.14
Iron - Raw	ppm avg.	.08	.07	.08	.08	.08
North Clearwell	ppm avg.	.016	.016	.007	.011	.015
South Clearwell	ppm avg.	.016	.016	.007	.013	.015
Hardness - Finished	ppm avg.	66	58	71	62	69
Turbidity - Raw	ppm avg.	3	4	4	2	4
Filtered	ppm avg.	0	0	0	0	0

Power Division Statistics

From November 1, 1950

Through November 30, 1950

		100-B	100-D	100-DR	100-F	100-H
POWER HOUSE (Bldg. 184)						
Maximum Steam Generated	lbs/hr.	164,000	302,000		171,000	136,000
Total Steam Generated	M lbs.	104,304	174,609		88,444	80,296
Steam Load - Avg. Rate	lbs/hr.	144,866	242,512		122,839	111,521
225 psi Steam to Plant(est)	M lbs	87,646	147,264		74,196	67,287
15 psi Steam to Plant(est)	M lbs	804	804		804	804
Coal Consumed	Tons	6,612	10,790		5,819	5,300
Coal in Storage (est)	Tons	39,831	40,542		35,608	38,543
TANKS (190 Bldg.)						
Flow to 190	gpm avg.rate	32,489	33,178	33,432	29,741	40,200
Dichromate - Consumed	pounds	20,600	21,100	23,000	18,700	27,700
Chemical Analysis:						
pH	pH avg.	7.63	7.65	7.66	7.65	7.67
Dichromate	ppm avg.	1.8	1.9	1.9	1.8	1.8
PROCESS PUMP ROOM (Bldg. 190)						
Flow to 105	gpm avg.rate	32,314	33,003	33,005	29,566	40,025
	gpm nor.rate	33,750	34,000	36,700	30,500	41,110
Water Temperature	Avg. °F.	54.1	54.1	54.1	53.7	54.0
VALVE PIT (Bldg. 105)						
Solids Consumed	pounds	1,500	900	2,300	900	4,200
Chemical Analysis:						
A, B, C, & D Headers						
Standard Limits						
pH 7.5 - 7.8	pH (max)	7.70	7.70	7.70	7.65	7.60
	(min)	7.60	7.60	7.60	7.60	7.60
	(avg)	7.63	7.65	7.65	7.63	7.60
$Na_2Cr_2O_7$ 1.8 - 2.2	ppm (max)	1.9	2.0	2.0	1.9	2.0
	(min)	1.7	1.7	1.7	1.7	1.7
	(avg)	1.8	1.8	1.8	1.8	1.8
Iron	ppm (max)	.020	.015	.015	.015	.020
	(min)	.005	.005	.005	.010	.010
	(avg)	.010	.010	.010	.013	.013
Chlorides	ppm (avg)	1.2	1.1	1.2	1.3	1.1

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Power Division Statistics

From November 1, 1950

Through November 30, 1950

		200 AREAS	
		200-E	200-W
RESERVOIR (Bldg. 282)			
Raw Water Pumped	gpm avg. rate	2,466	2,927
FILTER PLANT (Building 283)			
Filtered Water Pumped	gpm avg. rate	303	713
Chlorine Consumed	lb.	110	257
Alum Consumed	lb.	792	1,484
Chlorine Residual - Sanitary Water	ppm	.47	.48
POWER HOUSE (Bldg. 284)			
Maximum Steam Generated	lbs./hr.	35,583	99,000
Steam Generated - Total	M lb.	22,431	51,199
Steam Generated - Ave. Rate	lb./hr.	31,154	71,109
Coal Consumed (Est.)	Tons	1,450	2,745
Coal in Storage (Est.)	Tons	9,218	20,837

		300 AREA
POWER HOUSE (Bldg. 384)		
Maximum Steam Generated	lbs./hr.	28,000
Steam Generated - Total	M lb.	14,847
Steam Generated - Avg. Rate	lb./hr.	20,620
Coal Consumed - Total (Est.)	Tons	1,036
Coal in Storage (Est.)	Tons	1,882
SANITARY AND FIRE SYSTEM		
Sanitary Water from 3000 Area	gal.	24,384,000
Well Water Pumped - Total	gal.	0
Total Water Per Day	gal/day	812,800
Total Water	gpm avg. rate	564
Chlorine Residual	ppm	.30

		MISCELLANEOUS AREAS
WHITE BLUFFS		
Ice Manufactured	lbs.	1,200
101 SHOPS		
Coal Consumed	Tons	185

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INSTRUMENT DIVISION
MONTHLY REPORT

November, 1950

GENERAL

Personnel procurement waned this month with an overall increase of two. With 40 open requisitions there are 24 in process and 25% of these have not responded to call. It now appears necessary to accept non-qualified (Trainees) personnel to meet future requirements.

Construction of the new 300 Area Instrument Maintenance and Development Shop, Building 3717-B (Project C-377-R) is proceeding normally.

A good portion of productive work is being accomplished in addition to training of new personnel in the White Bluffs Training School. Surplus instruments from various plant facilities are being reconditioned and modified to meet requirements of new installations. To date approximately 75% of those applicable to the TBP plant have been completed. Extensive conversion of six potentiometric recorders for special application of the Technical Division has been completed.

100 AREAS

In addition to concentrating on the completion of items remaining from construction of 100-DR area, a concerted effort has been made to extend the range of instruments to meet higher power level operating requirements.

100-B Area

The maximum range of the Power Level recorder was raised from 320 MW to 395 MW.

Three mass spectrometer leak detectors are now in operation in Building 108-B (P-10). More reliable operation has been evident with increased training of personnel.

100-D Area

The maximum range of the Power Level recorder was increased to 430 MW.

Moisture collection from the pile atmosphere has been normal, indicating that leaks have been corrected.

The NEPA creep test was discontinued due to excessive sample temperatures resulting from neutron flux. The sample will be repositioned during the next shut-down.

100-DR Area

The maximum range of the Power Level recorder was increased from 450 MW to 520 MW.

Wiring of the IBM Temperature Monitor has been completed and the unit put in service.

100-F Area

Maximum range of the Power Level recorder was extended to 410 MW.

New nozzles are being equipped with pressure connections and valves in preparation for the nozzle replacement program.

Failure of thermocouple insulation and protective Saran tubing is becoming more evident. Studies are under way to determine materials to withstand high flux fields of radiation.

Increasing pressures in the zone of 0.140 inches orifices that have not been corrected by purging has necessitated increasing the pressure ranges of the affected gauges. Purchase of new gauges will be necessary if pressure ranges continue to increase.

100-H Area

Maximum range of the Power Level recorder was increased to 560 MW.

SHUT-DOWN EXPERIENCE

100-B Area - None due to instrument failure.

100-D Area - None due to instrument failure.

100-DR Area - Scrammed at 9:21 P.M. November 11, 1950, due to indicated surge on No. 1. Beckman. Thorough check did not reveal cause. Shut down at 2:00 A.M. November 18, 1950, due to low pressure on Pressure Monitor not explainable in allotted time. Cause found to be a ruptured bourdon tube in the gauge.

100-F Area - Shut down at 6:28 P.M. November 8, due to high pressure alarm. No instrument failure; pressure lowered to permit operation within specified limits.

100-H Area - Scrammed at 2:11 P.M. November 9, 1950, due to loss of instrument power on P-13 equipment. No instrument failure. Scrammed at 2:00 P.M. November 30, 1950, due to surge on No. 1 Beckman. Instrument found to be unstable but cause not determined.

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200 AREAS

T & B Plant Production Instruments

Intermittent failure of solenoids used to change crane periscope magnification was traced to a faulty switch in the electrical circuit. Replacement of the switch corrected the difficulty.

Project C-395

Instrumentation is complete for the parallel operation of Sections 19 and 20 in both T and B Plants.

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

All instrumentation for the first installation is functioning properly. Instrumentation for the second unit is complete with the exception of the transmission lines.

Z Area Production Instruments

Life of thermocouples in Hood 8 has been extended by sheathing them in Tygon tubing as protection against corrosion from HF gas. Design improvement is under way to dissipate heat from the tubing adaptor to increase sheath life.

Ventilating System - Building 234-5

The Johnson Service Company has supplied eight new control valves for replacement on the re-heat coils in compliance with their replacement agreement. The old valves are being returned to them.

Project C-392 (Additional Vacuum System for Hood 25)

Instrumentation is complete with the exception of conversion of one Brown recorder. On the first production run a considerable improvement in process time was experienced.

Project 432 (Building 234-5 RM Line)

Liaison service between construction forces and the operating groups is being maintained by the field maintenance engineers during installation of this equipment.

300 AREA
MANUFACTURING SECTION

Project C-340 - (P-11)

Bearings and gears for the Liquid Level indicator have been installed. The unit is now undergoing preliminary tests. Selsyn receivers have not yet been received.

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

Machine work on 30 units has been completed and 6 complete units have been delivered. The balance is awaiting delivery of material.

Project C-333 - H.I. Operational Division Survey Instruments

Fifty-five portable poppy units were modified and delivered to the Calibrations group for testing.

DEVELOPMENT SECTION

Process Tube Temperature Mapping Display

Fabrication of major operating components for the demonstration test is near completion. Shop sketches are being prepared for the 2000 point jet switch.

100-D - 100-DR Safety Interlock

A circuit has been proposed to afford safety interlock between the two units, shutting down the normally operating unit should the neutron flux level become excessive in the other. A design study and cost estimate has been initiated.

DESIGN & CONSTRUCTION GROUP - 760 BLDG.

Project C-300 (100-G Area)

During tests of the Foxboro differential pressure cell it was found that a 2% error was introduced by a static pressure change of 500 psi. The problem has been referred to Foxboro for consideration.

Project C-387 (Redox)

Acceptance test procedures have been written for instrument equipment. Construction drawings are being received in large numbers and checked for revisions. Requisitions are being prepared for spare equipment.

Project C-362 (Tributyl Phosphate Process)

Five vendors were invited to bid on the graphic panel control system and a sixth vendor requested and was granted invitation to bid. The bids are due December 15, 1950 with delivery of June 1, 1951 required.

Project C-361 (Metal Conversion Facilities)

Half of the instruments necessary for this project are to be obtained from surplus of the 221-U, 224-U Building equipment. Of the half to be purchased, 90% have been requisitioned.

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Project C-349 (Hot Semiworks)

Instruments applicable to this project from 221-U, 224-U surplus have been reconditioned and are being stored at the White Bluffs Instrument Warehouse.

Project C-198 (234-5 Building)

Phase II
Specifications have been written for 95% of the instrumentation required for the Development Laboratory. Bids are expected for review early in December.

Phase III
Cost estimates have been prepared to cover instrument items in the RM line improvement and modification.

P-10-X (Expansion of Production Facilities for Building 108-B)

Instrument scope drawings have been prepared for comment and approval.

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MAINTENANCE DIVISION
NOVEMBER 1950

The division's backlog of work as of November 30 is 8,304 mandays which represents 26.5 days of work for present forces.

100 Areas

100-D

The DR pile was shut down November 27 on an emergency basis because three slugs in process tube #1476 had ruptured under normal operation. The damaged slugs and process tube were collected in a shielded container as they were removed from the pile. A replacement process tube was not installed at this time. It was, therefore, necessary to provide shielding and to seal the tube openings before pile operations could be resumed. Two tube bayonets, each approximately four feet long, were fabricated to hold shielding slugs. These bayonets were inserted in both the front and rear gun barrels. The openings were then sealed off with blank flanges and the pile resumed operation on November 30.

Vertical safety rod thimble #22 in the "D" pile, which was reported leaking in October, was replaced with a new thimble equipped with a thermocouple.

The start-up of the DR water facilities was accomplished without any major equipment interruption.

100-B

Project C-399 - P-10-D - Hot Development Facilities

During a three week shutdown of P-10 production facilities in the 108 Building, maintenance forces completed the installation of equipment and distribution ducts for the purpose of increasing the air supply and exhaust systems within the building.

Project M-723 - Repairs to 107 Retention Basin

Repairs to the concrete walls and floor of the north section of the retention basin are continuing during fair weather periods. These repairs consist of chipping the concrete to form a "V" in the cracks found in the slooping and vertical walls of the basin. The cracks are being packed with a cement grout, the expansion and construction joints are being recaulked with a Minnesota Mining compound EC 801.

A modified gable roof was installed over the existing roof of the Patrol Headquarters building. The original wood structural members of the roof had weathered considerably and distorted.

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100-H

Temporary repairs were made to the expansion joints in the east section of the retention basin. The work performed consisted of partially removing the existing caulking compound from the joints and inserting in this cavity five inch wide asphalt expansion joint boards held in place with cedar wedges. The joints were then spanned with a neoprene rubber strip one-quarter inch thick by eight inches wide, held in place by angle iron strips bolted to the concrete. Permanent repairs will be made to this basin at a later date.

Project C-300 - Test Project #20 - Water Recirculating Unit

The equipment and piping installation in the "H" pile for conducting water recirculating tests were completed this month for Design and Construction.

200 Areas

Failure occurred to the underground stainless steel waste line located between the 154 BX diversion box and the "B" Canyon Building. Pipe connectors were fabricated and installed to spare lines in the diversion box and in the pipe trench of the Canyon Building, permitting the process waste liquids to bypass the damaged line.

Project C-337 and C-378 - Off-Gas Filter and Iodine Removal Facilities

Fabrication of the vessels and connectors for the second unit of the off-gas and iodine removal facilities was completed and installed in the "T" Canyon Building. Fabrication is progressing on the third and fourth units and should be ready for installation during December.

A set of tools with extension handles and universal joints have been fabricated to replace gaskets remotely on contaminated pipe connections. These tools are currently being tested and revisions made as conditions indicate. Preliminary test results have been very satisfactory.

Metal Fabrication

The metal turning lathe located in Hood #17 is not meeting tolerance dimensions in its machining operations. A replacement lathe of better quality has been assembled in the machine shop and its operation will be improved by the additional equipment mounted, such as a special step chuck and radius turning attachment. This lathe will be installed in the hood as operating schedules will permit.

The skate assembly of the #110 design was fabricated during the month. The completion of a replacement assembly is being deferred while the

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"S" Division completes checking the dimension of the first skate assembly. Inspection gauges that will be used by the Operating Division in their production lines were also fabricated.

Numerous changes were made to the vacuum equipment on Hood #25-A which will improve its operating efficiency. The existing six inch vacuum valve was replaced with one manufactured by the Distillation Products Company. A water cooled line of sight baffle was installed between the diffusion pump and the six inch valve. The diffusion pump was replaced with one of larger capacity, type MCF-300. The Pirani and Miller tube gauge connectors were altered to permit quick changing of these gauges.

300 Area

Work is progressing in restoring for operation the Cascade demonstration unit in the 321 Building. Upon completion, this equipment will be used to train personnel for operation of the Redox facilities in the 200 Areas.

Condensate from the heating coils on the D and E air conditioner units in the 3706 Building was diverted from a french drain and discharged into the water spray reservoir of these units. The use of this soft water prevents the formation of scale on the spray pads and the clogging of spray nozzles, which results in lower maintenance cost.

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ELECTRICAL DIVISION

NOVEMBER, 1950

GENERAL

A revised month end backlog of scheduled work is 6818 mandays or approximately 27 mandays per exempt employee. The entire backlog estimate was reviewed and re-evaluated on a current basis.

The power demands for the month were:

	Date	November KW Demand	Comparative Oct. Demand
Process Load	11-30-50 (11:00 am)	66,000	64,400
Village Load	11-30-50 (5:00 pm)	29,475	24,800

The co-incidental demand at 5:00 p.m. was 93,875, an all time high and exceeds the February 1950 seasonal peak by 5,000 KW. Compared to November 1949, the total demand is up exactly 25 percent. The Village demand, with the same number of occupied houses, and discounting the new commercial area as well as slightly cooler weather, is up approximately 18 percent, substantially greater than the expected trend, reflecting increased use of electric heaters.

Plans and specifications for the fourth housing addition were reviewed, and recommendations were made to the Atomic Energy Commission.

The following assistance was given Design Division relative to pending projects:

C-380-R (Electric Metering - Village of Richland) Metering equipment ordered for churches and schools only. Based on sample installations for Village housing agreement on best methods has been reached. Metering of the first 600 prefabs will be included in the contract.

C-187-E (Redox Analytical and Plant Assistance Laboratory) Acceptance test procedures have been reviewed.

C-341-R (Additions to Richland Village Electrical Distribution System) Work released. Completed final review of drawings, determined work details and reviewed specifications for Subcontractor's bids.

B-856 (Supervisory Control - 115 KV System) Budget item was cancelled by the Electrical Division after a complete review indicated currently excessive cost of equipment.

C-394 (Hanford Works Laboratory) Reviewed requirements and developed aerial cable loop to various buildings jointly with the Design and Construction Divisions.

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Studies were initiated to determine accomplishment in reducing unit maintenance force requirements. A Telephone Section curve shows a 50 percent reduction of total force per subscriber station since conversion to dial service. In the 100 Areas, unit maintenance forces have been reduced gradually 22 percent during the past four years. Similar studies are being prepared for other Sections of the Division.

AREA ACTIVITIES

After a break-in period with minimum difficulties at start up of 100-DR, on November 1 it was possible to reduce shift coverage for combined 100-D and 100-DR from two Electricians to one.

In the 115-D Building, the Gas Modification Project was completed and tested.

In 183-DR (Filter Plant Head House), chemical feeder timer installation was modified to permit one timer to control two circuits, reducing maintenance work 50 percent on this item.

Lamp sizes were increased and additional circuits were installed to increase filter basin lighting at 183-F.

Because of increased requirements, the 100-F Gamewell fire alarm system was changed to 72 volts from 48 and circuit modified with gongs and boxes in a common loop.

New batteries were installed in 252-E Substation, and replacement ordered for 284-W Power House. Some batteries are reaching the end of their useful life and some show broken positive plates. The subject of battery life and replacement is under study.

On November 28 (11:09 a.m. and also 11:34 a.m.), a construction crane contacted the 13.8 KV power line in the Redox area, causing short shut down, but no damage, in Buildings 231, 282-W, 283-W, 224-T, half of 221-T and all 2700-W miscellaneous buildings.

On November 6 (2:00 p.m.), 105-H reactor "scrammed" due to a short circuit in the 230 V supply to P-13 project instruments resulting from control wire insulation apparently damaged at the time of installation.

TRANSMISSION AND DISTRIBUTION

A severe low voltage condition developed on the 115 KV system (Richland and 300 Area) on November 17 for two minutes at 9:15 a.m. because of operational error at the Bonneville Power Administration Midway station. No damage resulted.

During high winds on the night of November 21, a section of 6900 volt line in the Riverland area blew down, many area substation fences were damaged, a 35 foot series lighting pole was broken in 200-E Area, and some damage was done to the Richland distribution system by flying shingles and tree branches.

The new dispatching board (B-1875) was completed and installed in Substation 251; the old board has been removed from service.

In Richland, many cases of blown fuses on transformers and lateral feeders have been experienced. Load checks indicate some distribution transformers carrying

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as much as 250 peak overload, most of which is attributed to extensive use of portable electric heaters. Larger transformers are being installed in seriously overloaded locations.

The 2300 volt service to construction, and the relocated line around the Hanford Works Laboratory area have been placed in service.

TELEPHONE SECTION

A comprehensive traffic study was made in an effort to relieve congested conditions resulting in the following recommendations:

1. Additional relay equipment and line finders required. Project Proposal for Budget Item B-1869 is in preparation.

2. Additional terminal equipment required for Richland Exchange, including that for the fourth housing addition. Project Proposal for Budget Item B-1870 is in preparation.

3. An accelerated maintenance program in the Richland Exchange is now possible since the exchange has been accepted.

A 50 pair cable was installed to Dorm W-20 to provide official telephones for the Municipal, Real Estate, and General Services Divisions.

The cable distribution system in the 720 Building was increased from 60 to 85 pairs to increase telephone facilities to the Purchasing and Stores Division.

Dial switching equipment in the BY Tandem Exchange was placed in service November 6 for the Hanford area.

Nearly 9,000 new telephone directories were distributed on November 25.

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

	Lines in Service	Stations in Service	Vacant Lines
Richland	3793	5988	207
Project	5183	7467	587

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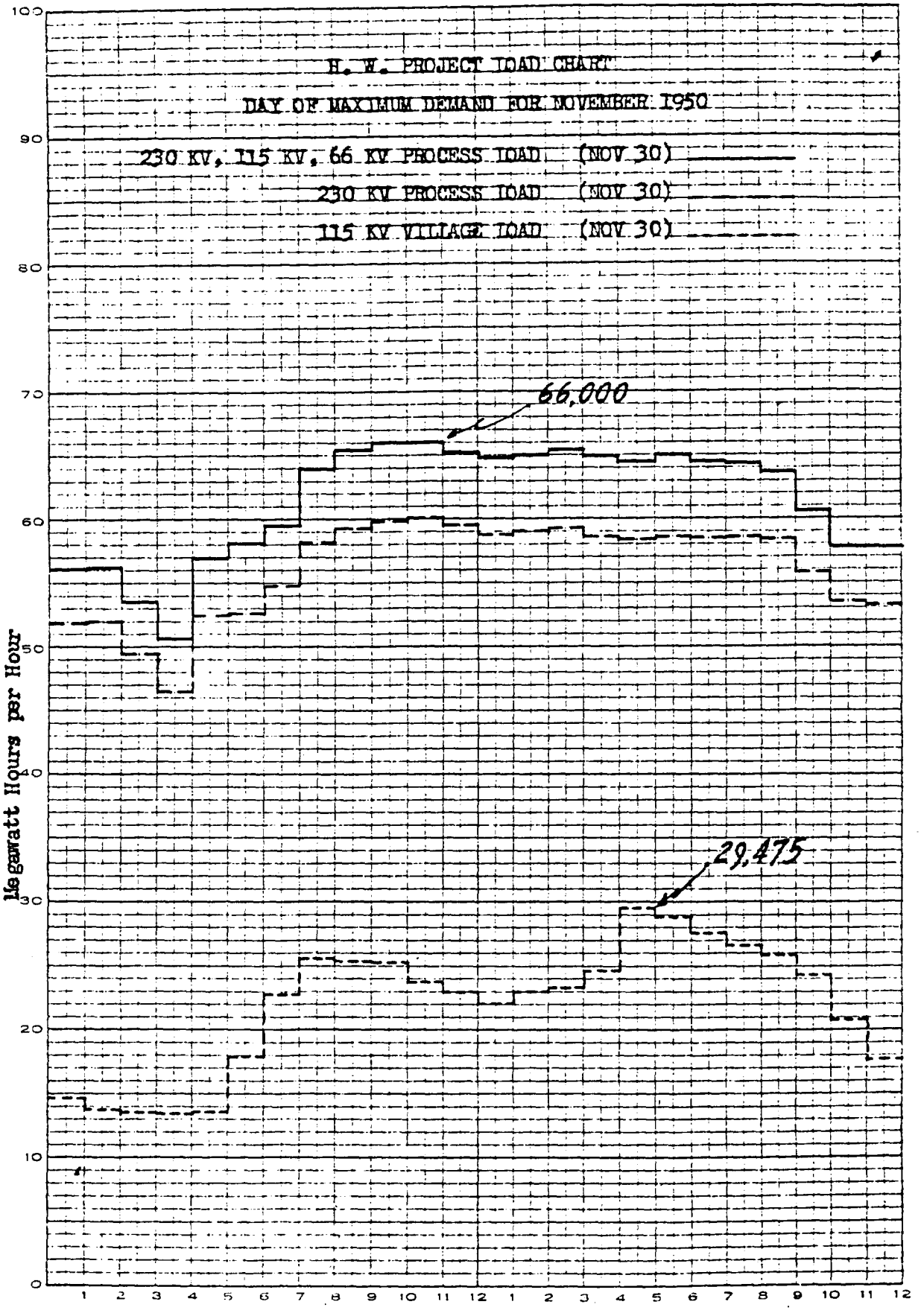
POWER STATISTICS - ELECTRICAL DIVISION
FOR MONTH ENDING NOVEMBER 30, 1950

ITEM		ENERGY - MW HRS. Oct.	ENERGY - MW HRS. Nov.	MAX. DEMAND - KW Oct.	MAX. DEMAND - KW Nov.	LOAD FACTOR - % Oct.	LOAD FACTOR - % Nov.
230 KV SYSTEM							
A-2 Out	(100-B)	4,690	7,590	12,000	12,300	52.5	85.7
A-4 Out	(100-D)	13,580	12,550	22,700	21,000	80.4	83.0
A-5 Out	(100-H)	8,676	8,208	14,400	13,800	81.0	82.6
A-6 Out	(100-F)	6,690	6,670	11,300	10,500	79.6	88.2
A-8 Out	(200 Areas)	3,852	4,068	6,120	7,200	84.6	78.5
TOTAL OUT		37,488	39,086	66,520**	64,800**	75.7	83.8
MIDWAY IN		38,229	39,449	59,200*	60,000*	86.8	91.3
Transm. Loss		741	363				
Percent Loss		1.9	.9				
115 KV SYSTEM							
B1-S4 Out	(N.Rich.)	1,666	1,819	3,283	3,456	68.2	73.1
BB1-S1 Out	(Richland)	5,318	6,746	11,880**	14,400**	60.2	65.1
BB1-S2 Out	"	5,420	6,840	13,230**	16,020**	55.1	59.3
BB3-S4 Out	(300 Area)	712	744	1,760	1,840	54.4	56.1
TOTAL OUT		13,116	16,149	30,153**	35,716**	58.4	62.8
Benton In		60	140	14,400*	25,800*	5.6	7.5
S. Richland In		13,700	16,370	28,600*	34,000*	64.4	66.9
TOTAL IN		13,760	16,510	43,000**	59,800**	43.0	38.3
Transm. Loss		644	361				
Percent Loss		4.7	2.2				
66 KV SYSTEM							
B7-S10 Out	(W.Bluffs)	309	327	968	1,237	42.9	36.7
Hanford Out		301	309	600	600	67.4	71.5
TOTAL OUT		610	636	1,568**	1,837**	52.3	48.1
HANFORD IN		614	637	1,500*	1,700*	55.0	52.1
Transm. Loss		4	1				
Percent Loss		.6	.2				
PROJECT TOTAL							
230 KV Out		37,488	39,086	66,520**	64,800**	75.7	83.8
115 KV Out		13,116	16,149	30,153**	35,716**	58.4	62.8
66 KV Out		610	636	1,568**	1,837**	52.3	48.1
TOTAL OUT		51,214	55,871	98,241**	102,353**	70.0	75.8
230 KV In		38,229	39,449	59,200*	60,000*	86.8	91.3
115 KV In		13,760	16,510	43,000**	59,800**	43.0	38.3
66 KV In		614	637	1,500**	1,700**	55.0	52.1
TOTAL IN		52,603	56,596				
Transm. Loss		1,389	725				
Percent Loss		2.6	1.3				

* Coincidental Demand
** Non-Coincidental Demand

Average Power Factor - 230 KV System--94.8
Average Power Factor - 115 KV System--96.3
Average Power Factor - 66 KV System--90.6

[redacted]


H. W. PROJECT LOAD CHART
DAY OF MAXIMUM DEMAND FOR NOVEMBER 1950
230 KV, 115 KV, 66 KV PROCESS LOAD (NOV 30)
230 KV PROCESS LOAD (NOV 30)
115 KV VILLAGE LOAD (NOV 30)
66,000
29,475
Megawatt Hours per Hour
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12

[redacted]

HW-19622 - Del

Cl[redacted]

By Auth[redacted]

OFFICE, [redacted]

VIEW BOARD [redacted]

Date: [redacted]

TRANSPORTATION DIVISION
MONTHLY REPORT
NOVEMBER 1950

GENERAL

Transportation Division personnel forces decreased by 1 exempt and 13 non-exempt employees during the month from 642 to 628 by 2 new hires, 2 transfers in, 1 re-activation - personal illness, 8 transfers out, 8 terminations, 1 retirement, and 2 de-activations - personal illness.

RAILROAD ACTIVITIES

Commercial cars handled during November increased 22.6% over October with the continuation of large volume coal receipts. Process service was rendered on a near normal level with all movements being completed as scheduled. The initial process car movement was accomplished from 105-DR, 100 D Area, on November 24. Cars handled in November including process movements totaled 2,838 compared with 2,476 in October, 1,843 in September, 1,615 in August, 1,162 in July, 2,180 in June, 3,164 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

Loads In	Empties In	Loads Out	Empties Out
991	8	5	1047

Carload Movements - Subcontractors and Others

	Loads In	Empties In	Loads Out	Empties Out
Atkinson & Jones Co.	66	-	-	68
Bailey Plumbing & Heating Co.	1	-	-	1
C & E Construction Co.	2	-	-	-
F. J. Early	18	-	-	16
Fox Metals Co.	1	-	-	1
Morrison-Knudsen Co.	-	4	5	-
S. S. Mullen Co.	1	-	-	1
Pioneer Insulating Co.	1	-	-	1
Richland Fuel & Lumber Co.	23	-	-	35
Rust Engineers	-	-	-	1
Taylor Bros. Company	3	-	-	3
U.S.Army 519th Anti-Aircraft Btln.	60	-	-	56
L. W. Vail Co.	2	-	-	2

Considerable switching service was performed in handling 60 carloads of inbound house trailers, ammunition, and equipment for the U.S. Army.

Completed hydrostatic test of air receivers and servicing of relief valves on 120-ton Diesel electric locomotive 39-3731. Inspected, installed lease signs, and stenciled DC numbers on three Milwaukee flat cars leased for use by subcontractors. Removed 80-ton Diesel electric locomotive 39-3726 from service for necessary repairs to the No. 2 engine.

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Transportation Division [redacted]

Railroad track maintenance and rahabilitation work continued on a normal basis throughout the five sections. Surfacing was in progress on the "A" line between Audrey and the 100-B lead, 151-B turnout, 200-East, White Bluffs, "B" line in the vicinity of Mile Posts B-25 to B-28, Richland Yards, between Mile Posts B-44 and B-46, 300 Area lead, and between Mile Posts B-33 and B-35 requiring 3,083 man-hours. Replaced 576 switch ties at the Susie crossover, Ethel, and on the 200-North Area wyes and 81 cross ties in 200-East Area requiring 1,730 man-hours. Relaid 900 feet of track between the 100-B lead turnout and Audrey with 46 new 90 and 100 pound rails requiring 224 man-hours. Respaced ties and relocated anchors on the fill track between the Yakima River and U.S. Highway 410 where the rail had run and skewed the ties requiring 365 man-hours.

AUTOMOTIVE ACTIVITIES

The Area Bus System transported 1.2% fewer passengers in November than in October. This reduction is the result of the 30 day month which included Thanksgiving. The following tabulation indicates the passenger volume by shifts and the revenue received:

No. 1 outbound and No. 3 inbound	25,692
No. 2 outbound and No. 1 inbound	54,617
No. 3 outbound and No. 2 inbound	52,981
Total	133,290
Revenue	$ 6,664.50

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	11
Passenger busses - 100-H	11
Passenger busses - Hanford	5
Passenger busses - 200-West	18
Passenger busses - 200-East	12
Passenger busses - 300 Area	7
Passenger busses - Riverland	3
Passenger busses - Pistol Range	1
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 changed to RESTRICTED
By Authority of [redacted] OFFICE, NON-TECHNICAL DOCUMENT VIEW BOARD.
Date: 12-18-57

Effective November 1, bus transportation to and from the Pasco Base Depot was discontinued as the activity at this location no longer warranted scheduled service.

The Village Bus System transported 8.9% more passengers in November than in October which is a normal seasonal increase. Volume of service rendered is indicated in the following stat[redacted]

Transportation Division

[redacted]

[redacted]

Total passengers, including transfers 404,379
Total bus trips 3,548
Total bus miles 19,514
Total revenue $ 2,896.05

Off-plant automobile trips (Company business and/or official visitors) totaled 171.

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

Applicants:	Male	82	Number retested	0
	Female	14	Number rejected	0
		96	Number tests given	96

Permits issued:	Limited to driving with glasses	16
	Unlimited	80
		96
Permits reissued		23

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

	Gasoline	Diesel Fuel	50 Cetane	Kerosene	White Gas
Stock at start of month	51,342	16,126	9,522	2,905	258
Received during month	95,194	15,070	22,906	4,448	95
Total	146,536	31,196	32,428	7,353	353
Delivered to Areas	102,348	17,346	26,793	3,118	161
Stock at end of month	44,188	13,850	5,635	4,235	192

The following tabulation indicates the Plantwide usage of automotive equipment:

Code	Type	No. of Units	Total Mileage
1A	Sedans	320	555,264
1B	Busses	155	223,409
1C	Pickups	474	270,470
1D	Station Wagons	115	115,971
1E	Armored Cars	12	316
1G	Weapon Carriers	40	6,980
68 Series	Trucks	323	109,555
		1,439	1,281,965

Installed snow plow frames on three 5-ton GMC dump trucks making a total of four available for service. Completed installation of hydraulic sand spreaders on five 2½-ton GMC dump trucks.

Received nine new Pontiac cylinder blocks for units out of service because of defective blocks. Motors are being assembled preparatory to placing equipment back in service.

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Transportation Division

VIEW BO[redacted]

Date: [redacted]

All Caterpillar starting engines have been serviced with S.A.E. 5 weight motor oil which is expected to greatly facilitate the starting of this equipment at low temperatures.

Completed major repairs on six weed spray units, three Worthington tractors, and processed for standby service.

Completed excessing of all obsolete and worn out military type weapon carriers and jeeps.

LABOR ACTIVITIES

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

	MC 1	MC 3	MC 4	MC 5
Stock at start of month	0	7,701	0	0
Received during month	0	0	0	0
Dispensed during month	0	6,180	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:

	100 B	100 D	100 F	100 H	200 W	200 E	300	Total
Cars coal unloaded	130	200	49	142	31	44	0	596
Cars other material	0	5	1	3	0	11	3	23
Cars loaded out	0	3	0	0	0	0	2	5

Expended 110 man-hours in stockpiling aggregate; 108 man-hours in manufacturing 690 tons of 3/4" pre-mix material requiring 166 cubic yards of 3/4" crushed rock and 6,180 gallons of MC 3 oil; and 620 man-hours in maintaining area roads.

Expended 2,350 man-hours in handling miscellaneous materials for the Stores Division at White Bluffs.

Expended 678 man-hours in handling salvage materials for the Stores Division in 1100 and 3000 Areas.

Expended 1,145 man-hours in handling Area deliveries, 185 man-hours for Stores deliveries, and 802 man-hours for moving office furniture.

Expended 2,077 man-hours in handling 58 truckloads of equipment, 229 truckloads of rock for the Richland Swimming Pool, 4 truck loads of miscellaneous material, 3 carloads of machinery and 1 carload of scrap.

Routine Area maintenance was performed in all operating Areas with labor and transportation equipment being furnished for Projects P-177, P-276, P-289, P-291, P-300, P-337, P-342, P-346, P-347, P-349, P-366, P-369, P-382, P-388, P-395, P-396, P-399, M-723, M-732, M-755, M-757, M-761-B, M-768-B, M-802, M-810, and L-466.

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PROJECT EN IEERING DIVISIONS
MID-MONTHL. STATUS REPORT

DATE NOVEMBER 15, 19 50

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

100 AREA PROJECTS

ENG. REQ. NO.	DATE RECEIVED	BLDG. OR AREA	DESCRIPTION OF WORK	DIVISION RESPONSIBLE	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	185BDF	DISMANTLING OF EQUIPMENT IN THE DEMINERALIZING AND DEAERATING PLANTS	POWER	C-172	360,200	7-11-47	-	-	7-11	3-31-48	4-4	4-7			SUBCONTRACT WORK PROGRESSING
A532	1-7	108F	BIOLOGICAL LABORATORY, PARTS I AND II	H.I.	C-192	1,121,000	3-31-49	4-1	4-1	4-1	3-29	4-3	4-6			SKETCH & ESTIMATE IN PROGRESS FOR PART III
A1046	6-14	105D	NEUTRON SPECTROMETER	PILE TECH.	C-290	17,400	9-5-48	9-9	9-14	9-14	10-4	10-11	10-11			WORK PROGRESSING
A1060	7-29	100BDF	INCREASED SHIELDING - FRONT NOZZLE CAPS	P	C-306	88,000	10-6-48	10-11	11-10	11-10	11-30	12-2	6-17-49			WORK PROGRESSING
A1057	4-20	105BF	EFFLUENT DIVERSIONARY OUTLET (105-107 B & F)	P	C-321	138,000										REVISED PROJECT BEING REVIEWED BY P-DIV. WORK BUDGETED FOR 1952
A1093	3-17	TRACT HOUSE	P-11 PROJECT	PILE TECH.	C-340	328,000	5-23-49	5-20	6-1	6-1	MOD.2 10-12-50	10-16	ADD.4 10-23			DESIGN WORK ON SECOND UNIT WILL NOT BE PERF. 1ST UNIT WILL BE MOD.
A1100	5-27	105BDF	NOZZLE GALVANIZING AND REPLACEMENT	P	C-347	775,000	8-15-49	8-15	10-12	10-12	12-28	1-4-50	1-13			INSTALLATION BEING SCHEDULED FOR 105F DURING EXTENDED SHUTDOWN
A1110	7-21	105BDF	PILE CLEARANCE - INNER ROD ROOM WALLS 105BDF	P	C-355	40,600	9-26-49	9-26	12-13	12-14	1-18-50	1-19	2-8			WORK DELAYED IN 100B
A1129	2-2	108B	P-10-B (COLD FACILITIES)	PILE TECH.	C-368	95,000	3-1-50	3-21	3-21	3-22	4-24	5-1	5-23			FIELD WORK IN PROGRESS
A1125	11-23	105H	P-13 - FIRST HANFORD PILOT CHANNEL TEST RIG (ANL #140)	PILE TECH.	C-379	130,000	3-31-50	3-31	4-11	4-12	MOD.1 10-12	10-17	ADD.2 10-24			WORK PROGRESSING
A1130	2-3	108B	P-10-A EXPANSION	PILE TECH.	C-383	300,000	4-12-50	4-13	4-20	4-20	5-29	6-1	6-9			ACCEPTANCE INSPECTION COMPLETED
A1141	6-25	108D	P-10-X PRODUCTION PLANT AUTHORIZED EST. ENTIRE COST	P	C-388	6,500,000 100,000										ONLY SCOPING WORK AUTHORIZED DESIGN SCOPING IN PROGRESS
-	-	108D	REMOVAL OF EQUIPMENT FROM BLDG. 108-D	P	C-396	109,000	7-13-50	7-14	7-14	7-14	MOD.1 10-19	10-25				WORK PROGRESSING
A1135	3-13	108B	P-10-C, PART I (METAL PROTOTYPE UNIT) P-10-D ("HOT" DEVELOPMENT FACILITIES)	PILE TECH.	C-399	1,216,500	8-7-50	8-17	8-30	8-31	MOD.1 9-29	9-28	ADD.1 10-18			DESIGNS PROGRESSING FIELD WORK IN PROGRESS
A1142	6-20	105DR	IN-PILE CONTROLLED ATMOSPHERE - EXPERIMENTAL FACILITIES	PILE TECH.	C-410	140,000	10-17-50	10-17	10-30	10-31	11-13					WORK BEING SCHEDULED
A1068	10-29	105	DEVELOPMENT OF FLEXIBLE VERTICAL SAFETY RODS	P	M-713	18,500	5-18-49	5-18	5-27	5-27	7-19	7-22	9-26			MOCK-UP ROD MANUFACTURE DELAYED FOR MORE URGENT WORK
A1104	6-7	107B	REPAIRS TO 107 BASIN (IMMEDIATE PROGRAM ONLY)	P	M-723	18,100	9-15-49	9-15	10-12	10-12	10-25	10-27	12-2			WORK PROGRESSING
A1116	9-30	111B	HEALTH MONITORING AND STORAGE FACILITIES	PILE TECH.	M-769	16,100	3-20-50	3-20	4-28	4-28	5-23	5-23	8-7			FABRICATION BY MAINTENANCE DIV.
A575	5-1	105DR	PILE TECHNOLOGY STORAGE & TEST BUILDING	PILE TECH.		(95,000)										AWAITING INFORMATION FROM TECH. DIVISION
A588	7-31	105F	HOT MAINTENANCE MACHINE SHOP	MAINT.		41,000										ESTIMATE FORWARDED TO MAINTENANCE DIVISION
A1059	6-29	100B	INSTALL STEEL PROCESS SEWER 105B - 107B	P		(550,000)										LEAKAGE STUDIES CONTINUING
A1086	2-4	100BDF	HIGH TANK CONTROL VALVES	P		40,000										DESIGN IN PROGRESS PROJECT BEING REVIEWED BY P-DIV.
A1118	10-14	105F	DOWNCOMER REPLACEMENT	P		(100,000)										HELD UP FOR HIGHER PRIORITY WORK
A1119	10-17	100 200 300	COAL METERING FACILITIES	POWER		31,400										TEMPORARILY HELD IN ABEYANCE
A1122	11-9	100	DEVELOPMENT OF FLEXIBLE HORIZONTAL CONTROL RODS	P		(50,000)										DESIGN IN PROGRESS. ROUGH DRAFT OF PROJECT BEING REVIEWED
A1138	2-4	100B,D, DR,F	CO_2 BULK HANDLING FACILITIES	P		39,300	11-3-50	11-3								PROJECT ROUTED FOR APPROVAL
A1150	11-10	101	GRAPHITE LABORATORY	PILE TECH.		(25,000)										DESIGN INITIATED
																COMBINED TOTAL OF AUTHORIZED AND PENDING 100 AREA WORK $12,383,100

PROJECT F INEERING DIVISIONS
MID-MONTHLY STATUS REPORT
200 AREA PROJECTS

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

DATE NOVEMBER 15, 19 50

ENG. REQ. NO.	DATE RECEIVED	BLDG. OR AREA	DESCRIPTION OF WORK	DIVISION RESPONSIBLE	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
2469	12-30	200	UNDERGROUND GEOLOGICAL & HYDROLOGICAL INVESTIGATION PROGRAM INCLUDING TEST WELLS & OTHER FACILITIES	H.I.	C-326 REV.2	36,800		5-25-50	5-25	6-13	6-14	7-5	7-10	7-13		DESIGN COMPLETE MOD. TO COMPLETION DATE REQUESTED
2460	12-23	221TB	EQUIPMENT FOR DISSOLVER OFF-GAS FILTRATION PART II	S	C-337 REV.	158,000		12-14-49	12-13	12-20	12-23	1-30-50	2-9	2-16		WORK PROGRESSING
A546	7-19	200E	HOT SEMIWORKS COMPLETE PLANS & SPECS. PARTS I & II	SEP. TECH.	C-349	150,000		2-1-50	2-8	2-8	2-15	3-9	3-16	3-24		DESIGN COMPLETE
A546	7-19	200E	HOT SEMIWORKS PART III	SEP. TECH.	C-349	2,582,000		5-31-50	5-31	6-13	6-14	9-19	9-26	10-9		BID OPENING SCHEDULED DEC. 1950
2513	8-30	234-5	AUXILIARY HOOD ENCLOSURE FOR PART I, BLDG. 234	S	C-366	49,000		2-20-50	3-6	3-21	3-22	4-11	4-14	4-26		FABRICATION OF ENCLOSURE BEING PERFORMED BY OUTSIDE VENDOR
2491	5-13	200W	EVAPORATION FACILITIES FOR WASTE SOLUTIONS (200W)	S	C-369R	489,000		6-23-50	6-23	7-11	7-12	8-18	8-24	9-1		WORK PROGRESSING
2490	5-13	221TB	IODINE REMOVAL FACILITIES FOR DISSOLVER OFF-GAS (200EW)	S	C-378	149,000		3-9-50	3-9	3-31	4-12	5-9	5-12	5-23		WORK PROGRESSING
2501	9-2	224TB	REARRANGEMENT OF F CELL EQPT. BLDGS. 224 T & B	S	C-384	30,000		4-12-50	4-12	4-25	5-10	6-9	6-15	6-20		WORK PROGRESSING
2540	5-11	234-5	ADDITIONAL UNIT TO SUPPLEMENT THE OPERATION OF HOOD #25, BLDG. 235	S	C-392	25,500		6-1-50	6-1	6-17	6-28	7-14	7-19	7-25		WORK PROGRESSING
2501	9-2	221TB	PARALLEL OPERATION, SECTIONS 19 & 20, BLDGS. 221 T & B	S	C-395	91,165		6-26-50	6-26	7-20	7-20	8-4	8-8	8-15		WORK PROGRESSING
2544	6-2	221TB	CONDUCTIVITY METERS FOR CELL DRAINS, BLDGS. 221 T&B	S	C-397	21,700		7-12-50	7-12	8-9	8-10	8-28	8-31	9-5		WORK BEING SCHEDULED
2543	6-1	231	EXPERIMENTAL COATING HOOD, BLDG. 231, 200W AREA	SEP. TECH.	C-398	53,000		8-8-50	8-8	8-9	8-9	9-12	9-14	10-5		WORK BEING SCHEDULED
A554	12-23	222U	OFFICE AND STORAGE ANNEX TO BLDG. 222U	H.I.	M-755	9,700		10-26-49	10-26	11-22	11-25	12-7	12-7	2-21-50		SCHEDULED COMPLETION BY CONTRACTOR NOV. 17, 1950
2504	7-22	271TB	INSTALLATION OF LABORATORY FURNITURE IN BLDGS. 271 T & B	TECH. SERV.	M-766	13,600		4-25-50	4-25	5-9	5-10	5-31	6-2	6-14		AWAITING CONSTRUCTION COMPLETION NOTICE
2520	1-16	234-5	LOADING FACILITIES FOR RECYCLED MATERIAL, BLDG. 234	S	M-802	19,000		4-24-50	4-24	5-9	5-10	6-5	6-5	7-14		WORK PROGRESSING
A570	3-15	200W	CONSOLIDATED MAINTENANCE SHOPS, 200W — DESIGN / ENTIRE COST	MAINT.	M-813	15,000 / (310,000)		9-12-50	9-12	9-12	9-12	10-19	10-26	M-813 11-13		DESIGN WORK PROGRESSING
A571	4-7	200W	ANIMAL EXPOSURE CHAMBER	H.I.		(45,000)										WORK PROGRESSING
2503	7-22	234-5	DUCT LEVEL FLOOR COVERING AND SAFETY SHOWERS	S		(150,000)										DESIGNS POSTPONED BY S-DIVISION
2546	7-28	221TB	EQUIPMENT FOR SETTLING AND CRIBBING OF SECT. 5 WASTES	S		32,700		10-23-50	10-23							PROJECT ROUTED FOR APPROVAL
2547	8-15	235	PROJ. FOR COATING UNIT HOOD #26	S		(25,000)										NOT STARTED
2552	10-25	234	PROJECT FOR SKULL RECOVERY FACILITIES	S		(40,000)										PROJECT PROPOSAL IN PREPARATION
2554	11-3	241B	PROJECT FOR EVAPORATION FACILITIES, 200 EAST AREA	S		(500,000)										PROJECT PROPOSAL IN PREPARATION
																COMBINED TOTAL OF AUTHORIZED AND PENDING 200 AREA WORK $4,980,165

DECLASSIFIED

PROJECT ENGINEERING DIVISIONS
MID-MONTHLY STATUS REPORT

DATE NOVEMBER 15, 19 50

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

300 AREA PROJECTS

ENG. REQ. NO.	DATE RECEIVED	BLDG. OR AREA	DESCRIPTION OF WORK	DIVISION RESPONSIBLE	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
A3061	8-14	313-314	IMPROVED VENTILATION - BLDGS. 313-314	P	C-330	200,000		12-8-49	12-8	12-28	12-18	2-1-50	2-3	2-10		MOD. TO COMPLETION DATE REQUESTED INVESTIGATIONAL WORK ON BAG FILTER RESUMED
A3062	2-9	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		PROJECT TERMINATED REPORT TO BE SUBMITTED APRIL 1951
A550	9-15	300	ADDITION TO BLDG. 3745	H.I.	C-354	20,300		11-8-49	11-8	12-1	12-1	12-19	12-23	ADD.2 11-2-50		SCHEDULED COMPLETION BY CONTRACTOR ON NOV. 17, 1950
A528	11-14	300	NEW INSTRUMENT MAINTENANCE & DEVELOPMENT BLDG. 3717-B	INST.	C-377 REV.2	154,000		4-26-50	3-25	4-28	5-10	6-6	6-8	6-19		SUBCONTRACT WORK PROGRESSING
E432	1-11	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			DESIGN PROGRESSING
A3085	6-28	RIVER.	RIVERLAND ELEVATED WATER TANK	TRAN.	C-409	46,000		10-2-50	10-2	10-30	10-31					PROJECT AWAITING AUTHORIZATION
A510R	10-10	3701	300 AREA BADGE HOUSE ADDITION	SERV.		14,500		12-14-48	12-10	12-14	12-31	1-3	1-6			INFORMAL REQUEST BEING CANCELLED
A510R	10-10	3701	URANIUM DETECTORS, 300 AREA BADGE HOUSE	SERV.		19,400		9-8-50	9-8							INFORMAL REQUEST AWAITING APPROVAL
A548	8-29	300	SOLVENT STORAGE FACILITIES - BLDG. 3706	TECH. SERV.		(60,000)										AWAITING INFORMATION FROM TECHNICAL DIVISION
A582	6-9	300	MFG. DIVISION ADMINISTRATION BLDG.	ALL MFG.		140,000										AWAITING INFORMATION FOR BUILDING REQUIREMENTS
A600	10-20	300	SOLVENT STUDIES BLDG.	SEP. TECH.		(25,000)										PRELIMINARY DESIGNS STARTED
A602	10-27	300	METAL FABRICATION BLDG. 3730 (ADDITION)	PILE TECH.		(200,000)										PRELIMINARY DESIGNS STARTED
E434	1-13	300	EXPERIMENTAL INDUCTION HEATING FACILITIES BLDG. 3732	PILE TECH.		52,800										PROJECT IN PREPARATION
A3083	7-21	313	SEGREGATION OF FLUORIDE SLUDGE	P		(40,000)										DESIGNS HELD PENDING FURTHER DECISIONS ON WORK TO BE DONE
A3093	10-9	305	305 BLDG. MODIFICATION AND TEST BLOCK	PILE TECH.		150,000										DESIGN PROGRESSING

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

DECLASSIFIED

PROJECT ENGINEERING DIVISIONS
MID-MONTHLY STATUS REPORT

DATE NOVEMBER 15, 19 50

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

GENERAL PLANT PROJECTS

ENG. REQ. NO.	DATE RECEIVED	BLDG. OR AREA	DESCRIPTION OF WORK	DIVISION RESPONSIBLE	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
962	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	8-26	8-29		AWAITING CONSTRUCTION COMPLETION NOTICE
A452	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		SUBCONTRACTOR WORK PROGRESSING COMPLETION DATE REV. TO 2-1-51
990	6-28	ALL	INSTALLATION OF NEW SECURITY FENCES - ALL AREAS	SERV.	C-291	424,000		8-31-48	9-9	9-9	9-15	MOD.4 10-19-50	10-25	ADD.6 11-2		WORK PROGRESSING COMPLETION DATE REV. TO 7-1-51
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	MOD.4 10-3-50	10-4	ADD.5 10-10		WORK PROGRESSING
E406	5-16	1100	ADDITIONS TO RICHLAND ELECTRICAL DISTRIBUTION SYSTEM	ELECT	C-341	155,000		5-29-49	5-29	6-6	6-16	MOD.1 8-24-50	8-30			WORK BEING SCHEDULED
A543	7-14	HANF.	ARSENAL BLDG., FIRE PROTECTION & SANITARY FACILITIES PATROL PISTOL RANGE	SERV.	C-360	(54,000)										PROJECT BEING RE-ESTIMATED NEW PROPOSAL TO BE SUBMITTED
A542	7-8	200	ADDITION TO METEOROLOGY BLDG. 622	H.I.	C-365	23,100		3-2-50	2-25	3-9	3-10	4-3	4-5	4-12		SCHEDULED COMPLETION BY CONTRACTOR NOV. 17, 1950
A563	12-22	ALL	METEOROLOGICAL FIELD STATIONS	H.I.	C-371	30,800		3-25-50	3-25	4-11	4-12	5-9	5-11	5-23		DESIGN HELD UP PENDING INST. PURCHASE
E435	2-10	1100	ELECTRICITY METERING - COMMUNITY OF RICHLAND	ELECT	C-380-R	331,000		6-15-50	6-15	6-26	6-27	MOD.1 10-11	10-16	10-18		WORK BEING SCHEDULED
A568	2-27	ALL	1950 AREA ROAD MAINTENANCE PROGRAM	TRAN.	C-389	94,000		5-6-50	5-6	6-13	6-14	6-22	6-27	7-3		AWAITING CONSTRUCTION COMPLETION NOTICE
E426	11-11	ALL	SALVAGE AND RECOVERY OF TELEPHONE CABLE AND EXCHANGE EQUIPMENT	ELECT	C-402-R	32,600		8-21-50	8-21	10-30	11-2					PROJECT AWAITING AUTHORIZATION
A557	11-11	ALL	NEW FENCES FOR DISTRIBUTION AND 230 KV SUBSTATIONS (PART I)	ELECT	C-403	40,000		8-19-50	8-19	10-2	10-3	10-20	10-25	11-7		SPECS. IN PREP. FOR LUMP SUM BIDS PART II TO BE SUBMITTED ON 7-1-51
A562	11-1	3000	CENTRAL STORES WAREHOUSE IN 3000 AREA — PRELIM. ENGRG.	STORES	M-770	17,000		7-11-50	7-11	7-11	7-11	8-1	8-1	M-770 8-16		DESIGN SCOPING IN PROGRESS
			EST. ENTIRE COST		C-390	(1,800,000)										
A565	1-16	1100	NEW BIO-ASSAY LABORATORY — ENGRG. DESIGN	H.I.	M-771	14,000		9-22-50	9-22	9-26	9-27	10-6	10-13	10-18		DESIGN IN PROGRESS
			EST. ENTIRE COST			(216,000)										
A558	11-11	500	TRANSFORMER & CIRCUIT BREAKER OIL REPROCESSING FACILITIES	ELECT	M-805	13,300		6-13-50	6-13	6-13	6-14	7-11	7-11	8-14		FINAL DESIGN HELD UP PENDING PURCHASE OF UNIT
A480R	5-25	3000	CONSOLIDATION OF TRANSPORTATION FACILITIES — PRELIM. ENGRG.	TRAN.	M-811	19,000		8-8-50	8-8	8-8	8-9	8-16	8-16	M-811 8-28		DESIGN SCOPING IN PROGRESS
			EST. ENTIRE COST		C-284-R	(2,300,000)										
A560	11-11	1100	RELOCATION OF RICHLAND LINE CREW HEADQUARTERS	ELECT		(30,000)										AWAITING INFORMATION FROM ELECTRICAL DIVISION
A601	10-25	ALL	PORTABLE METEOROLOGICAL MAST	H.I.		(90,000)										WORK INITIATED

DECLASSIFIED

PROJECT ENGINEERI' DIVISION
MID-MONTHLY STATUS REPORT
WORK RELEASED
(BY INFORMAL AUTHORIZATIONS, MISCELLANEOUS WORK ORDERS, ETC.)

DATE NOVEMBER 15, 19 50

E.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
NONE	5-1-50	251	DISPATCHING BOARD - 251 SUBSTATION	ELECT.	M-720	6,000	5-12-50	ELECTRICAL DIVISION	
NONE	1-12-50	1113	METERING RICHLAND SCHOOLS	ELECT.	M-730	4,500	ADD.#3 10-23-50	ELECTRICAL DIVISION	
2539	4-13-50	234-5	REVISED SANITARY WATER SYSTEM - BLDG. 234-5	S	M-738	13,000	ADD.#1 5-10-50	MAINTENANCE DIVISION	
2502	3-17-50	234-5	AUXILIARY VENTILATION FOR DRY BOX HOODS, BLDG. 234-5	S	M-739	13,500	6-2-50	MAINTENANCE DIVISION	
NONE	6-16-50	186-D	REMOVAL OF EQUIPMENT FROM 186-D CLEAR WELL	MFG.	M-749	19,800	6-16-50	MAINTENANCE DIVISION	COMPLETED
2381	4-13-50	222-TB	ACID DISPENSING SYSTEM FOR BLDGS. 222-T & B	TECH. SERV.	M-757	9,000	5-17-50	MAINTENANCE DIVISION	
NONE	6-8-50	234-5	INSTALLATION OF LIRA GAS DETECTOR	S	M-801	11,800	ADD.#1 7-10-50	INSTRUMENT DIVISION	
NONE	6-19-50	108-B	TELEPHONE CABLE TO 108-B BLDG.	ELECT.	M-803	2,336	6-20-50	ELECTRICAL DIVISION	COMPLETED 8-6-50
NONE	6-29-50	182-F	PROCESS SEWER REPLACEMENT, 100-F	POWER	M-804	2,800	6-30-50	MAINTENANCE DIVISION	COMPLETED
NONE	7-20-50	313	SLUG CANNING - TRANSFORMATION TIMING EQUIPMENT, 313 BLDG.	P	M-806	2,931	7-24-50	INSTRUMENTATION - INSTR. DIV. ELEC. WORK - ELECT. DIVISION INSTALLATION - MAINT. DIV.	
NONE	8-9-50	1118	TELEPHONE FEEDERS FOR KADLEC HOSPITAL	ELECT.	M-807	2,508	8-15-50	ELECTRICAL DIVISION	
2530	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. FAB.& INSTALL.- MAINT. DIV.	
NONE	8-9-50	224-B	MODIFY D-CELL EQUIPMENT 224-B CONCENTRATION BLDG.	S	M-809	3,299	8-15-50	MAINTENANCE DIVISION	COMPLETED 9-26-50
NONE	8-18-50	105-H	CONTROL MECHANISMS, 105-H PILE	P	M-810	3,200	8-22-50	MAINTENANCE DIVISION	
NONE	9-28-50	105-DR	FACILITIES FOR DR PILE MOTION MEASUREMENTS	P	M-812	4,500	9-29-50	ENGRG. & DESIGN -DESIGN DIV. FAB.& INSTALL.- MAINT. DIV.	
NONE	6-7-50	272-E	REDOX - REMOVAL AND TRANSPORTATION OF 10 TON NORTHERN CRANE FROM 272-E MOCK-UP SHOP TO 277-S MOCK-UP BLDG.	SEP.,D&C	C-187-D WC#H83334	2,200	6-7-50	MAINTENANCE DIVISION	
NONE		234-5	ALTERATION TO FLIGHT COAL CONVEYOR IN 284-W BLDG. (PHASE II)	D & C	C-198 WO#H46136	1,232	12-19-49	MAINTENANCE DIVISION	
NONE	3-14-50	234-5	AIRLOCK FOR ROOF DOOR #463 (PHASE I)	D & C	C-198 WC#H83218	1,935	3-15-50	MAINTENANCE DIVISION	
NONE	5-1-50	234-5	MJ-2 PHASE III - H.I. ROOM #161 (INSTALLATION & RENOVATION)	SEP.,D&C	C-198 WO#H83321	4,877	5-5-50	MAINTENANCE DIVISION	
NONE	6-1-50	234-5	234-5 BUILDING PROGRAM (TEMPORARY CONSTRUCTION - REF. DWG. H-2-12269)	SEP.,D&C	C-198 WC#H83356	500	6-2-50	MAINTENANCE DIVISION	
NONE	5-22-50	2724-W	ADDITIONAL AREA LAUNDRY FACILITIES, BLDG. 2424-W, 200-W AREA	P & M, D & C	C-289,WC# H83346-49	11,000	5-24-50	MAINTENANCE DIVISION	
NONE	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-300 WO#H83240	26,720	4-18-50	MAINTENANCE DIVISION	
NONE	5-10-50	3706	DESIGN OF NEW PILE AREA "G" (GAS CORROSION TESTING EQUIPMENT)	REACTOR, D & C	C-300 WO#H83337	9,500	5-16-50	MAINTENANCE DIVISION	
NONE	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	20,320	6-30-50	MAINTENANCE DIVISION	
NONE	3-23-50	115-D	MODIFICATION OF 115-D GAS SYSTEM FOR SIMULTANEOUS OPERATION (100-DR WATER PLANT)	P & M, D & C	C-342, PT.II WC#H83237	114,016	3-27-50	MAINTENANCE DIVISION	
NONE	8-14-50	100-DR	REMOVAL OF STEAM DRIVEN BLOWER FROM 115-B & INSTALLATION IN 115-D	P & POWER & MECH.D&C	C-342,PT.II WC#H83477	11,000	8-16-50	MAINTENANCE DIVISION AND SUBCONTRACTOR FORCES	
NONE	7-12-50	100-F	RELOCATION OF CONSTRUCTION SHACK FOR USE BY H.I. DIVISIONS	H.I.	WO#H56653	-	7-12-50	MAINTENANCE DIVISION	COMPLETED 7-13-50
A-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. INSTALL.-LUMP SUM SUBCONTR.	
NONE	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	

PROJECT ENGINEERING DIVISIONS
ENGINEERING DESIGN
100 AREAS

DATE NOVEMBER 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		NOT STARTED
A-1132	2-8-50	P	105	ROTARY TUBE CUTTER	95	95	3-1-51	FIRST TRIAL SATISFACTORY; OTHER TEST SCHEDULED
A-1140	6-1-50	P	107B	INVESTIGATE SEWER LEAKS	55	65	12-15-50	TESTING & OBSERVATION WILL BE COMPLETED DURING EXTENDED SHUTDOWN. RECOMMENDATION REPORT WILL FOLLOW.
A-1143	7-7-50	P	105BDF	STUDY BALL 3X SYSTEM	90	90	5-1-51	STEERING COMMITTEE ORGANIZED TO REVIEW PROBLEM
A-1147	8-25-50	P	105BDF	105 BLDG. REAR FACE OIL TROUGH	5	100		DESIGN SUBMITTED
A-1148	10-10-50	P	1713D	CASK REPAIR & DECONTAMINATION FACILITIES	-	0	3-15-51	NOT STARTED
A-1149		P	107H	STUDY 107H BASIN REPAIR	-	15	4-1-51	DESIGN FOR TEMPORARY REPAIRS SUBMITTED

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[redacted]

HW-22221

PROJECT ENGINEERING DIVISIONS
ENGINEERING DESIGN
200 AREAS

DATE NOVEMBER 15, 1950

E. R. NO.	DATE REC'D.	DIV. RESP.	BLDG. OR AREA	DESCRIPTION	PERCENT ENGINEERING COMPLETE LAST MO.	PERCENT ENGINEERING COMPLETE THIS MO.	EST. COMPL. DATE	REMARKS
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	20	90	12-1-50	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.
2549	10-16-50	S	212	CHECK BLDG. FOR ADDITIONAL BUCKET LOADING ON MONORAILS	-	100	10-19-50	COMPLETE
2550	10-24-50	S	234-5	REDESIGN VACUUM SYSTEM HOODS 5, 6, 7, 8	-	10	12-15-50	DESIGN IN PROGRESS
2551	10-24-50	S	234-5	STUDY HF REMOVAL FROM HOOD #8 EXHAUST	-	80	12-1-50	DESIGN IN PROGRESS
2553	11-3-50	S	234-5	REDESIGN REACTION VESSEL SEAL HOOD #10	-	10	12-1-50	DESIGN IN PROGRESS

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PROJECT ENGINEERING DIVISIONS
ENGINEERING DESIGN
300 AREA

DATE NOVEMBER 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	12-1-50	WORK POSTPONED UNTIL TEST OF SIDE POUR CRUCIBLE IS COMPLETED
A-3090	3-7-50	P	314	HOOD FOR OUTGASSING FURNACE	70	70	2-1-51	WORK DELAYED FOR MORE URGENT WORK

DECLASSIFIED

RING DIVISIONS

DESIGN

ENERAL

DATE NOVEMBER 15, 1950

N	PERCENT ENGINEERING COMPLETE		EST. COMPL. DATE	REMARKS
	LAST MO.	THIS MO.		
R. MAINT.	0	10	3-1-51	WORK PROGRESSING
	15	15		NO PROGRESS THIS MONTH
T STUDY	35	40	12-15-50	WORK PROGRESSING
	5	90	2-1-51	SURVEY WORK STARTED ON A NEW ROUTE
	50	90	1-1-51	WORK PROGRESSING
	5	20	2-1-51	WORK PROGRESSING
	30	40	1-1-51	WORK PROGRESSING
	85	100	11-1-50	COMPLETED
	5	80	2-1-51	WORK PROGRESSING
	-	5	3-1-51	WORK PROGRESSING
NLY)	37	44	1-1-51	WORK PROGRESSING
ONLY FOR	98	98	12-15-50	NO PROGRESS THIS MONTH
	40	40	6-1-51	NO PROGRESS THIS MONTH
	60	60	2-15-51	NO PROGRESS THIS MONTH
	50	50	2-1-51	NO PROGRESS THIS MONTH
ENGRG. GROUP)	70	70	3-1-51	NO PROGRESS THIS MONTH

PROJECT ENGINEERING DIVISIONS
ELECTRICAL DESIGN
PLANT GENERAL

DATE NOVEMBER 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-480RE	8-11-50			CONSOLIDATION OF TRANSPORTATION FACILITIES	0	0	5-1-51	NO PROGRESS THIS MONTH
A-505E	8-19-50	-	ALL	ELECTRICAL STANDARDS - DESIGN & DRAFTING STAFF WORK				
A-562SE	2-27-50	STORES	ALL	CENTRAL STORES WAREHOUSE	10	10	3-1-51	WORK HELD UP
A-565E	3-23-50	H.I.	700	BIO ASSAY LABORATORY	10	10	1-1-51	NO PROGRESS THIS MONTH
A-570E	7-20-50		200W	CONSOLIDATED MACHINE SHOP	10	10	1-1-51	NO PROGRESS THIS MONTH
A-582E	8-11-50		300	ADMINISTRATION BLDG.	0	10	2-1-51	WORK PROGRESSING
A-588E	8-11-50		105F	MAINTENANCE SHOP	5	5	1-1-51	NO PROGRESS THIS MONTH
E-404	11-15-50	COMM.	700-1100	AIR RAID SIGNAL SYSTEM - RICHLAND - N. RICHLAND	-	10	12-1-50	WORK PROGRESSING
E-413	6-21-50	ELECT.	ALL	SUPERVISORY CONTROL ON 115 KV LINES	25	25	12-1-50	NO PROGRESS THIS MONTH
E-428	11-1-49	ELECT.	HANF.	DISMANTLE DISTRIBUTION LINES AND TELEPHONE CABLE - HANFORD	10	10		POSTPONED INDEFINITELY
E-432	1-11-50	ELECT.	300	ELECTRICAL POWER - HANFORD LAB.	15	15	1-1-51	NO PROGRESS THIS MONTH
E-435	2-10-50	ELECT.	RICH.	ELECTRICITY METERING - RICHLAND	40	45	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		700-1100	"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
A-1135E	4-2-50	TECH.	100B	P-10-D ADDITIONAL HOT FACILITIES	75	80	12-15-50	WORK PROGRESSING
2491E	9-14-49	S	200W	FIRST CYCLE EVAP. FAC. - 241 T-X, ELECTRICAL DESIGNS	90	100	10-24-50	COMPLETED

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PROJECT ENGINEERING DIVISIONS
ELECTRICAL DESIGN
PLANT GENERAL

DATE NOVEMBER 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.		
2540E	7-22-50		200W	COATING UNIT - HOOD 25, BLDG. 234-5	0	0	1-1-51	HELD UP
2543E	7-22-50		200W	EXPERIMENTAL COATING HOOD - BLDG. 231	5	10	12-1-50	WORK PROGRESSING
2544E	6-12-50	S	200EW	CONDUCTIVITY METERS 221 T-B	5	100	12-1-50	COMPLETED
2554E	11-10-50	S	200E	EVAPORATION FACILITIES - 200W	-	0	1-10-51	WORK INITIATED

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PROJECT ENGINEERING DIVISION
INDUSTRIAL ENGINEERING
ALL AREAS

DATE NOVEMBER 15, 1950

E. R. NO.	DATE REC'D.	DIV. RESP.	BLDG. OR AREA	DESCRIPTION	PERCENT ENGINEERING COMPLETE LAST MO.	PERCENT ENGINEERING COMPLETE THIS MO.	EST. COMPL. DATE	REMARKS
1141	6-16-50	DESIGN	100	P-10-X FEED SLUG HANDLING	5	80		WORK PROGRESSING
				P-10-X FUEL SLUG HANDLING	5	80		WORK PROGRESSING
				P-10 CASK DECONTAMINATION	60	90		WORK PROGRESSING
				P-10 EXTRUSION	20	95		WORK PROGRESSING
4365	4-15-49		300	INDUSTRIAL ENGINEERING - P-DIVISION				
		P		OPTIMUM BILLET DIMENSION DETERMINATION	70	70		NO PROGRESS THIS MONTH
		P		REDUCED CUT-OFF TOOL WIDTH	90	91		WORK PROGRESSING
		P		MELT PLANT MATERIAL HANDLING	20	20		NO PROGRESS THIS MONTH
		P		303 PROCESS & ESSENTIAL MATERIALS	0	0		NO PROGRESS THIS MONTH
		P		CHIP RECOVERY EXPOSURE STUDY	35	35		NO PROGRESS THIS MONTH
		P		MATERIAL HANDLING CREW METHODS	0	0		NO PROGRESS THIS MONTH
		P		REVISED MACHINING STANDARDS	50	95		WORK PROGRESSING
				EQUIPMENT REQUIREMENTS - 313 BLDG. FOR HIGHER PRODUCTION	10	100	10-20-50	COMPLETED 10-20-50
		P		CONSTRUCT & TEST ROD DOLLY	25	100	11-14-50	COMPLETED 11-14-50
		P		T&B DIE STUDY	-	50		WORK PROGRESSING
		P		DILATOMETER DEVELOPMENT	-	10		WORK PROGRESSING
4370	11-1-49		100	INDUSTRIAL ENGINEERING - P-DIVISION				
		P		CHARGE-DISCHARGE METHODS	65	80		WORK PROGRESSING
		P		SUGGESTION EVALUATION FOR P.C. GROUP	55	55		NO PROGRESS THIS MONTH
		P		CREW REQUIREMENTS, 105 AREA	25	25		NO PROGRESS THIS MONTH
		P		NOZZLE SWABBING STUDY	-	100	11-13-50	COMPLETED 11-13-50
4374	12-20-49		200	INDUSTRIAL ENGINEERING - S-DIVISION				
		S		CREW REQUIREMENTS 234-5 BLDGS.	10	20	12-20-50	WORK PROGRESSING
		S		METHODS IMPROVEMENT 234-5	0	0		NO PROGRESS THIS MONTH
4383	3-6-50	POWER	ALL	FUEL OIL STUDY	98	98	11-18-50	REVIEWING FINAL REPORT
4386	3-13-50	MFG.	ALL	STUDY DEVELOPMENT AND ROUTINE	0	0	3-13-51	SERVICE AND SURVEY
4386	11-6-50	PU&M	ALL	REVISE J.I. SHEETS	-	0		NEW WORK
4388	11-15-49	MFG.	ALL	ANALYSIS OF HEAVY DUTY LACQUERS	90	90	11-16-50	NO PROGRESS THIS MONTH
4391	5-12-50	MFG.	ALL	INDUSTRIAL LUBRICATION PROGRAM	50	50	11-16-50	NO PROGRESS THIS MONTH
4392	5-17-50	MFG.	ALL	METALIZING J.I.	35	35	12-1-50	NO PROGRESS THIS MONTH
4393	5-19-50	MFG.	100	LUBRICATION SPECIFICATIONS - 100DR	95	95	12-15-50	NO PROGRESS THIS MONTH
4395	6-28-50	MFG.	ALL	MANUFACTURING DIVISIONS PROCEDURES	15	20	12-1-50	WORK PROGRESSING

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PROJECT ENGINEERING DIVISIONS
INDUSTRIAL ENGINEERING
ALL AREAS

DATE NOVEMBER 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.		
4399	7-13-50	E & C	ALL	E & C DIVISION PROCEDURES	5	100		WORK COMPLETED
4401	8-18-50	MFG.	ALL	WORK ORDER CONTROL STUDY	60	80		WORK PROGRESSING
4402	10-24-50	POWER	ALL	USE OF NATURAL GAS IN POWER HOUSES	-	15	2-1-51	NEW WORK - PROGRESSING

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PROJECT ENGINEE VG DIVISIONS
COST ESTIMATING ..ORK SCHEDULE
WORK RECEIVED AND COMPLETED
ALL AREAS

DATE NOVEMBER 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-276	300	TELEPHONE EXCHANGE EQUIP. INSTALLATION	-	100	9-25-50	10-6-50	10-12-50	35,000	EST. TO W.E. SPILLMAN
C-321	107BDF	EFFLUENT DIVERSIONARY OUTLET	50	50	9-18-50	10-16-50	10-25-50	138,000	EST. TO H.P. SHAW
C-326	-	WELL SAMPLER LIFTING DEVICE	-	50	11-7-50	11-15-50			WORK PROGRESSING
C-326	-	U.S. GEO. & HYDRO. SURVEY - EST. TO COMPLETE	-	100			11-2-50	35,000	EST. TO R.M. HURST
C-330	313-314	INCREASED VENTILATION - EST. TO COMPL.	-	100			11-1-50	200,000	EST. TO R.M. HURST
C-333	-	H.I. OPER. DIV. INSTRUMENTS - EST. TO COMPLETE	-	100			11-1-50	72,000	EST. TO R.M. HURST
C-337	200	DISSOLVER OFF-GAS - EST. TO COMPLETE	-	100			11-1-50	158,000	EST. TO R.M. HURST
C-347	100	PROCESS TUBE NOZZLES - EST. TO COMPLETE	-	100	10-16-50	10-16-50	10-19-50	360,000	EST. TO R.M. HURST
C-349	-	HOT SEMIWORKS	10	10	10-2-50	11-15-50			NO PROGRESS THIS MONTH
C-368	108B	P-10-B - EST. TO COMPLETE	-	100			11-1-50	89,000	EST. TO R.M. HURST
C-377-R	3717	FAIR COST EST. - ADDITIONAL FOUNDATIONS	-	100	11-2-50	11-8-50	11-9-50	261	EST. TO R.L. OLDRIGHT
C-383	108B	P-10-A EXP. - EST. TO COMPLETE	-	100			10-31-50	225,000	EST. TO R.M. HURST
C-384	224TB	REARRANGE "F" CELL - EST. TO COMPLETE	-	0	11-11-50	11-17-50			NO PROGRESS THIS MONTH
C-388	108B	METEOROLOGICAL SUPT. - STACK	-	100	10-19-50	10-19-50	10-19-50	45,000	EST. TO F.A. BOWMAN
C-388	-	P-10-X PLANS #1 & #3 - REVIEW	-	100	10-18-50	10-19-50	10-19-50	7,200,000 5,916,000	EST. TO F.A. BOWMAN
C-388	100B	P-10-X STEEL TOWER	-	50	11-6-50	11-13-50			WORK PROGRESSING
C-388	-	P-10-X, 66 UNIT BUCKET - 3 ALTS.	-	80	11-9-50	11-13-50			WORK PROGRESSING
C-388	-	P-10-X RESCOPE - ALT. #3	90	90	10-5-50	10-16-50			NO PROGRESS THIS MONTH
C-389	-	AREA ROAD MAINTENANCE - EST. TO COMPL.	-	100			10-24-50	79,100	EST. TO R.M. HURST
A-448	-	ADD'N. - BY TELEPHONE EXCH. - 2 ALTS.	-	100	10-16-50	10-17-50	11-13-50	9,700 7,300	EST. TC C.S. BUCHOLZ
A-532	100F	BICLOGY LAB. - TRAINSHED REMODELING	-	80	11-8-50	11-17-50			HELD

CONTD. ON PAGE 2

CG-7771

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

DATE NOVEMBER 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.					
A-543	-	PISTOL RANGE ADDITIONS	-	90	10-13-50	10-20-50			WORK PROGRESSING
A-565	1100	BIO ASSAY LAB. - LOCATION STUDY	-	100	11-6-50	11-8-50	11-7-50	27,000	EST. TO H.F. PETERSON
A-582	300	MFG. DIV. ADMIN. BLDG. - 300 AREA	75	75	8-21-50	8-29-50			HELD UP
A-593	-	BADGE HOUSE BADGE ELEVATORS	-	90	10-13-50	10-20-50			WORK PROGRESSING
A-597	-	CIVIL DEFENSE SHELTERS - 6 ALTS.	-	100	10-17-50	10-20-50	10-31-50	VARIOUS	EST. TO H.E. HYLBAK
E-404RE	-	AIR RAID EVACUATION & WARNING SYSTEM	-	100	11-9-50	11-13-50	11-10-50	21,000	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
2549	212	ADDITIONAL BUCKET LOADING - MONORAILS	-	100	10-16-50	10-16-50	10-16-50	12,000	EST. TO E.M. JOHNSTON
A-3095	305	MODIFICATIONS	-	100	10-23-50	10-30-50			HELD
ST'DS.	-	DOOR CLOSER UNIT	-	100	10-11-50	10-16-50	10-11-50	50	EST. TO G.A. FLUKE
AEC	-	WATER SUPPLY - ARMY CAMPS	-	100	10-16-50	10-20-50	10-31-50	23,000	EST. TO R.M. HURST

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NOVEMBER 15, 1950

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RECAP - ALL AREAS

PROJECT COSTS

	100	200	300	GENERAL	TOTAL
AUTHORIZED	$ 4,873,400	$3,892,465	$ 487,800	$4,277,800	$13,531,465
AWAITING APPROVAL	39,300	32,700	65,400	32,600	170,000
WORK IN PREPARATION	7,470,400	1,055,000	667,800	4,440,000	13,633,200
TOTALS	$12,383,100	$4,980,165	$1,221,000	$8,750,400	$27,334,665
LAST MONTH'S TOTALS	$12,313,800	$4,291,165	$ 851,000	$8,660,400	$26,116,365

PROJECTS COMPLETED DURING MONTH: NONE

SUBCONTRACTS IN FORCE: $ 397,153

SUBCONTRACTS PREPARING: $2,997,000

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TECHNICAL DIVISIONS

NOVEMBER 1950 12-11-50

SUMMARY

Pile Technology Division

Increases in the power level of each production pile, averaging about 5% per pile, were effected during the month.

Pile aspects of the H-10 program continue favorable. The H-10 loading was increased to 825 tubes during the month. Reactivity gains from accumulation of plutonium in the natural uranium continue to balance losses from burnout of the H-10 load. Both the target slugs and the fuel slugs from one pilot tube showed satisfactory dimensional stability after six months of irradiation. However, unexpectedly low product yields were obtained in the initial extraction of target slugs from the H-10 loading.

The fourth ruptured slug in the history of the plant was encountered at DR Pile and was complicated by a water leak in the tube. This case also differed from previous cases in that a reported three slugs were stuck in the tube. It was necessary to remove the gun barrel to correct the difficulty, but the gun barrel was easily replaced in this new pile.

The water leak in the D Pile appears to have been checked, with no adverse effects except for a net loss of 30 inhours which is not definitely attributable to the leak.

Radio-metallurgical examination of one fringe tube which had been left empty in the F Pile indicated that the tube could have been re-loaded. However, visual and/or borescopic examination of eight other tubes revealed an erratic presence of large amounts of water and associated extensive pitting, so it was concluded that the empty tubes in general were not re-usable.

Satisfactory measurement of the neutron attenuation of the Hanford biological shield has been obtained.

Experiments in the critical mass laboratory show that the basic critical mass of plutonium from uranium irradiated for 212 MD/ton is 655 grams, in contrast to 700 grams for 400 MD/ton material.

It was decided during the month that the upstream portion of process tubes should be loaded with sacrificial magnesium dummy slugs to inhibit tube corrosion. Flow laboratory tests were satisfactory.

Work on irradiation effects in cooled graphite samples indicate that the rate of damage is accelerating with continued exposure. A 73-fold reduction in thermal conductivity of cooled graphite samples has been observed. Preliminary experiments indicate that a 2% burnout of graphite would not cause serious loss of mechanical strength.

Studies show that the incidence of non-seat reject slugs is affected by the age of the Al-Si bath and by the silicon content. The effects are not understood and an experimental program is being initiated.

Metallurgical examination indicated that the two supporting pins which failed during removal of a deaerator tank at 100-F area did not contain defective material.

The quarterly meeting of representatives from AEC laboratories to plan the program of special irradiations was held at Hanford during November.

Testing of the metal line for P-10 extraction was in progress in Schenectady during the month. Shipment will be delayed about one week beyond December 1 to permit elimination of leaks. Operational difficulties prevented the establishing of satisfactory material balances during the tests but performance was generally satisfactory.

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Separations Technology Division

As expected, the processing of 600 MWD/ton metal at T Plant is resulting in apparently higher "losses" in the Extraction step metal waste (2.7%), because of the higher americium and curium content. A time cycle of nine hours for the lanthanum fluoride by-product step, with unchanged waste loss and decontamination, has been demonstrated by production testing. About 70 milligrams of Am^{241} have been separated from Sample Can plutonium as a special recovery task for the University of California Radiation Laboratory. The test destruction of Purification supernatant oxalate, prior to recycling to Bldg. 224, has been successfully initiated in Bldg. 234-5. New Model 110 dies have been fabricated and initially tested in Bldg. 235, giving Pressing results indicating the need for slight modifications of the ram punches.

In Redox and Metal Waste Recovery development, the preparation of Redox and TBP process Technical Manuals and Start-Up Operating Procedures has continued to receive primary emphasis. Revision of the Demonstration Unit for simulation of plant-type Redox operations is about 20% complete. Engineering development studies are continuing on Production Plant pumps, rotameters, transmitters, evaporators, materials of construction, and de-entrainment equipment. Laboratory studies of continuous UO_3 conversion have continued to produce favorable results.

In the research laboratory, the precipitation of plutonium (III) arsenate from F-10-P (final $BiPO_4$ Plant) solution and plutonium (III) fluoride from simulated final Redox solution are being studied as methods of coupling to Metal Fabrication. Favorable results have been obtained in studies of extracting plutonium from slag and crucible leaching solutions by Redox and TBP-CCl_4 methods. Amazing increases in extraction coefficients for uranium by TBP have been obtained by aluminum nitrate salting. Trace amounts of mercury in simulated dissolver solution have shown almost complete complexing and retention of iodine.

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The first plant-scale Silver Reactor installed at B Plant has demonstrated iodine removal efficiencies better than 99.9%. Difficulties with condensate entrapment in sampling lines have thus far prevented accurate measurement of the particle removal efficiency of the companion Fiberglas filter simultaneously installed in the dissolver off-gas line.

Technical-Services Division

Ninety separate mass spectrometric analyses of gaseous P-10 samples were made, despite some curtailment of this work because of building shutdown and instrument maintenance. Because of the heavy demand for these analyses, personnel have been selected for training in order to put this service on a three-shift basis, and a second more suitable mass spectrometer for this work is about to be purchased. The emission spectrometer for the determination of hydrogen-to-tritium ratios was installed early in the month, and operated satisfactorily in the measurement of hydrogen-to-deuterium ratios.

The hydrogen line for determination of gas in lithium-alumium slugs operated efficiently, and produced 110 analyses; this represents a three-fold increase in work volume over the preceding month.

A newly developed analytical procedure for the separation and determination of americium was applied successfully in support of special plant runs for the recovery of this element. The accuracy of the method was confirmed by alpha pulse analyzer tests.

Technical liaison was continued during D & C's completion of negotiations with the Rosener Company for the design of the Radiometallurgy Bldg. and the Plot Plan and Utilities for the Hanford Works Laboratory. This modification of Rosener's design contract for the Radiochemistry Bldg. was signed November 20, and called for completion of design and specifications by July 7, 1951. At month-end, D & C was negotiating with Rosener for an earlier completion date, with suitable premium payment. Rosener's design work on the Radiochemistry Bldg. was approximately 70% complete.

The Construction Division completed the temporary facilities and preliminary 300 Area site preparation work covered by Part II of the Plot Plan and Utilities Project C-394. AEC approval was obtained for Project C-406-R, which covers the design and the construction (shell only) of the Mechanical Development Bldg., the shell of which is to be erected as promptly as possible so as to house construction forces during the main part of the Works Laboratory program.

The project proposal for the Pile Technology Bldg. was submitted to the A & B Committee and received their approval on November 27. It was then forwarded to the AEC. The design criteria for this building are being written jointly with D & C, and architect-engineer negotiations are scheduled for mid-December.

The tentative floor plans for the Library & Files Bldg. were developed and were released to D & C for estimating. This building is planned as a two-story structure, containing about 32,000 square feet of gross floor space. In addition to the Library and the Classified Files, it will house the Statistics Group and Associated Computing Laboratory.

A review of the efficiency of a unique statistical sampling plan adopted for the pile testing of slugs from the P-10 project, revealed that to date more than 200 days of Test Pile operation have been saved by this plan.

A mathematical equation relating Test Pile reactivity to the uranium-235 content of P-10 fuel slugs was obtained statistically from data supplied by the Pile Physics and the Analytical Sections. Using this equation, the computing laboratory prepared a table of 700 entries for converting Test Pile reactivity to uranium-235 content of fuel slugs. The IBM equipment in the new technical computing laboratory also was used to obtain detailed predictions of discharge and pile inventories of H-10 material at several MWD levels for periods up to December 23, 1952.

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December 8, 1950

PILE TECHNOLOGY DIVISION

NOVEMBER, 1950

VISITORS AND BUSINESS REPORTS

J. W. Moyer, Knolls Atomic Power Laboratory, was here November 1 through 3 for consultation on spectroscopic methods of product analyses.

C. E. Stilson, and H. E. Robertson, N.E.P.A. Division, Oak Ridge National Laboratory, were here November 11 through 19 for in-pile creep test.

J. G. Morgan, N.E.P.A. Division, Oak Ridge National Laboratory, was here November 11 through 21 for in-pile creep test.

R. W. Coyle, N.E.P.A. Division, Oak Ridge National Laboratory, was here November 15 through 19 for in-pile creep test.

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

David F. Snoeberger visited Argonne National Laboratory on November 6 to discuss in-pile experiments; and Knolls Atomic Power Laboratory on November 8 through 10 to discuss KAPL laboratory experiments.

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W. M. Harty visited Knolls Atomic Power Laboratory and General Engineering and Consulting Laboratory on November 16 through 18 for P-10 consultation.

W. R. Lewis visited Oak Ridge National Laboratory on November 20 and 21 to attend lectures at the school of Nuclear Engineering.

P. F. Gast visited E. I. duPont deNemours Company on November 27 for a meeting to discuss long-term reactivity gains and for discussions regarding design of new piles; and Oak Ridge National Laboratory on November 28 through 30 for technical consultation on H-10 slugs.

H. F. Zuhr visited Knolls Atomic Power Laboratory and General Engineering and Consulting Laboratory on November 6 through 30 for P-10 consultation.

J. F. Fletcher visited Knolls Atomic Power Laboratory and General Engineering and Consulting Laboratory on November 6 through 30 and beyond for P-10 consultation.

A. T. Taylor visited Knolls Atomic Power Laboratory and General Engineering and Consulting Laboratory on November 6 through 30 and beyond for P-10 consultation.

ORGANIZATION AND PERSONNEL

	October	November
Physics Section	44	45
Engineering Section	58	58
Metallurgy Section	37	37
P-10 Project	57	57
Administration	4	4
	200	201

A laboratory assistant was hired, and a physicist transferred in from H.I. for the Physics Section. A laboratory assistant terminated from the Physics Section to return to school.

In the Engineering Section a laboratory assistant transferred in from Technical Services and a technical graduate of the Rotational Training Program transferred to H.I.

PHYSICS

Area Physics Work

Loading adjustments were made at the D and H Piles which improved the flattening of the neutron flux and thus contributed to the attainment of higher power levels in these piles. Additional reactivity was made available for a level increase at the DR Pile by draining cooling water from the B and D test hole facilities. The reactivity absorbed by power level increases varied considerably from pile to pile and the effect is not completely understood.

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The reactivity of D Pile is now 30 inhours less than it was just before the process tube water leak which occurred in September. The gas dryers at this pile are no longer removing significant amounts of water and the pile is presumably dry. Some of the reactivity loss may be due to changes in the amount and distribution of plutonium in the pile due to discharges which have occurred during the interval. However, with the present data, the possibility of a permanent decrease in reactivity cannot be excluded.

The results of two reactivity coefficient tests performed last month have been analyzed. The test performed at the DR Pile indicates slightly higher coefficient values than were obtained at H at the same total exposure. The results from F Pile were in agreement with previous trends.

The H-10 load was increased to 825 active tubes during the month by the charging of the final 13 tubes in the pattern. Reactivity gains from accumulation of plutonium in the natural uranium of the pile have continued to balance losses from burnout of the H-10 load. However, net losses will be experienced from discharges of irradiated metal and reactivity is being held in the control rods to compensate these losses.

The installation of an automatic IBM punch for the recording of the production of individual tubes in the DR Pile has been completed.

Plutonium Critical Mass

Fifteen critical mass determinations were made during the month in the thirteen and fourteen inch spherical reactors with water tamping. These experiments definitely established the thirteen inch reactor as the one producing minimum critical mass. The critical mass of 212 MWD/ton plutonium in the thirteen inch sphere was 655 grams at a nitric acid concentration of 1.5 N. The value for 420 MWD/ton material, under the same conditions, reported last month was 700 grams.

The increase of critical mass produced by the presence of nitrate has been successfully analyzed from a theoretical standpoint. It is expected that the theory will give accurate results when applied to any additives. However, additional checks will be made by running separate experiments with phosphate and bismuth radicals, before the method is applied to situations occurring in the separation process.

Exponential Experiments

An exponential experiment has been carried out with a pile built with the standard Hanford lattice. This experiment directly determines the so-called "buckling" of the lattice, which is a direct measure of the number of excess neutrons available. The value obtained in the experiments is 100×10^{-6} cm^2, which is considerably larger than the value of 70×10^{-6} cm^2 obtained from the wet critical loading of DR Pile. No explanation of the discrepancy had appeared at month end. The exponential experiment is being repeated.

Project C-346 has been reactivated to provide for the fabrication of the graphite to be used in exponential experiments with altered lattice constants.

Shielding

Three separate determinations were made of the neutron attenuation of the Hanford shield. These were made by the exposure of gold foils in the special step plug assembly described in previous monthly reports. The results of the three determinations are consistent and indicate a neutron relaxation length which increases from 4.7 cm at the inside of the biological to 8.8 cm near the exterior face. It thus appears that the divergent values of the relaxation length reported by experimenters at other sites can all be reconciled. Analysis of the data is continuing.

Special Request Program

A total of 136 P-10-A slugs and 12 other special requests were charged during the month, while 270 P-10-A slugs and 12 other special requests were discharged.

Thirty special requests are now on hand awaiting charging.

Radioactivity measurements have been completed on the tantulum pellets discharged last month (HW-101). Based on these measurements, it has been estimated that the 40,000 curies required by the Radiological Warfare Branch of the Chemical Warfare Service can be produced by exposure of the metal in four empty fringe tubes for sixteen days.

Irradiation of samples of Dowalloy 18135 (high purity magnesium) indicate that sample holders and capsules of this material would have substantially less radioactivity than the present aluminum containers.

New methods of obtaining the exposure of all special requests and of bismuth have been required by the new policy of operating the piles at varying levels dependent upon temperatures observed at critical points. A system utilizing existing IBM equipment has been planned and will be put into operation at an early date.

Xenon Cross Section Measurement

The glass elements of the system for handling the gas outside of the pile have been interconnected for laboratory testing, and wiring of the remote control system is in progress. High purity stable xenon and krypton have been obtained to test the ability of the apparatus to separate these gases, both of which occur in the fission product off-gases.

Further surveys have been made of the shielding installed at DR Pile to allow a neutron beam to emerge from the pile. Outside of the direct beam, the neutron flux was found to be only three times tolerance at the worst location. This situation can easily be corrected.

The large neutron counter, for use with the neutron spectrometer, has been tested and found satisfactory.

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Test Pile

An accurate calibration of the control rod of the Test Pile had previously existed only for one foot of rod motion in the vicinity of the normal test position. The accurate calibration was extended over a length of thirty inches during the month and the old calibration rechecked. The data are being analyzed.

One special work request, No. 164, was carried out during the month. This was a measurement of the neutron absorption cross section of a sample of high purity magnesium. The value obtained was 0.06 barns in good agreement with results of other investigators.

Instrument Development

The magnetic field which can be produced in the magnetic spectrometer has been measured. The field attainable will allow measurement of recoil proton energies up to 0.34 Mev. and Compton recoil electrons up to 2.2 Mev.

Reactivity

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

	B Pile	D Pile	DR Pile	F Pile	H Pile
In rods	53 ih	53 ih	80 ih	67 ih	130 ih
In xenon poison	525	518	666	553	696
In Special Requests					
In Lead-cadmium columns	0	0	0	0	27
In plant assistance	15	30	0	6	13
In dummy columns	5	26	83	29	15
In overall coefficient	-285	-300	- 86	-306	-180
Total cold, clean reactivity	889	824	743	826	726

The B Pile lost 24 inhours, DR and F Piles lost 4 inhours each, D Pile gained 38 inhours and H Pile was unchanged during the month. The large gain at D Pile arose from the recovery from the water leak while the loss at B was the result of normal discharging operations.

ENGINEERING

Pile Power Levels

Substantial increases in pile power level were made during the month. Listed below are the power levels at the beginning and end of the month:

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Pile	November 1	November 30
B	355	365
D	330	335
DR	390	430
F	305	315
H	440	470
Total	1820	1915

The D and F Pile increases were made possible by cooler process water and the B and H Pile increases by improved flattening. The DR Pile had been limited by power level instrumentation but presently is limited by boiling considerations.

Further power increases in DR will be possible when metal gains permit pile flattening. The H Pile is at its maximum power level with a CO_2 atmosphere, and may operate at a lower level as the reactivity of the pile is decreased by the discharge of plutonium in normal tubes. Further increases in power level in the B, D, and F Piles are probable as more information on graphite temperature becomes available from additional thermocouples installed in these piles. The heat generation in these piles is being made more uniform and some gains may be possible though they are limited in the B Pile which appears to be flattened as much as possible.

Fringe Zone Air Tubes

The study to determine the feasibility of using the fringe zone air tubes in the F Pile was continued. Two additional tubes were swabbed and borescoped. One of the tubes which was moist only at the Van Stone flange was found to be in good condition with only superficial pitting evident. The second tube contained a significant amount of water which drained from the tube when the cap was removed. This tube was found to be badly pitted and contained large amounts of corrosion products. Six other tubes were examined superficially; three were found to contain large amounts of water. These results indicate that half of the tubes would have to be replaced and all the tubes should be critically examined before being re-used.

Pile Water Leaks

The water recovery rates in the driers at the D and F Piles were higher than normal during the month but are steadily decreasing. It is believed that the leaks reported last month have been stopped.

Exposure of Proposed 3X System Boron Steel Balls

A test exposure was made of the 1.5% boron steel 3X system control balls proposed for use with this system. This test was performed to determine any possible deleterious effects which would result in inability to remove balls that had become lodged in cracks in the moderator. The examinations after exposure revealed that all balls had high heat emissivity; their temperature did not exceed 560°C. It is indicated that the only loss of reactivity resulting from the use of these 3X safety balls would be the failure to recover all of them from the moderator.

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DR Pile Ruptured Slug

A ruptured slug occurred in the DR Pile on November 27. The pannelit pressure increased from 190 to 230 psi prior to the shutdown. A gas pressure test revealed a small leak in the tube in the region of the ruptured slug. Three slugs could not be discharged from the tube and it is not known how many of these slugs were actually ruptured. The damaged portion of the tube would not pass through the gun barrel, necessitating the removal of the gun barrel. It was replaced with little difficulty. The graphite channel was thoroughly cleaned with a vacuum cleaner after the tube was removed. The radiation intensity of the vacuum dust collector box was only 2R, indicating that no significant amount of fission products entered the tube channel. The pile was started up on November 30.

H-10 Slug Exposure Behavior

When the H-10 loading was first charged, pile tests of similar materials had indicated that the fuel slugs would expand in diameter. A significant number of slug measurements have shown that the H-10 fuel slugs have not expanded excessively. One tube from P.T. 105-316-P, Supplement A, containing the standard H-10 load was discharged at The fuel slugs generally increased in length averaging about 0.02 inches over their pre-exposure length. The maximum change in diameter was ± 0.005 inches. Further measurements were made of slugs from standard H-10 loads from P.T. 105-351-P, two tubes of which were exposed to and two tubes exposed to . These slugs increased approximately 0.005 inches over the average pre-exposure diameter of a representative number of fuel slugs. There has been no indication of warp in these slugs.

Nine target slugs were measured before and after exposure at . The slugs all decreased approximately 0.015 inches in length. Diameter changes from + .005 inches to - 0.003 inches were measured.

Effect of Water Vapor Concentration on Pile Gas Equilibria

A production test has been written for an experiment designed to show whether increased moisture in the pile atmosphere will shift the equilibrium of the reaction $H_2 + CO_2 \rightleftharpoons CO + H_2O$. The water content in the pile gas will be permitted to increase and accurate analyses of the pile gas will be obtained. It may be possible to determine the source of the CO content of the H Pile atmosphere.

P.T. 105-372-P - Expansion of Fringe Zone Graphite

A series of vertical traverses have been made in the near and far side tubes of the B, D, and F Piles. The traverses are to be repeated after a nine month interval in order to determine the rate of expansion in these critical regions. The traverses taken to date indicate that the maximum vertical expansion has occurred approximately fifteen feet from the front tube flanges, in the top central tube, but that in the top fringe zone tubes the expansion at the fifteen feet point is approximately 80% of that of the central tubes.

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Graphite Temperatures and Temperature Monitoring

The calculated graphite temperature is currently limited by possible burnout considerations to a maximum of 380°C. This temperature is calculated by determining the average water temperature rise of the four adjacent hottest tubes in the pile and of the four tubes adjacent to a .240 zone thermocouple and multiplying the ratio of these temperature rises by the temperature indicated by the graphite thermocouple. In the B, D, and F Piles where there are two central graphite thermocouples, the maximum graphite temperature is calculated from the thermocouple which will give the highest value. This method assumes (1) that a linear relationship between heat generation in a tubs and the local graphite temperature exists and, (2) that the graphite thermal conductivity damage is uniform in all portions of the piles.

Recent data have shown that the relationship between heat generation and graphite temperature is not linear, but that the overall heat conductivity from the filler blocks to the process tubes increases with rising temperature. Other data also indicate that the overall heat conductivity varies in different locations in the pile and, in general, is highest in the center of the pile and decreases toward the sides of the pile. Several conclusions can be drawn from these facts:

1. Due to the increasing overall heat conductivity with increasing temperature the probability of local hot spots in the graphite is lessened.

2. If the maximum graphite temperature is calculated in a zone where the heat generation is the highest by extrapolating on a straight line from a region where the heat generation is lower, and where the heat conductivity is lower, the calculated maximum value is higher by the ratio of the differences in heat conductivity.

The fact that the observed maximum graphite temperatures in the B, D, and F Piles are from 320°C - 350°C, while the calculated highest graphite temperatures are maintained at 380°C, appear to bear out these conclusions. It is planned to resolve this situation by the installation of several thermocouples in the B, D, and F Piles so that accurate analyses can be made of the pattern of thermal conductivity damage. When this program, now in progress, is completed it is expected that further significant power increases can be made.

Thimble Removal and Ball Third Safety Program

Preparations are being made to drop a charge of steel balls into the #20-D vertical rod hole. This hole is now equipped with the experimental fluted stepped plug and has no thimble. Supplement "A" to Production Test 105-338-P, which has been prepared to authorize this test, provides for dropping approximately 3 cubic feet of steel balls into the hole during a shutdown. The balls are to be removed by vacuum. Successful completion of this test will be considered the final step in demonstrating the feasibility of the proposed ball third safety system.

Borescopic examination of vertical safety rod holes 20-D and 22-D on November 16 revealed gaps between the vertical liner blocks ranging from 0.1 to 0.8 inches. Tests have shown that balls are easily blown from the larger cracks and only when

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the crack width is equal to, or slightly less, than the ball diameter is there any danger of balls becoming permanently lodged.

The gas seal installed in conjunction with the fluted stepped plug has performed satisfactorily to date. A Kanne Chamber, with an automatic recorder, installed in the vent line to detect leaks through the seal has not indicated any leaks.

The knuckle-jointed vertical safety rod operating in the bare #20-D hole does not appear to be a source of contamination.

Water Survey

A comprehensive study of the pile cooling water problem has been undertaken to ascertain if productive or economic gains may be obtained by revising the present water procedures and standards. The study will include analyses of the quantity and quality of the cooling water. It is impossible to divorce the problems of water supply from the problems of film formation and corrosion. It is anticipated that it will be necessary to correlate the work of other groups engaged in these particular problems. A report now being prepared outlines the results of a literature survey on water quality and proposed possible methods of attack to reach a solution of the water quality problem.

Boiling Studies

An investigation has been made on the effects of present operating conditions on the allowable heat load which can be obtained from individual process tubes. A rather wide variation was found in cross header pressures in a given pile. Since the safe heat load in a process tube depends on the pressure in the header supplying the tube, it is considered advisable to monitor the pressure on all the headers of the pile and set heat load limits accordingly. At present five cross headers have pressure taps at the B, D, and F Piles and only two at DR and H Piles.

Plans are being made to undertake an experimental study of two-phase flow through the downstream portion of a tube and the outlet fitting. If it can be shown that perforated dummy slugs in the downstream portion of the tube offer appreciably less resistance to two phase flow than do solid dummy slugs it may be possible to increase the allowable heat load per tube.

An investigation into the boiling limitations resulting from a 25% increase in annulus area is being made for use in conjunction with the Physics group's exponential pile work. Pressure drop calculations will be made for several heat loads and flow rates of a process tube. The present slug diameter will be used with the increased annulus area effected by an increase in tube diameter.

Assistance to Physics Group

Assistance is being given the Physics group on the following projects:

1. Hot pellet handling equipment for SR-HW-101.
2. Irradiated slug bubble tester.
3. Underwater slug monitoring system.
4. Flux monitoring equipment.

These jobs are in various stages of completion and will be reported in detail when completed.

Slug Surface Temperatures

An experimental program is being prepared to evaluate the effect of film on slug surface temperature. This will be done by using special slugs with one or more thermocouples. Also being considered for study on the same program are such variables as thermal conductivity of irradiated uranium, heat generation distribution throughout the slug, J slug surface temperatures, and heat generation after shutdown.

Magnesium Front Dummies

Solid magnesium dummies are to be used in the upstream end of the process tubes in an attempt to prevent further tube corrosion. Tests were performed to determine if magnesium dummies would chatter when used in the vicinity of the front Van Stone flange. The loose magnesium pieces did not chatter when a rigid cap-supported slug was used which extended across the Van Stone and several inches into the tube. A gap must be left between the supported piece and the first loose piece to allow for variance in the length of charge and for expansion of the charge.

Irradiation Effects of Graphite RDA #TP-10

The distribution of stored energy as a function of annealing temperature was determined on a mined graphite sample which has 514 cal/gm of total stored energy. Annealing was performed in 100°C steps to 2000°C by the North American Aviation Group and the stored energy contents were determined by the Bureau of Standards. Annealing is essentially complete at 2000°C; over 300 cal/gm are released only at temperatures above 1000°C. The general features of the spectrum of stored energy are in good agreement with those previously reported for the C_o-spacing, and gives more confidence to the use of crystal expansion as a measure of graphite damage. Within the accuracy of the data, the rate of change of stored energy is proportional to the rate of change of the C_o-spacing in the regions 200-900°C and 1300 to 2000°C; the correspondence in these two regions is about 55 cal/gm/0.1 Å and 80 cal/gm/0.1 Å respectively.

During a 2970 MD/CT exposure in a cooled test hole the average thermal conductivity of seven parallel cut KC samples was reduced by a factor of 73. This is in line with linear extrapolation from lower exposures. Preliminary crystal expansion data on the same samples indicate a trend to values lower than would be expected by linear extrapolation from previous data. A trend toward an increased rate of physical expansion was also noted for several transverse KC samples during a 1670 MD/CT cooled test hole exposure. This confirms previous data on capsule exposures which indicated an upward break from linearity in the physical expansion curve at exposures above 800 MD/CT.

The average effective temperature, for oxidation, of a graphite sample exposed in an empty process tube was determined to be 395°C, with some individual readings exceeding 415°C; the surrounding pile graphite temperatures were considerably lower and of the order of 350°C. The higher temperature may account for the relatively high in-pile oxidation rate which was previously thought to be the result of concurrent irradiation.

Thermal expansion rates were determined by the interferometric method on unirradiated molded natural graphite, and KC and CSF graphites. These are preliminary to measurements of physical expansion annealing spectra on irradiated graphites. Some difficulty was encountered with oxidation in the system; this appeared to result in significant increases in the determined values for the coefficient of expansion.

Two surface area determinations on unirradiated WSF graphite indicated a value of 0.59 square meters per gram. Systematic errors showed a deviation of less than one percent.

Initial mechanical property tests on samples of graphite oxidized to approximately two percent indicated a trend to reduced breaking strength and a decrease in Young's Modulus.

Work on the development of a high temperature furnace attachment for the Phillips Spectrometer, the thermal conductivity pulse annealing apparatus, the controlled temperature of irradiation experiment, and the controlled atmosphere gas tube experiment proceeded normally during the month.

A group of irradiated samples representative of the entire available damage range was sent to Professor B. E. Warren at M.I. T. for studies of the X-ray line diffraction shapes.

A project proposal is being prepared to cover the construction of two temporary laboratories in the 101 Area. A suspense code has been obtained to cover preliminary construction work.

In-Pile Controlled Atmosphere Experiment

Final approval of this project was obtained, as well as approval for the General Engineering & Consulting Laboratory to construct the required test hole heater facility. Design drawings have been completed.

Numerous design calculations were made during the month. Equipment procurement, equipment development, and materials testing proceeded normally.

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

This experiment is to determine the behavior of water, prototype fuel, and structural materials under conditions similating those of the Westinghouse Pile as nearly as is possible in the Hanford Piles. Operation during November has been routine at 540°C and 1500 psi. Gases dissolved in the water average 52 cc/liter, which includes 2 cc of CO_2, 34 cc of H_2, 2 cc of O_2 and 14 cc inert. The oxygen apparently oxidizes the stainless steel, which accounts for the black deposit on the walls of the system and appearing in water samples. Heat-balance calculations indicate that six KW is generated by the materials in the pile.

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

An experiment to determine the influence of the Hanford flux on the behavior of fuel and liquid coolant materials is in progress. No slugs were charged or discharged during November. The status of current irradiations is:

Slug	Tube	Days at 305 MW as of Nov. 23	Days Exposure Requested (305 MW)
R-1 ($U^{235}O_2$ in SS)	1071F	231	330
R-5 (U^{235} in Ti + SS)	0865 F (75%)	160	317

Ion chamber and Lauritsen electroscope measurements were made on the cobalt integrators and flux determined as follows:

Slug	Tube	Pile Power MW	Nv x 10^{-13}
R-2	1077-F (May '50 - June '50)	305	2.02 ± 7%
R-4*	1077-F (Mar '50 - Apr '50)	305	1.72 ± 5%
R-3*	1077-F (Nov '49 - Mar '50)	275-305	1.18 ± 10%

* Previously reported (HW-19088) values were in error because of faulty operation of the ion chamber.

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

A controlled temperature experiment is being prepared for the determination of the influence of Hanford flux at moderate temperatures on graphite damage. Design is now complete and early installation is expected.

Fission Gas Experiment (KAPL)

The fission gas experiment is to determine the rate and quantity of gas release from fuel materials at 450°F in Hanford flux.

At KAPL, November 8-10, 1950, D. F. Snoeberger had discussions with C. Weber, J. S. Blowney and others. This visit is covered by document HW-19569.

Fabrication troubles with welds and bonds on the foil, foil containers, and pressure transmitting diaphragm have delayed mock-up tests at KAPL which are not scheduled for December. The assembly may be ready for pile installation in April, 1951.

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

A determination of the dielectric properties of insulating materials when subjected to the Hanford flux is being made. Three "before and after" slugs were charged in the H Pile on November 7 for a one-month exposure. Design is proceeding on an in-pile experiment to supplement the "before-and-after" results. Lavite is giving no trouble at low voltages in the Westinghouse slug (WAPDM-103).

Creep of Pins (KAPL-M-105, P.T. 105-400-P)

The creep rate of KAPL "pins" subjected to internal pressure, heat, and pile radiation is being determined. The instruments for this experiment arrived from KAPL and are being installed in the 105-F building. The tentative charging date is December 23, subject to change depending on the duration of the re-nozzle program. The production test for the experiment is being circulated.

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

The above experiment is to determine the effect of irradiation on the thermal conductivity of U-Zr alloys. The experiment requires that a pair of slugs be installed in a cooled process tube in a high flux region. One slug will contain a flux meter and the other will contain two Zr-jacketed U-Zr specimens. Conductivity will be determined from continuous measurements of temperature drop across the U-Zr specimens. Two runs will be made with this apparatus, each of which will take nine months. The ANL design is being studied at Hanford Works.

Controlled Temperature Facility

This facility would provide a controlled temperature test hole for irradiation of many large samples in the range of 100 to 450°C, and would permit any sample to be "on call". Response to date on the survey made to determine the need of the facility has been strong enough to justify proceeding immediately with a preliminary design and cost estimate by the Project Engineering Division.

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

This experiment using the NEPA design is to measure the effect of pile radiation on the creep rate of annealed 2S aluminum. The first specimen, intended to have a temperature of 450°C, was charged on November 15 at D Pile. A temperature of 560°C, caused by nuclear heating of the structural materials in the slug, made it necessary to discharge the slug during the poison push. Extrapolation indicated that if the experiment had been continued a specimen temperature of 630°C might have been reached. Another slug will be charged, either with gas cooling, or in a lower flux zone.

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

The influence of Hanford flux on the calibration of a variable differential transformer and on the electrical resistivity and dimensional stability of zirconium is being determined. The test slug was charged into the B Pile on October 22. In the one month since charging all equipment has been performing satisfactorily. No change in the performance of the differential transformer has been observed. The resistance of the specimens has increased about 1.5 percent.

Creep of Zirconium (WAPD)

The creep rate of stressed ZR specimens will be measured in a test slug of construction similar to that of the differential transformer calibration with the addition of a loading bellows to stress the specimen. Photographs of the slug and instruments have been received and are being studied.

Irradiation of Thermocouples

Radiation effects on the calibration of thermocouples will be determined. The accuracy of temperature indications from thermocouples which have been exposed to radiation for several years is questionable. A study of materials and equipment best suited for the experiment is in progress, with emphasis being placed on the use of the freezing point of a pure metal or a eutectic alloy to determine a fixed temperature point.

Pile Tube Removal Equipment

The approximate activity to be encountered on removal of the P-13 tube has been calculated to be 100,000 r/hr at one foot - mostly of high-energy gamma. The design of a remote cutting facility by the Technical Services Division is proceeding. An alternate plan which is being investigated proposes that the tube be pulled as one piece into a large cask outside the pile, and then removed to the burial ground.

Test Hole Facilities

A survey of all the test hole facilities was prepared for the meeting of the In-Pile Experiment Liaison Committee. A report of this survey is now in preparation.

At present nineteen of the twenty-six 4-3/16 inch test holes and one of the nine 1-1/4 inch test holes are in use. The remainder are either empty, loaded but unused, or loaded with equipment which can be sacrificed if necessary.

The meeting of the Liaison Committee revealed that possibly five more 4-3/16 inch holes will be needed by the Materials Testing Program before March, 1951.

METALLURGY

Uranium Billet Casting and Rod Fabrication

Studies of Hanford casting results have indicated pipes and blow holes existing as far as 2-7/8 inches below the top of the billets. In the belief that improved ingot capping techniques may help to eliminate these flaws with their attendant yield loss, recommendations are being made for revising present casting procedures.

Based on spot checks on sixty-eight random rods from the November shipment of rolled uranium (MCW cast), their dimensional and surface quality appears considerably better than those of the October shipment of Hanford cast material. In processing the latter, four rods broke into sections during the straightening operation. Metallographic samples from one of these broken rods, whose parent billet was cast from a remelted "flower-pot" (unpoured charge), indicate the presence of an abnormal number of inclusions. By chemical analysis the rod, which was rolled from a Hanford billet, was found to be high in silicon, iron, and carbon and to have a low density.

A special lot of twenty-five rods, rolled from billets cast during the past several months in Mallinckrodt's experimental #7 furnace under exceptionally low pressures, has been segregated for separate processing to determine whether such casting conditions make for improved yields, reactivity, or machining tool life.

Uranium Canning

Since discontinuing the use of Scovill cans in the canning operation (on 10-17-50), the average reactivity of canned slugs has risen from -0.270 dih (average for the period 9-28-50 through 10-17-50) to -0.139 dih (10-19-50 through 11-8-50).

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The basic cause of the reduced reactivity of Scovill cans remains elusive. Spectrochemical analyses reveal no significant differences in chemical composition between Scovill and Victor cans. Investigation has indicated that the aluminum bar stock from which both Victor and Scovill cans were fabricated came from Alcoa's Edgewater Plant. Cans now on order from Alcoa are to be fabricated from the same source material. Arrangements have been made whereby blanks of aluminum bar stock will be furnished to Hanford for pile testing prior to commencing can fabrication at Alcoa. Thus, some indication of probable can quality may be obtained in advance. In addition, radiochemical analyses are being run in an effort to identify the impurities responsible for the loss in reactivity.

Continued investigation into the non-seat problem has brought out some anomalous data:

1. Incidence of non-seats is consistently higher on the first day's use of the Al-Si canning bath than on the second day's use.

2. Non-seats are consistently worse when the silicon content of the canning bath is near the upper limit than when near the lower limit.

Since these phenomena are contrary both to earlier Hanford experience and to expectations based on metallurgical principles, a program is being undertaken to re-evaluate the effects of temperature and concentration variables upon canning practice and canned slug quality.

Uranium Metallurgy

In the metallographic studies on the experimental uranium rods rolled at Battelle, a comparison is being made of the structures observed under polarized light and under bright light using a bright field etch. Results show that there is little correlation between the bright field and polarized light structures in unrecrystallized metal. In recrystallized uranium, some similarity in the grain shapes revealed by the two methods was observed.

A comparison of the reactivity of uranium -0.3 atomic percent chromium and unalloyed uranium samples was made in the 305 Test Pile. No significant difference was noted, but since the samples were small it is doubtful whether the expected difference could be detected in this test.

Dilatometry

Dilatometric data obtained in the test of various possible inspection methods is being given to the Statistics Group of the Technical Services Division for the preparation of a preliminary expansion versus degree of transformation curve. The partially transformed slugs required to complete the curve are currently being processed.

Remodeling work on the automatic recording dilatometer is still in process. Shop prints for the hood adaptation of the 234-5 dilatometer are being prepared by the Technical Services Division.

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KAPL Assistance to Hanford

The experiments on melting aluminum-lithium alloy slugs, together with 70% magnesium - 30% aluminum alloy, simulating Hanford conditions have been extended to cover high proportions of the magnesium-aluminum for melting. In general, (although with some exceptions), the melt-down time is reduced by an increase in temperature and/or in the amount of magnesium-aluminum alloy. In order to lower the melt time to less than three hours, it was necessary to increase the temperature from 520 to 550°C and the amount of magnesium-aluminum to 60% of the total melt charge; however, a more effective means of reducing the melt-down time was by agitation of the molten magnesium-aluminum bath.

Since the bare extrusion of aluminum-uranium dioxide billets was successful, plans are now being made to produce ten to twelve Hanford size slugs with U^{235} oxide by the same technique. The uranium-dioxide powder for these slugs has been requested by Hanford from Oak Ridge.

Radiometallurgy

The examination of the dry process tube, 4630-F, has indicated that tubes having histories similar to this one may be returned to normal process use. The center section of the tube was observed to be ten points softer on the R_H scale, but it is believed that normal process use will cause this to be increased to a normal in-pile hardness. It has been reported, however, that similar tubes, supposedly dry, were found to contain sufficient moisture to cause corrosion; the resulting pits prevented the use of these tubes for normal process conditions. Testing the tensile properties of process tubing under various conditions of irradiation and temperature will be continued.

An Elgin optical lens polishing machine has been used to prepare metallographic specimens from radioactive process tube samples. The equipment can be used for preliminary to final grinding operations and for mechanical polishing of metallographic specimens with a minimum of cross-contamination of different grits.

A report discussing the methods used and the results obtained in the examination of the ruptured slug from tube 1572-D was issued as Document HW-19212.

The 111-B building has been improved by pouring a concrete floor in the transfer area and re-locating some of the equipment tables in anticipation of receiving the cut-off box, a 100 ton press, and the sample storage facility before the end of the year.

P-10-Alloy

Modification of the Metallurgy P-10 analytical line by placing the stainless steel melting tube within a vacuum chamber has resulted in a considerable reduction in the amount of hydrogen collected during blank runs. Further modification of line is in progress to eliminate other possible sources of hydrogen, such as rubber gaskets, in an attempt to provide additional improvement in this analytical procedure.

Three extruded P-10-A rods, selected from current production material, are being examined for chemical segregation and variations in the macro and micro structure. Some graphite inclusions have been noted in the butt ends of these rods.

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The study of the rate of corrosion of 347 furnace tubes by molten aluminum -3.5% lithium alloy has been completed. Average rates of penetration were as follows:

Temperature	Time	% Penetration	Rate In/Hr.
1000°C	1/4 hrs.	100	0.43?
900°C	5-3/4 hrs.	100	0.01?
800°C	16 hrs.	20	0.0013
700°C	16 hrs.	15	0.0010

Corrosion rates of possible substitute materials for 347 stainless steel are currently being investigated.

A report on the metallography of aluminum-lithium alloys, Document No. HW-19487, was completed and sent to Classified Files for issuance.

Corrosion

Corrosion testing of Borium (Stoody Co.) has been discontinued after tests in 60% HNO_3 at 90°C resulted in a corrosion rate of 84.2 mils/year.

Huey tests (ASTM: A262-44T) have been completed for four stainless steels, T-347, T-347 CbTa, T-304 ELC and T-321. Duplicate samples of each type were tested in each of four conditions: (a) as received, (b) sensitized (1250°F, one hour, water quench), (c) as-welded, (d) welded-stress relieved (1600°F, two hours, air-cooled). A progress report covering this phase of the program is now being prepared.

Tests on T-347, T-347 CbTa, T-304 ELC and T-321 in RAF (TBP-HW-5 Flowsheet) are 70% completed and tests in RAW (TBP-HW-5 Flowsheet) are 25% completed. Weight losses indicate low corrosion rates in each of these solutions.

Work has begun on exposing these materials in the Strauss test (ASTM 240-44), and preparations are in progress for intergranular corrosion tests in HNO_3-HF solution. Work has not yet started on $BiPO_4$ process stream tests.

Installation of the gas corrosion testing equipment in Room 6, Bldg. 3706 was completed 11-13-50. A test run revealed that the equipment was not gas-tight. Neoprene gaskets have been substituted for Garlock packing on one furnace resulting in a substantial improvement. A new circulating pump of the bellows type is under consideration.

Scheduled test work on the corrosion of Al-Si in process water was completed 11-9-50. Data are now available from laboratory tests of Al-Si specimens in the tin concentration range $\leq$ 0.02% tin to 3.0% tin.

Nine slugs with a flat milled on one side exposing Al-Si were exposed in process water at the flow laboratory in 100-D area. After fourteen weeks exposure, pitting of the Al-Si was noted on three of the slugs.

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Samples of T-347 stainless steel submitted by D & C Division from the 200-E construction area failed to pass the Huey test when exposed in the sensitized condition. This material was obtained from the Pasco warehouse and has not yet been analyzed to establish that it conforms with the composition specified for T-347.

A report entitled, "Corrosion of Construction Materials in TBP (HW-3 Flowsheet) Process Streams" by W. W. Koenig and K. L. Sanborn, was issued as Document HW-19165.

Special Requests

Eighty receptacle slugs and sixty-five capsule "squaws" were canned during the month and are now undergoing necessary machining. In addition, the following Special Request pieces were processed and/or tested for pile loading:

KAPL 103	1 piece (recanned in Helium atmosphere)
UCRL 123	1 piece (recanned and tested)
ANL 112	1 piece (recanned; installed in Receptacle slug)
ANL 175	10 pieces (installed in Receptacle slugs)
ANL 176	8 pieces (installed in Receptacle slugs)
ANL 174	42 pieces (tested and separated).

Miscellaneous

Battelle reports that the creep test of 2S-0 aluminum at 500°C and 300 psi. did not enter third-stage creep as was expected, and had a creep rate of 0.00003% per hour when discontinued at 1100 hours. This is a little surprising since a rupture time of 300 hours was obtained at 500°C and 350 psi. Another test will be made at 330 psi. Extrapolation of the data reported to date indicates that at 500°C and 60 psi. the creep rate will be extremely low and that the time to rupture will be in excess of 10,000 hours. However, since the ductility at 500°C is relatively low, the extrapolation of the data is a bit dangerous.

Two supporting pins which failed during the removal of a deaerator tank in the 100-F area were examined and tested for tensile properties. No defects were found, and since calculations showed an excessive stress condition, it was concluded that overloading caused the failure.

X-ray diffraction patterns have been made on a series of "cold" process tubing specimens annealed at temperatures of 150 to 500°C. These will be used as standards in determinin the structural condition of some fringe process tubes which have been at ambient pile temperature for an extended period.

A successful reduction of UF_4 with calcium for the Separations Technology Division was made using the vacuum melting equipment which was set up last month.

P-10 OPERATIONS

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Extraction Operations

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The planned suspension of extraction activity in effect on October 31, 1950, continued through November 12, 1950. Personnel normally assigned to the production work were temporarily re-assigned elsewhere in the Pile Technology Division for the period.

Serious production inefficiency was realized during the remainder of the month, November 13 through November 30, 1950, primarily attributable to the preceding three weeks of extraction inactivity. Most of the difficulties were resolved by month's end.

The status of extraction hoods during the month was as follows:

Hood #1 - Experimental extraction. Not yet modified for H-10 type work.

Hood #2 - Under construction (modification). For reprocessing of Air-Contaminated Product.

Hood #3 - Extraction production. Not yet modified for H-10 type work.

Hood #4 - Under construction (modification) for H-10 type work.

Hood #5 - Extraction production. This hood has been modified for H-10 type work.

It is planned to operate all the above listed equipment eighteen shifts per week during December, 1950, in an attempt to regain the production lost in November. Experimental extraction will be curtailed wherever necessary to permit the maximum production effort. It is believed that revisions to Hoods #2 and #4 will be completed during the first week of December.

No P-10 Extraction personnel were found to be contaminated during the month.

Slug Manufacturing Operations

A total of 1172 slugs was manufactured during the month.

TRITIUM DEVELOPMENT

General Engineering and Consulting Laboratory Supporting Activities

Shipment of the metal separation line will be delayed approximately one week after the scheduled date of December 1, 1950. Elimination of the last minute leaks has been more tedious than anticipated. Some difficulty has been experienced in attaining satisfactory seat tightness of the Skinner valves. Modifications proposed by G.E. & C.L. and Skinner are currently under test. Several separation runs have been made. None of the runs to date were accomplished using entirely satisfactory techniques. It is apparent that detailed check-list type operation may be required during early runs.

Data indicate that the speed of separation is limited by the capacity of the Toepler pump on the separator outlet rather than the diffusion rate through the palladium.

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Extraction of Tritium from Target Slugs

A significant deficiency from anticipated product yields has been observed in processed H-10 slugs to date. However, the processed material was first irradiated in D Pile and subsequently in the H-10 loading. The contribution of the irradiation in D Pile which is known only to ±20% must be deducted from the total irradiation; therefore, a more decisive determination of the H-10 yield is required. To this end, a tube of slugs which have not been pre-irradiated in poison columns has been discharged from the H-10 load and will be carefully processed as soon as gamma radiation levels permit.

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Tritium Cross-Section

The question has arisen as to the magnitude of the thermal neutron cross-section of tritium for the postulated reaction:

$$_1H^3 + {}_0n^1 \longrightarrow {}_2He^4$$

If the tritium cross-section is high, the $_2He^4$ content of irradiated slugs will rise during irradiation at the expense of tritium production; this increase of $_2He^4$ should be evident when the by-product to product ratios of the gases in slugs are determined as a function of slug irradiation. Analysis of production data indicates that the tritium cross-section is probably negligible but the data variance could conceivably mask this trend; hence, an independent evaluation is desirable. It is believed that the P-11 Critical Mass Reactor could determine the cross-section of tritium in the gaseous state and this test is planned in the near future. To conduct this test three samples must be obtained at atmospheric pressure in containers whose dimensions are respectively 3/8 inch maximum O.D. and 10 inch, 5 inch, and 2-1/2 inch in length. The containers must be fabricated from a material of low neutron cross-section; hence, aluminum has been selected and will be pinched-off (see sampling) to confine the sample. The necessary tools and materials are being secured for such tests.

Sampling

Careful cross checks of mass spectrometer results with mass balance data for 220 mass spectrometer determinations have shown significant errors in nearly 50% of the 220 determinations. Such errors include air and water contamination, variance of $_1H^3/_1H^1$ and $_2He^4/_2He^3$ ratios, and other discrepancies. The Analytical Group concludes from many reproducible standardizations that such errors are introduced before the mass spectrometer "sees" the gas to be analyzed. Potential errors can be introduced in the sampling technique, the sample bulbs, the spectrometer sample manifold, and in the sample insertion technique at the spectrometer. A member of the Tritium Development Group has been assigned the problem of evaluating these potential sources of error and will work with a member of the Analytical Group as soon as a suitable man can be assigned.

These two people will also review proposals of another member of the Tritium Development Group who is devising a complete metal sampling system to go with the metal transfer equipment to be installed on the glass lines for use with the metal shipping container; this metal sampling technique will also be applicable to the metal extraction line. The metal sampling system problems are being attacked from two directions utilizing either disposable or non-disposable sample bulbs. The usage of either technique will depend on the magnitude of wall effects and on economic considerations. If wall effects are gross, sample bulbs must be carefully aged and re-used for samples with the same purities. Under such conditions, the use of disposable sample bulbs would probably not be feasible. If wall effects are slight, either disposable or non-disposable sample bulbs would be technically feasible and the selection would be determined by economics. Feasible techniques for re-usable samples bulbs are being surveyed and the cold metal pinch-off technique is being tested for use with the disposable sample bulbs.

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Hanford Process Development

A production glass line has been modified according to a Hanford design to permit processing of air-contaminated tritium. Experiments with hydrogen-air mixtures have been performed to test the system prior to the treatment of actual product-air mixtures in the line early in December. Production Group personnel are being trained to operate the system on a routine basis.

The component parts for the thermal conductivity system for the Instrument Development Room are now on hand and the installation of the equipment is under way. The installation of similar equipment on the cold experimental line on the second floor of Building 108-B is about 80 persent complete; this installation will be used to assist in hydrogen-deuterium studies in this line.

The analytical method as developed by KAPL for the determination of hydrogen isotopes using uranium metal as the reactant has been installed, calibrated and tested. This system is connected to the experimental line in the cold process laboratory and will be used in conjunction with cold experimental work.

Experimental "Hot Line"

Few determinations were made with the "hot" line, as it was inoperable for 50% of this report time because of revisions to the 108-B building exhaust facilities. Evaluation of past work was carried on with the following conclusions noted:

Ion chamber calibrations made with the tritium, hydrogen, and helium system have the same pressure-current sensitivity as calibrations made with tritium and hydrogen. Background effects, presumably from the ion chamber walls are important when measuring purities less than 1%; corrections for background made by subtracting subsequent readings with hydrogen in the chamber do not take all variance out of the ion chamber results. To date the ion chamber with the greatest potential for measuring small amounts of tritium in helium (by-product system) is the aluminum wall type devised by LaViollete and Snyder for Mattraw's work at KAPL. Such a chamber will be tested at Hanford.

The hydrogen isotope partial pressure determination (H.I.P.P.D.) has been conducted on two bases, one utilizing the standard glass line Pd thimbles and the other the KAPL equipment appended to the by-product system. The results do not check each other at all times but the variance could be ascribed to poor mixing of the different gases. Mass spectrometer results checked against those of the HIPPD method show the same pattern, adding supporting evidence to this theory. Consideration is being given to methods of isolating and correcting such mixing effects.

Project P-10-D (Development Facilities)

During November, the exhaust ventilation of the 108-B building was rerouted to utilize the new 300 foot stack. This revision required a complete cessation of "hot" operations and development work for two weeks. "Hot" activities were resumed November 13.

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During the ventilation shutdown, an electrical interlock system was installed between the ventilation supply fan motor and the various exhaust fan motors to prevent unwanted and potentially dangerous flow of air should any portion of the system fail. When a portion of the system fails, the entire supply and exhaust systems are turned off.

Inadequate suspension of the new ventilation exhaust fan and motor located on the roof of the 108-B building resulted in excessive building vibration concentrated in one of the central sections of the building. Operation of the Regnault density balance, the buoyancy balance, the emission spectrometer and the Instrument Development Room have ceased as a result of excessive vibrations. Major revisions to the fan and motor mountings are scheduled for December 2 and 3.

On November 13, 1950, construction work was transferred from the Maintenance Division to the "Special Labor Forces" of the Atkinson and Jones Construction Company. The latter forces are under the supervision of the Field Engineering Section of the Project Engineering Divisions. Anticipated confusion during the transfer was observed, but at month end the situation was visibly improved.

Glass Line Revisions

The second glass line to be revised is essentially complete and is being tested functionally. Revisions to the third glass line will be deferred until the production commitments for 1950 have been achieved.

Four of the all-metal Toepler pumps have been completed by Technical Shops and are under test. These Toeplers with associated metal manifolds will be used on each glass line to fill the metal shipping containers with product at atmospheric pressure; using metal manifolds, the possibility of air leakage through a glass fracture will be eliminated. Associated metal valves, manifolds, volumes, and racks are being designed and fabricated.

Project P-10-X (Production Facilities)

During November, work proceeded on the scoping phases of consolidating development activities and the future expanded tritium production facilities in the 108-B building exclusion area. General floor plans of 108-B building have been approved along with a plot plan of the exclusion area. Preparation of a "Design Features" document for the 108-B building phases of the P-10-X construction program is underway.

Increased ventilation demands as a result of the consolidation will be handled by installation of additional supply and exhaust units.

Kanne Chamber Calibration

The calibration of a Kanne Chamber by recirculation of known tritium samples has been delayed due to gas leaks. The Kanne Chamber itself has been made gas tight by extensive rebuilding under the direction of the Health Instrument Development Group. The Roots-Connerville blower used for recirculation has developed serious leaks even after careful rebuilding. A satisfactory circulator for this test and service will be requisitioned.

INVENTIONS

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

Inventor	Title
W. A. Clark	Low Cost Pulse Relay
W. T. Kattner	Uranium Billet Dimensions Document No. 19589

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

WKW:jr

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December 11, 1950

SEPARATIONS TECHNOLOGY DIVISION

MONTHLY REPORT
NOVEMBER, 1950

VISITORS AND BUSINESS TRIPS

G. W. Watt, Consultant from the University of Texas, visited from Nov. 2 through 10 for research and development consultations.

A. E. Smith visited the Los Alamos Scientific Laboratory from Nov. 5 through 12 for conferences on 234-5 inspection.

O. F. Hill visited the Oak Ridge National Laboratory on Nov. 6 and 7 and the Knolls Atomic Power Laboratory on Nov. 8 and 9 for discussions of separations process research and development programs.

M. K. Harmon visited the Mallinckrodt Chemical Works from Nov. 16 through 22 to assist in the carrying out of special UO_3 conversion test runs.

F. J. Leitz, C. F. Callis, K. M. Harmon, and L. L. Burger attended an education conference on Nov. 21 at the University of Washington.

ORGANIZATION AND PERSONNEL

Personnel totals are as follows:

	October	November
Administration	2	2
Special Assignment	1	1
Research Section	38	38
Development Section	72	72
Process Section	29	29
	142	142

Research Section: One Chemist was added as a new hire and one Chemist was terminated.

Process Section: Two Rotational Training Tech. Grads. were transferred, one to the "S" Division and one to the H.I. Divisions. Two Tech. Grads. were transferred in, one from the "S" Division and one from the H.I. Divisions.

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Separations Technology Division [redacted]

200 AREAS PLANT ASSISTANCE

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Canyon Buildings

Production Test 221-B-8, testing the use of a water flush instead of a 5% nitric acid flush following coating removal, has continued at B Plant with indicated savings of product and uranium. The test is continuing with the water flush reduced to 2500 pounds from the 4300 pounds used initially as the equivalent of the total weight of acid and water flushes combined.

Metal irradiated to a nominal level of 600 MWD/ton is being processed at T Plant. Extraction and first cycle product precipitation alpha count losses, including americium and curium, have been approximately 2.7% and 0.7%, respectively. These losses for 400 MWD/ton material have been approximately 1.2 and 0.4%, respectively. No difficulty has been experienced in handling the smaller metal solution volumes.

Concentration Buildings

A time cycle of nine hours for the lanthanum fluoride by-product precipitation has been demonstrated under Production Test 224-B-5 without using the waste slurry as a source of lanthanum on alternate runs. Recycling the waste in this manner reduces the flexibility of handling Isolation Building recycle material. This procedure is being tested further, however, to determine time cycle advantages. The lanthanum fluoride by-product waste losses and over-all decontamination have not been significantly affected.

An acid flush of the metathesis cell at T Plant recovered 55% of an average run. The mechanism of this high product accumulation is being studied. Accumulations of 43% and 25% in the first and second consecutive Acid Wash Runs processed through the Canyon and Concentration Buildings following the metathesis flush indicated a total product hold-up of approximately 125% of an average run.

Isolation Building

Sixty to seventy milligrams of americium have been recovered from eight of the twenty-five Sample Cans which had been aged for approximately ten months. Separation of the americium from the bulk product was by means of plutonium peroxide precipitation. The supernatant solutions containing the americium require evaporation to twenty-five liters or less.

Product recycled to the Concentration Buildings in the peroxide precipitation supernatant solutions of T Plant runs has returned to average values coincident with repairs to cake removal equipment in the lanthanum fluoride product precipitation centrifuges. Although the chemistry of this situation is not understood, the present and earlier observations indicate that contacting the lanthanum fluoride product cake with 50% potassium hydroxide during the cake removal operation favors high product solubility in the peroxide precipitation.

Purification and Fabrication Building

Production Test 234-1 was started for the second time during the latter part of November on recovery charge X-10-11-Lot 14. Approximately 117 liters of supernatant and wash solutions were evaporated to approximately 3 liters, which were then transferred to a storage bottle without difficulty. Complete

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analytical results were not available at month's end but preliminary analyses indicated that the oxalate had been destroyed. Equipment required for transferring supernatant concentrates from the recovery evaporators to RC Cans was nearing completion at month's end. The completion of this installation and the satisfactory completion of Production Test 234-1 are the pre-requisites to the routine recycling of supernatant concentrates from the 234 Building to the 224 Building.

Product residues were dissolved and collected from Hood 6 (Wet Chemistry) and the recovery equipment in Hood 29 by means of the standard permanganate flush during the month of November. Approximately 68 units of product were recovered. Of this total, 36 units were recovered from the recovery equipment in Hood 29.

Production Test 231-10, Supplement B, has been written and approved. This production test establishes the operating procedures for the transfer of material from the 231 Building without the final drying operation being carried out and the processing of this material in the 234 Building without the present dilution step.

The average for Hood 8 (Dry Chemistry) conversions during the month of November was 94.9%. The average Hood 10 (Reduction) yield for the same period was 98.5%.

The calcium required for reducing Run Y-10-11-13 was delivered to Hood 10 in two packages. Only one of the packages of calcium was actually added to this run. This resulted in a reduction with only about 2/3 the quantity of calcium required being present. The button produced was normal in appearance and in impurities present, but the yield was 86.7%.

Carbon analyses were made on the MC-1 and MC-2 plutonium metal samples routinely during the month of November. The average c/q summation for light element impurities for material cast during the month of October, excluding the contribution of oxygen, was 0.60. The corresponding figure for September, excluding the contribution of carbon and oxygen, was 0.52. Carbon analyses reported during the month of November ranged from 80 to 230 ppm. The average of 155 ppm contributed 0.06 to the c/q summation.

A new lathe was being installed in Hood 17 (Machining) at month's end. With this new equipment it is expected that the greater portion of material removed during the machining can be taken from the top surface of the casting. This has been difficult with the lathe which has been used in the past, due to the method by which the piece has been chucked. An additional advantage which will be gained by the use of the new lathe is that a smoother surface can be prepared for the pressing operation.

[redacted] were used for producing four pieces during the latter part of November. Inspection of the first pieces produced indicated that some slight modifications will be required on new punches for this model die before routine operation is initiated.

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A new coating unit, which was added to Hood 25, was started during the month. The volume of the coating chamber is considerably larger in this new unit than those which have been used in the past, consequently a total pressure rise of 343 mm Hg is used in depositing the desired weight of coat. This compares with 561 mm of pressure rise required in the old coating units.

REDOX AND METAL WASTE RECOVERY DEVELOPMENT

Process Studies

The preparation of the Redox Technical Manual was continued. On November 25 the preparation of this manual was about 34% complete. A small amount of effort was expended on the preparation of the Uranium Recovery Technical Manual. On November 25 the preparation of this manual was about 3% complete.

A series of studies designed to evaluate various proposed "saltless" solvent-extraction processes was continued. A separate report on the current study is expected to be issued in January, 1951. The present study comprises an evaluation of the feasibility of adapting the Redox Plant to the following modifications of the Purex-type "saltless" process:

1. 1 uranium cycle, 2 plutonium cycles, hydrocarbon diluent;
2. 1 uranium cycle, 2 plutonium cycles, carbon tetrachloride diluent; and
3. 2-cycle co-decontamination flowsheet, hydrocarbon diluent.

A brief literature survey and calculation have indicated that there would be no appreciable HNO_3 loss during ruthenium distillation in the course of Redox head-end treatment.

The following formal and informal reports were issued during November:

1. HW-19047, "Plutonium Extraction Stage and Transfer Unit Requirements - Redox Second and Third Plutonium Cycles," by R. B. Lemon, dated October 10, 1950.
2. HW-19304, "S.P.R.U. Program Meeting at Hanford, October 25," by G. Sege, dated October 27, 1950.
3. A memorandum on Document K-601 - "Electrochemical Process for U Slugs," by G. Sege, dated November 9, 1950; containing as an attachment an abstract by R. B. Lemon evaluating this Oak Ridge document.
4. A theoretical discussion on "Reaction Kinetics and Mass Transfer Variables in the 1B Column Plutonium Extraction Section," by E. T. Merrill, dated June 13, 1949.
5. "Redox Production Plant - Head-End Radiation from 'Plated' Ru," by E. T. Merrill, dated October 31, 1950.

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Bldg. 321 Construction & Maintenance

Bldg. 321 construction activities during the period have consisted primarily in activation of plans for revisions to the Demonstration Unit equipment. These revisions are concerned with the changes required to simulate the Redox Plant feed preparation, first extraction cycle, and waste disposal process steps, for use in the Redox training program.

The restoration of the Demonstration Unit columns to permit cascade operation is about 20% complete. This cascade restoration comprises about 42% of the entire job. Other portions and their present status, are as follows: (1) conversion of B-1 tank to an RCU stripper concentrator - 50% complete, (2) conversion of A-6 tank to simulate a ruthenium oxidizer - de-entrainment tower 0%, (3) installation of the 1-0 column - 6%, (4) conversion of B-7 tank to a 1AW stripper-concentrator (also involving changes to use this equipment for de-entrainment studies, prior to the training program start-up) - 95%. It is anticipated that final completion of all revisions will be accomplished by January 15, 1951.

Work of a maintenance nature has been proceeding slowly because of the greater urgency for completion of the Demonstration Unit revisions. Some of the more important maintenance items completed during the period include: (1) complete overhaul of 5 Durco Aqueous Make-Up Room pumps, (2) replacement of the S-2 tank agitator shaft and overhaul of the agitator air motor, (3) overhaul of 47 of the 56 tank farm pipe trench header valves, (4) polyethylene flame spraying of the bases of 0-1 and 0-6 tank agitators, and (5) installation of a space heater in the tank farm pipe trench.

There has been no operation during the period. The tank farm equipment has been winterized to prevent freeze-ups both prior to and during Redox training. Life-testing of the 8-in. column prototype pulse generator continued uneventfully throughout the period. The 744-hours operating time accumulated during this period brings the total time under life-test to 3377 hours, with no maintenance required to the pulse piston and drive shaft, and only minor maintenance, noted in previous reports, to the drive mechanism.

Work of the operating group personnel on the Redox Technical Manual, Redox and TBP Start-Up Operating Procedures, Redox operating log sheets, and the 321 Bldg. Redox and TBP Training Manuals has continued.

Rough draft copies of all Redox and TBP Start-Up Operating Procedures for which the Development Section is responsible are completed and are currently being reviewed. Descriptive training write-ups of the TBP process for the Training Manual have been completed. Process question sheets covering the TBP Process are being written. Some of the group effort has also been employed in the preparation of charts and diagrams for Redox and TBP lectures.

Pump Development

Submerged Pump No. 2, a forerunner to the Redox Production Plant turbine pumps, completed a 44-day test to evaluate carbon-filled (60%) fluorothene "B" bearing bushings operating in RAX at a pump speed of 3450 rev./min., discharge head - 89 feet, discharge rate - 1 gal./min., and a flow to the bearing of 0.7 gal./min. The test was terminated by "freezing" of the pump drive shaft. Examination revealed that the inside diameter of the process fluid-lubricated bearings had decreased 1 to 2 mils - the initial clearance was 4 mils. Bearings of such composition appear to be unsuitable in RAX.

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Peerless 4"-IA Transfer Pump, a four-stage deepwell turbine pump incorporating boron carbide bearings and stainless steel shaft journals, has completed 67 days of operation at 1750 rev./min., pumping neutralized and concentrated RAW at 82° ± 2°C. at a discharge rate of 40 gal./min. and a discharge head of 11 feet. The operation was smooth and uneventful and no changes in pump characteristics were observed.

Peerless 8"-IA-TBP Prototype, a six-stage deepwell turbine pump driven by a 10-H.P. electric motor by a 14 ft.-6 in. vertical drive shaft supported by six process fluid-lubricated Graphitar #2 bearings within each diffuser element, together with a similar intermediate bearing and foot bearing, completed 20 days of operation in RAX solution. After 8.5 days of operation the pump drive motor failed and examination revealed water within the windings as the cause of failure.

The test operation in RAX has been uneventful, following motor rewinding, at 115 gal./min. and a discharge head of 195 feet.

Foxboro D/P Cell. One unit has completed 78 days of testing with water. After 43 days the zero point had shifted +5.6 minor divisions. This was corrected at the recorder, but resulted in positive deviations ranging up to 13.1 per cent from the original calibration. The 35 days just completed revealed deviations of the zero point fluctuating from 0.0 to (-) 2.0 per cent of chart reading.

A second Foxboro D/P Cell orifice plate system has been under test in a system circulating neutralized RAW (contains precipitated $Fe(OH)_3$) at room temperature. The controlled flow rate of 14 gal./min. (27.5% of chart) has been maintained within ± 1.0 per cent of full-chart range over a period of 27 days and the zero has remained at ± 0.5 per cent of full chart reading.

Fischer and Porter Pneumatic Transmitting Rotameter has been inserted as a flow rate measurement instrument in series with the above Foxboro D/P Cell controlling the flow of neutralized RAW. Over the 14-day test period the instrument has recorded satisfactorily, although the system is sensitive to vibration which results in oscillation of the recorder pen.

HNO_3-Hexone Proportioning System. The investigation has revealed that the proposed installation was dependent upon the check valve in the HNO_3 discharge to assure the desired flow ratio of HNO_3 to hexone and to prevent the possibility of hexone being forced into the HNO_3 delivery line. A revised arrangement has been agreed upon with "S" and Design & Construction Divisions to eliminate these possible unsafe conditions and the equipment is undergoing revisions as required.

The vertical single tube evaporator, simulating the TBP plant equipment, completed a 310-hour continuous run operating on RCU solution at a boil-up rate of 25 lbs./hr. with a maximum (initial) over-all heat transfer coefficient (U) of 280 (BTU/Hr./°F./Sq.Ft.) and a minimum U of 220.

De-entrainment. The effectiveness of two 6-inch thick sections of York wire mesh (3-in. diameter vapor space) - lower section coarse, upper section fine - were investigated in the 310-hour RCU concentrator run. The vapor velocity was 3.8 ft./sec. (flowsheet 2.1 ft./sec. - RAW conc.). Analysis of the distillate at start-up indicated a UNH concentration of 0.0035 g./l. (D.F. = 4.2×10^5) and at the end of 0.010 g./l. UNH (D.F. = 1.5×10^5).

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MnO_2 Scavenging

Laboratory studies directed toward the formation of MnO_2 from $KMnO_4$ in dissolver metal solution by digestion at the boiling point produced anomolous results - two experiments with 14-hour digestion periods in the presence of stainless steel gave only partial reaction while one experiment resulted in complete conversion to MnO_2 in 1.2 hours.

Prior to centrifugation, the stoichiometric amount of $Cr(NO_3)_3$ was added over a one-hour period to the digested solution. This resulted in reduction of 66% to the manganese present to manganous; therefore, the MnO_2 content was only one-third of the desired amount. The clarities of the effluent solution after centrifugation at 1150 x G with a hold-up time of 16.9 minutes ranged from 52 to 78.5% versus 84% for the original dissolver solution. The general appearance of the centrifugate was good; there were no visible solid particles.

Materials of Construction

Further evaluation of "Borium", a fused tungsten carbide, was discontinued as the corrosion rate in 60% at 90°C. (306 mils/year) and 100°C. (80 mils/year) was excessive.

Evaluation tests on lining materials (Koroseal, Natural Rubber #5140, Neoprene #5783) for storage tanks containing 72% $Al(NO_3)_3 \cdot 9H_2O$ - 0.3% HNO_3 were concluded after 40-days immersion at 70 - 80°F. The Koroseal had the least weight gain and gave no evidence of reaction with the solution, whereas the other materials had reacted as qualitatively observed by the odor of oxides of nitrogen. Test was initiated on Pioneer Rolling Mills specially compounded rubber.

Three coats of Monsanto D-1000 (a water-base dispersion of polyvinyl butyral) applied to metal coupons was found to be resistant to 10% HNO_3 for 35 days at 25 - 30°C. and to IAX solution for 7 days. Concrete blocks coated by spraying and brushing appeared to have an impervious coating based upon high voltage scanning of the surface. Immersion tests are in progress on these blocks to determine actual resistance to process solutions.

Improved technique in the application of polyethylene to metal will permit welding between the sprayed coating and sheet material. Revisions to the specifications for application to the Hot Semi-Works will be made, based on this and other improved techniques.

Process Chemistry

Studies associated with a continuous process for the conversion of $UO_2(NO_3)_2$ to UO_3 have shown:

1. The residence time at 250, 275, and 300°C. can be as short as 5 minutes. The material produced with residence times of 5 - 10 minutes contained from 0.25 to 0.45% nitrate (as NO_3^-).

2. The heat transfer coefficient (BTU/Hr./Sq.Ft./°F.) obtained when heating dry UO_3 powder in the laboratory reactor was 1.5. A similar study made at Mallinckrodt Chemical Co. gave a U of 7.

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3. The heat transfer coefficient during the decomposition period was determined as 6 on the basis of a transient condition, during which the reactants were being raised in temperature simultaneously with the addition of charge material. Under essentially steady state conditions, wherein the reactants were maintained at a constant temperature, the coefficient (U) was 12. The coefficient determined at Mallinckrodt under reaction conditions varied from 5 to 15 with an average of approximately 10.

HOT SEMI-WORKS

Requests for bid assemblies for the Hot Semi-Works Project C-349 have been received from 45 individual contractors of which 28 are general contractors. Addendum No. 1 to the bid assemblies, incorporating two corrections to specifications and 23 drawing corrections, was issued November 17.

Preparation of 28 sub-sections is now 42 and is equivalent to 21% of the total Manual outlined.

SEPARATIONS PROCESS RESEARCH

Plutonium Arsenate Process

Since the precipitation of plutonium (III) arsenate from filtered F-10-P solution on the 5-gram scale (ca. 0.5 liter) was less complete and much slower than that found on a much smaller scale (ca. 1 ml), further experiments were performed to investigate the effects due to the rate of stirring and the nature of the surface of the precipitation vessel. Laboratory work definitely shows that lower plutonium losses are obtained when vigorous stirring is employed, and that the precipitation is accelerated by stainless steel surfaces. A precipitation vessel fabricated of stainless steel and incorporating a stirrer which will mix the solution vigorously is being designed.

Plutonium(III) Fluoride Precipitation

An interesting possibility for coupling Redox and metal reduction processes lies in the precipitation of PuF_3 from a concentrated IIBP stream, followed by dehydration and reduction of the product cake to metallic plutonium by the calcium bomb technique. Preliminary investigations of the properties of PuF_3 precipitates formed at room temperature (in 1 to 2 M HNO_3) have shown such precipitates to settle rapidly and to exhibit solubilities of the order of 0.01 to 0.02 g Pu/l. It is also believed that stainless steel corrosion products and residual aluminum will not be carried by PuF_3 as these ions, in general, exhibit strong tendencies to form soluble fluoride complexes.

Recovery of Plutonium from Slag and Crucible Leaching Solution

Laboratory work is being performed to determine the feasibility of utilizing a solvent extraction process to recover plutonium from nitric acid leaches of slag and crucible materials. It has been found that three equal volume hexone (0.5 M in HNO_3) extractions are sufficient to remove 99.9% of the plutonium when the leach solution is 0.375 M HNO_3 and 1.44 M in aluminum nitrate. One equal volume strip of 0.01 M HNO_3 recovers >99% of the plutonium from the hexone phase. The leaching solution may also be recycled to Redox via the IIA Column, since plutonium extraction data obtained using leaching solution diluted 100:1 with IIAFS are nearly identical with previously reported plutonium extraction data under IIA conditions.

Plutonium recovery is also being investigated using 30% TBP in CCl_4 as the extracting solvent since this solvent is non-inflammable. Preliminary data indicate that even higher extraction coefficients are to be expected in this system. The formation of emulsions on the second and third extractions has been encountered and this difficulty is being investigated.

Butyl Phosphate Chemistry

The densities (25°C.) of tributyl phosphate, dibutyl phosphate, and monobutyl phosphate have been remeasured and found to be 0.9760, 1.0650, and 1.2190, respectively. The viscosities for these compounds at 25°C. are 33, 520, and 4260 millipoises, respectively.

The heat of reaction for the hydrolysis of monobutyl phosphate to phosphoric acid and butanol was calculated from the rates at 25 and 76°C. and found to be 11,500 cal/mole of monobutyl phosphate.

The rate of hydrolysis of tributyl phosphate in contact with 3 M nitric acid at 76°C. was followed by measuring the monobutyl phosphate and phosphoric acid formed. The results indicate that the only form of phosphates present other than TBP is phosphoric acid. The rate constant for its formation is 2.7×10^{-4} $days^{-1}$, which indicates a very slow initial decomposition of TBP to DBP with a half-life of 2400 days. The succeeding reactions of DBP to MBP and of MBP to H_3PO_4 have been shown previously to have half-lives of 8 and 18 days, respectively. These data furnish quantitative indication of the great stability of TBP as observed qualitatively in earlier laboratory and pilot plant studies.

Effect of Aluminum Nitrate on Plutonium Extraction by TBP

Earlier studies (HW-18646) have shown that extraction of uranium by TBP is markedly increased when aluminum nitrate is used in place of nitric acid as the salting agent. Extraction of plutonium(IV) into TBP-CCl_4 has been found to be similarly affected by substitution of aluminum for nitric acid. With 10% TBP-CCl_4 as the extractant, E_a° values ranged from 0.0078 to 976 as aluminum nitrate in the aqueous phase was increased from zero to two molar. With 30% TBP in the organic phase E_a° values increased from 0.10 to 7080 in the same range of aluminum nitrate concentrations. In actuality, the E_a° values may be somewhat higher than quoted, particularly at the higher aluminum nitrate concentrations since a small amount of americium in the plutonium stock solution may materially affect the analysis of the aqueous phase.

Removal of Iodine from Dissolver Solution

Experience in the iodine production unit at Oak Ridge has shown that the presence of trace amounts of mercury in dissolver solution almost completely inhibits the removal of iodine by sparging. A limited number of experiments has shown that mercury, in small amounts, is very effective in preventing the removal of iodine from simulated Hanford dissolver solution by air sparging. When such simulated solution (0.3 M HNO_3 - 1.5 M UNH - 10^{-5} M I^-) was made 10^{-4} M in $Hg(NO_3)_2$ and air-sparged for one hour at 8.5 cc/min/ml (575 CFM on plant scale), only 0.06% of the iodine was removed. Similar experiments with other cations, such as Cd^{++}, Zn^{++}, Pb^{++}, and Bi^{+++}, gave poor retention of the iodine.

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Simulated dissolver solution, 10^{-4} M in $Hg(NO_3)_2$ was taken through all of the plant process steps to the bismuth phosphate extraction precipitation. The solution was air-sparged at 8.5 cc/min/ml for at least 30 minutes after each reagent addition. Total iodine removed was 0.5, 7.0, and 1.7% when the iodine was added initially as I^-, I_2, and IO_3^-, respectively. Bismuth phosphate was then precipitated from these solutions. The precipitates after two water washes contained 10, 2, and 3% of the total iodine when the iodine was added as I^-, I_2, and IO_3^-, respectively. The fate of iodine in steps beyond the extraction step is being investigated.

Bismuth-to-Plutonium Ratio at Extraction Step

Further studies of plutonium loss versus MWD at constant bismuth concentration (2.5 g/l) in the bismuth phosphate extraction process show no trend toward higher losses for plutonium concentrations up to 740 grams per ton. In fact, percentage-wise, the losses appear to decrease slightly with increasing plutonium concentration in this range. In runs simulating plant procedure in respect to reagent concentration but employing somewhat shorter times for reagent addition, plutonium losses were 1.31, 0.97, and 0.74% at 370, 565, and 740 grams per ton, respectively. The values quoted are, in each case, the average of five or six experiments.

Bismuth Phosphate Concentration Process Studies

Preliminary attempts to combine the bismuth phosphate and lanthanum fluoride by-product precipitation steps in the concentration process have met with little success. Plutonium losses to the by-product precipitate and in the succeeding lanthanum fluoride product precipitation have been high. Also, recovery of the plutonium in the combined by-product precipitate by the present rework procedure has been incomplete. Variations in the rework procedure are being studied in an attempt to effect adequate plutonium recovery.

234-5 PROCESS DEVELOPMENT

A development study has been started to determine the number of peroxide precipitation cycles that are required for the isolation and purification of the F-10-P solution from the 224 Building to obtain plutonium metal of the required purity. The plutonium peroxide obtained after one, two, and three peroxide cycles will be hydrofluorinated by established procedures. The fluoride in each instance will be reduced to metal. The purity of the metal and processing considerations will be used as criteria to evaluate the minimum number of cycles required.

One-and-a-half liter portions from three runs were taken from the P-1 Tank in the 231 Building for use as the starting material for three separate series of precipitations. Each series consisted of making three runs on a five-gram scale, in which isolation and purification was accomplished by one plutonium peroxide precipitation cycle, two cycles, and three cycles. The normal 231 Building first-cycle flow sheet was used for the one cycle case except that 5% hydrogen peroxide was substituted for 2% sulphuric acid for washing the plutonium peroxide precipitate. Second and third-cycle precipitations were made from solutions adjusted to approximately 40 grams Pu per liter, 2 grams H^+ per liter, and 0.15 M H_2SO_4. These precipitates were also washed with 5% hydrogen peroxide. Procedures regularly used in the laboratory were followed for hydrofluorination and reduction. Regular platinum boats were used for two series and a sintered platinum filter reactor was used in the third series.

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Analytical results are not yet available to compare the purity of the plutonium metal obtained by using different number of peroxide cycles. It was noted that the bulk density of the plutonium tetrafluoride increased noticeably with increasing number of peroxide cycles. The fluorides from one-cycle peroxide treatment were definitely browner than the fluorides obtained from two and three-cycle peroxide purifications. The peroxides from B Plant F-10-P solution appeared to be cleaner than the peroxides made in the two series in which T Plant F-10-P solutions were used. When only one-cycle peroxide purification was used, the amount of plutonium in the combined supernatant solution and washes appeared to be significantly lower for the B Plant F-10-P solution than for the T Plant solutions used in this work. The fluorides prepared on the filter reactor were somewhat lumpier than expected.

The work on the precipitation of Pu(III) fluoride from plutonium nitrate solutions reduced with hydroxylamine was continued by making runs at higher final concentrations of hydrofluoric acid. Minimum plutonium trifluoride solubility was found at low nitric acid concentration and high hydrofluoric acid concentration. The high solubility of plutonium trifluoride reported last month was due to the low concentration of hydrofluoric acid in the solution. Five-gram scale precipitation of plutonium(III) fluoride will be made to determine whether early reports on the unsuitability of this compound for the reduction step are correct. Plutonium (III) fluoride precipitations will also be made at lower plutonium concentrations than 5 gm Pu/liter to determine if the precipitation can be carried out with sufficiently low losses to be attractive for use in processing the final Redox product solution.

During this period the ionization chamber has been adopted as the means to make the integrated alpha count on the 235 Building product. Results of counting with a Pee-Wee probe and scintillation probe are also being reported to Los Alamos. From the data received from Los Alamos to date, integrated alpha counts made there with an ionization chember are consistently slightly higher than those obtained at Hanford. The agreement between the two sites, however, is quite good.

The ionization chamber was again used to determine the change in integrated alpha count that occurred during storage of the pieces. Twenty-six pieces were examined before and after being stored for periods varying from four to fourteen days. The count on fourteen pieces remains unchanged; for eleven pieces the count was lower after storage than before; and for one piece the count was higher after storage. These results are contrary to the results reported last month. Work will, therefore, be continued along these lines.

Autoradiographs have been made of one complete Model 090 assembly to determine the quality of the protective coating. A region where considerable hand polishing was done to make a component of the assembly suitable for acceptance was clearly recognizable in the autoradiographs. The autoradiographs and inspection report have been sent to Los Alamos for their comments.

The Ra-Be source to be used in making neutron counts for the Model 110 has been received. A nickel container to position this source during counting has been fabricated.

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STACK GAS DISPOSAL

Necessary repairs were made to the sampling piping for the Silver Reactor and Fiberglas filter recently installed in the 4-5L dissolver cell at B Plant. The broken underground valves leading to the condensate catch tanks on the sampling lines upstream to the Silver Reactor and upstream to the Fiberglas filter were replaced. Highly contaminated sections of the stack pit sampling piping were also replaced. These changes have made it possible to evaluate the I^{131} removal efficiency of the Silver Reactor. The monitoring data have established the efficiency to be 99.9%. The precision of the present sampling and analytical techniques prevent the determination of a fourth significant figure. The formation of acidic condensate in the downstream Fiberglas sampling system and the deposition of this material, with its associated contamination, on the downstream monitor have prevented a reliable determination of the filter's efficiency. The stack pit sampling system will be steam flushed, dried, and heated by steam tracing in an attempt to overcome this difficulty.

The second Silver Reactor-Fiberglas filter installation was given a mock-up test in the 272-B Bldg. The valve in the inlet plenum chamber of the filter would not close and it was impossible to bypass the filter effectively. With the valves positioned for bypassing, 25 to 30% of the air flow passed through the filter bed. The valve linkage was adjusted and leakage was reduced to a maximum of 1% of the total flow. The equipment operated satisfactorily in all other respects.

The activity distribution across the B Plant sand filter was obtained by traversing the vertical monitoring ports with a new, specially designed, activity probe. The ionization chamber was lead-shielded with a 1/4-inch annular window. Two maxima were obtained--toward the bottom of the F and G strata, respectively. The higher value was at the bottom of the G sand layer. These surveys will be taken periodically as an aid to the evaluation of the filter's operation and potential life.

KAPL ASSISTANCE TO HANFORD

KAPL-1 - SPRU Redox Studies

Three out of the scheduled final six Redox runs were completed at SPRU during the month. The volatilization of ruthenium was successfully carried out without ozonization in these runs, steam or nitrogen sparging being used. Some difficulties with too large MnO_2 scavenger cake volumes were encountered, so the .08 M $KMnO_4$ used during volatilization as the source of subsequent MnO_2 precipitation is being reduced during the last three runs. Beta and gamma decontamination factors (logarithmic) averaged 5.5 and 5.2, respectively, for the IBP solution and 5.4 and 4.9, respectively, for the ICU solution. A terminal meeting for this program is scheduled to be held at KAPL in mid-December.

INVENTIONS

None for the month of November.

R. H. Beaton
Separations Technology Division
Date: December 1, 1950

[redacted]

[redacted]

TECHNICAL SERVICES DIVISION

NOVEMBER 1950

VISITORS & BUSINESS TRIPS

G. E. Turnquist of the International Business Machines Corporation, Seattle, Wash., spent November 24-25 with the Statistics Group servicing the IBM equipment installed in Bldg. 101, Hanford.

Business trips of Technical Services Division personnel were as follows:

F. W. Albaugh spent November 1-2 at Los Alamos, N. Mex., attending a meeting on plutonium metal specifications and reviewing analytical methods.

R. J. Hale spent November 7-8 at the Leland S. Rosener Company, San Francisco, discussing the design of the Radiochemistry Bldg. On November 9 he visited the Pacific Coast Engineering Co., Alameda, Calif., to inspect their facilities for the fabrication of Junior Caves. He spent November 10 at the Hauserman Partition Company, San Francisco, to discuss the partition requirements for Bldg. 222-S.

A. H. Bushey spent November 12-21 at Northwestern, Purdue and Ohio State Universities, interviewing prospective Ph.D. candidates for possible Hanford employment.

J. M. Fouts spent November 13-17 at the Leland S. Rosener offices in San Francisco, explaining the scope work involved in the Plot Plan and Utilities, and the Waste disposal facilities, both as required for the new Hanford Works Laboratory Area.

C. R. McCully spent November 15-16 at the Consolidated Engineering Corporation, Pasadena, Calif., and November 17 at the Radiation Laboratories, University of California, Berkeley, discussing models of the mass spectrometer and their application. He spent November 27-29 at the Knolls Atomic Power Laboratory, discussing methods of analysis for P-10 by mass spectrometry. On November 30 he visited the Argonne National Laboratory where he discussed isotopic analysis of heavy elements by mass spectrometry.

W. W. Marshall visited Site K-25 at Oak Ridge on November 27-28, consulting on the isotopic analysis of heavy elements by mass spectrometry.

J. W. Hall spent November 27-30 at the University of Colorado at Boulder, Colo., and at Denver University, recruiting technical personnel.

ORGANIZATION AND PERSONNEL

Personnel totals in the several subdivisions are summarized as follows:

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	October 31	November 30
Analytical Section	297	292
Engineering Section	72*	76
Information Group	71	72
Statistics Group	18	17
Administrative	3	3
Division Totals*	461	460

* Not included are two Fluor Corp. engineers on loan to the Equipment Design Unit. These men completed their assignment to this division on November 15.

The Analytical Section employed one laboratory assistant. One chemist and one laboratory assistant resigned, one chemist and two laboratory assistants went on leaves of absence, and one laboratory assistant was transferred to the Pile Technology Division.

The Engineering Section employed one experienced Mechanical Engineer, one stockroom helper, and one general clerk. The Information Group reactivated two general clerks and one went on a leave of absence. One recently-employed statistician resigned from the Statistics Group to enter the armed services.

A total of six rotational trainees are now assigned to this Division. Five continued in the Analytical Section, and one was added to the Engineering Section for work with the contact engineers engaged in new laboratory planning.

ANALYTICAL CONTROL

Work Volume Statistics

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

	October		November	
	Samples	Determinations	Samples	Determinations
Process Control - 200	4,644	14,927	4,546	12,580
Process Control - 300	582	1,081	493	940
Water Control - 100, 700	768	3,029	744	3,089
Redox & TBP Programs	2,971	4,320	3,350	7,264
Process Reagents	2,107	2,475	2,015	2,411
Essential Materials	153	704	199	983
Special Samples	1,584	13,219	1,277	9,996
Stack Gas Filters	3	9	49	92
Naval Reactor Project	--	--	22	119
Totals	12,812	39,764	12,695	37,474

100 Areas Water Control

Included for the first time are work volume statistics for the control of the Naval Reactor (P-13) Project. The determination of Zr, Cr, Ni, Fe, and dis-

solved CO_2, H_2, O_2 and inert gas in water samples is now on a routine basis.

As a service to the Recirculation Test Program being carried out by the Reactor Division, corrosion studies have been initiated in the Water Laboratory of 100-D Area. These corrosion tests, using waters of various purities and various metallic samples, are expected to take about four months to complete.

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:

	Precision (± %)		
Samples	Expected	October Average	November Average
6-3-MR	1.58	1.25	1.58
P-1	2.39	2.00	1.87
AT	1.98	1.77	2.01
P-4	2.51	2.04	1.74

In the 222-B and T Laboratories, the method of determining plutonium in the extraction waste samples (7-3-WS and 8-3-WS) was changed from one using a double precipitation of LaF_3 (method CA-3b) to a single precipitation of LaF_3 (CA-2a). This change in procedure, made effective November 15, was possible because of the increased plutonium activity in the extraction waste, with subsequent need for less complete uranium removal from the plutonium bearing LaF_3 precipitate. It is estimated that a total of 81 man hours/month will be saved as a result of this step.

As of November 30, personnel on three shifts in each of the 222 Laboratories have been trained on the direct evaporation procedure (Method CA-6b) for the analysis of plutonium in 6-1-MS and 6-3-MR samples, and now are employing this procedure in the analysis of these samples. Personnel on the fourth shift in each laboratory will be trained on this method during December. Also, personnel training was started on the procedure for the determination of americium-curium in the 6-1-MS sample. Use of these two procedures, plus the determination of plutonium in the AT solution by radio-assay as well as chemical assay will place the Separations Process material balance on a radio-assay basis and provide an americium-curium isotope correction factor for each run as it is processed. (Ref: Minutes of Accountability - Analytical Methods Improvement Committee Meeting, Doc. HW-18731.)

Concurrent with the adoption of the direct mount method, use of stainless steel instead of platinum discs has been adopted for the analysis of 6-1-MS and 6-3-MR solutions. This change allows considerable cost savings without sacrifice of accuracy, since the inexpensive stainless steel discs may be thrown away after a single use, thus eliminating the time-consuming decontamination operations necessary when using platinum discs.

New range limits for the P-1 radio-assay procedure, based on statistical analyses of analytical data, were placed in effect on November 2. The limits are 5.16% for four discs and 4.84% for three discs.

Ten plutonium test samples, prepared by the Analytical Research Group, were submitted to both the 231 and 234-5 Bldg. Laboratories on November 2. These samples were analyzed by the chemical assay procedure with average results of 216.67 g/l in the 231 Laboratory and 216.60 g/l in the 234-5 Laboratory. The precision of the results was slightly higher than the limits established for process samples, but the average value was approximately 3% lower than the value (222.28 g/l) obtained by gravimetric standardization. The cause for this difference is not known. This test program was reported in Document HW-19545.

300 Area Control

The determination of chlorides in P-10 alloy has been set up routinely in the laboratory. The method employed, sample dissolution with NaOH followed by AgCl precipitation, gives approximately 85% recoveries on spiked samples; to date the average chloride content of the alloy has been about 30-40 ppm.

Preparation for the routine analysis of 300 Area uranium oxide samples by the X-Ray spectrophotometer method has been completed. On December 1st, this new, faster method is scheduled to replace the present ceric titration method. The precisions of the two methods are comparable (± 0.7%) and the accuracy is good.

Several special samples of P-10 alloy were submitted by the Metallurgy Group for lithium analysis. The data are to be used to study lithium segregation in rods, and to date the analyses indicate that there is no appreciable segregation.

A sample of uranium from a very brittle uranium rod found by the "P" Division during rod straightening operations was submitted by the 300 Area Plant Assistance Group for complete analysis. The analysis indicated that density was low and Fe, Si and C were moderately high, contributing to a brittle condition.

Chemical Research Service Laboratory

Several samples containing americium-curium and plutonium were analyzed by the Ce(IV)-LaF_3 method. It was found that material balance discrepancies were less than 5%.

Recently the Cr^{++} potentiometric titration method used to determine uranium in the organic phase TBP solutions has failed to give good breaks when titrating the $(NH_4)_2 CO_3$ extract. It was found that if a 10% H_3PO_4 extraction were employed the subsequent titration gave large breaks consistently and that the values obtained agreed with the values on carbonate extracts in cases where breaks were discernible. On this basis the phosphoric acid extraction was adopted for these samples.

Chemical Development Service Laboratory

Operations in this laboratory were continued on a routine basis.

Counting Standards

The A.S.P. Coincidence loss study has been completed. As soon as the Statistics Group completes an analysis of these data, a final report will be prepared.

Miscellaneous Service Analyses

To assist in the Reactor Division's studies of carbon burn-out in CO_2 pile atmosphere, corrosion studies on nickel and aluminum test strips in the presence of graphite strips at varying temperatures in CO-CO_2 atmosphere are continuing. A film formation which developed on the graphite and metal strips at 300°C was found to come from the metal carbonyls (iron, Ni, Mg, Ca, Al, Si, Cr, Cu, Mn) that were present as impurities (ppm range) in the CO gas. These impurities are being removed by an initial pre-heat in order not to affect test results.

Several standard gas samples containing varying amounts of CO-CO_2 were prepared by the Analytical Research Group to determine the precision and accuracy of the Burrell Gas Analyzer. Contrary to previous experience, some results were poor, due probably to the exaggerated effect of air contamination on the smaller than customary sample size. Conclusions are given in the Analytical Research section of this report.

A study has been made comparing the precision of two methods of determining silicon in the aluminum-silicon alloy from the Canning Operation. It was found that the faster Acid Insoluble silica procedure gave approximately 5% higher and more erratic results than the currently employed, slower, HF fuming procedure. As a result, no change will be made in the method.

The 300 Area P-10 alloy analytical line (cold) is constantly being revamped to reduce all possibilities of hydrogen contamination around the heated stainless steel sample tube. Changes such as replacing the rubber gaskets with lead, changing cooling coils, and degreasing the canister have greatly reduced hydrogen blank values.

Methods Adaptation

The use of pH measurements for the determination of HNO_3 in Redox feed solutions, described in KAPL-389, was investigated for possible use in the 222-S Laboratory. Using the apparatus for precise measurement of pH, as described by Kraus (Anal. Chem., 22, 341 (1950), good agreement with the UNH and nitric acid calibration curves of KAPL was obtained. It was found that sodium dichromate interfered with this method, however, which is contrary to the information in the KAPL report. It is planned to make an appropriate correction when this constituent is present.

Preliminary investigations of the feasibility of using the fluorimeter in the 234-5 Bldg. Laboratory to determine Chemical 40-8 have given promising results. However, plutonium and other impurity interferences will have to be studied before the method will be satisfactory for routine use. In its present state of development, the proposed method requires only one-half hour to complete as compared to three hours for the ferrocyanide method now employed.

The determination of TBP in aqueous solutions using CCl_4 extraction of the TBP, hydrolysis of the TBP with sulfuric acid, and subsequent volumetric determination of resulting phosphate by the ammonium molybdate method, has given satisfactory results (within 5%). Further refinement of the method to determine the optimum operating conditions will be required before putting the procedure to routine use on samples containing low amounts of radioactivity. For high activity samples, the feasibility of determining the phosphate colorimetrically is being studied.

The design and construction of the equipment required for determination of specific gravity of Bismuth Phosphate Process samples by the Falling Drop Technique was substantially completed. The determination of optimum operating conditions, accuracy of the method and preparation of calibration curves is underway.

Special Hazards Control

A CWS filter has been installed in the vacuum cleaner used in the 231 Bldg. Laboratory for removing dust and lint from hoods and bench tops. Investigation had previously revealed that positive air samples were possible if a filter was not employed during these vacuuming operations.

In order to provide an adequate flow of air across the shelves of the sample storage vault in room 142, 234-5 Bldg. Laboratory, six holes of one and one-half inch diameter were cut in each sample tray. The work was completed on November 15 and the air flow is now considered adequate.

A.E.C. approval was received for the Informal Request covering the fabrication and installation of hood enclosures over the decontamination sinks in both 222 Laboratories (T and B Plants). Four months has been allowed for this work.

ANALYTICAL RESEARCH

P-10 Analytical Studies

Mass spectrometric analysis of gaseous P-10 materials was curtailed during the month by Bldg. 108-B shutdown and instrument maintenance. On a two-shift basis, 90 analyses were completed and reported. Because of the very large number of samples requiring analysis, plans have been made to place operation of the present instrument on a three-shift basis in the very near future and to purchase a second instrument.

In selecting a second mass spectrometer, the choice has been between G. E. and Consolidated Engineering Corporation instruments. On the basis of information just obtained by visits to the Consolidated laboratories and the General Engineering and Consulting Laboratory in Schenectady, the preliminary conclusion has been reached that the G. E. instrument is better suited to the Hanford requirements. It has slightly better resolution and has visual instead of photographic recording. Although it requires manual focusing when examining ions of mass 1 to 12, the manufacturer has suggested the possibility of introducing a device to assure that the operator has not neglected to make the necessary adjustment.

Mass spectrometric results obtained on several samples that had been held for two to four weeks in a glass sampling bulb pending analysis were rather unexpected and exhibited a peculiar relationship between concentrations of the various components. In order to determine if storage had some adverse effect on the composition, a group of samples has been prepared and will be analyzed at periodic intervals.

The determination of gases extracted from unirradiated lithium-aluminum slugs has proceeded at a very satisfactory pace. In contrast with the preceding month, when excessive down time resulted in only 32 analyses, about 110 analyses were completed during the past month. As a result of this and the withdrawal of a request for analysis of 28 six-inch slugs, the entire back-log that previously existed has been eliminated. Elimination of the backlog will free a considerable amount of instrument time and allow initiation of a badly needed test program to evaluate the method critically.

The emission spectrometer for analysis of gaseous P-10 samples was installed and tested early in the month with the aid of KAPL and Bureau of Standards personnel, and was found to operate satisfactorily in the determination of hydrogen to deuterium ratios. Use of this instrument for determination of impurities in P-10 samples, and hydrogen to tritium ratios, will be evaluated as rapidly as possible. Progress in these respects has been delayed due to construction work in Building 108-B.

Radiochemical Methods (RDA #TC-1)

Previous reference has been made in this report to the successful replacement of the lanthanum fluoride carrying procedure by a direct sample mount, and of platinum by stainless steel disks in the plutonium assay of dissolver solution. Efforts have now been made to apply these time-saving techniques in the analysis of other Separations Process streams. Many of the latter contain phosphoric acid. An investigation of the effect of phosphoric acid on the radioassay for plutonium showed that only 80% recovery was obtained when a standard sample was mounted directly on stainless steel disks; this effect, which apparently results from corrosion of the steel, was not observed when using platinum disks.

A study of the use of stainless steel disks in the analysis of metal waste solution by the lanthanum fluoride method indicated about 94% recovery compared to that found when using platinum disks; since the plutonium content of this solution is small, this recovery is acceptable. It was further found that 224 Building samples containing fluoride may be directly mounted on stainless disks with high but not quantitative recovery, provided that lanthanum nitrate is added in advance to precipitate the fluoride. The general conclusions drawn from these observations are that use of stainless steel disks will not cause significant error in the analysis of low plutonium content solutions such as waste solutions and jacket removal solutions, but their use is of questionable desirablility in the analysis of higher plutonium content solutions that must be analyzed by the lanthanum fluoride method and which require the maximum accuracy of analysis.

An investigation of methods for removal of iodine from dissolver solution, being carried out in the Chemical Research Section, led to a request for the development of analytical methods for determining radioiodine in its various

valence states in dissolver solution. An investigation of this analytical problem is being carried out along lines that involve the addition of a precipitate of silver bromide to act as a gathering agent for separation of the iodide followed by reduction treatment and separation of the iodine initially present as iodate. As part of the problem, methods are being investigated to allow preparation of pure standard radioiodide and radioiodate solutions.

Further tests on the spontaneous fission counter obtained for the determination of Pu^{240} have shown that the slope of the alpha pile-up curve, which is a plot of the induced fission counts versus the discriminator bias, varies with sample size. Both because of this and the fact that the tube characteristics fluctuate slightly, it is indicated that an alpha pile-up curve must be established for each analysis that is to be performed. It was noted further that the spontaneous fission rate and the induced fission rate per milligram of plutonium increase as the sample size decreases. This indicates the necessity of determining the optimum sample size, and employing this size in all subsequent analyses.

The alpha energy analyzer has been employed to good advantage to confirm the purity of americium separated in the Ce(III)-LaF_3 method employed to analyze the product fractions of recent special plant americium recovery runs.

Samples of plutonium prepared at pile power levels varying from 50 to 600 have been, or are being obtained and tests have started to determine directly the relationship between the Pu^{238} content and power level.

Spectrochemical Methods (RDA #TC-2)

An extensive research program at Los Alamos has indicated that the cupferron procedure for the determination of impurities in plutonium is adversely affected by trace quantities of organic matter that may be transferred to the spectrographic electrodes, and has shown that this residual quantity of organic matter may be completely destroyed by treatment with perchloric acid. In order to take advantage of this information and with the hope of materially improving the quality of the impurity determinations at Hanford, a careful examination of this suggestion has been undertaken.

Chemical Research Section studies on the use of permanganate in Redox head-end decontamination steps required methods for the determination of manganese dissolved or suspended in dissolver solution. Conventional photometric procedures were adaptable to this problem, with permanganate serving as the color constituent for measurement. The procedure was established whereby permanganate was evaluated directly, total manganese was evaluated after oxidation to permanganate, and manganese dioxide was determined after centrifuging from solution and oxidizing to permanganate. The method was found to be sensitive to a manganese concentration of 10^{-4} M, and is yielding results which are accurate to $\pm$ 2% in the concentration range of interest, which is about 0.01 M manganese.

Electrochemical Methods (RDA #TC-3)

In the continuing attempt to adapt the coulometric titration technique to a completely automatic basis, an automatic device was designed which would

allow a uranium-containing sample to be heated to and maintained at a temperature of 90° during titration. Previous work had shown that maintenance of this temperature was necessary in order to permit the quantitative titration of uranium.

Work has continued toward the development of a more accurate and reliable method for the determination of uranium in aluminum-silicon canning bath alloy. Such a method is necessary in order that the U^{235} content may be accurately controlled. As previously reported, a small iron or copper impurity interferes with the direct polarographic determination of uranium. Attempts to eliminate this impurity by electrolysis yielded only moderate success. Separation of the uranium by extraction with TBP was successful, but the small quantity of uranium was found to be recovered from the TBP only with difficulty.

The constant and continuing interest in the determination of trace impurities in materials has led to the establishment of a research program designed to study basic methods for the separation of such impurities. Immediately, this work is directed toward the separation of impurities from uranium so as to allow preparation of pure uranium for spectrographic standards, and possibly to develop methods for segregating the impurity prior to determination. As a first approach to this problem, a method is being investigated which effects a separation by virtue of a difference of ion mobility. The sample solution is slowly passed through a tube to which a transverse alternating electric field is applied; the flow of the more mobile ions is retarded by excessive contacts with the wall, whereas the less mobile ions pass through the column more readily.

Conventional Chemical Methods (RDA #TC-4)

Research on an electroless method of plating nickel on metallic plutonium is being carried out by the Chemical Research Section, and has indicated that the concentration of hypophosphite is a critical factor in the procedure. This led to a request that a rapid method be developed to allow evaluation of the hypophosphite content of the bath. The first approach to this problem involved treatment of the sample with selenous acid and turbidometric measurement of the colloidal selenium formed by oxidation of the hypophosphite. The method suffered from the difficulties normally associated with turbidometric measurements. However, it was observed that an induction period existed in the reaction and that this induction period was related to the hypophosphite concentration. This observation served as the basis for developing an acceptable method requiring only ten minutes, and yielding results having a range of ± 10%.

Further development of a method for determination of sulfur in metallic plutonium by a distillation-photometric procedure included a planned test to evaluate the effect of various procedural factors. It was found that the concentration of the various components of the color developing reagent, especially the hydrochloric acid concentration, had a decided influence on the results obtained. The optimum conditions have been established and the sensitivity of the method has been evaluated at about one-third microgram of sulfur, which is several times less than that reported in the literature.

The basic study of chromatographic separation is continuing with special

effort directed toward the separation of chemical 40-8 from plutonium by elution on filter paper with alcohol. An analytical method employing this separation and followed by a photometric evaluation of chemical 40-8 has an indicated recovery of 90 - 105%.

Optimum procedural conditions are being established using uranium as a stand-in and plans are completed for final testing with plutonium samples when a gloved box has been fitted for the purpose.

Duplicate samples of each of four carbon monoxide-carbon dioxide gas mixtures were prepared and submitted to the control laboratory in order to evaluate the routine Orsat determination of pile atmosphere. Evaluation of the results indicate that carbon monoxide in the range 2 - 10% is determined with a high degree of accuracy. However, appreciable amounts of oxygen and inert gas (nitrogen) were reported so that the carbon dioxide results did not agree with the standard value. Further tests are underway to determine if this air impurity was introduced during preparation of the standards or during their analysis. Additional work on the problem will include preparations of standard carbon dioxide-carbon monoxide-air mixtures.

A continuing program designed to evaluate and standardize the work of the control laboratories through submission of standard samples is summarized as follows:

RAFS (300 Area)	Conc.	Method	N	Found
UNH	90.0 g./l.	X-ray	30	90.5 ± 2.7 g./l.
UNH	90.0 "	Potentiometric	30	90.1 ± 3.3 "
HNO_3	157.6 "	"	30	150.1 ± 3.1 "
PO_4	15.0 "	Volumetric	30	15.8 ± 0.5 "
SO_4	16.0 "	Gravimetric	30	16.0 ± 0.9 "
SO_4	16.0 "	Iodometric	30	15.8 ± 0.8 "
Na	66.0 "	Photometric	30	65.1 ± 2.3 "
NO_3	303.9 "	Vac. Dist.	30	299.6 ± 6.0 "
RCU (300 Area)				
PO_4 (organic)	0.070 "	Colorimetric	17	0.054 ± 0.063 g./l.
PO_4 (inorg.)	0.071 "	"	20	0.060 ± 0.013 "
6-3-MR (300 Area)				
Pu	6.288×10^5 d/m/ml			In progress
6-3-MR (200 Area)				
Pu	1.580×10^5 d/m/ml			In progress
Am	3.875×10^3 "			" "
40-8 in Pu (200 Area)				
40-8	2.11 g./l.			

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Miscellaneous

Test Pile measurements of aluminum cans from three different sources have recently shown considerable differences in neutron absorption. As a result of this observation, cans from each of the suppliers were submitted to the Analytical Section by the Pile Technology Division with the request that an attempt be made to determine differences in impurity contents. Comparative spectrographic analysis failed to reveal any significant difference in composition or impurity content. The cans were then subjected to neutron activation, and subsequently analyzed to determine the induced radioactivity. The analysis indicated the presence of copper, gallium, and a trace of rare earth, but revealed no significant difference among cans from the different suppliers. The data indicate that the difference in rare earth content could not account for more than one-half of the observed differences in the Test Pile measurements.

ENGINEERING SERVICES

Mechanical Shops (Bldgs. 101 and 3706)

Work volume statistics for the Mechanical Shops are as follows:

	Customer Division or Program	October No. of Jobs	October Man-Hours	November No. of Jobs	November Man-Hours
Work Done on Jobs Completed	P-10	23	704	20	790
	Pile Tech. (Incl. P-12)*	38	699	45	1,005
	Separations Tech.	39	344	39	417
	Technical Services	20	217	40	373
	Other Divisions	2	18	2	10
	Subtotal	122	1,982	146	2,595
Work Done on Jobs Not Completed	P-10	5	985	6	675
	Pile Tech. (Incl. P-12)	10	627	6	297
	Separations Tech.	6	130	4	116
	Technical Services	4	45	5	161
	Other Divisions	0	0	0	0
	Subtotal	25	1,787	21	1,249
Total Work Done			3,769		3,844

* P-12, the Exponential Pile Project

Work Backlog:					Man-Hours To Complete
Jobs Started	P-10	5	2,458	6	1,434
	Pile Tech. (Incl. P-12)	10	454	9	4,399
	Separations Tech.	6	89	5	99
	Technical Services	4	31	5	95
	Other Divisions	0	0	0	0
	Subtotal	25	3,032	25	6,027

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Jobs Not Yet Started	P-10	0	0	2	860
	Pile Tech. (Incl. P-12)	13	5,028	4	116
	Separations Tech.	9	148	8	121
	Technical Services	21	624	15	356
	Other Divisions	3	422	2	416
	Subtotal	46	6,222	31	1,869
Total Backlog			9,254		7,396**

** Does not include 352 man-hours transferred to Instrument and Maintenance Division shops.

All machine shop and supporting personnel in Bldg. 101 continued a 6-day work-week, as required by urgent P-10 schedules.

The first two Toepler pumps were completed and delivered to the P-10 operation. Test results thus far have indicated that these pumps meet all the rigid requirements specified by P-10 personnel. Fabrication work was nearly completed on two more of these pumps which are scheduled to be delivered on December 4.

The large stainless steel hood with sink was finished and delivered to the P-10 operation.

Some experimental welding was done in an endeavor to develop a method for welding of Kovar and palladium tubing. Results obtained thus far indicate that this work can be done satisfactorily in the 101 Shops with the Heliarc equipment. Clean welds with no oxidation were obtained. Analysis of the experimental welding was in progress at month-end, and final results should be available shortly. This work has to date been done by an outside vendor, but results have been unsatisfactory because of the excessive amount of oxidation inside the tubes.

During the month the first 17 experimental mercury pots were completed and delivered to the P-10 operation.

A pulse-annealing, thermo-conductivity measurement apparatus was completed for the Pile Engineering Section. The device will be used for testing the purity of graphite under vacuum by means of a heat flow through one thermo-conductivity unit to another. The apparatus consists of two copper coils, one of which fits into a jar of ice water and the other in a thermos jug of acetone and dry ice. Acetone is circulated through the coils into a vacuum box containing the thermocouples installed for measuring the temperature differences.

Considerable work on exponential piles (P-12 Program) was done for the Pile Physics Section. Approximately one-half of the work on the first phase of this program was completed. Graphite fabrication is being held up pending the receipt of a field release from the Project Engineering Division as authority to proceed with this work.

Fabrication work on manipulator balls for thin panels was completed for the Analytical Section. These balls were made from high density bronze, and

will replace the larger 3" balls and a 2" panel manipulator. The new type manipulator requires a 1" panel and a 2" ball. The manipulators will be used in the shielded hoods in Bldg. 3706, and will also be used as a slurping manipulator in the hooded decontamination sinks to be located in the 222-B and 222-T laboratories. It is anticipated that they will also be used in the proposed decontamination cell for the Metallurgy Section.

A special cutter was fabricated from a Pexto head for cutting the tops from Steel drums. This cutter is required by the Equipment Design Unit for the waste disposal study in Bldg. 101. If mock-up results prove satisfactory, the cutter will be used in the waste disposal installation proposed for the Radiochemistry Bldg.

Several small graphite shipments were received from the Great Lakes Carbon Company at Mortongrove, Illinois. In addition, one complete heat of samples was received from the Great Lakes Plant at Morganton, N. C. Machining of the samples was held up pending a clarification of the methods and procedures to be followed.

A large number of small jobs were completed in the one-man machine shop in Bldg. 3706. Most of this work was for the Analytical, Chemical Research and Metallurgy Sections. Examples follow:

An air lift was fabricated for the Chemical Research Section for use in the removal of hot waste from the Junior Cave. The use of this device results in a considerable reduction of the time that was required under the previous method.

Work was in progress on the fabrication of remote control pipetters for use in hoods where hot work is being performed. Also, special stirrers were being fabricated for gloved box use.

Some work was done in support of the P-10 program by this shop in the fabrication of special fixtures for holding Kovar tubes for glass seals, and in the winding of Nichrome coils for the Glass Shop.

Glass Shop

Work volume statistics for the Glass Shop (exclusive of P-10) are as follows:

	October	November
Jobs Completed		
New	51	37
Repair	5	14
Revisions	12	7
Total	68	58
Job Backlog	15	33

P-10 work continued to require most of the glass blower capacity, with seven of those men continuing a 6-day work-week. Since November 12, six

glassblowers have been assigned full time to P-10 work in Bldg. 108-B. Three of these men are working shifts on production, and the other three are lending assistance in developmental work and the installation of Line 4. The assignment of these men to Bldg. 108-B on a full-time basis has placed a heavy load on the Glass Shop, but this situation has so far been met satisfactorily by assigning the less complicated work to the trainees.

One large uranium trap was fabricated of clear, fused quartz. This job involved skill and time to construct, as well as the necessity for handling the quartz with extreme care because of the scarcity of the material and its peculiar thermal characteristics.

A trainee was assigned to Bldg. 108-F to assist the H.I. Biology Division in necessary glass work. The skill of a trainee can be utilized to fulfil most of their needs. Any complicated glass blowing problems or fabrication work are referred to the Glass Shop or, in case this is not possible, a higher skilled glass blower is sent to Bldg. 108-F to perform the work. It is planned to rotate the trainees on this type of work, as the opportunity presents itself, as this will give them additional training and an opportunity to gain confidence in their ability to blow glass.

Equipment Design

Work volume statistics for the Equipment Design Unit, expressed as man-hours, are summarized as follows:

	October		November	
	Engineering	Drafting	Engineering	Drafting
Laboratory Equipment Development (RDA #TC-5)	192	240	224	228
Pile Technology				
Engineering Section	160	104	36	96
Physics Section	4	20	152	264
Metallurgy Section	348	308	184	80
Separations Technology				
Chemical Research Section	452	166	340	28
Chemical Development Section	12	24	20	192
Technical Services				
Engineering Sect.(Tech. Shops)	8	-	12	-
Analytical Section	112	86	164	168
Totals	1,288	948	1,132	1,056

Laboratory Equipment Development (RDA #TC-5)

The following work was done under this RDA:

1. Scoping of the airborne contamination detector for high-level, in-cell applications continued. Conferences have been held with the H.I. Development Division, and are planned with the Instru-

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ment Division. A literature search for similar equipment and adaptable components was underway.

2. Development of a simpler manipulator gauntlet for Junior Cave use continued.

3. The study of a disposal system for radioactive wastes from the proposed Radiochemistry Bldg. was completed. A preliminary report describing the proposed method, which is based on the use of concrete-lined steel drums, was released for study by those concerned with the design and use of this Bldg. A mock-up of a suitable drum loading unit, a drum "can-opener" and a slurping "finger-pump" were being completed for tryouts in the Technical Shops. This general method of waste disposal has been in effective use at Berkeley (UCRL) for several years.

4. Development was started on the application of protective coatings. Samples of "D-1000," a white, water-suspension, strippable coating, were prepared and sent to the Analytical Section for corrosion tests. Samples of "Duralon 31," a black resinous enamel, were being prepared.

5. A gear-toothed sphere was being developed as a possible manipulator component.

Design Services

In addition to the preparation of architectural scoping drawings for the Pile Technology Bldg., the following work was done for the Pile Technology Division as indicated by Sections:

Physics Section

1. Corrosion resistant storage containers were designed to hold glass carboys. The containers were being made in the Technical Shops.

2. A series of graphs was drawn.

Engineering Section

1. Development of equipment for underwater slug weighing continued; tongs for holding the slug were revised.

2. Development of an underwater slug scrubber continued; a design was ready for shop fabrication.

3. Development of pressure tube cutoff and disposal equipment continued. Shear blades were made in the Technical Shops; experimental shearing of tubing was in process.

4. Design of the transfer carriage was completed.

5. Design of the core-borer was completed.

6. A series of graphs was drawn.

7. A Process Mandrel and Beta Nozzle were being drafted.

8. A pressurized slug bubble testing device was being drafted.

9. An underwater slug holding collet was drafted.

10. A pile face gas nozzle was being drafted.

11. Assistance was given the shops in the assembly of the thermal conductivity apparatus.

Metallurgy Section

1. A dicer unit to hold a slug wafer was designed.

2. A resistance clamp for metals testing was designed.

3. Tensile specimen clamps were designed.

4. Design was started on an adaptation of a dilatometer apparatus.

5. Scoping studies for an extensiometer gage were completed and its development was started.

6. Engineering assistance was given the shops in the fabrication of the slice-and-dice box, the sugar loaf cask operating equipment and the metallurgical polisher.

The following work was done for the Separations Technology Division:

Chemical Research Section

1. The fabrication of the gloved box to be joined to hoods in Bldg. 3706, Room 4A, was being followed in Technical Shops.

2. The design of the remote, fifteen-stage, counter-current batch extractor was completed.

3. The assembly of the metal recovery apparatus continued. A power supply was designed for operation of pump motors, stirrers and magnetic stream diverters. This unit was being made in the 300 Area Instrument Shop.

4. A gloved port panel and electrical power panel were designed for a "K" type gloved-hood conversion.

5. The nine-foot gloved box was moved to Bldg. 3706, Room 95, and its installation was in process.

6. The Lucoflex downdraft hood was moved to Bldg. 3706, Room 95, and was being installed. Cracks which resulted from rough handling during shipment from 101 Bldg. to the 300 Area were repaired.

Chemical Development Section

1. The ordering of gloved boxes for the 222-S Bldg. was expedited.

2. One draftsman was placed on loan to this Section for Redox chart preparation (in Bldg. 3702).

The following work was done for the Technical Services Division:

Analytical Section

1. Design of the electro-titration apparatus continued and parts were being fabricated in the shops.

2. Assembly of the chromium assay panel continued.

3. Expediting the ordering of gloved boxes for the 222-S Bldg. continued.

4. The trial gloved box for radioassays at 222-B & T labs was completed and delivered to 222-B.

5. A gloved box was being outfitted for chromotography work.

6. Alterations were made in a Bldg. 234 gloved box.

7. A stopper-puller was redrafted.

8. Specification drawings were made of some electrodes.

9. A refrigerated chromotography cabinet was being scoped for purchase.

10. Drawings were made of miscellaneous laboratory apparatus in use in the 222-B & T laboratories.

New Laboratory Planning

In view of the need for committing all approved funds for the Hanford Works Laboratory program before the end of the fiscal year, an accelerated schedule to accomplish this goal (through the stage of approved construction subcontracts) was developed by G. E. (D & C Divisions) with the A.E.C.

As required by the increasing load in connection with new laboratory planning, an engineer has been loaned to this group (by Pile Technology), and a Rotational Trainee also has been assigned to this work. With these additions, the group totals five technical men and one steno.

Redox Analytical and Plant Assistance Laboratory - Project C-187-E

As of November 28, construction of this new laboratory (Bldg. 222-S) in the 200-W Area was estimated to be 66.1% complete, with the associated waste disposal facilities 19.8% complete. Installation of

the suspended ceilings was virtually complete, and the interior partitions are scheduled for erection during December.

A Part II-Revised of the Project Proposal covering these facilities was issued to present total cost estimates revised in the light of costs-to-complete as of November 1. These estimates indicate that the overall cost of the project, including waste disposal, will be slightly less than the $4,926,000 currently authorized. This revised proposal was approved by the A & B Committee on November 27, and was transmitted to the A.E.C. with a request that Directive HW-124 be modified to allow certain re-allocation of funds within the approved total. The expected completion date of March 30, 1951, was reaffirmed (except for the cubicles, which will be installed by the Construction Division subsequent to this date). The "ready for use" date of the Waste Disposal System was moved from May 1, 1951, to April 1, 1951, to coincide with the completion date for the laboratory.

Radiochemistry Bldg. - Project C-381

The design of the Radiochemistry Bldg. was brought to 70% completion, with February 1, 1951, serving as the unofficial target date for Rosener's conclusion of this work. This would be six weeks in advance of the March 15 contract date. Approval of the use of Lucoflex as an exhaust duct material was received from the Safety and Fire Prevention Division in a letter dated November 17. A decision as to its compliance with the Uniform Building Code requirements was yet to be obtained.

An attractive method for the disposal of wet and dry "hot" wastes from the Radiochemistry Bldg. was submitted by the Equipment Design Unit. This method is based on the immobilization of these wastes, with cement and Bentonite clay charged with them into 55-gallon open-head concrete lined steel drums, which subsequently are capped with concrete mix and trucked to a burial ground or other storage location. This system would make unnecessary the hazardous direct transportation of such wastes to the 200 Areas for burial or underground tank storage there.

Plot Plan and Utilities - Project C-394

The Design & Construction Divisions completed subcontract negotiations for final design of the Plot Plan and Utilities for the Hanford Works Laboratory Area (with the exception of the Bldg. 384 Boiler Plant Extension and the new south-fence Badge House). Modification #3 to the Radiochemistry Bldg. subcontract was executed with the Leland S. Rosener Co. to include this work, and notice to proceed was given Rosener on November 20.

The temporary construction facilities and preliminary site preparation work, such as rough grading, lighting and fencing, as covered by Part II of Proj. C-394, were completed by D & C during the month as scheduled.

Radiometallurgy Bldg. - Project C-385

The design of the Radiometallurgy Bldg. also was included in Modification #3 of the L. S. Rosener Company's Radiochemistry Bldg. design subcontract,

as executed on November 20. This contract calls for completion of all design and specifications by July 7, 1951. As this is undesirably late, negotiations were under way at month-end to expedite this work through premium payment to assure its completion by June 2, 1951. Considerable contact engineer liaison was required in supplying information to D & C and the architect-engineer during this negotiating period.

The architect-engineer has suggested using a full basement rather than tunnels under the "canyon" part of the Radiometallurgy Bldg., and arranging the exhaust ducts so that the filters will be in the basement. This necessitates the use of an elevator for the filter dollies, and a lift truck. This truck will be used in the storage of heavy equipment in the basement.

Mechanical Development Bldg. - Project C-406

The project proposal for the design of the facility, and immediate erection of the building shell to house construction forces working on the major laboratory buildings, was approved by the A.E.C. on November 3 with Directive No. HW-204. D & C was requested to proceed with this work.

Pile Technology Bldg. - Project C-414

Final changes in the floor plan for this 2-story building, based on recommendations from the Pile Technology Division, were made and the Project Proposal was issued (complete with a secret Supplement issued separately as document HDC-1946). This $2,842,000 proposal was reviewed and approved by the A & B Committee on November 27, and was forwarded to the A.E.C. after minor revision of a portion of one page.

Good progress was made on the design criteria for the Pile Technology Bldg., which are being written jointly by the Contact Engineers and personnel of the D & C Divisions.

Library and Files Building

A tentative floor plan for the Library and Files Bldg. was developed and issued as drawing SK-4-50055. The building is planned as a two-story structure approximately 100' x 150' in size, containing about 31,600 square feet of gross floor space. It is designed for occupancy primarily by the Information and Statistics Groups, although a few administrative offices are included for other Technical sections. This drawing was released to the D & C Divisions on November 28 for cost estimating. Additional information required for estimating purposes was transmitted by letter on the same date.

Bldg. 3730 Extension

The Project Engineering Divisions began work on the preparation of the project proposal for design and construction of the extension to Bldg. 3730 which is desired by the Metallurgy Section to permit expansion of the facilities in this experimental metal-forming laboratory. This expansion originally was planned to be in an Annex to the Pile Technology

Bldg.

300 Area Services

Normal Bldg. 3706 services continued routinely. Stockroom and work order activity is summarized as follows:

	October	November
Purchase Requisitions		
Total number processed	96	114
Number requiring special expediting	23	12
Number requiring emergency handling	2	1
Stores Stock Requests Processed	0	3
Store Orders		
Total number processed	967	1,166
Number requiring emergency pick-ups & deliveries	3	16
Work Orders Processed	61	45

Installation of an electrical heating system on the propane storage tank, for the maintenance of adequate gas supply pressure in winter, was 85% complete. The heating unit and pressure control were obtained from the "S" Division and replacements units ordered for them. A time saving of one to three months was gained by finding this equipment available on the plant site.

Portable store ladders have been installed in the Bldg. 3706 Stockroom, eliminating the hazard due to the platform step units which were previously used for access to upper shelves. These platform step units were taken to the Bldg. 3722-A warehouse for use in the Technical Divisions' storage cribs.

A large amount of furniture and equipment was removed from the 3722-A Bldg. cribs and transferred to laboratories and to the Office Services group in Richland. Consolidation of the remaining materials is being completed as time permits, in an effort to accommodate laboratory groups requiring temporary storage space.

Conversion of Room 95 (Bldg. 3706) was continued, with considerable work still to be done on the Lucoflex plastic hood and on the large double gloved box before these units can be used by the Chemical Research Section.

STATISTICAL & COMPUTING SERVICES

Statistical Studies

The following statistical studies were made in support of 300 Area Operations:

An experiment was designed at the request of the Project Engineering Divisions to determine the feasibility of using 1/8" carboloy cut-off tool tips.

Statistical analyses were made of the reactivity of slugs fabricated

from uranium metal recast from etched and unetched turnings scrap.

An analysis was made of the reactivity of uranium slugs processed on two different canning lines.

An analysis was made of the number of non-seat canning rejects occurring on the first and second day the aluminum-silicon canning baths are in use.

An analysis was made of the reactivity differences between Scovill and Victor cans.

Analytical results and other data pertinent to the aluminum-silicon used for the canning of uranium alloy fuel slugs are being analyzed statistically to determine the average loss of U-235 per slug during canning.

A mathematical equation relating Test Pile reactivity to U-235 content of fuel slug was obtained from data supplied by the Pile Physics and the Analytical Sections.

A summary of statistical analyses to date on P-10 slugs was prepared (Doc. HW-19531). A similar summary for P-10 alloy slugs is in preparation. Among other things, these summaries indicate that at least 238 days of Test Pile operation have been saved by the use of a unique statistically designed sampling procedure.

A modified sampling plan for the Test Pile determination of the quality (dih) of slugs from P-10 alloy heats was submitted to the P Division (Doc. HW-19530). This plan requires more complicated calculations on the part of Test Pile operators, but will provide further substantial reductions in the number of tests required, while maintaining the same degree of quality protection as the previous plan.

Daily, weekly, and monthly statistical controls were reported on P Division operational results at Machining, Pickling, Canning, Test Pile, Autoclave, and Melt Plant (for monthly report see Doc. HW-19576).

A committee composed of representatives of the P Division, the 300 Area Plant Assistance Group, and the Statistics Group, was organized to study the non-seat reject problem. The first phase of study as outlined by this committee involves:

The setting up of statistical quality control charts on the canning lines.

The statistical analysis of past canning data to obtain pertinent information for designing experiments.

The alternate use in the canning baths of batches of aluminum-silicon from different vendors, to determine statistically the batch and vendor effect of aluminum-silicon on non-seat canning rejects.

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Further analysis was performed on 100-D pile bowing data furnished by the Pile Engineering Section. The numerical calculation from theoretical formula of the pile multiplication factor K for various outside graphite radii, water thicknesses, and uranium radii, has been started at the request of the Pile Physics Section.

Statistical services rendered to the Analytical Section included:

The comparative results for thirty-one additional samples, No. 27 through No. 57, of the uranium sample exchange program between Hanford Works and Mallinckrodt were analyzed statistically (Doc. HW-19338).

The statistical analysis of recent counting data in the investigation of coincidence losses in alpha counting of plutonium samples was completed, and results reported in Doc. HW-19574.

A review of repeated alpha counting of two discs prepared from Run #22 6-3-MR sample at 222-B Laboratory by the CA-2a and CA-6b methods, indicated that results from the two methods were being vitiated by differences between the four ASP counting instruments used.

Statistical analysis of radioassays of a standard 6-3-MR sample in the 222-T and 222-B Laboratories, using the CA-6b method of sample preparation, was reported to the Analytical Section.

Assistance was rendered to the Analytical Research Group in the design of an experiment to study four variables in the distillation methylene blue procedure for the determination of sulfur in plutonium metal.

Weekly and monthly statistical controls were reported on the precision and accuracy of analyses made on uranium solutions, plutonium solutions, and process wastes by the 200 Area control laboratories in Buildings 222-B, 222-T, 231, and 234-5. The monthly report (Doc. HW-19575) also includes the AT specific gravity relationship; 231-234 plutonium assay differences; and Hanford-Los Alamos plutonium assay differences.

For the Chemical Research Section, additional work on the problem of predicting the distribution coefficient of Pu(IV) was performed.

The regular semi-monthly reports of certain Kr-85 computations for the A.E.C. were completed and forwarded.

Statistical services rendered to the Health Instrument Divisions included:

A sequential testing plan for checking human thyroid reactivity.

A method of weighting to obtain the most efficient average of ratios of fish reactivities was derived for Aquatic Biology Group.

Data from filtering tests to compare the efficiency of filter paper canisters and activated charcoal canisters were analyzed statistically.

The statistical analysis of data pertaining to Sr-89 and Y-90 intake by various plants has been completed, and the results discussed with the Botany Group of the Biology Division.

Further statistical analyses of thyroid counts on sheep were made for the Zoology Group of the Biology Division.

Computing Laboratory

A detailed prediction of discharge and pile inventories of H-10 material was computed for discharge levels of 62, 70, 80, 105, and 130 MWD per tube. The computations were carried forward to December 25, 1951, for the 62 MWD level, to February 19, 1952, for the 70 MWD level, and to December 23, 1952, for the 80, 105, and 130 MWD levels.

In conjunction with rapid methods of solution of the Xenon equation in the field, an instruction deck of IBM cards was prepared for computing tabular constants, and a table of dimensions for a log spiral slide rule scale was calculated.

A table of 700 entries for converting Test Pile reactivity to U-235 content of P-10 fuel slugs was computed for the S.F. Accountability Section.

Demonstration decks of IBM cards have been prepared to illustrate the machine functions in simple terms to personnel interested in machine calculation.

At present the IBM equipment is performing with little down-time. Some difficulty is suspected to be developing, however, from the build-up of carbon dust in the electronic computer from the atmosphere in Bldg. 101.

LIBRARY AND FILES

Plant Library

Library work volume and book statistics were as follows:

	October	November
Number of books on order received	417	106
Number of books fully cataloged	247	126
Number of bound periodicals processed but not fully cataloged	61	9
Pamphlets added to the pamphlet file	25	22
Miscellaneous material received, processed, and routed (Including maps, photostats, patents, etc.)	11	108
Books and periodicals circulated	2,723	2,862
Unclassified reports processed	260	270
Unclassified reports circulated	241	193
Reference services rendered	1,283	1,404

	Main Library	W-10 Branch	108-F Branch	Total
Number of books	6,422	2,610	235	9,267
Number of bound periodicals	4,115	0	495	4,612

Work in the Plant Library proceeded routinely, with a volume of activity approximately equal to that of the previous month. However, the circulation of books and periodicals, reflecting additions from the new Biology Branch in the 108-F Building, reached a new high.

A study is being made of the application of a visible file to expedite the work of the library's Order Clerk. A draft form has been prepared and is being applied to part of the order file. If the pilot study is successful, this system will be adopted.

The reference services handled, of which a sampling is listed below, continued to reflect the use of the Library's facilities by all Divisions at Hanford:

Acceptance testing of electric elevators.
Design of fire stations.
Manufacture of glass without sand.
Use of a phase microscope.
Corrosion of reinforcing steel in cracked concrete.
How does copper sulfate used for killing roots in sewer pipes affect the sewage treatment plant processes?
Is there any such compound as ethyl luitrate?
Age distribution of employees in the chemical industries.
Calibration of volumetric apparatus.
Emission spectra of neon.
Decomposition of LiH.
Composition of water-base paints.
Corrosion of concrete by brine.

Considerable time during the month was spent working with the contact engineer on the layout of the Library & Files Bldg. proposed for the new Hanford Works Laboratory Area. The rough plans were completed, and the necessary narrative support is being written.

Classified Files

Work volume statistics for the Classified Files and the Central Report Publications Unit were as follows:

	October	November
Documents routed	12,054	11,072
Documents issued	5,969	6,140
Reference services rendered	4,364	4,110
Reports abstracted	411	267
Registered packages prepared for offsite	204	389
Inter-area mail sent via transmittal	25,076	25,448

	October	November
Holders of classified documents whose files were inventoried:		
(a) Because of normal perpetual inventory procedure	82	110
(b) Because of transfer of work assignment	1	2
(c) Because of termination	3	3
Inventory reductions:		
Copies of documents destroyed	380	146
Copies of documents downgraded	13	0
Copies of reports declassified	1	3
Classified documents located which were unaccounted for in previous inventory	32	84
Volume of unclassified mail handled by 300 Area Mail Room	31,863	38,228
Central Report Publications Unit		
Ditto masters run	656	446
Mimeograph stencils run	768	593
Ditto copies prepared	20,697	16,476
Mimeograph copies prepared	48,697	37,046
Formal Research and Development Reports issued	6	23

The number of offices inventoried by the Audit & Inventory Unit of the Classified Files reached a new high, despite the fact that the Unit still has not reached the planned strength of 10 persons. This high figure indicates that, at this date, the Unit has substantially completed checking the files of all large holders of classified documents. It further indicates that plans for completion of the field inventory by February 1951 are realistic.

The new procedure (reported last month) of making a daily inventory report to the Security Division was initiated. Approximately 96 missing documents were reported during the period. This represented a two months' accumulation, since it had been the practice previously to list the missing documents at 30-day intervals. During the month also, 84 documents, which had previously been reported missing in inventory, were located. This was a new high for recovery. In this connection, it is worthwhile noting that it was necessary in the course of the month's inventory to search the office files of approximately twenty individuals who did not have documents formally charged out from the Classified Files. A number of classified documents charged out to other persons were turned up in this search.

Classified documents, as they are discovered missing, are being evaluated by the site Coordinating Organization Director for technical value. This appraisal procedure enables prompt action to be taken on missing documents of unusual significance, and will earmark others which may be quickly declassified when local machinery is set up to do this (as discussed in the October 1950 report).

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A study was made of the effect of the Audit & Inventory Unit program in reducing personal holdings of classified documents. This study indicated that the field inventory had not appreciably reduced these holdings.

The "Security Slants" column in the Hanford Works News for November 17 was devoted to the work of the Audit & Inventory Unit. Such publicity aids greatly in winning employee acceptance of this necessary and vital security program.

The volume of offsite requests for information received by the Classified Files is rising rapidly and is reflected in the month's statistics. Many of these originate in the Argonne National Laboratory, where a pilot group on the CP-6 program are presently working. Much of the needed information is in the early Hanford records, and it is anticipated that this files work will continue to increase as the CP-6 program gathers momentum.

A new distribution list for UNCLASSIFIED Research and Development Reports was received from the A.E.C. Technical Information Service at Oak Ridge. In future, these reports will not use the categories in the Standard Distribution List but will employ the broad general categories of Physics, Metallurgy and Ceramics, Instrumentation, Biology, and Chemistry. The new distributions include, in addition to broad Project distribution, a supplementary distribution to other Government agencies interested in similar fields of research. The constant alteration in the requirements of distribution, categorization, etc., of both classified and unclassified Research and Development Reports, again emphasizes the necessity for a Central Reporting Service and the value of having all Research and Development Reports intended for project-wide distribution prepared by this experienced Unit. Formal reports issued by the Unit during November equalled an all-time high established some months ago.

The Schenectady Office of the Nucleonics Department was again requested to consider the advisability of establishing a Classified Files at Schenectady for the central receipt and issuance of classified documents.

A number of meetings were held with A.E.C. Security, G. E. Security, and D & C Classified Files personnel to prepare site comments on a draft copy of GM-37. It is anticipated that this revised A.E.C. Bulletin, covering the care and handling of classified documents, will be issued shortly.

A study by the Accounting Division recommending consolidation of the Plant mail services was favorably reviewed. The study was particularly timely since the mail handled by the 300 Area Mail Room is rapidly increasing, as is the difficulty of retaining male messengers to carry the large loads. 300 Area service during the month was below standard, due to inability to secure "Q" cleared personnel for this work.

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

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Technical Services Division

in the course of their work during November 1950. 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.

Signed _____
T. W. Hauff, Division Head

TWH:mcs

MEDICAL DIVISIONS

NOVEMBER 1950

General

Personnel Changes

The roll decreased from 281 to 277.

Visits

Two public health staff members attended meetings in Seattle concerned with the emotionally handicapped child and the use of weight, height, age, "Wetzel Grid" in following physical development of school children.

A field representative of the National Cancer Society, Mrs. G. Ellis, visited the Public Health Division in the interest of establishing a local branch.

[redacted]

MEDICAL DIVISIONS

NOVEMBER 1950

Public Health

The communicable disease rate increased 200% due largely to the increase in chickenpox.

Home nursing increased by about 45% due to seasonal increase of illness.

Eighteen food establishments are under sanitary surveillance. General sanitation of these is satisfactory though two restaurants have as yet failed to meet Grade "A" requirements.

Costs (October)

Medical Divisions' operating costs before assessments to other divisions and Workmen's Compensation were as follows:

	September	October	October Budget
Industrial Medical (Oper. Div.)	$ 35,796	$ 38,044	$ 38,863
Public Health (Oper.)	11,572	10,897	11,070
Kadlec Hospital (net)	21,946	23,271	27,792
Hosp. assessments to other divisions and Workmen's Compensation	1,905	3,793	3,700
Sub-total - Oper. Medical Divisions	71,219	76,005	82,425
Construction Medical (Ind. & P.H.)	11,091	11,189	21,727
Total (Operations & Construction)	82,310	87,194	104,152

The net cost of operating the Medical Divisions (before assessments to other divisions and Workmen's Compensation) was $87,194., an increase of $4.884., and $16,598. below the budget figure.

Factors causing overall increased costs were the 3% salary increase paid to non-bargaining unit employees and the increase in accrual rate for Continuity of Service from 10% to 12½% of gross payroll.

The addition of two employees and increased purchase of food and pharmacy supplies increased hospital gross costs by $4,735. This was not compensated for by an increase of $1,522. in hospital revenue.

Public health costs were reduced by seasonal discontinuation of mosquito control labor.

An increase of $400. in assessed laundry costs added to the rise in industrial costs.

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MEDICAL DIVISIONS

NOVEMBER 1950

Industrial Medical Division

Dispensary treatments in the MJ-1 and 200-W areas increased by 60% over October figures and handled 70% of all construction cases treated.

An industrial hygienist, Howard Perry, was added to the staff, and salary expense will be equally shared by the Industrial Medical Division and the Safety Division. He will spend full time evaluating chemical hazards. Work will actively begin after "Q" clearance has been obtained on a routine survey of especially hazardous chemicals used, and which require refined measurements for evaluation of existing real or potential hazards.

The industrial physicians' scientific meeting dealt with a report of the recent meeting of the American Public Health Association held in St. Louis. Dr. Eckles attended this meeting and reviewed the paper presented there.

The Health Activities Committee met on November 15th, and the health topic on "Hearing" was presented. Material on this subject was prepared for distribution to all employees.

Absenteeism due to sickness was 2.11% and absenteeism due to all causes was 2.84%.

There were no findings attributable to radiation exposure of any employee during the month.

The net cost of operation increased $2,324. over the previous month. This was due chiefly to an increase of 2½% in continuity of service charges, a general salary increase including retroactive payments, and a decrease in revenues of $399.

	Increase or (Decrease) over Previous Month	October	September	October Budget
Administration	919	8,146	7,227	7,473
Household & Property	30	1,479	1,449	1,300
Professional Services	192	23,697	23,505	26,140
Total Direct Expense	1141	33,322	32,181	34,913
Public Liability Claims	150	150	-0-	-0-
Transferred Charges from Other Divisions	558	5,053	4,495	5,100
Less: Revenue	(399)	481	880	150
Workmen's Compens.	(76)	691	767	-0-
Net Cost Operations	2324	37,353	35,029	39,863

Physical Examinations Operations	October	November	Year to date
Pre-employment	144	134	1450
Rehire	40	27	533
Annual	140	412	4192
Interval	405	320	4637
Visitors	1	0	1
A. E. C.	29	45	171
Recheck	161	147	1486
Termination	95	80	937
Sub-total	1015	1165	13407

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MEDICAL DIVISIONS

NOVEMBER 1950

Physical Examinations	October	November	Year to date
Sub-contractors			
Pre-employment	186	204	3356
Rehire	339	424	3589
Recheck	70	108	1090
Termination	396	304	2554
Sub-total	991	1040	10589
Total Physical Examinations	2006	2205	23996
Laboratory Examinations			
Clinical Laboratory			
Government	97	127	1171
Pre-employment, termination, transfer	3671	4848	55743
Annual	741	2161	21852
Rechecks (Area)	1985	1861	24323
First Aid	6	0	140
Clinic	2594	2893	30053
Hospital	3311	3972	33331
Public Health	86	38	623
Total	12916	15900	167236
X-Ray			
Government	20	21	199
Pre-employment, termination, transfer	688	818	9171
Annual	159	431	4345
First Aid	170	135	1474
Clinic	254	229	2491
Hospital	254	232	2048
Public Health	6	5	60
Total	1551	1871	19788
Electrocardiographs			
Industrial	17	34	311
Clinic	1	5	44
Hospital	31	26	249
Total	49	65	604
Allergy			
Skin Tests	6	4	195
First Aid Treatments			
Operations			
New Occupational Cases	345	344	3934
Occupational Case Retreatments	1185	1018	13047
Non-occupational Treatments	3281	3094	34215
Sub-total	4811	4456	51196
Construction			
New occupational Cases	587	659	4986
Occupational Case Retreatments	2311	2223	16358
Non-occupational Treatments	658	648	3923
Sub-total	3556	3530	25267
Total First Aid Treatments	8367	7986	76463
Major Injuries			
General Electric	2	0	4
Sub-contractors	9	8	64
Total	11	8	68

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MEDICAL DIVISIONS

NOVEMBER 1950

Sub-major Injuries	October	November	Year to date
General Electric	3	1	23
Sub-contractors	8	6	69
Total	11	7	92

Absenteeism	Male	Female	Total	Percent Absenteeism	Comparison with Previous Month
No. days absent due to all causes	2886	1335	4221	2.84	.20% more
No. days absent due to sickness only	2097	1044	3141	2.11	.25% more

Avg. days absent by males due to sickness..... .47 day or 470 days/1,000 employees

Avg. days absent by females due to sickness..... .71 day or 710 days/1,000 employees

Avg. days absent by all employees due to sickness.53 day or 530 days/1,000 employees

Absenteeism due to all causes by Divisions:

Employee & Community Relations	1.37%
Municipal, Real Estate & General Service	2.61%
Manufacturing	2.63%
Plant Security & Service	2.75%
Health Instrument	2.89%
General Accounting	3.04%
Purchasing & Stores	3.09%
Design & Construction	3.17%
Medical	3.47%
Technical	3.77%

Absenteeism Investigation	October	November	Year to date
Total No. calls requested	11	18	160
Total No. calls made	10	18	159
No. absent due to illness in family	1	0	3
No. not at home when call was made	1	0	15

Community Medical Division

The ratio of hospital employees to patients (excluding newborn) for the month of October was 1.85. When newborn infants are included, the ratio is 1.62. Both of these figures represent reductions from the previous month due to an increased census and a more equitable system of computing the number of employees to be charged against the hospital.

The net expense of the Richland community medical program for October, 1950 was $23,271., as compared to $21,946. for September. Breakdown is as follows:

Kadlec Hospital net expense $ 23,029.

This is an increase of approximately $1800. as compared to September. It is due primarily to an increase in salary costs, continuity of service costs, pharmacy purchases, and transferred charges from other divisions, which more than offset the additional revenue resulting from a higher patient census.

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Clinic net expense $ 242.

This is a reduction of approximately $450. due primarily to the fact that the bulk of clinic accounts receivable have been cleared up so the time of one employee, formerly charged to the clinic, was charged to the hospital. Also, clinic medical records activity has diminished.

Miss Eunice Fariss, chief dietitian, resigned as of November 24th. A new dietitian is expected to report for work in early December.

A report from Miss Mary A. Miller, R.N., Washington State Dept. of Health, on the first phase of the survey of Kadlec Hospital nursing service has been received. Many of her recommendations have been in the process of being put into effect for some time and others are receiving serious consideration.

Kadlec Hospital	October	November	Year to date
Census			
Admissions: Adults	425	443	4611
Patient Days: Adults	2332	2418	24422
Infants	326	342	3676
Total Patient Days	2658	2760	28098
Average Stay: Adults	5.5	5.5	5.3
Infants	5.5	5.2	5.2
Average Daily Census: Adults	75.2	80.6	73.0
Infants	10.5	11.4	10.9
Total Average Daily Census	85.7	92.0	83.9
Discharged against advice	0	0	13
One-day cases	63	66	720
Occupancy Percentage: Adults	84.5%	90.5%	81.9%
Infants	131.2%	142.5%	134.9%
Admission Source: Richland	75.1%	80.8%	80.4%
North Richland	9.9%	8.6%	8.0%
Other	15.0%	10.6%	11.6%
Admissions by Employment:			
General Electric	72.3%	73.4%	
Government	3.1%	2.9%	
Facility	4.9%	4.5%	
Sub-contractors	14.1%	11.3%	
Schools	0.7%	1.4%	
Military	2.6%	3.8%	
Others	2.3%	2.7%	
Surgery			
Majors	54	68	698
Minors	64	67	810
E. E. N. T.	41	64	537
Transfusions	55	61	580
Dental	1	2	19
Vital Statistics			
Deaths	3	1	30
Live Births	59	66	693
Still Births	2	3	14

MEDICAL DIVISIONS

NOVEMBER 1950

Physiotherapy Treatments	October	November	Year to date
Clinic	69	169	893
Hospital	118	181	812
Industrial: Plant	156	183	1842
Personal	44	34	237
Total	387	567	3783
Pharmacy			
No. of prescriptions filled	2846	3063	29394
Patient Meals			
Regulars	3648	3721	36078
Specials	1202	1291	11369
Lights	177	37	1577
Softs	1261	1357	16249
Tonsils & Adenoids	100	171	1258
Liquids	187	128	2116
Surgical Liquids	61	79	758
Total	6636	6784	66405
Cafeteria Meals			
Noon	1204	1275	15065
Night	171	177	2431
Total	1375	1452	17496

Public Health Division

The communicable disease rate increased 200% due primarily to the sharp increase in the number of chickenpox cases reported. Scarlet fever cases reported showed an increase, most of the cases being reported early in the month as a carry-over from the previous report. Generally all types of morbidity show a seasonal increase.

Due to the rise in illness rates, the home nursing visits made by public health nurses increased approximately 45%.

Of the 18 restaurants under supervision, two fail to meet Grade "A" requirements.

Education	October	November	Year to date
Pamphlets distributed	19968	13905	93216
News releases	2	18	64
Classes	7	2	47
Staff meetings	2	2	41
Lectures & Talks	8	13	86
Attendance	539	668	3645
Conferences (among section members)	50	67	637
Films shown	6	4	38
Attendance	456	263	1544
Radio broadcasts	4	4	12
Immunizations			
Diphtheria	22	412	2374
Influenza	0	0	1
Rocky Mt. Spotted Fever	0	0	13
Smallpox	3	349	1828
Tetanus	23	326	518
Typhoid	0	0	20
Whooping Cough	22	6	114
Tuberculin Test	0	0	31
Total	70	1093	4899

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MEDICAL DIVISIONS

NOVEMBER 1950

Social Service	October	November	Year to date
Cases carried over	97	84	980
Cases admitted	13	19	177
Total	110	103	1157
Cases closed	26	25	187
Remaining case load	84	78	970
Sources of referral:			
Public Health	3	4	35
Doctors	3	7	60
Interested person	0	3	17
School	2	1	9
Personnel office	0	0	2
Personal application	3	3	30
Other agency	2	1	13
Miscellaneous	0	0	11
Total	13	19	177
Sanitation			
Inspections made	110	101	1675
Bacteriological Laboratory			
Treated water samples	202	175	2104
Milk samples (Inc. cream & ice cream)	11	19	512
Other bacteriological tests	189	162	2324
Total	402	356	4940
Communicable Diseases			
Amoebic dysentery	0	0	1
Chickenpox	9	103	261
Erysipelas	0	0	1
German Measles	5	10	178
Gonorrhea	0	1	3
Impetigo	6	1	18
Influenza	0	1	9
Measles	0	0	12
Meningitis	0	0	1
Mumps	1	0	12
Pharyngeal infection	0	0	6
Pinkeye	4	7	24
Poliomyelitis	2	0	7
Ringworm	4	5	24
Roseola	0	0	4
Scabies	2	0	13
Scarlet Fever	12	19	81
Syphilis	7	3	34
Tuberculosis	0	1	6
Whooping Cough	0	0	19
Total	52	151	714
Nursing Field Work			
Total number visits made	655	899	10006

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MEDICAL DIVISIONS' PERSONNEL SUMMARY — Nov. 30, 1950

		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	Janitor	Records Supv.	Accounting Supv.	Admin. & Assistant	Others	TOTAL
1100 Area	Division Admin.	2	2								2	1	1.5	2	3	10.4									2	3	2	1	31.9
	Industrial	3.8	9		1								1.5	1		6								4.6					26.9
	Hospital ***	2	49	3	24	6	9.9	3	1	*2*			2			11*	3	1	6	9				7.8				7	146.7
	Public Health	1	8		1								3			1					3	2	1	.6					20.6
NR	Industrial	2	1				1.4	1								10								.7					16.1
NR	Public Health		2																					.3					2.3
Outlying Areas	100-C	.2	1				.3									.3													1.8
Outlying Areas	100-D	.2	4				.3									.3													4.8
Outlying Areas	100-F	.1	4				.1									.5													4.7
Outlying Areas	100-H	.1	1				.3									.5													1.9
Outlying Areas	241-S		1																										1
Outlying Areas	200-E	.1	4				.3									.2													4.6
Outlying Areas	200-W	.2	5				.2									.4													5.8
Outlying Areas	300	.3	2				.2									.4													2.9
Outlying Areas	MJ-1		3													1													4
Outlying Areas	White Bluffs		1																										1
TOTAL		12	97	3	26	6	13	4	1	2	2	1	8	3	3	42	3	1	6	9	3	2	1	14	2	3	2	8	277

* (1) General Clerk working on clinic records.
** (1) Tech. - Phys. Ther. working part time.
*** (4) Nurses working part time.
Note: T. W. Galbraith (Bacteriologist) carried on H. I. roll; working part time in Medical Divisions.

Number of employees on roll:
Beginning of month 281
End of month 277
Net decrease 4

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HEALTH INSTRUMENT DIVISIONS

NOVEMBER 1950

Summary

Removals and additions to the force resulted in a net gain of twelve employees. Two Special Hazard Incident investigations were reported. One involved the overexposure of construction workers in the 115-D building. There were, additionally, four informal investigations. Excluding these incidents, control of radiation hazards in process areas was satisfactory.

Control functions in the Biology Division indicated a downward trend in activity observed in biological specimen samples. However, several species of upland wildlife contained activities in excess of the permissible maximum. In the Development Division, control measurements showed no change in activity of water samples but a general increase in radiation levels in the air and in I^{131} deposited on vegetation.

No confirmed positive result for Pu or fission products in urine of plant workers was found. Maximum for U and tritium content was 32 µg/liter and 30 µc/liter respectively.

Research programs progressed satisfactorily. Preliminary observations indicate that skin absorption of tritium can contribute to personnel contamination, but to only a small degree.

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HEALTH INSTRUMENT DIVISIONS

NOVEMBER 1950

Organization

The composition and distribution of the force as of 11/30/50 was as follows:

	100-B	100-D	100-F	100-H	200-E	200-W	300	700	P.G.	Total
Supervisors	1	1	8	2	3	11	12	7	0	45
Engineers *	4	8	29	4	6	20	12	5	0	88
Clerical	0	0	3	1	1	3	3	5	0	16
Others	17	14	51	12	32	66	60	11	8	271
Total	22	23	91	19	42	100	87	28	8	420

* includes chemists, biologists, etc.

Number of employees on Payroll	November 1950
Beginning of month	408
End of month	420
Net increase	12

Added to the roll were 6 inspectors, 2 badge workers, 4 personnel meters clerks, 2 steno-typists, 1 technical graduate, 1 general clerk, 3 laboratory assistants, and 1 chemist.

Removed were 2 technical graduates, 2 laboratory assistants, 1 supervisor, 1 engineer, 1 personnel meters clerk, and 1 steno-typist.

General

One Class I and one Class II Special Hazards Incident Investigation was reported. The former involved high tritium oxide in the urine of two employees. The latter concerned the overexposure of three construction employees in the 115-D building. In no case can this overexposure be considered injurious to the men involved. No action on the part of construction workers or their supervision contributed to the accident. Though insufficient supervisory coverage and poor liaison between all the groups involved aggravated the situation, primary responsibility for defective control fell within the Health Instrument Operational Division. Appropriate measures were taken to prevent recurrence of like incidents.

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Health Instrument Divisions

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The following trips were reported:

C.C. Gamertsfelder - Recruitment at Princeton, Yale and U. of Delaware; and visit to Bureau of Standards, Wash. DC
M.L. Mickelson - Recruitment trip to Stanford U. and U. of California.
J.M. Smith, Jr. - Inspection & consultation at Schenectady GE&C Laboratory
R.F. Foster - Procurement and transportation of salmon eggs.

Visitors included Dr. M.E. Ensminger, consultant from Washington State College; Dr. C.C. Ruchhoft and Mr. G.G. Robeck, Sr., US Public Health Service; and Mr. G. Ebohahn, RCA representative.

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.

Inventor	Title
R.F. Foster	- Slide Rule for Rapid Determination of Decay Correction Factors

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Health Instrument Divisions

OPERATIONAL DIVISION

100 Areas

General Statistics

	October					November					1950
	B	D	F	H	Total	B	D	F	H	Total	To Date
Special Work Permits	1042	1329	373	713	3457	883	1455	321	542	3201	30,443
Routine & Spec.Surveys	384	685	501	525	2095	412	822	457	499	2190	20,955
Retention Basin	41	139	91	91	362	89	175	94	125	483	4,601
Air Monitoring Samples	213	223	121	137	694	176	162	146	145	629	6,592

Retention Basin Effluent

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

	100-B	100-D	100-DR	100-F	100-H
Power Level (MW)	360	320	430	305	400-470
Average beta dosage-rate (mrep/hr)	1.2	1.2	1.5	1.4	1.2
Average gamma dosage-rate (mr/hr)	2.5	2.6	3.1	2.8	2.5
Average total dosage-rate (mrep/hr)	3.7	3.8	4.6	4.2	3.7
Average integrated dose in 24 hrs. (mrep)	89	91	110	101	89
Maximum integrated dose in 24 hrs. (mrep)	91	108	146	137	110
Maximum integrated dose in 24 hrs. (mrep) 1950	120	139	146	173	194

100-B Area

Pile and Associated Buildings

Failure to set the purge system valves on top of the pile prior to dropping the vertical rods resulted in brief exposure of personnel to radioactive air expelled from the thimbles. Unsatisfactory sealing of floor drain traps resulted in air contamination, due to effluent water vapors, in the outer rod room and air conditioning room. Contamination on the hands of an operator was traced to contaminated equipment in a janitor's closet in the pile building.

P-10 Operations - 108 Building

Two employees gave urine samples showing greater than 20 μc/liter of P-10 oxide. Both had worked with contaminated equipment in the mass spectrometer hood during a time when the exhaust system was not functioning. The incident was investigated formally.

Scrubbers installed around the furnace tubes in process hoods proved effective according to initial air samples which indicated a 10^3 reduction in activity

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Health Instrument Divisions

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between inlet and outlet air.

Contamination identified as P-10 oxide was encountered on filters removed from the can-opening hood exhaust system. The contaminating material was in the form of a gray dust and was spread to the hood and surrounding area. P-10 oxide contamination has not been detected in this location previously.

100-D Area

105-D Pile and Associated Buildings

Three subcontractor employees received overexposures following work in a filter room of the Gas Purification Building. The incident was investigated as Class II Special Hazards Incident Investigation #13.

During an attempt to recover special samples from a sample tube stored outside the Gas Purification Building, employees of the Technical Division were exposed for a few seconds to dosage rates as high as 50 roentgens per hour. Widespread ground contamination resulted from the work and several cases of shoe contamination were reported. The job was abandoned and the contamination cleaned up.

The process water leaks in the pile, reported last month, were reduced by the installation of thicker nozzle flange gaskets on several process tubes. The condensate from the driers dropped to about 18 pints per day.

105-DR Pile and Associated Buildings

A ruptured piece in process tube #1476 was removed under good hazard control and without personnel contamination. Process water was diverted to the emergency crib immediately after shutdown of the pile and no water contaminated by the rupture was allowed to enter the east side of the Retention Basin. Contamination levels in the west side, which was in operation at the time of the rupture, have not been evaluated yet.

High level contamination in the areas on the far side of the pile resulted from a leak in the water line to the "B" experimental hole. The leak occurred after the water supply was cut off in order to gain pile reactivity. Attempts to remove the contamination were unsuccessful.

A gas leak in the pile was finally located by a special carbon dioxide detector provided by the Industrial Hygiene Group of the H. I. Development Division. The instrument disclosed a leak in the octant monitoring hole on the #2 experimental level which was permitting gas to flow around the far side equipment through electrical conduits. Plugging the cable hole appeared to stop the leak.

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Health Instrument Divisions

100-F Area

Pile and Associated Buildings

Two cases of personnel contamination were reported. In one case an employee of the Maintenance Division received face contamination when a cross-header was returned to normal pressure before one of the pigtail unions was tightened. In the other case, a "P" Division operator received contamination on his shoes and socks when a chain from an underwater monitor was dragged over his feet.

Biology Laboratories

Dilution of Sr^{89}, Y^{89}, Y^{90} and I^{131} solutions were carried out without incident. Surveys in P-10 laboratories showed that contamination was confined to experimental equipment.

P-11 Operations

Ten of 47 air samples taken were above 10^{-11} ug Pu/cc. The maximum sample, 2.5×10^{-9} ug Pu/cc, was obtained during the removal of the 13 inch sphere.

100-H Area

A special testing assembly was installed in the "Z" experimental hole on the near side of the pile and placed into operation. Cooling water from the assembly was directed into the drain line which passes through the Reactor Development Room. High dosage rates were obtained on exposed portions of the line in this room and additional shielding had to be installed.

200 Areas - T and B Plants

General Statistics

	October					November					1950
	T	231	234-235	B	Total	T	231	234-235	B	Total	To Date
Special Work Permits	318	42	248	327	935	670	38	377	316	1401	10,030
Routine & Spec. Surveys	550	392	548	560	2050	557	452	598	512	2119	21,572
Air Monitoring Samples	744	573	1386	786	3489	607	572	1427	734	3340	35,369
Thyroid Checks	117	---	---	46	163	4	---	---	53	57	1,556

Canyon Buildings

In the T plant, 90 of 369 air samples showed results above 10^{-12} ug Pu/cc, with a maximum of 7×10^{-9} ug Pu/cc; 73 were above 10^{-10} uc f.p./cc, with a maximum of 1.5×10^{-6} uc f.p./cc. The maximum I^{131} concentration reported was 1.5×10^{-9} uc/cc. High level contamination on the canyon deck occurred due to cell inspection for leaks and equipment repair. Chemox masks were required in the canyon for about 40% of the month, and this resulted in little progress in decontamination. The two members of a sampling team received hand exposures by wearing contaminated gloves. The incident is being investigated informally.

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In the B plant, 70 of 455 air samples showed results above 10^{-12} µg Pu/cc with a maximum of 1.7×10^{-9} µg Pu/cc; 155 were above 10^{-10} µc f.p./cc with a maximum of 4.1×10^{-8} µc f.p./cc. Scrubber samples showed no significant amounts of I^{131} in canyon air.

Concentration Buildings

Maintenance work in both the T and B plants was completed without incident. Discharge of plutonium from cell vents averaged 175 µg/24 hours in A Cell at T plant and 78 µg/24 hours in D Cell at B plant.

Stack Areas

In the B plant, the southeast porthole at the stack base showed a further decrease in dosage rate to 320 mrep/hr.

Waste Areas

In the B plant, a leak in the metal waste line between the canyon building and the 154-BX diversion box was detected and an alternate line placed into service. The work was carried out without incident.

Plant Laundry

Twenty-five of 78 air samples showed positive results, with a maximum of 1.5×10^{-11} µg Pu/cc obtained while processing B, T, and 231 clothing.

General

All thyroid checks were below the warning level.

The Isolation Building

One hundred and ten of 572 air samples were above 10^{-12} µg Pu/cc; the maximum of 1.8×10^{-10} µg Pu/cc was obtained from the 903 duct system. Seventy unregulated items and six floor locations were found contaminated. There was no case of skin contamination. Preliminary tests indicate that approximately one-third of all contamination in the building exhaust comes from the process hood vacuum system. The maximum level of gamma radiation encountered was 78 mr/hr on PR containers.

Purification Building

Air Sample Results

Two hundred and eighty-four of 1,427 air samples were above 10^{-12} µg Pu/cc; the maximum sample of 2.4×10^{-7} µg Pu/cc was obtained inside the greenhouse during hood 6 FHT removal in room 229.

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234 Building - Operating Section

Three incidents of contamination spread occurred within process rooms. An operator knocked over a sample can as he opened the hood 3 air lock door in room 228, spread contamination to adjacent rooms when he left the work area, and contaminated his hands with about 150 μg Pu when he removed his gloves and mask without assistance. Decontamination was not completely successful until the following day. The incident was investigated informally. Due to inadequate job preparation and appraisal, gross contamination was spread to floor and piping in room 263 when the HF line to furnace 6 was unplugged. A leak at hood 29 in room 222 resulted in milligram amounts of Pu spread to the floor.

235 Building - Operating Section

Contamination of 20,000 to above 40,000 d/m was tracked from hood 19 to 27 in room 231 when a glove ruptured at hood 22. Higher than normal levels of fast neutrons were discovered outside of hoods 8 and 9 when these hoods reached their specified limits and jars were located closer than necessary to the front of the hoods. Relocation of the jars reduced the level at the hood face from 100 mrem/hr. to 40 mrem/hr.

General Building

Two cases of contamination spread occurred in room 170 when liquid leaked through waste cartons. The Pu concentration in the process transfer vacuum system increased during the latter part of the month from an average of 2.5×10^{-11} to 1.4×10^{-9} μg Pu/cc.

200 Areas Control Laboratories

	T	B	231	234-235
Items contaminated - not regulated	163	80	143	203
Skin contamination - alpha	3	5	2	2
Skin contamination - beta	5	2	-	-
Contaminated floor locations	22	31	11	164

In the T plant, the face shield of a laboratorian was discovered to be contaminated. The exposure rate to the head was estimated at 180 mrep/hr; the length of the exposure time could not be determined, but may have been as long as one hour. The incident, investigated informally, was attributed to failure to follow established procedures. A pair of leather gloves, believed to have been contaminated at the same time, were worn by three other persons on the succeeding shift and resulted in a possible maximum exposure rate of 750 mrep/hr. for short periods. Personnel meters for all employees involved did not indicate any overexposure.

In the B plant, a sample was spilled at the slurper in room 7. High level floor contamination was successfully cleaned. A composite 5-6 and 5-9 waste sample was moved from 222-T to the 200 East gatehouse and left with Patrol for

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about 5 minutes. No exposure or contamination resulted, but the incident called attention to the fact that Special Hazards Bulletin #5 has not been followed properly in the movement of such samples for some time.

In the isolation building, an unexplained spread of 5 µg Pu occurred in room 35.

In the purification building, an unexplained contamination spread of 2.4 ug Pu was discovered on the floor of room 134. The source of four contaminated spots in corridor 4-C was traced to room 155 where 1.5 µg Pu was discovered on the floor in front of hood 2.

Particle contamination in particles per 1000 cubic meters was as follows

Location		October	November
222 T	Outside	62.1	12
	Hallway	83.9	28
	Room 7	382.0	340
222 B	Outside	17.9	12
	Hallway	29.7	13
	Room 7	223.0	720

The 300 Area

General Statistics

	October	November	1950 To Date
Special Work Permits	73	93	1,316
Routine and Special Surveys	181	225	1,995
Air Samples	113	212	1,702

Metal Fabrication Plant

Forty-one of 109 air samples were above 5×10^{-5} µg U/cc; the maximum of 5.1×10^{-3} µg U/cc was obtained during the unloading of rods. Further studies on the unloading of uranium rods indicate that the present four-hour time limit on the job may be too great if the full time is utilized. However normal delays of the workers are generally sufficient to make the limit safe.

Technical Building

An electrician showed an exposure of 485 mrep as recorded by his film badge. An informal investigation revealed that the reading was due to X-ray exposure and that the actual dosage as determined by an X-ray calibration was only 15 mr. The incident did call attention to the need for better control of all X-ray units being used in the field.

Disregard of the approved method for sample disc preparation on two separate occasions resulted in plutonium contamination to personnel. The contamination

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was successfully removed. Contamination was spread to the floor and shoes and clothing of a chemist during transfer of a radiolanthanum sample from a capsule to a bottle. A case of hand contamination led to the discovery of a leaking radium needle (0.1 μg) stored in a safe in the Counting Standards room. The safe and contents were successfully cleaned and the needle sealed in a bottle.

One of 81 air samples taken was above 1 x 10^{-11} μg Pu/cc and three above 1 x 10^{-10} μc f.p./cc. The maxima, respectively, were 3.4 x 10^{-10} μg Pu/cc in room 1 following contamination spread, and 1.9 x 10^{-10} μc f.p./cc in room 99 following ventilation failure in a hood.

Hand Score Summary

There were 37,316 alpha and 40,638 beta scores reported. About 0.1% of the alpha and about 0.19% of the beta scores were high. No attempted reduction was indicated for 3 high alpha scores at 222-B, one high alpha at 221-B, and 3 high beta scores at 100-D. Where decontamination was attempted, it was successful.

PERSONNEL METERS

Pencils

	100-B	100-D	100-F	100-H	E&N 200	200-W	300	Total	1950 To Date
Pencils read:	15,960	16,986	14,178	9,866	19,160	34,129	33,954	144,233	1,449,965
Single readings: (100 to 280 mr)	11	26	13	3	22	45	13	133	1,919
Paired readings: (100 to 280 mr)	0	6	0	0	1	0	0	7	31
Single Readings: (Over 280 mr)	27	38	42	12	40	87	51	297	2,825
Paired Readings: (Over 280 mr)	1	1	0	0	0	0	1	3	25
Lost readings:	0	1	0	0	0	3	0	4	51

Of the ten significant pencil readings reported, five were confirmed by film badge results. Three of the confirmed readings were at 100-D and constituted overexposure.

Investigation of the four lost readings indicated no possibility of overexposure.

Badges

	100-B	100-D	P11-101P 100-F	100-H	R.R.T. 200-E	200-N	200-W	300	Total	1950 To Date
Badges processed:	3,952	2,720	2,701	1,965	2,337	486	4,004	6,296	24,461	244,856
Number readings: (100 to 300 mrep)	16	81	42	23	58	0	77	99	396	3,164
Number readings: (Over 300 mrep)	0	10	24	4	1	0	16	23	78	331
Lost readings:	4	6	3	1	2	0	1	1	18	112

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Lost readings were accounted for as follows:

Film not packaged	10
Lost in processing	2
Light struck	3
Contaminated packet (destroyed by Survey)	2
Badge lost in area	1
Total	18

Investigation of the above lost readings indicated no possibility of an over-exposure.

Badge Resume, Construction Areas

	200-W	100-DR	Total	1950 To Date
Badges processed:	2,220	1,481	3,701	30,759
Number readings: (100 to 300 mrep)	7	1	8	60
Number readings: (over 300 mrep)	0	0	0	8
Lost readings:	0	3	3	16

Total badges processed 1950:	Operations	244,856
	Construction	30,759
	Total	275,615

In addition to the badge program, a total of 1,099 items of non-routine nature was processed during the month.

Slow Neutron Pencil Summary

	100-B	100-D	100-DR	100-F	100-H	Total	1950 To Date
Number of pairs issued	60	127	202	45	476	910	8,855
Number of significant readings	0	6	43	0	20	69	791
Number of significant readings (Above 50 mrem)	0	1	0	0	0	1	9

Investigation attributed the result above 50 mrem to faulty equipment.

Neutron Film

Badges Processed	100-B	100-D	100-F	100-H	200-W	Total	1950 To Date
Personnel	38	217	62	157	41	515	3,045
Special	2	11	7	2	26	48	309

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CONTROL AND DEVELOPMENT DIVISION

CONTROL GROUPS

Site Survey

The results of routine and semi-routine water samples from drinking water, wells, and the rivers indicated activity levels similar to those measured in the past. Samples of mud from Bonneville Dam indicated beta emitter activity densities of about 10^{-5} μc/gm with no correction in the measurement for self-absorption of the particles in the one gram sample counted.

An increase in the radiation levels in air was noted on the detachable chambers for this month. Average dosage-rates of about 1.0 mrep/24 hours were obtained within five miles of the 200 Areas and readings of about 0.5 mrep/24 hours in the vicinity of Richland and Benton City. Average values of the beta emitters retained by filters indicated values of 5×10^{-12} μc/cc near the separations areas, and 2×10^{-13} μc/cc near Richland. One short-term concentration of 2.9×10^{-9} μc/cc was obtained in the Redox Construction Area on November 10. A slight decrease in the overall I^{131} concentration as measured by scrubbers was noted.

A definite increase was noted in the amount of I^{131} deposited on vegetation in all areas except 200 East. Values in the region of the 200 Areas were on the order of 6×10^{-4} μc/gm. In the Benton City, Richland, Pasco region, the values were about 2×10^{-5} μc/kg. These increases were apparently due to seasonable meteorological conditions.

The activity of the pile effluent water increased to about 6×10^{-4} μc/cc in all areas except 100-F Area due to increased power levels. The activity at 100-F Area remained at 8×10^{-4} μc/cc. A series of water samples from the river below the 100-H Area spillway indicated activity levels up to 6×10^{-6} μc/cc, presumably due to leaks in the retention pond. Samples taken from a spring on an island in line with the 100-D effluent pipe gave values of about 5×10^{-4} μc/cc, indicating a possible leak in the pipe.

Bioassay

Five hundred and sixty-two samples were analyzed for plutonium along with 80 routine process control samples. The samples averaged 0.04 d/m, the blanks 0.03 d/m, and the average yield on spiked samples was 92%. Two groups of samples were rejected because of low yields on the accompanying spiked sample, and two samples were above the detection limit of 0.33 d/m.

Five hundred and forty-four samples were analyzed for fission products along with 78 control samples. No results exceeded the resample limit.

One hundred and fifty samples were analyzed for uranium. The maximum result was 32 μg/liter. A program of sampling the personnel assigned to unloading the box cars was inaugurated.

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There were three hundred and sixty-seven measurements made on two hundred and five urine samples for tritium content in the 222-U laboratory. In addition, one hundred and seventy-three samples were analyzed as process checks. There were 61 values greater than 2 μc/liter, with a maximum of 30 μc/liter.

Control Laboratory

Some difficulty was encountered with inconsistencies with the beta counters. Several tubes have exhibited a shift in threshold voltage. The low background alpha counters have been very inconsistent during the month. Part of the trouble is attributed to inexperienced operators and part appears to be due to arcing in the chamber.

Studies of the routine procedures involved in the ether extraction processes, the I^{131} analyses, and the determination of alpha emitters in vegetation, continued. Some work was done in calibrating a vibrating reed for use in C-14 measurements. The analysis of the pile effluent water continued with preliminary values for Mn^{56} (~20%), Cu^{64} (~15%), Na^{24} (~30%), Arsenic (~3%), and P^{32} (~0.4%).

A summation of the work performed is given below:

Laboratory:

Type sample or Analysis	Number of Analyses
Vegetation	1,177
Water	1,817
Solids	338
Fluorophotometer	508
P-10 (other than urine)	120
Miscellaneous	111
Total	4,071

Counting Room

Beta measurements	3,961
Alpha measurements	3,325
Control points	1,875
Decay curves (points)	1,274
Four absorption curves (points)	333
Total	10,768

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Calibrations

Radium Calibrations	Number of Routine Calibrations		
	October	November	1950 to date
Fixed Instruments			
Gamma	372	352	4,040
Portable Instruments			
Alpha	307	337	3,198
Beta	694	654	6,715
Gamma (Radium)	1,000	1,235	10,837
X-ray scanning	2	3	25
Neutron	6	5	1,486
Total	2,009	2,234	22,261
Personnel Meters			
Beta	896	723	7,616
Gamma (Radium)	8,092	7,666	80,456
X-ray	8,138	8,493	75,196
Neutron	30	28	188
Total	17,156	16,910	163,456
GRAND TOTAL	19,537	19,496	189,757

Meteorology

Forecasts	Number made	Percent Reliability
Production	89	79.8
24-hour	59	76.6
Special	16	85.5

The weather during November, 1950, was near normal in every respect. Daily high and low temperatures averaged 40.7° or 0.7° above normal. There were no extreme temperatures, either high or low, during the month.

Precipitation during the past month totaled 0.55 inch. Although this was somewhat below normal for November, it brought the total for the year 1950 so far to 10.48 inches. The greatest amount ever recorded during a calendar year, in the Hanford Area, is 11.26 inches in 1940. In this year, 9.74 had accumulated by the end of November.

Wind speeds during the past month averaged near normal. Highest speeds were recorded on the 15th and 16th, and on the 20th through the 22nd.

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DEVELOPMENT GROUPS

Experimental Meteorology

The major portion of the time of the group was spent in helping write specifications for experimental equipment and in writing two reports, one on effect of speed of flow through a stack on the turning of the axis of smoke effluents having the same densities as that of the ambient air, and one on the uses of bi-vane wind records.

Industrial Hygiene

The protection afforded by air supplied respirators and masks used in the P-10 program has been tested in an apparatus utilizing carbon monoxide as the contaminating atmosphere. Following this study, an investigation was made of the system currently being used in the 108-B building to supply air to the respiratory devices. As this phase of the study has just been completed, there has not been sufficient time to analyze the collected data.

The study of atmospheric contamination by uranium in the 314 building in the 300 Area has been continued.

Rechecks of urine sulphate levels for personnel, as a measure of benzol exposures in the Bioassay laboratory, indicate that all personnel are now in the range of "normals", following the substitution of trisodium phosphate for the benzol previously used.

Geology

The activity densities of beta emitters in wells 241-T-361 and 361-T-12 increased significantly during the month as they also did during October. The maximum value observed was 1.1×10^{-6} μc/cc in well 241-T-361. The results for the wells in the 200-East Area continued on previously established downward trends, except for well 361-B-9 where the decrease was exceptionally large for reasons not yet known.

The activity densities of alpha emitters in the 300 Area wells remained essentially constant, probably because there were no changes in the level of the ground water. The 321-1 well near the 321 crib north of the 300 Area had an increase in the alpha activity density by approximately 30%, although no additional wastes have been discharged.

Soil Science

Samples from various wells have been obtained from the Geology group, and are being prepared for experimental work.

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Methods Development

Studies of the oxidation of plutonium by ozone indicate that over 90% is oxidized but that in subsequent preparation for electrodeposition the Pu is reduced. For this reason, sodium hypochloride, which oxidizes in a basic solution, is again being used. About 15% of the plutonium is apparently plating on the walls of the glass cell. The use of chlorine gas as an oxidant appears to give low electrodeposition yields.

Attempts are being made to sensitize the nuclear track film with organic dyes, thus allowing the use of lower magnifications in examining the film. Preliminary results indicate that eosin sensitizing will give broader tracks but also results in a red background to the microscope field. A study of the effect of an argon atmosphere on the latent image fading was started.

A manifold to be used in the study of routine procedures for P-10 determination by counting methods has been designed and ordered. Results on the use of a Geiger counter filled with hydrogen have been extremely erratic, partially due to difficulties with the electronic quench circuits. The Instrument Development group is investigating this problem.

Test runs on a method of collecting samples of tritium from the atmosphere by burning the tritium and collecting the water on an absorber have indicated efficiencies of 90-100% with liter quantities of hydrogen. Test runs are now being conducted with tritium as a tracer.

Physics

The air in a Landsverk electrometer unit was saturated with water vapor from a sample of water containing 50 microcuries of tritium/liter. The temperature of the system was maintained at 38°C. The discharge rate with this sample in the chamber was twice the background rate. Another test was made with the breath of a person whose urine contained 7 μc tritium/liter. It was calculated from the above results that an increase of 15% over the background rate should be observed if the air in the chamber was saturated. However, in this case there was no detectable change. This raises the question of whether the breath can be considered to be saturated with water vapor.

Measurements have been made for the purpose of calibrating film badges and pencils for the high energy gamma radiation which comes from N^{16}. Present results obtained from theoretical corrections for energy dependence indicate that pencils will read slightly higher than the true dose, and the shielded film will read about twice the true dose on the basis of radium calibration of both. Some more experimental work is necessary to establish these results.

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Instrument Development

The proportional counting air sampler for P-10 is being redesigned and engineered. Detector redesign is complete, and one is being built. This model is more compact, generally neater, and easier to handle.

Installation of a scintillation alpha monitor in the field is delayed until suitable aluminum foil can be found. Purchasing Division reports inability to obtain more foil. Attempts have been made to find the foil through other channels.

Engineering and drawings of the portable BF_3 were completed. Externally, the instrument will look about the same as the development model, but the layout and mechanics of the circuit components have been changed to permit easier maintenance.

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BIOLOGY DIVISION

Analyses Group

1. Radioactivity in Carcasses

Work continued on the determination of radium in bone ash by (1) radon separation and counting, and (2) by separation of radium and counting. Counter and tube difficulties limited progress on the former method but promising preliminary runs were made. The permissible amount of air and water vapor in the counter gas was established. Previously mentioned methods of separating Ra from large amounts of calcium, phosphate, and sulphate developed on simulated bone ash samples were found not applicable to the actual bone samples under study, necessitating more work on chemical procedures with real ash. Possibilities as partial separation (some Ca carry-over) by precipitation with fuming nitric followed by previously developed procedures appear promising. The use of ion exchange resins was more completely investigated and discarded as impractical.

2. Alpha and Beta Analyses of Organic Materials

Work continued on the separation of carrier-free isotopes by use of ionic migration techniques using an applied current and appropriate media. The separation of Co and Pm and possible Eu was attempted, using several different media, but with no success. This effort will continue.

A colorimetric method for determining thorium using pararsonic acid to precipitate thorium, dissolving the washed precipitate with ammonium hydroxide and determining the color from the dissolved pararsonic acid with a colorimeter was adapted to organic tissue samples and appears promising. The effect of variables such as pH, temp, time, etc., are now being studied to obtain the most efficient yields. It is hoped that amounts of 0.5 μg can be detected.

3. Radioelements in Organisms in Pile Effluent

Two samples of algae, raised in the 107-F basin, were tested for Pu with a TTA extraction. Seventy percent of the total alpha activity was found to be Pu in one sample, and 25% of the total alpha activity was found to be Pu in the second sample. Other samples will be tested.

Analyses on algae for Po and S^{35} gave negative results.

A radiochemical analysis of snails raised in pile effluent water, and liver, bone, and muscle of fish fed on these snails, was completed at the request of Aquatic Biology. In addition to the previously reported elements found in aquatic organisms, Cu^{64} and Sn^{121} were indicated from decay and absorption studies. It is interesting to note that only small amounts of the Fe group of elements were found.

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4. Physical Processes Affecting Methods for Isotope Use - No progress.

5. Waste Disposal Methods for Biological Specimens - No progress.

Services

Analytical services to other biology groups consisted of calibrating ORNL shipments of I^{131} and Sr^{89}, Sr^{90}, Y^{90}, and a shipment of Pu^{238} from Berkeley; preparation of spike solutions for animal and plant feedings; and the analysis of about 1400 samples. These are in addition to 2800 alpha and beta counts including decay and absorption studies.

New routine services started this month include tri-weekly determinations of total beta emitters in 18 samples of dilutions of effluent water, and the bi-monthly analysis of approximately 8 samples of aquatic organisms for Na^{24}, P^{32} and the remainder of the beta emitters. The latter program was started to determine if the observed changing ratio of Na^{24} to P^{32} in aquatic organisms is periodic, and if so to attempt to explain the phenomenon.

Aquatic Biology Group

1. Effect of Pile Effluent Water on Aquatic Organisms

Chinook salmon eggs have been incubated in dilutions of pile influent, pile effluent and area effluent as scheduled. The low mortalities (about 3%) in nearly every group have been gratifying. A significant mortality of about 10% has been observed only in the most severe condition - 10% uncooled area effluent. A questionable increase in mortality (about 5%) occurred in the 5% strength uncooled area effluent. These higher mortalities are attributable to a higher water temperature (about 3°C higher in the 10% mixture) and its associated advancement of development. Hatching is practically complete in the 10% strength uncooled effluent and has started in the 5% effluent. No significant increase in mortality has yet appeared in 10% concentrations of refrigerated area effluent, refrigerated pile effluent, or pile influent water.

2. Biological Chains

Cleaning of the 107-F retention basin during October eliminated the fresh source of radioactive algae for feeding to trout held in 5% pile effluent. Substitute algae held in a pond of pile effluent water at the 146 Building has been much less active and the activity density of the trout has diminished accordingly (scales have 1.2×10^{-3} μc/g, about one-fourth that of October). A fresh growth of algae will be available in a few days. The level of activity in trout held in 5% pile effluent but fed an uncontaminated diet has remained the same. These fish should reach maturity and spawn during the winter months.

3. Radiobiological-Ecological Survey of the Columbia River

Fluctuating water levels have continued to complicate the collection of bottom organisms. In some cases, high water has prevented quantitative sampling, and,

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less frequently, sampling for activity determinations. The number of small fish in the shore area continues to diminish. The activity density of aquatic organisms in the river is approximately the same as observed last month. The greatest activities were found in the plankton (13×10^{-3} μc/g at Hanford). For large fish, a maximum activity density of 1.2×10^{-3} μc/g was found in the ovary of a whitefish; this was associated with an activity density of 7.3×10^{-5} μc/g in the flesh. An average of 10,000 planktonic organisms per liter was found in the river water at 100-F, showing a further decline toward the winter minimum.

4. Control of Algae in 107 Retention Basins

Difficulty is being encountered in obtaining from manufacturers the type of anti-fouling paint desired for pilot studies delaying further action.

Biochemistry Group

1. Relative Biological Effects via Biochemical Systems

Several growth curves obtained under standard conditions indicate that Streptococcus zymogenes are suitable for the assay of riboflavin. The plastic cells to be used in irradiating the culture media will probably be satisfactory for this type of investigation, since the plastic was found to be inert toward riboflavin. Arrangements are being made to use the X-ray unit located in 300 Area for irradiating media about twice a week. The possibility of using cobalt or tantalum as sources of beta and gamma radiation is being investigated.

2. Absorption of Pu from the G.I. Tract

The routine oral daily administration of plutonium to 160 rats continues. In 3 weeks, only 2 control and 2 experimental rats have died and have been replaced, but the rest of the animals are apparently in good health and continue gaining weight. Daily plate counts indicate that some of the plutonium solutions have undergone a decrease in alpha activity of 10% to 15% during 3 weeks. The cause of this is being investigated. At present, the feeding of 200 rats requires the services of 2 people for 5 hours a day.

3. P-10 Hazards Biological Investigations

A forthcoming document will describe in detail the completed experiment on the retention of tritium oxide in mice. Thirty one mice each received 13 consecutive daily intraperitoneal injections of 93 μc of tritium oxide. The animals were sacrificed at intervals during and following the injection period. The first animals were sacrificed one day after the first injection, and the last ones 31 days after the last injection.

The tritium in body water obtained by azeotropic distillation of carcasses with benzene and in the water obtained by combustion of the residue was determined

for each mouse. Initial half-time for body water loss was 1.1 days, increasing to 10 to 15 days after one month. Bound tritium (increasing from 3% to 90% during the injection period) exhibited a 3-day half-life initially, and a 30-day half-life after one month. It is clear that bound tritium contributed significantly to the total irradiation received by each mouse. From the last injection until total excretion, the irradiation dose calculated from the total tritium curve (tritium in body water plus bound tritium) is about 1.5 times as large as the dose calculated on the basis of the 1.1 day half-time for body water.

Previous difficulties in the experimental setup for skin absorption of tritium oxide have been largely overcome. Preliminary data indicate that absorption through skin occurs, but relatively slowly.

4. Possible Therapeutic Agents for Radiation Damage - No progress.

5. Percutaneous Absorption of Radioelements - Work not started.

Services

In the Biological Services laboratory, a total of 827 biochemical, 843 hematological, and 40 bacteriological determinations was performed during the month of November. A procedure for determining protein-bound iodine in a limited number of serum samples has been set up for the Experimental Animal Farm. The methods described in the literature have been modified somewhat, and a simpler method involving incineration in place of distillation is at present being investigated.

Botany Group

1. Separations Area Control Plot

Two soil sampling columns were driven to a four foot depth in this area. One column was driven between the old and new pipe line break areas (see October monthly report), and the other (location 2) was driven at the site of the Russian thistle plant indicating the new break area. The activity densities at the four foot level for these areas were, respectively, 2.0×10^{-5} μc/gm and 2×10^{-3} μc/gm of soil. While evidence for a new break is not conclusive, such a break is strongly indicated.

An arrangement has been made with the Separations Division to take samples of soil at depths below four feet. When these samples are obtained and counted, this problem will be discontinued.

2. Agricultural Field Station

Fifteen soil samples taken during the month averaged 1.5×10^{-5} μc/g. A like number from the Prosser Experiment Station averaged 1.2×10^{-5} μc/g.

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3. Translocation of Radioelements in Plants

To determine effect of mass concentration on uptake of Y^{91} by Red Kidney bean plants, inactive Y was added to nutrient solutions containing 0.2 μc Y^{91}/liter. Uptake was proportional to the concentration in ranges of 0.0001 to 0.1 p.p.m. In the range 1.0 to 50 p.p.m., the uptake was not proportional to concentration. Trifoliate leaves of plants grown four days in nutrient solution containing 0.1 p.p.m. of Y did not concentrate this element. Bean plants grown in nutrient solution containing 50 p.p.m. of Y (0.2 μc Y^{91}/liter of solution) wilted markedly under normal transpirational stress, indicating toxicity of the element at this concentration. The toxicity is apparently chemical for the plants absorbed yttrium to the extent of 13 mg/g of dry root.

4. P-10 Botanical Investigations

A chamber has been built for the exposure of plants to tritium oxide contained in nutrient solutions. Experiments are now in progress to determine the uptake of tritium from tritium oxide by plants kept in darkness and in light.

5. Effects of Radiation on Plant Life - No progress.

Physiology Group

1. Biological Effects of Active Particles - No progress.

2. Bone Metabolism of Radioelements

The animals are being bled at intervals to stimulate the bone marrow preparatory to plutonium feeding.

3. Techniques in Autoradiography - No report.

Services

Services in support of other groups continued in histological preparations, photomicroscopy, and autoradiography.

Zoology Group

1. Biological Monitoring

Samples of wild waterfowl taken both on and off the project showed activity densities well below the MPC. Highest single value found was 0.001 μc/g in the thyroid of a specimen trapped between 100-F and 100-H Areas.

Thyroid activity densities remained above the MPC for I^{131} in all upland wildlife sampled in November. Highest value found was 0.033 μc/g in a rabbit taken

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in the vicinity of the 300 Area. Samples from the vicinities of 100-B and 200-N exceeded the MPC by factors of from 2 to 4. A thyroid sample from a ring-necked pheasant taken near Benton City showed activity density exceeding the MPC for I^{131} by a factor of 2.

Some banding of mallard ducks has been effected. This is the initial work upon a study designed to give migration and feeding habits data upon native waterfowl.

2. Toxicology of I^{131} in Stock Animals

Tupping operations are now underway. Four rams are rotated among groups allowing each ram access to one group of 24 sheep daily.

All ewes including the two ewes that have been on 1800 μc/day feeding since May 3 have exhibited normal estrus.

One ram lamb fed 280 mc of I^{131} on September 27, 1950 was sacrificed. Gross lesions observed included a thyroid gland that was of normal size, but was very blue in color, of very firm consistency and resisted the knife on cutting. The muscles lateral to the thyroid capsule were slightly adherent to it. The liver presented some light areas that extended into the depths of the liver. There were no other visible lesions observed that are worthy of note. Another ram lamb under the same experimental conditions is undergoing a similar study as the above described ram lamb using only a tracer dose. A complete report on both of these sheep is being submitted separately.

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GENERAL ACCOUNTING DIVISION

November 1950

GENERAL

Calculation of retroactive payments to Auxiliary Firemen, in accordance with the agreement reached between Hanford Atomic Metal Trades Council and General Electric Company, was completed in November. The payment, amounting to $21,148.85 paid to 572 employees, was included in salary checks distributed to these employees on November 10, 1950.

In connection with the new Insurance Plan, Payroll Division maintained a daily tabulation of the number of new enrollment cards sent in by employees. Daily reports were telegraphed to Schenectady on November 27 and 30 and December 1 indicating status of employees' enrollment in the new Plan. The reports showed the number of employees eligible, number enrolled for Personal Coverage and number enrolled for Dependent Coverage. Considerable work was performed by Payroll Divisions in connection with the campaign and in setting up routines and records.

Reimbursement Authorization No. 122, effective July 1, 1950, covering Benefits for Employees Entering the Armed Forces, was approved by the Atomic Energy Commission in November and supersedes Reimbursement Authorization No. 26 issued October 27, 1948. The authorization provides, among other benefits, payment of a Military Duty Allowance to employees entering the Armed Forces on or after July 1, 1950, who have at least one year of continuous service at the time of leaving the Company to enter the Armed Forces. Arrangements are now being made to make payments to those employees who have been removed from the payroll for Military Service and to handle future cases on a current basis.

Revised budget estimates were completed and submitted to the AEC for Kadlec Hospital, Research and Development, P-10 Program and Graphite Storage Costs. These estimates were accompanied by narrative justifications compiled from information furnished by division heads. Revised budget estimates were also submitted for Cash Working Capital, Inventories and Operating Equipment. Budget amounts appearing on this month's Operating Reports and Financial Statements will reflect these revisions.

Studies in connection with cost of maintaining first aid stations, physical examinations, and other services rendered by Industrial Medical neared completion this month. This information will be used for cost comparisons and in making assessments to other divisions beginning with the month of December.

Audits of Area and Village Bus Operations and Washington State Excise Tax payments were started this month. Audits continued in connection with Receiving and Shipping procedures in the Stores Division and Hanford Works Timekeeping methods. Audits were completed covering Mail Distribution procedures and the handling and accounting for Excess Materials.

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General Accounting Division

R. L. Warburton, General Assistant, visited Knolls Atomic Power Laboratory for one week to assist and advise accountants and representatives of engineering and accounting consulting firms in establishing Plant Accounting Records in accordance with Atomic Energy Commission requirements. Plant Accounting forms and procedures currently in use at Hanford Works were explained and discussed. Assistance was also rendered in the development of a Property Record Unit Catalog.

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

	October	November
Disbursements		
Material and Freight - GE	$1 419 222	$1 501 626
Payrolls - GE (Net)	1 918 808	1 940 639
Payments to Subcontractors	3 038 775	3 065 326
Other	1 107 500	1 010 879
Total	$7 484 305	$7 518 470
Receipts		
Rents	$ 125 858	$ 118 819
Hospital	50 785	39 350
Telephone	15 812	15 784
Bus Fares	10 299	9 726
Other	130 951	51 809
Total	$ 333 705	$ 235 488
Net Disbursements	$7 150 600	$7 282 982

Advances from AEC were increased from $4,000,000 as of the end of last month to $6,000,000 on November 30, 1950.

General Accounting Division

STATISTICS

Employees and Payroll	Total	Monthly Payroll	Weekly Payroll
Employees on Payroll at beginning of month	7 831	1 886	5 945
Additions and transfers in	130	15	115
Removals and transfers out	(100)	(13)	(87)
Transfers from Weekly to Monthly Payroll	--	9	(9)
Transfers from Monthly to Weekly Payroll	--	(2)	2
Employees on Payroll at end of month	7 861	1 895	5 966

Employees on Payroll at end of month	October	November
Manufacturing	3 349	3 366
Design and Construction	664	660
Municipal, Real Estate and General Services	671	680
Others	3 147	3 155
Total	7 831	7 861

Overtime Payments		
Weekly Paid Employees	$61 891	$64 687
Monthly Paid Employees	22 190 (1)	19 366 (2)
Total	$84 081	$84 053
Number of Changes in Salary Rates and Job Classifications	921	644
Gross Amount of Payroll		
Manufacturing	$1 230 426	$1 229 109
Design and Construction	254 557	251 639
Municipal, Real Estate and General Services	224 705	222 217
Others	1 039 238	1 048 628
Total	$2 748 926 (3)	$2 751 593 (4)
Annual Going Rate of Payrolls		
Manufacturing	$15 802 295	$15 737 898
Design and Construction	3 127 113	3 123 760
Municipal, Real Estate and General Services	2 815 211	2 844 755
Others	13 251 232	13 371 374
Total	$34 995 851	$35 077 787

Average Salary Rate Per Hour (5)	October			November		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	$2.073	$2.803	$2.206	$2.065	$2.803	$2.200
Design and Construction	1.610	2.872	2.099	1.620	2.881	2.107
Municipal, Real Estate and General Services	1.834	2.317	1.987	1.830	2.320	1.982
Others	1.711	2.626	1.931	1.717	2.628	1.936
Total	$1.878	$2.684	$2.067	$1.876	$2.687	$2.066

(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 September 1, 1950 to September 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 October 1, 1950 to October 31, 1950.

(3) Includes payment for the four (4) week period ended October 22, 1950 in the case of weekly paid employees. Also includes $22,625.33 retroactive payment applicable to month of September as a result of the General Wage and Salary Adjustment made effective September 18, 1950.

(4) 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.

(5) Includes shift differential and isolation pay. Excludes overtime premiums, commissions, suggestion awards, etc.

General Accounting Division

Employee Benefit Plans

Pension Plan	October	November
Number participating at beginning of month	6 509	6 495
New participants and transfers in	39	33
Removals and transfers out	(53)	(38)
Number participating at end of month	6 495	6 490
% of eligible employees participating	94.5%	94.5%

Employees Retired	November	Total to Date
Number	1	152 - a)
Aggregate Annual Pensions Including Supplemental Payments	$180	$37 163 - b)
Amount contributed by employees retired	$449	$22 887

(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*	October	November
Number participating at beginning of month	5 726	5 766
New participants and transfers in	95	175
Cancellations	(15)	(38)
Removals and transfers out	(40)	(32)
Number participating at end of month	5 766	5 871
% of eligible employees participating	77.7%	78.0%

*Statistics exclude 47 pensioners as of the end of October and as of the end of November who were granted lump sum pension settlements and who are paying premiums at Hanford Works.

Group Life Insurance Claims	November	Total to Date
Number of Claims	1	49
Amount of Insurance	$5 650	$247 827

Group Disability Insurance (1)	October	November
Personal Coverage		
Number participating at beginning of month	2	1
New participants and transfers in	-0-	-0-
Cancellations	1	-0-
Removals and transfers out	-0-	-0-
Number participating at end of month	1	1
Dependent Coverage		
Number participating at beginning of month	1	-0-
Additions and transfers in	-0-	-0-
Cancellations	1	-0-
Removals and transfers out	-0-	-0-
Number participating at end of month	-0-	-0-

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Employee Benefit Plans (continued) Group Disability Insurance (1) (continued)	October	November
Claims (2)		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	2	-0-
Daily Hospital Expense Benefits	8	-0-
Special Hospital Services	6	-0-
Surgical Operations Benefits	6	-0-
Dependent Benefits Paid		
Daily Hospital Expense Benefits	-0-	-0-
Special Hospital Services	-0-	1
Amount of claims paid by insurance company:		
Employee Benefits	$ 697	-0-
Dependent Benefits	-0-	$ 8
Total	$ 697	$ 8
Premiums		
Personal - Employee Portion	$ 2	$ 2
- Company Portion	1	1
- Total	$ 3	$ 3

(1) Group Disability Insurance Plan was discontinued November 30, 1949. October and November statistics cover employees absent with continuous service who are participating in the Group Disability Plan. They were not actively at work on December 1, 1949, and therefore were not eligible to participate in the new Group Health Insurance Plan.

(2) Statistics are for claims paid during the month and do not necessarily indicate that claims were incurred during the month.

Group Health Insurance (1)	October	November
Personal Coverage		
Number participating at beginning of month	7 093	7 154
New participants and transfers in	137	110
Cancellations	(4)	(1)
Removals and transfers out	(72)	(71)
Number participating at end of month	7 154	7 192
% of eligible employees participating	95.2%	95.2%
Dependent Coverage		
Number participating at beginning of month	4 694	4 748
Additions and transfers in	97	61
Cancellations	(10)	(4)
Removals and transfers out	(33)	(31)
Number participating at end of month	4 748	4 774

Employee Benefit Plans (continued)

Group Health Insurance (1) (continued)	October	November
Claims (2)		
Number of claims paid by insurance company:		
Employee benefits		
Weekly Sickness and Accident	61	61
Daily Hospital Expense Benefits	136	123
Special Hospital Services	165	137
Surgical Operations Benefits	124	91
Dependent Benefits Paid		
Daily Hospital Expense Benefits	200	146
Special Hospital Services	246	177
Surgical Operations Benefits	222	135
Amount of claims paid by insurance company:		
Employee Benefits	$19 946	$18 763
Dependent Benefits	29 297	18 043
Total	$49 243	$36 806
Premiums		
Personal - Employee Portion	$15 382	$ 105
- Company Portion	7 413 (3)	51 (3)
- Total	$22 795	$ 156
Dependent - Employee Portion	$13 280	$ 53
- Company Portion	10 577 (3)	42 (3)
- Total	$23 857	$ 95
Grand Total	$46 652	$ 251

(1) Group Health Insurance Plan was made effective December 1, 1949 and was discontinued on November 30, 1950. Premiums collected during November cover back collections and contributions by employees on leave of absence who are not eligible to participate in the new G. E. Group Insurance Plan until they return to work.
(2) Statistics cover only claims paid and not all claims incurred during the month.
(3) Gross company cost before dividend.

Vacation Plan

Number of employees granted permission to defer one week of their 1950 vacation to 1951

	November			Total to Date		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	1	6	7	137	61	198-a)
Design and Construction	1	7	8	19	33	52
Municipal, Real Estate and General Services	3	5	8	32	31	63
Technical	0	12	12	25	47	72-b)
Health Instrument	0	0	0	4	2	6
Employee & Community Relations	1	0	1	5	5	10
Plant Security & Services	0	3	3	85	27	112-b)
Purchasing & Stores	1	0	1	22	8	30
Medical	5	1	6	12	4	16-b)
General Accounting	1	1	2	12	4	16
General Administrative	0	0	0	0	1	1
Total	13	35	48	353	223	576

(a - Total to date reduced by 2 cancellations
(b - Total to date reduced by 1 cancellation

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Employee Benefit Plans (continued)

U. S. Savings Bonds

	Mfg.	D&C	Municipal, Real Estate & General Services	Other	Total
Number participating at beginning of month	1 672	255	293	1 374	3 594
New authorizations	21	3	4	29	57
Voluntary cancellations	(27)	(3)	(8)	(25)	(63)
Removals and transfers out	(5)	(8)	(2)	(12)	(27)
Transfers in	7	1	1	2	11
Number participating at end of month	1 668	248	288	1 368	3 572
% Participating	49.6%	37.6%	42.4%	43.4%	45.4%
Bonds issued					
Maturity Value	$99 825	$14 225	$16 825	$77 350	$208 225
Number	1 753	248	292	1 348	3 641
Refunds issued	25	5	5	25	60
Revisions in authorizations	13	6	7	21	47
Annual going rate of deductions					
G.E. Employees Savings and Stock Bonus Plan	$690 979	$101 908	$110 625	$539 813	$1 443 325
G.E. Savings Plan	222 171	29 732	36 677	157 512	446 092
Total	$913 150	$131 640	$147 302	$697 325	$1 889 417

Annuity Certificates (For duPont Service)

	November	Total to Date
Number issued	1	74

Suggestion Awards

	November	Total to Date
Number of awards	29	787
Total amount of awards	$ 325	$12 575

Employee Sales Plan

	November		
	Major Appliances	Traffic Appliances	Total
Certificates Issued	44	917	961
Certificates Voided	3	22	25

Salary Checks Deposited

	October		November	
	Weekly	Monthly	Weekly	Monthly
Richland Branch - Seattle First National Bank	721	856	731	855
North Richland Area Office - Seattle First National Bank	10	7	12	7
Richland Branch - National Bank of Commerce	164	140	182	152
Out of state banks (Schenectady Staff)	--	2	--	1
Total	895*	1 005	925**	1 015

*Week Ended 10-28-50
**Week Ended 11-26-50

Special Absence Allowance Requests

	October	November
Number submitted to Pension Board	6	7

Absenteeism (Weekly Paid Employees)

	1949	1950
January 1 to November 19	2.32%	2.35%

General Accounting Division

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING

Number of Employees	October	November
On Payroll at beginning of month	178	177
Removals and transfers out	(7)	(3)
Additions and transfers in	6	8
Number at end of month	177	182
Net increase (or decrease) during month	(1)	5
% of terminations and transfers out	3.9%	1.7%
% of absenteeism	3.39%	3.57%

Changes by division in number of Accounting Division employees during November were as follows:

General: No change

One transfer from Weekly Payroll
One termination

Accounts Payable: Increase of one employee

One new hire

Cost: No change

General Accounts: Increase of one employee

One new hire

Plant Accounting: Increase of one employee

One new hire

Weekly Payroll: No change

Two new hires
One transfer from Monthly Payroll
One transfer to Monthly Payroll
One transfer to General
One transfer to Employee and Community Relations Division

Monthly Payroll: Increase of one employee

Two new hires
One transfer from Weekly Payroll
One transfer to Weekly Payroll
One transfer to Manufacturing Transportation Division

Special Assignments: No change

Budgets: No change

Internal Audit: Increase of one employee

One new hire

PERSONNEL AND ORGANIZATION - GENERAL ACCOUNTING (continued)

Injuries	October	November
Major	-0-	-0-
Sub-major	-0-	-0-
Minor	-0-	-0-

Number of Accounting Division employees as of November 30, 1950 were as follows:

	Number of Employees		
	Non-Exempt	Exempt	Total
General	3	3	6
Accounts Payable	13	1	14
Cost	13	1	14
General Accounting	17	1	18
Plant Accounting	20	2	22
Weekly Payroll	65	6	71
Monthly Payroll	16	2	18
Special Assignments	2	3	5
Budgets	5	1	6
Internal Audit	1	7	8
Total	155	27	182

Non-exempt employees may be summarized as follows:

	Number as of	
Classification	10-31-50	11-30-50
Accounting A	1	1
Accounting B	0	1
Accounting C	5	5
Accounting D	5	6
Business Graduate	15	15
Clerical Working Leader	4	5
Cost Clerk A	1	1
Cost Clerk B	1	1
Cost Clerk C	1	1
Cost Clerk D	2	1
Field Clerk C	1	2
General Clerk A	21	20
General Clerk B	42	44
General Clerk C	15	17
General Clerk D	8	8
General Clerk E	1	1
Office Machine Operator A	8	8
Office Machine Operator B	5	5
Secretary B	1	1
Steno-Typist A	2	2
Steno-Typist B	7	5
Steno-Typist C	4	4
Steno-Typist D	1	1
Total	152	155

Open employment requests as of November 30, 1950 were as follows:

Accounting C	1
Accounting D	2
Business Graduate	6
General Clerk B	2
General Clerk C	4
Steno-Typist B	1
Total	16

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General Accounting Division

	October	November
Accounts Payable*		
Balance at Beginning of Month	$ 63 834	$ 57 890
Vouchers Entered	1 125 367	1 060 108
Cash Disbursements	1 135 278	1 036 632
Cash Receipts	3 967	151
Balance at end of month	$ 57 890	$ 81 517
Number of Vouchers Entered	1 981	2 216
Number of Checks Issued	1 173	1 230
Number of Freight Bills Paid	282	392
Amount of Freight Bills Paid	$ 3 699	$ 6 290
Number of Purchase Orders Received	910	1 108
Value of Purchase Orders Received	202 805	329 034
Cash Disbursements		
Municipal, Real Estate & General Services	$ 130 483	$ 103 607
Design & Construction	3 355 449	3 338 484
General	3 211 749	3 178 686
Manufacturing	896 624	927 693
Total	$7 594 305	$7 548 470
Material and Freight	$1 419 222	$1 501 626
Lump Sum and Unit Price Subcontracts	332 015	205 690
CPFF Subcontracts		
Labor	2 223 455	2 193 826
Others	483 306	620 810
Payrolls (Net)	1 918 808	1 940 639
Payroll Taxes	429 088	365 422
U. S. Savings Bonds	147 763	171 415
General & Administrative Expenses	200 000	200 000
Travel Advance Bank Account	-0-	30 000
Advances to Subcontractors (Kellex Corp.)	100 000	-0-
Miscellaneous	340 648	274 042
Total	$7 594 305	$7 548 470
Cash Receipts		
Municipal, Real Estate & General Services	$ 135 292	$ 118 845
Design & Construction	35 385	45 555
General	7 094 898	9 221 770
Manufacturing	11 732	10 528
Total	$7 277 307	$9 396 698

* General Divisions Only

General Accounting Division

	October	November
Detail of Cash Receipts		
Advances from AEC	$6 943 583	$9 161 210
Rents	125 858	118 819
Hospital	50 785	39 350
Telephone	15 812	15 784
Scrap Sales	13 745	14 205
Bus Fares	10 299	9 726
Miscellaneous Accounts Receivable	9 739	4 451
Refunds from Vendors	5 985	2 297
Employee Sales	506	553
Educational Program	2 678	514
Income from Special Funds	63 066	-0-
All Other	35 251	29 789
Total	$7 277 307	$9 396 698
Number of Checks Written		
Municipal, Real Estate & General Services	231	194
Design & Construction	398	534
General	1 173	1 230
Manufacturing	720	678
Total	2 522	2 636
Bank Balances at End of Month		
Chemical Bank & Trust Company - New York		
Contract Account	$1 684 083	$1 943 045
Seattle First National Bank - Richland		
Contract Account	1 402 195	2 795 654
U. S. Savings Bond Account	185 703	72 633
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
Travel Advance Account	20 660	45 105
Seattle First National Bank - Seattle		
Escrow Account	57 496	57 496
National Bank of Commerce - Richland		
Contract Account - Manufacturing	203 376	372 307
Contract Account - Municipal, Real Estate & General Services	19 517	46 393
Total	$3 623 030	$5 382 633
Travel Advances and Expense Accounts		
Cash Advance balance at end of month*	$ 25 992	$ 29 623
Cash Advance balance outstanding over one month*	1 231	1 102
Traveling and Living Expenses:		
Paid Employees	20 072	24 071
Billed to Government	17 376	22 038
Balance in Variation account at end of month	8 832 Dr.	10 866 Dr.

* General Divisions Only.

General Accounting Division

Hospital Accounting	October	November
Accounts Receivable		
Balance at Beginning of Month	$ 118 771	$ 111 177
Invoices Issued	51 066	52 673
Refunds	795	347
Cash Receipts	50 785 Cr.	39 349 Cr
Payroll Deductions	8 554 Cr.	6 661 Cr
Bad Debts Written Off	47 Cr.	-0-
Adjustments	69 Cr.	76
Balance at End of Month	$ 111 177	$ 118 263

Scrap Sales	Total to Date	November
(a) Number of Sales	272	15
(b) Revenue (Not including Sales Tax)		
Revenue to G.E.	$ 278 377	$ 14 205
Revenue to AEC (Sale of Tract Houses)	38 958	4 372
Total Revenue	$ 317 335	$ 18 577

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General Accounting Division

ACCOUNTS PAYABLE

The number of vouchers booked in November increased 12% over October and exceeded the number booked in any one month since March 1949. The 2,216 vouchers booked in November amounted to $1,060,108 as compared to 1,981 in October amounting to $1,125,367.

The number of checks issued also increased over October, as indicated below:

	November	October
Chemical Bank & Trust Company	441	403
Seattle First National Bank	789	770
Total	1,230	1,173

A total of 2,080 vouchers were paid in November, averaging 1.69 vouchers per check, the same average as in October.

On November 30 there were 1,388 vouchers on hand requiring additional supporting data before they could be forwarded to A.E.C. for final audit. Details are as follows:

	November	October
Number on hand - Paid	270	249
Number on hand - Unpaid	1,118	946
Total	1,388	1,195

Of the 270 paid vouchers on hand, only 10 were more than 90 days old.

The number of freight bills paid is still increasing. There were 392 freight bills paid in November as compared with 282 in October. The number of freight bills paid every month for the last five months has been greater than the preceding month.

General Ledger Accounts Payable balance on November 30 was $81,517.05, a considerable increase from October due to the increased volume in number of vouchers processed. Details of this balance by months, compared with October, are as follows:

	November	October
July	$ -	$ 23.60 Dr.
August	1 343.77 Dr.	1 125.97 Dr.
September	13.10 Dr.	1 091.25
October	1 425.42	57 948.80
November	81 448.50	-
Total	$81 517.05	$57 890.48

New purchase orders issued in November pertaining to General Divisions also increased over October, both in number and dollar amount. Indications are that this increase will continue.

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ACCOUNTS PAYABLE (CONTD.)

A revision was made in the procedure of processing Bills of Lading received from vendors for transmittal to the Traffic Section of Purchasing Division. This change in procedure results in the Bills of Lading being received by Traffic Section anywhere from one day to two weeks sooner than under the old procedure.

BUDGETARY CONTROL

During the forepart of the month effort was concentrated on completion of the quarterly budget review. Revised budget estimates were completed and submitted to the AEC for operating costs of Kadlec Hospital, Research and Development, P-10 Program and Graphite Storage. These estimates were accompanied by narrative justifications compiled from information furnished by division heads, Revised budget estimates were also submitted for Cash Working Capital, Inventories and Operating Equipment. The following supplemental schedules were prepared on inventories: Inventory Held in Standby (Spare Parts), Excess Inventory and Inventory Held for Possible Future Use.

In addition to completion of revised estimates for submittal to the AEC, considerable time was spent on completion of statistical information in connection with the budget review. Allocations of personnel were reviewed and summarized and working schedules reflected estimated personnel together with monetary amounts estimated to be charged to other divisions on the basis of services rendered.

Operating cost reports for the month of November will include budget amounts determined by this quarterly review. The work of entering these amounts on cost working papers is progressing.

Comparative schedules are being prepared for Research and Development programs and on completion will be forwarded to division heads. These schedules point out significant differences between amounts developed in the quarterly budget review and amounts of present Research and Development Authorizations.

COST

General Divisions' Operating Reports for the month of October were issued on November 16, 1950, and detailed reports of Research and Development Costs were issued on November 22, 1950.

A letter was issued on November 22, 1950, to each General Division Manager analyzing major changes in costs from the previous month. Comparison was also made to the October budget and reasons for any differences were explained. Letters to the Health Instrument and Technical Divisions included analyses of costs of their Research and Development Programs. Copies of these letters were given to the AEC Finance Section for their use in preparing monthly cost comparisons and analyses.

General Accounting Division

COST (CONTD.)

Considerable time was spent in connection with establishing bases for standard and unit costs and recommendations were submitted for review. Additional work is currently in progress to determine actual dollar value of the units to be established. In order to avoid charging Design & Constructions Divisions for overhead of a fixed nature, it will be necessary to establish two units of cost for divisions currently liquidated on the basis of applied labor, i.e., one for Design & Construction and one for all other divisions.

A survey was made of 101 Area costs to determine amount of savings which would result if the storage of graphite in this area was discontinued. A report covering the findings was submitted on November 16, 1950.

At the request of the Atomic Energy Commission a new cost code was established to cover cost of work to be performed at their request in connection with surveys made by the U.S. Public Health Service. Such costs will be accumulated and back charged to the AEC monthly. For the most part, this work has already been scheduled by the Health Instrument Division.

GENERAL ACCOUNTS

General Ledger Trial Balances were received from all Accounting Divisions by November 15, 1950. Hanford Works Financial Statements and Consolidated Financial Statements were completed on November 20 and 24, respectively.

The Consolidated Inventories report issued this month incorporated several revisions. Complete information in connection with each inventory and individual captions within each account relative to Purchases, Transfers to and From AEC, Tranfers to and from Other Accounts, Transfers within Inventory Accounts, Stores Issues, and Adjustments is presented in this revised report.

The Consolidated Construction Work in Progress Report was revised in order that projects and work orders completed during current month could be distinguished from those previously completed. The Completed Project pages of the report were broken down to show projects and work orders transferred to Property in Service and those transferred to costs.

The General Accounting Division issued 1 230 contract checks this month amounting to $3 175 686, reflecting a decrease of $33 063 in expenditures as compared with last month.

General Accounting Division

GENERAL ACCOUNTS (CONTD.)

Advances from AEC were increased from $4 000 000 to $6 000 000 as of the month's end. The balance of the Advance as of November 30, 1950 may be compared with that of October 31, 1950 as follows:

	November	October
Cash in Bank - Contract Accounts	$5 157 399	$3 309 171
Cash in Transit	282 982	161 210
Expenditures Disallowed by AEC	9 619	9 619
Cash in Bank - Salary Accounts	50 000	50 000
Travel Advance Funds	100 000	70 000
Advances to Subcontractors	400 000	400 000
Total	$6 000 000	$4 000 000

The major reason for the increase in the Advance Account was due to the fact that provision was made for estimated cash disbursements of $9 000 000 whereas actual disbursements were only $7 282 982.

The balance of Accounts Receivable - Miscellaneous increased this month from $2 791 to $7 278. This increase results principally from billing Bendix Corporation for prepaid freight on material purchased from Excess. The balance of this account may be summarized as follows:

Bendix Corporation (Prepaid freight)	$ 3 549
Freight Claims	2 135
Transportation Refunds	988
Other	606
Total	$ 7 278

Due to continued increase in travel expense, Travel Advance Funds were increased $30 000 this month. A total of $100 000 has now been established in the Travel Advance bank account.

This section continues to process approximately 100 Travel Expense Reports each month. Employees were reimbursed for $15 110, whereas reimbursement was received from the AEC in the amount of $14 543, and the balance of $567 was charged to the Travel and Living Expense Variation Account. The balance of Travel Advances to Employees increased from $25 992 to $29 623.

The Travel and Living Expense Variation Account has been charged Fiscal Year to Date with $10 866 (All Divisions). This represents an increase this month of $2 033, of which $246 was entertainment expenses and $1 787 the difference between expenses incurred by employees and reimbursement received from the AEC.

Memorandum Billings were received from Knolls Atomic Power Laboratory covering Engineering and Consulting Laboratory Assistance to Hanford in the amount of $163 336, KAPL Assistance to Hanford of $2 976, and Research Laboratory Assistance to $672.

General Accounting Division

INTERNAL AUDITING

Audit of revenue controls for Area and Village Bus Operations was begun in November. The purpose of the audit is to determine the effectiveness of the records, routines, and procedures in connection with collection, handling, safeguarding, and accountability of cash.

During the month an audit of Business and Occupation Tax payments to the State of Washington since September 1, 1946 to date was begun. The purpose of the audit is (1) to establish total amount taxable, (2) to determine that all allowable deductions have been taken in accordance with the Washington State Tax Laws applicable to Hanford Works, (3) to verify in detail the accuracy of all calculations and computations made in connection with taxes reported, and (4) to establish a more adequate system for the accumulation of data used to prepare the tax return.

Work was continued during the month on two assignments, Audit of Receiving and Shipping and Audit of Hanford Works Timekeeping.

Audit Report covering Mail Distribution was issued during the month. Audit of Excess Materials has been completed and report will be issued in the next few days.

MEDICAL ACCOUNTING

The balance in Accounts Receivable increased $7,086 during the month; from $111,177 in October to $118,263 in November. This was due primarily to a decrease in cash receipts of $11,436. The decrease in cash is due to assigned insurance claims, made by General Electric Employees on the Metropolitan Insurance Company for hospitalization, not being paid on schedule.

Out-patient invoices totaled 2,136 and amounted to $9,296 in November as compared to 2,029 amounting to $10,440 in October. This represented an increase of 107 invoices and a decrease of $1,144.

In-patient revenue increased $2,750 over October due to the increased adult patient-day census from 75.2 in October to 80.6 in November.

A total of 37 claims in the amount of $869 was submitted to Fort Lewis for services rendered military personnel. Reimbursement on 28 claims totaling $408 on prior months' billings was received during the month from Fort Lewis.

Blue Cross Insurance claims paid during the month totaled 24 and amounted to $1,383.

MEDICAL ACCOUNTING (CONTD.)

Listed below is a summary of accounts submitted to date to Yakima Adjustment Service for collection:

	Number	Amount
Accounts Submitted	157	$28,458
Accounts Returned as Uncollectible	13	4,620
Collections by Yakima Adjustment Service	33*	1,430
Collections on Accounts Recalled (10% basis)	10	1,589
Accounts at Yakima Adjustment as of 11/30/50	117	20,819

*Includes 17 accounts collected in full and 16 accounts partially collected.

Studies in connection with cost of maintaining first aid stations and costs of physical examinations and other services rendered by Industrial Medical neared completion this month. This information will be used in making assessments to other divisions on a standard basis.

PLANT ACCOUNTING

Based on experience gained in the first full year of operation under the present Plant Accounting procedures, the Property Accounting Manual issued by the AEC has been revised. Although no basic changes were incorporated, the revision has made necessary the issuance of a new Property Record Unit Catalog. Some reclassification of equipment within the Plant Accounts was necessary in order to comply with the revised Manual and entries were prepared and processed accordingly.

At the request of the Accountant, Municipal, Real Estate, and General Services Divisions, a study of the depreciation rate for the Central Steam Plant was undertaken. After due consideration, it was determined that the present rate (5%) was, in the best judgment of those consulted, proper and no revision was recommended.

Recent discussions on the Unit of Property "Agitators and Mixers" resulted in extensive study on the advisability of capitalizing or charging Costs with the replacement of these units located in the 200 Areas. It has been agreed, by those questioning the treatment of agitators and mixers, that the procedure as outlined by the Atomic Energy Commission in the Property Accounting Manual be followed and that the replacement of these units be recorded as Additions or Retirements. A review of Work Orders charging Costs for similar replacements is under way and correcting entries will be made to relieve Operating Costs of these charges.

General Accounting Division

PAYROLLS

During the month of November there were 100 removals from payroll, including 6 removals due to lack of work and 2 transfers to other units of the Company. There were 130 additions to the payroll, including 1 transfer from another unit of the Company. The result is a net increase of 30 employees on the payroll.

* * * * * * * *

Permission to defer one week of their 1950 vacations until 1951 was granted by Division Managers to 13 Weekly Paid employees and 35 Monthly Paid employees. To date, permission to defer one week of 1950 vacations until 1951 has been granted to 353 Weekly Paid employees and 223 Monthly Paid employees.

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During the month of November, charts of Employee and Payroll statistics were extended on a current basis for use of Management.

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In November, a total of 6,175 items were submitted to Weekly Payroll Division for deduction from salaries of weekly paid employees for rent and telephone charges as follows:

House Rent	3,203
Dormitory Rent	640
Trailer Space Rent	91
Barracks Rent	24
Telephone Accounts	2,217
	6,175

* * * * * * * * *

There were two cases of lost salary checks not re-issued at October 31, 1950 and one salary check was reported lost during November. One of the checks was found by the employee and, in the other two cases, duplicate checks were issued in November leaving no open cases of lost salary checks at November 30, 1950.

* * * * * * * * *

One garnishment served on the Company had not been dismissed at October 31, 1950. Four garnishments were served on the Company in November. Three of these cases were dismissed by Court Order in November, two without payment to the Court and one with payment to the Court. Two cases were pending at November 30, 1950.

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During November, preferential rates were eliminated in 16 instances where employees were transferred or reclassified. As of November 30, 1950 there were approximately 1,234 employees with preferential rates.

* * * * * * * * *

Authorizations for deductions from payroll for the purchase of safety shoes were received from 195 employees in November.

General Accounting Division

PAYROLLS (Continued)

Approximately 700 man hours were expended in connection with a special payroll analysis.

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Thanksgiving Day, November 23, 1950, was an observed holiday at Hanford Works and weekly salary checks for employees of the outer areas for the week ended November 19, 1950 were delivered to the areas on Wednesday, November 22, 1950, instead of on Thursday, November 23, 1950. Salary checks for employees in Richland, North Richland and Pasco were delivered to the division representatives in the usual manner on Friday, November 24, 1950. No overtime work was necessary for preparation of the payroll during this short work week.

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As of November 30, 1950, there were 79 employees who left the Company to enter the Armed Forces of the United States as follows:

	Called To Duty	Volunteered	Total
Reserve Officers	2	2	4
Enlisted Reserves	20	2	22
National Guard	0	0	0
Selective Service	13	40	53
Total	35	44	79

The above statistics include 20 employees who entered the Armed Forces prior to July 1, 1950.

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New authorization cards for check-off of Union Dues were received by Weekly Payroll Division for 51 employee members of seven unions affiliated with Hanford Atomic Metal Trades Council, as follows:

Union	Number
International Union of Operating Engineers, Stationary Local No. 280	18
International Chemical Workers Union, Local 369	3
International Brotherhood of Teamsters, Warehousemen, Garage Employees and Helpers, Local 839	9
Building Service Employees International Union, Local 201	10
Instrument Craftsmen's Guild	6
United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, Local No. 598	1
Hanford Industrial Firemen, Local No. 37	4
Total	51

At November 30, 1950 check-off of union dues was in effect for 683 employee members of 14 unions affiliated with H.A.M.T.C.

General Accounting Division

PAYROLLS (Continued)

There were 16 authorization cards for check-off of Union Dues received by Weekly Payroll for employee members of the Building Service Employees International Union, Local 201. The initial deductions were made from employee members' salaries which were paid on November 3, 1950.

During the period of March 1950 through Dec.1950, union dues amounting to $12,434.50 were collected under the check-off procedure from employee members of unions affiliated with Hanford Atomic Metal Trades Council. During the same period H.A.M.T.C. was billed $168.06 covering Company cost of collecting union dues by Payroll deduction, which is 1.3% of the dues collected.

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Approximately 145,787 items were addressographed during November in addition to regular routine addressograph work. This represents an increase of 39,355 items (37%) over the month of October.

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Under the Group Health Insurance Plan, 451 claims for benefits by employees were forwarded to Metropolitan Life Insurance Company during the month of November and 729 checks amounting to $36,814 were received from the Insurance Company covering payment of 490 claims submitted by employees for benefits under the Plan.

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U. S. Savings Bonds having a maturity value of $44,150 were withdrawn from the General Electric Employees Savings and Stock Bonus Plan during November by 147 participating employees. There were 877 savings bonds withdrawn by employees.

U. S. Savings Bonds and Custody Receipts covering purchases by employees through Payroll deductions in October were delivered to employees on November 17, 1950. There were 738 U. S. Savings Bonds and 2,576 Custody Receipts delivered.

As of November 30, 1950, 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 were as follows:

Percentage of Participation

	Mfg.	D&C	Municipal, Real Estate and General Services	Other	Total
G.E. Employee Savings and Stock Bonus Plan	44.8%	33.8%	37.6%	38.7%	40.8%
General Electric Savings Plan	12.0%	7.1%	9.7%	9.0%	10.2%
Both Plans	49.6%	37.6%	42.4%	43.4%	45.4%

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PAYROLLS (Continued)

Annual Going Rate of Deductions

	Mfg.	D&C	Municipal, Real Estate & General Services	Other	Total
G.E. Employees Savings & Stock Bonus Plan	$690,979	$101,908	$110,625	$539,813	$1,443,325
General Electric Savings Plan	222,171	29,732	36,677	157,512	446,092
Total	$913,150	$131,640	$147,302	$697,325	$1,889,417

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Data covering college graduates on the Hanford Works Payroll was forwarded to Schenectady in November for use in connection with the Company College Graduate Index.

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At the end of November, Bank Reconciliations were complete as follows:

1. Weekly Salary Payroll through Payroll No. 220 for the week ended November 12, 1950.
2. Weekly Salary Vacation Payroll through Payroll No. 220 for the week ended November 12, 1950.
3. Monthly Salary Payroll #50 for the month of October.
4. Bond account for October.

* * * * * * * * *

During the month of November, the following organization changes were effected in Weekly Payroll Division.

1. J. R. Cullen, Assistant Supervisor of Weekly Payroll, was appointed Supervisor of Weekly Payroll effective November 1, 1950 vice I. D. Behymer who transferred to Employee and Community Relations Division.
2. B. O. Wichmann was appointed Assistant Supervisor of Weekly Payroll effective November 6, 1950.

PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - NOVEMBER 1950

SUMMARY

There were no major injuries during the month. There have been four major injuries for the year to date with a frequency rate of 0.29.

There were four minor fires during the month with no loss involved.

Printing volume continued at a high rate - necessitating six-day operation during the month.

Office Methods Division activities accounted for an estimated annual savings of $4,200 of which $3,600 will be on a recurring annual basis.

Test firing of anti-aircraft weapons by the Army began on November 5.

1222578

PLANT SECURITY AND SERVICES DIVISIONS
MONTHLY REPORT - NOVEMBER 1950

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	3	3		
Patrol and Security	594	591		3 (a)
Safety & Fire Protection	139	138		1 (b)
Office Services (General Services, Clerical Services, Records Control and Office Methods)	231	233	2 (c)	
TOTALS	967	965	2	4

NET DECREASE: 2

(a) - Patrol and Security

2 - New Hires (Patrol)
1 - Transferred from Health Instrument Division (Patrol)
1 - Returned from Leave of Absence (Patrol)
1 - Transferred to General Accountability (Security)
1 - Transferred to General Services Patrol (Patrol)
2 - Removed from roll due to Illness (Patrol)
3 - Terminations (Patrol)

(b) - Safety and Fire Protection

4 - New Hires
1 - Rehire
1 - Transferred from "P" Division
4 - Transferred to other Divisions
3 - Terminations

(c) - General Services

1 - New Hire
1 - Transferred from other Divisions

Clerical Services

9 - New Hires
1 - Transferred from Records Control
1 - Transferred from Construction Services
7 - Transferred to other Divisions
3 - Terminations

1222579

Records Control

1 - Transferred to Clerical Services Section
1 - Transferred to Design Division
1 - Termination

Office Methods

1 - Technical Graduate transferred from Power Division

SAFETY AND FIRE PROTECTION

Injury Statistics

Days since last major injury	44
Accumulated Exposure Hours since last major injury	1,881,656
Major injury Frequency Rate (1-1-44 through 11-30-50)	0.79

	October	November	Year to Date
Major Injuries	2	0	4
Sub-Major Injuries	3	1	25
Minor Injuries	284	284	3,422
Exposure Hours	1,339,508	1,276,730	13,805,543
Major Injury Frequency Rate	1.49	0.0	0.29
Major Injury Severity Rate	0.009	0.0	0.002
Minor Injury Frequency Rate	2.12	2.22	2.48

Sub-Major Injury No. 190

At approximately 8:55 A.M., on November 6, an employee of the Transportation Division working in the 1100 Area received an abrasion of the web between the left thumb and index finger when it was caught between the top adjustment bracket of an alternator type generator and the intake air duct on a 1950 Chevrolet Patrol sedan. Although the injury was treated within ten minutes after occurrence, the wound was found to be infected the following day.

Safety Activities

The near serious accident caused by the falling of deaerator tank No. 8 in the 100-F Area while it was being lowered by a sub-contractor was investigated by an Area Investigating Committee.

The 100-B Area reached the One-Year-Without-a-Major-Injury mark on October 29, 1950.

The third Annual Maintenance Safety Derby will start on December 1. This valuable contribution to safety is being given plantwide publicity.

All employees eligible have been given their choice of Safety Award gifts.

Distribution of Area No-Lost-Time-Injury Pin awards for qualified areas continues.

Plant Security and Services Divisions

Safety Activities (Contin.)

One Safety Engineer is attending special Redox training program at the invitation of the "S" Division.

Safety Limerick Contest plans were completed for the 100-F Area "P" Division.

A partial inspection for the acceptance of Building 108-F was conducted. Coordinated activities of the Safety Division and the Health Instrument Division on instructions for safe laboratory practices in this building were agreed upon.

Fire Protection Activities

Fire protection surveys were completed for Buildings 183-B, 283-E, 3713 and 3722 during the month.

A fire protection water supply survey for 100-B Area was completed during the month.

The central fire alarm panel in 100-F Area was moved from the Maintenance Shop to Patrol Headquarters and battery voltage was increased from 48 to 72 volts.

Arrangements were made with Project Engineering Division to install adapter in the 190 Buildings in 100-F, 100-D and 100-B areas so water will be available to the Sub-Contractors, removing the large tanks above the building during the winter months.

Twenty supervisor trainees were given instruction in area fire procedures and practices.

After failure of two 1-quart vaporizing liquid fire extinguishers at a fire, a representative number of new extinguishers in Stores Stock of the same manufacture were tested. Over 35% of the new extinguishers failed. The design of these extinguishers was found to be at fault. A complete field check of vaporizing liquid extinguishers is to be completed as quickly as possible. Defective extinguishers are being removed and the rack left empty. As soon as replacements can be obtained the new extinguishers will be installed.

A survey of Building TC-50 was made at the request of Design and Construction and recommendations submitted.

Industrial Fires

Division	Area	No of Fires	Cause		Loss
Maintenance	100-B	1	Welding		None
Transportation	Outer	1	Hot cinders blowing		None
	Total	2		Total	None

Industrial Investigations

Technical	200-West	1	Electrical		None
Maintenance	200-West	1	Welding		None
	Total	2		Total	None
TOTAL INDUSTRIAL FIRES		4		TOTAL LOSS	NONE

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Plant Security and Services Divisions

OFFICE SERVICES DIVISIONS

General Services

Plant Laundry (Building 2723)

	October	November
Coveralls - Pieces	31,029	30,767
Towels - Pieces	7,397	7,157
Miscellaneous - Pieces	78,053	78,547
Total Pieces	116,479	116,471
Total Dry Weight - Lbs.	159,797	159,345

Richland Laundry (Building 723)

Flatwork - Pieces	53,242 Lbs.	48,463 Lbs.
Rough Dry - Pieces	17,374 "	16,366 "
Finished - Pieces	2,291 "	2,143 "
Total Pieces	95,508	87,733 Pieces *
Total Dry Weight - Lbs.	72,907	66,972

Monitoring Section (2723 Laundry)

Poppy Check - Pieces	87,037	96,950
Scaler Check - Pieces	121,621	122,491
Total Pieces	208,658	219,441

* Estimated Pieces.

Clerical Services

Mail Room Section

	October	November
Pieces of internal mail handled	523,324	560,965
Pieces of postal mail handled	72,502	79,594
Pieces of registered mail handled	1,017	1,206
Pieces of insured mail handled	336	289
Pieces of special delivery mail handled	286	306
Total mail handled	597,347	642,360
Total amount of postage used	$ 1,743.67	$ 2,543.95
Total teletypes handled	5,549	4,641

1222582

Plant Security and Services Divisions

Office Equipment Section

C. C. Jones was appointed Supervisor of the Office Equipment Section to replace D. E. Haley who terminated November 30, 1950, and K. C. Carver was appointed Shop Foreman.

A meeting was held with the Remington typewriter people in regard to the unsatisfactory performance of their machines and arrangements were completed for the return of these machines. The Remington people will either repair the returned machines or supply new ones in their stead. If, at that time, the machines are still not satisfactory, they will be returned and credit will be given.

Delivery on outstanding orders for chairs, tables, desks, etc. is now promised for January 15, 1951.

Printing Section

Printing volume continued to be high enough to require six-day operation.

	October	November
Multilith Orders received	287	265
Multilith Orders Completed	261	297
Multilith Orders on hand	110	78
Stencil and fluid duplicating orders received	1,091	992
Stencil and fluid duplicating orders completed	1,098	967
Stencil and fluid duplicating orders on hand	33	58

Stenographic Services Section

Arrangements have been made with the Cost Division that any overtime worked by stenographers on loan is being charged direct to the Division and not shown on our cost statement.

	October	Hours	November
Dictation and Transcription	:00		:00
Machine Transcription	13:20		26:20
Letters	81:10		85:55
Manual and Procedures	276:00		132:30
Duplicating--Stencils, Ditto	286:15		426:00
Special	623:00		283:55
Training	383:25		320:00
Unassigned time during the month	100:30		54:35
Meeting Time	12:00		24:00
Holiday and Vacation	:00		104:00
Absentee	:00		16:00
TOTAL	1,773:10		1,473:15
Employees loaned to other divisions	937:50		1,144:15
TOTAL HOURS AVAILABLE	2,711:00		2,617:30

1222583

Plant Security and Services Divisions

Clerical Services General

Dormitory W-20 was reopened during the month and is now being used as office space by the Municipal, Real Estate and General Services Divisions.

Meetings were held with the Atomic Energy Commission Engineers and Architects on the new wing for Building 703. Final plans are to be submitted by December 15.

Records Control Division

Quantity of records received, processed and stored:

Accountability Section	1	Standard Storage Carton
Community Division	17	" " "
Design and Construction	67	" " "
Chas. T. Main - Subcontractor	4	" " "
Employee and Community Relations	20	" " "
Health Instrument Division	146	" " "
General Accounting Division	28	" " "
Instrument Division	1	" " "
Manufacturing Accounting Division	22	" " "
Medical Division	43	" " "
"P" Division	19	" " "
Plant Security and Services	21	" " "
Project Engineering	1	" " "
"S" Division	1	" " "
Stores Division	2	" " "
Technical Division	1	" " "
Transportation Division	12	" " "
TOTAL	406	Standard Storage Cartons

Records Services provided:	519
Records Cartons issued:	407
Records reboxed and processed:	198 Cartons

All records of General Electric Company subcontractors which were received in Oxford transfer cases have been reboxed and processed for storage.

All General Electric Company records have been reboxed with the exception of 1,239 boxes of Time Cards.

A procedure has been established with the Medical Division for their obtaining "Clinic-Out-Patient" records from the Records Service Center in emergency cases during off hours.

Plant Security and Services Divisions

Records Control (Contin.)

Unclassified records of Job 15 of the Subcontract G-148 with the Kellex Corporation will be inventoried in the Kellex New York Office after January 1, 1951, preparatory to having these records shipped to the General Electric Company in Richland. If it is determined there are records in the Kellex office of which we already have sufficient copies, permission will be granted Kellex to dispose of these duplications.

Progress on the Records Service Center, according to the last report, indicates that the contractor will finish the building by January 1. It is still questionable that the metal shelving will arrive in time to be erected by January 1, 1951.

Most all of the Record Flow Schedules have divisional approval and have been returned to the Records Control Division. There is still some question as to the manner or form of presentation of these schedules to the Atomic Energy Commission for approval. This is still being discussed by General Electric Company and the Atomic Energy Commission and may be determined by a new AEC Bulletin now being issued by the Atomic Energy Commission from Washington.

Office Methods Division

General Activities -

	October	November
Printing Orders reviewed	440	365
Printing orders cancelled	24	17
New numbers assigned	216	201
Forms redesigned	32	51

One redesigned form was reduced from 11 x 17 inches to 8½ x 11 inches. Another form, 11 x 19 inches, which was retyped twice each month and copies for distribution made by photostat, was reduced to two forms, one 8½ x 11 inches and one 5¼ x 11 inches, with only the 5¼ x 11 inch section having to be retyped and reproduced by ditto.

Four printing requests were reduced in quantity - three orders from 5,000 to 1,000 and one order from 10,000 to 1,000. Had the order for 10,000 been printed, it would have been a 12-year supply.

Six forms were designed to meet the needs of several divisions and have been placed in Stores Stock.

A survey of all forms used by Community Patrol has been completed. At the beginning of the survey there were 110 forms in use. As a result of the survey, active forms were reduced to 76, a reduction of 31%.

A requisition for the purchase of 550 die impressed mimeograph stencils was converted to a printing process now available on the plant. Die impressed stencils cost approximately 85 cents each as compared to five cents each for project prepared paper plates.

Total estimated savings created by the above activities was $4,200 of which $3,600 will be on a recurring annual basis.

1222585

Plant Security and Services Divisions

PATROL AND SECURITY

General

Effective November 1, the 221-U Badge House, 200-W Area, was discontinued. Construction completed a fence separating the 222-U Building and Annex (2707-D Building) from the 221-U Exclusion Area and making it a part of the Operations Area proper. Entrance to the 221-U Building and Annex will be via a fenced corridor from the Operations Area proper. Also, the north half of the 221-U Area was made a part of the Construction Area proper, and entrance will be gained through a fenced corridor built between the 222-U and 224-U Buildings. The south half of the 221-U Area, including the 221, 271 and 224-U Buildings, will remain a construction exclusion area, and entrance may be gained only through the 221-U Construction Badge house and vehicle gate.

On November 1, one patrolman was assigned to the intersection located just outside the 200-W Area main gate between the hours of 7:30 A.M. and 8:00 A.M. and again from 4:30 P. M. to 5:00 P.M. for the purpose of expediting traffic to and from the Construction Area through this intersection.

Beginning November 3, construction work began on the 241-U Tank Farm Tie-in Project. This project is located to the north of and adjacent to the present 241-U Tank Farm, 200-West Area. No additional patrol coverage was required.

A patrol post was established at the 190-D Building, 100-D Area, beginning November 3. The post provides escort service for sub-contractor personnel dismantling the deaerators.

Effective November 3, operation of the 100-DR badge house and vehicle gate was discontinued. The badge house was removed from the area, and the perimeter fence was replaced. At this time, the remaining necessary clearances for the 100-DR Water Construction Program were transferred to the 100-D Area Operations main badge house.

Security Patrol arrangements were established in each of the following areas and road blocks set up during the test firing of army anti-aircraft weapons as follows on November 5:

100-B Patrol car was dispatched to assist in blocking roads during designated firing time.

100-D A car was assigned on the Number 2 shift to act as a road block in the outer areas during the firing time.

100-F A road block was placed at the intersection of Route 2-N and the Sheep Ranch Road between the hours of 9:15 A.M. and 3:00 P.M.

200-E Route 4-S was blocked from the 200-E Area to Route 2-S during the firing time of the army weapons.

200-W One patrolman was assigned to man road block at the intersection of Route 4-N and Route 11-A during the test firing.

300 Two road blocks were set up for the army in connection with their activity.

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Plant Security and Services Divisions

Patrol and Security

General (Contin)

In the 200-W Area, the area fence located west of the new laundry building was moved back (west) from the building about a distance of thirty feet on November 7. This was necessary in order that a blacktop walk could be built around the building. A patrol escort was required for the moving of the fence.

Beginning November 7, the 303-K post, 300 Area, was discontinued on the Number 2 shift only.

A special traffic detail was established in conjunction with a traffic drive in the 100 Areas on November 10, with each of the areas assigning special details as follows:

100-B On both the Number 1 and 3 shifts, one patrol car with two men is assigned to leave the 100-B Area on Route 1 going to Route 4-N to Route 11-A and hence to the Yakima Barricade. Then the car returns on 11-A back to Route #6 and the 100-B Area to control the traffic, particularly during the hours of 7:00 A.M. to 8:00 A.M. and again from 4:00 P.M. to 5:00 P.M.

100-D The practice of assigning an outer area traffic car was begun on both the Number 1 and 3 shifts.

100-F A special detail of an outer area traffic car was established. This post is manned between the hours of 6:45 A.M. to 9:00 A.M.; 2:45 P.M. to 5:00 P.M. and 10:45 P.M. to 1:00 A.M.

100-H One outer area traffic car assigned covering all shift changes. This vehicle will patrol the road from 100-H through White Bluffs to the 100-F Area intersection and Route 2-N.

In order to augment traffic control, two patrolmen from the 200-W Area with radio patrol car were assigned from the MJ-1 Construction area to the Yakima Barricade via Routes #3 and 11-A between the hours of 7:00 A.M. to 8:00 A.M. and again from 4:00 P.M. to 5:00 P.M. on November 15.

Work on the 221-U Tank Farm Project, just north of the 221-U Building, 200-W Area, was started November 16.

Effective Friday, November 17, construction work was begun on the erection of a fence approximately one-half mile south of Patrol Headquarters, 200-W Area, to run from the 200-N east perimeter fence west to connect with the MJ-1 Corridor fence approximately one-half mile south of the 200-W Area First Aid Building. When completed, this fence will be the south perimeter fence for the 200-W Operations Area.

The Gamewell Fire Alarm System was installed in the 100-F Area Patrol Headquarters radio room on November 20,

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Plant Security and Services Divisions

Patrol

A total of 76 Unusual Incident Reports were prepared consisting mainly of security violations, lost badges, pencils, contraband picked up at the barricades, traffic accidents and fires.

A total of 669 "pat" searches were made of employees entering and leaving the areas.

Classified escorts between areas totalled 356 for November.

A total of 77 traffic escorts were handled.

Construction personnel escorts totalled 194.

Patrol operated the ambulance for the Medical Division on twelve occasions during the month.

Patrol answered one fire call.

A total of 257 service requests such as opening doors, gates, issuing keys, and burning classified scrap were handled.

Practice evacuations were held as follows:

200-E Area	11-6-50	9:05 P.M.
200-E	11-7-50	10:47 A.M.
200-E	11-9-50	3:23 A.M.
100-B	11-20-50	10:08 A.M.
100-D	11-21-50	10:07 A.M.
100-F	11-21-50	11:35 A.M.
100-H	11-27-50	2:29 A.M.

Practice blackout was held as follows:

100-H	11-10-50	9:20 P.M.

Mobilization Plan "A" was held as a practice as follows:

100-B	11-11-50	5:08 A.M.

Training

On November 9, all machine guns at the Range were dipped in light cosmoline and stored in the 100-H Area Arsenal.

All handguns and shoulder arms assigned to the Range and Arsenal were treated with heavy cosmoline and stored in the 100-H Area Aresenal on November 21. The minimum amount required for training purposes was left untreated.

The main building of the Training School was entered illegally during the evening of November 24. A system of guarding the entire Range was originated in addition to the present periodical check made by patrol cars.

Plant Security and Services Divisions

Patrol Training (Contin.)

A report incidental to the missing guns taken from the contraband room was submitted to the Commanding Officer of Battery "A" in order to promote a court martial procedure against the men who were found with the guns in their possession. This report was submitted November 24.

Advance training for Security Patrol members at the Small Arms Range for the eight weeks period - September 29, 1950 to November 22, 1950 inclusive - was divided into class instruction as follows:

Safety	3/4 hour
Health	1/4 hour
First Aid	1/2 hour
Security	1/2 hour
Health Instrument Division Lecture	1 1/2 hours
Machine Gun	3 hours
M-8	1 1/2 hours

The safety meeting included a film entitled "Highway Mania".

The Health talk included the topic "Inter-Personal Relationships".

The First Aid class included a review of digital pressure points, portion of the body affected by each pressure point, types of bleeding and methods of stopping bleeding other than applying pressure.

The security class included the topic "Job Philosophy".

The Health Instrument Lecture was on the scope of that Division's work and on radiation.

Practical application of the .30 caliber machine gun, assembling, loading, firing, clearing weapon of ammunition, disassembling mount and components and cleaning and oiling of weapon and components were handled in the machine gun instruction.

Instruction and practical application of the light armored car (M-8) and its entire armament were discussed in the "M-8" Class.

Security

There were 90 employees of the General Electric Company who received a "Q" orientation talk from representatives of the Security Division during the month of November.

There were 228 Security meetings held and attended by 3,095 General Electric employees during the month.

A representative of the Security Division showed the film "On Guard" at 40 meetings during the reporting period to 1,000 employees.

The following Security Bulletins were issued during the month:

Bulletin No. 57 "Don't be Guilty of Unfair Spying Practices"

Bulletin No. 58 "Security Violations"

Security (Contin.)

A poster entitled "Protect Your Country" was issued by J. Edgar Hoover, Director of the Federal Bureau of Investigation, and was posted in all the areas throughout the Plant, as well as in the village of Richland and North Richland.

A security slogan "Security Pays - and Every Day is Payday" was submitted to the Accounting Division. This slogan then appeared on the Monthly and Weekly payroll envelopes of General Electric personnel November 30.

Charles T. Main Company, design engineering contractor for the 100-DR Water Works, completed its local assignment on November 17, and submitted Security Termination Statements on local employees. The local management of this sub-contractor returned to its home office in Boston, Massachusetts.

All off-site classified sub-contractors were contacted during the reporting month relative to "Completion of Questionnaire forms by employees entering military services". Reference - Security Letter No. 12, dated October 27, 1950, issued by C. Shugg, Acting General Manager of the Atomic Energy Commission.

On November 10, contract G-341 was issued between the General Electric Company and the Barrett and Logan firm of Portland, Oregon. Security Questionnaire forms and other security clearance data were executed by key personnel of the firm.

During the month, a compilation of all inactive personnel clearances in plant exclusion areas was conducted. A Divisional listing was furnished each Division Manager on November 29 urging a careful review and removal of all non-essential clearances.

A survey was conducted during the month throughout all Divisions with reference to a reduction of the number of Top Secret clearances of General Electric personnel.

Security - Field Inspection Section

Effective November 1, an escort card record system was placed into effect in the 3000 Area.

A survey was conducted on November 6 concerning the possibility of eliminating the 305 badge house by combining the 303 and 305 Exclusion Areas. Such possibility was found to be feasible and practical when the roadways and walks are completed in the near future. The badge house will not be removed, however, in the event it may be needed in the future.

A meeting with Atomic Energy Commission personnel, the Atkinson and Jones Service Group and the Field Inspection Group was held November 7 regarding the 241-U Tank Farm job. Only "Q" cleared employees will be utilized. Arrangements were made for the establishment of a patrol post to control access.

On November 16 an inspection was made and approval granted on the new vault in the Engineers Building, MJ-1 Area, for storage of classified information.

Plant Security and Services Divisions

Security - Field Inspection Section (Contin.)

An agreement was made on November 20 concerning the proposed use of Room 152, 234-5 Building, 200-W Area, for Top Secret work with Patrol escort at all times. The actual work will average 2½ hours per day, five days per week for the next four to six weeks.

Among its activities, the Field Inspection Group changed the combination on eighteen files during the month, conducted nineteen investigations of unattended documents and eighty-three people were contacted regarding missing documents charged to their custody. As a result of these contacts for location of missing documents, ninety-five were located and accounted for.

Clearances

There were 33,704 badge transactions completed during November, including "A", "B", "C" and temporary type badges.

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HANFORD WORKS
General Electric Company
Richland, Washington

REPORT OF VISITORS FOR PERIOD ENDING NOVEMBER 30, 1950

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
ACCOUNTING DIVISION							
I. Visits to other Installations							
R. L. Warburton to: Knolls Atomic Power Lab. Schenectady, New York	Discuss accounting problems in connection with appraisal being conducted by Day & Zimmerman	R. Turner	11-28-50	12-5-50	X		
MEDICAL DIVISION							
I. Visitors to this Works							
S. T. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Medical consultation	W. D. Norwood P. A. Fuqua	11-10-50	11-11-50	X		
DESIGN AND CONSTRUCTION DIVISION							
I. Visitors to this Works							
D. H. Marquis General Eng. & Consulting Lab. Schenectady, New York	Consultation on 432 Project	G. Thayer C. T. Groswith	11-22-50	12-9-50	X	200-W	231 234, 235
C. W. George General Eng. & Consulting Lab. Schenectady, New York	Consultation on 432 Project	G. Thayer C. T. Groswith	11-22-50	12-9-50	X	200-W	231 234, 235

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
J. L. Matrone General Eng. & Consulting Lab. Schenectady, New York	Consultation on 432 Project	G. Thayer C. T. Groswith	11-22-50	12-19-50	X		200-W 231 234 235
N. H. Wood General Eng. & Consulting Lab. Schenectady, New York	Consultation on 432 Project and preliminary installation of Task III, 432 Project	G. Thayer	11-22-50	12-19-50	X		200-W 231 234 235
P. R. Matthews Knolls Atomic Power Laboratory Schenectady, New York	Consultation on shielding problems	R. T. Jaske R. L. Dickeman	11-7-50	11-10-50	X		300 3706 100-D 105
W. S. Dunning W. S. Dunning Company Seattle, Washington	Inspection and consultation on Amercoat painting to be done in 234-5 Building	J. S. Parker	11-15-50	11-17-50		X	200-W 234 Const.
C. G. Munger W. S. Dunning Company Seattle, Washington	Inspection and consultation on Amercoat painting to be done in 234-5 Building	J. S. Parker	11-15-50	11-17-50		X	200-W 234 Const.
D. E. Garr General Engineering & Con. Lab. Schenectady, New York	Consultation on 432 Project	G. Thayer C. T. Groswith	11-30-50	12-2-50	X		200-W 231 234 235
F. E. Crever General Eng. & Consulting Lab. Schenectady, New York	Consultation on 432 Project	G. Thayer C. T. Groswith	11-30-50	12-2-50	X		200-W 231 234 235
W. E. Brown X-ray Products Corporation Los Angeles, California	Install X-ray equipment in the Redox Area	H. H. Jones	11-24-50	12-6-50		X	Redox Const.
E. L. Jessen X-ray Products Corporation Los Angeles, California	Install X-ray equipment in the Redox Area	H. H. Jones	11-24-50	12-6-50		X	Redox Const.

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
II. Visits to other Installations							
W. E. Johnson to; Kellex Corporation New York, New York	Discussion of Kellex contract and progress of work	G. White, Jr.	11-28-50	11-30-50	X		
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. S. Parker to: Gen. Eng. & Con. Lab. Schenectady, New York	Consultation on 432 Project	B. R. Prentice F. E. Crever E. S. Baker	11-7-50	11-8-50	X		
J. S. Parker to: Kellex Corporation New York, New York	Discussion on Projects C-362 and C-187-D	G. White, Jr.	11-8-50	11-12-50	X		
G. S. Cochrane to: Gen. Eng. & Con. Lab. Schenectady, New York	Consultation on installation of 432 Project equipment	D. H. Marquis	11-28-50	12-19-50	X		
J. M. Frame to: Mallinckrodt Chem. Co. St. Louis, Missouri	Technical consultation on metal conversion	W. H. Keller	11-16-50	12-1-50	X		
H. E. Grantz to; Knolls Atomic Power Lab. Schenectady, New York	Discuss Hanford assistance work on instrumentation for "G" reactor and shielding development program	C. A. Hansen	11-6-50	11-8-50	X		
H. E. Grantz to: Brookhaven Nat'l Lab. Upton, Long Island New York	Discuss shielding development program and review facilities for testing shielding materials	L. B. Borst	11-9-50	11-9-50	X		
H. E. Grantz to: Battelle Memorial Inst. Columbus, Ohio	Review and discuss heavy aggregate concrete development program	J. W. Clegg	11-10-50	11-10-50	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
R. C. Hollingshead to: Kellex Corporation New York, New York	Design consultation on pulse generating mechanism	J. S. Atwood	11-6-50	11-11-50	X		
F. A. Hollenbach to: Kellex Corporation New York, New York	Design conference on waste metal recovery facilities	G. White, Jr.	11-28-50	12-5-50	X		
P. M. Murphy to: Kellex Corporation New York, New York	Design conference on waste metal recovery facilities	G. White, Jr.	12-5-50	12-15-50	X		
G. H. Syrovy to: Knolls Atomic Power Lab. Schenectady, New York	Discuss Hanford assistance work on instrumentation for "G" reactor and shielding development program	C. A. Hansen	11-6-50	11-8-50	X		
G. H. Syrovy to: Brookhaven Nat'l Lab. Upton, Long Island New York	Discuss shielding development program and review facilities for testing shielding materials	L. B. Borst	11-9-50	11-9-50	X		
G. H. Syrovy to: Battelle Memorial Inst. Columbus, Ohio	Review and discuss heavy aggregate concrete development program	J. W. Clegg	11-10-50	11-10-50	X		
H. J. White to: Gen. Eng. & Con. Lab. Schenectady, New York	Inspection and consultation on turbine and thermocouple development tests	G. B. Woods	11-27-50	11-30-50	X		
H. J. White to: Knolls Atomic Power Lab. Schenectady, New York	Inspection and consultation on turbine and thermocouple development tests	D. Cochran	11-27-50	11-30-50	X		
H. J. White to: River Works Lynn, Massachusetts	Inspection and consultation on turbine and thermocouple development tests	M. E. Norton	11-29-50	12-2-50	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
C. W. Buchanan to: General Electric Company Cleveland, Ohio	Attend semi-annual graphic Reproduction Sub-committee Meeting	A. H. Rau	10-29-50	11-6-50		X	
J. O. Ludlow to: Vulcan Copper & Supply Co. Cincinnati, Ohio	Design consultation	T. Carroll	11-27-50	11-29-50		X	
J. B. Modlin to: Western Gear Works Seattle, Washington	Contact vendor on shipment of materials	G. Moore	11-9-50	11-11-50		X	
H. M. Parker to: Peerless Pump Company Los Angeles, California	Demonstration and test of Redox Production Pump	T. Carter	11-27-50	12-1-50		X	
W. C. Royce to: Leland S. Rosener Co. San Francisco, California	Discuss H.W. Laboratory equipment	L.S. Rosener, Jr.	11-13-50	11-22-50		X	
H. E. Grantz to: Gen. Eng . & Con. Lab. Schenectady, New York	Discuss shielding development work	D. E. Garr H. Poritsky	11-6-50	11-8-50	X		
G. H. Syrovy to: Gen. Eng. & Con. Lab. Schenectady, New York	Discuss shielding development work	D. E. Garr H. Poritsky	11-6-50	11-8-50	X		
J. W. Underwood to: Pacific Coast Engineer Co. Seattle, Washington	Engineering data on expediting of junior caves	G. Morissey	11-8-50	11-10-50		X	
T. Williams to: Crane Company Chicago, Illinois	Consultation on electrical connector	A. M Hauser, Jr.	10-28-50	11-2-50		X	
T. Williams to: Vulcan Copper & Supply Co. Cincinnati, Ohio	Design consultation	T. Carroll	11-27-50	12-1-50		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
L. Graham Atkinson & Jones Const. Co. to: Argonne National Lab. Chicago, Illinois	View and inspect fabrication of special windows for Redox Plant	H. L. Hull	11-28-50	12-16-50	X		
B. Lund Kellex Corporation to: Argonne National Lab. Chicago, Illinois	Represent his firm at the assembly of test viewing windows	H. L. Hull	11-30-50	12-1-50	X		
HEALTH INSTRUMENT DIVISION							
I. Visitors to this Works							
M. E. Ensminger Washington State College Pullman, Washington	Consultation on H.I. biology problems	K. E. Herde	11-6-50	11-7-50	X		100-F 108
G. Ebenhahn R. C. A. San Francisco, California	Installation of electron microscope	F. E. Adley	11-21-50	12-1-50		X	100-F 108
II. Visits to other Installations							
J. M. Smith, Jr. to: Gen. Eng. & Con. Lab. Schenectady, New York	Inspect and observe special equipment being designed for installation at Hanford Works	D. H. Marquis	11-13-50	11-15-50	X		
PROJECT ENGINEERING DIVISIONS							
I. Visitors to this Works							
G. A. DeArmand Hallidie Machinery Company Spokane, Washington	Consultation to set up and operate an air chuck on the Warner & Swasey lathe.	H. P. Shaw R. Teats L. C. Koke	11-1-50	11-2-50		X	100-B 108-B

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
II. Visits to other Installations							
C. W. Hay to: Iron Firemen Company Portland, Oregon	Inspect rejected inlet and outlet nozzles	Mr. Carter Mr. Bryant Mr. Hoffmeister	11-27-50	11-28-50		X	
W. R. Felts to: Gen. Eng. & Con. Lab. Schenectady, New York	Observation of tests on P-10 equipment manufactured for Hanford Works	D. E. Garr D. H. Marquis	11-8-50	11-17-50	X		
F. A. Bowman to: Gen. Eng. & Con. Lab. Schenectady, New York	Inspect P-10-C extraction line being furnished to Hanford for P-10 work	D. H. Marquis	11-13-50	11-14-50	X		
H. F. Peterson to: Hallidie Machinery Co. Spokane, Washington	Inspect prefabricated houses	A. C. Evered	11-2-50	11-3-50		X	
J. S. McMahon to: General Electric Company Schenectady, New York	Inspection in connection with fabrication and testing of metal line for P-10 Project	B. R. Prentice	11-27-50	11-27-50	X		
MANUFACTURING MANAGEMENT							
I. Visits to other Installations							
W. K. MacCready to: Knolls Atomic Power Lab. Schenectady, New York	Consultation regarding process equipment for 234-5 and P-10 facilities	B. R Prentice	11-1-50	11-1-50	X		
W. K. MacCready to: Gen. Eng. & Con. Lab. Schenectady, New York	Consultation regarding process equipment for 234-5 and P-10 facilities	D. H. Marquis	11-1-50	11-1-50	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
H. D. Middel to: Knolls Atomic Power Lab. Schenectady, New York	Consultation regarding process equipment for 234-5 and P-10 facilities	B. R. Prentice	11-1-50	11-1-50	X		
H. D. Middel to: Gen. Eng. & Con. Lab. Schenectady, New York	Consultation regarding process equipment for 234-5 and P-10 facilities	D. H. Marquis	11-1-50	11-1-50	X		
POWER DIVISION							
I. Visits to other Installations							
J..A. Todd New York, New York	Attend National Power Show	- -	11-27-50	12-1-50		X	
"P" DIVISION							
I. Visits to other Installations							
J. H. Warren to: Gen. Eng. & Con. Lab. Schenectady, New York	Inspect equipment relative to P-10X Project	D. E. Garr D. H. Marquis	11-13-50	11-15-50	X		
J. H. Warren to: Bohm Aluminum & Brass Co. Detroit, Michigan	Extrusion of P-10-A rods	E. W. Yordy	11-15-50	11-15-50		X	
K. T. Perkins to: Gen. Eng. & Con. Lab. Schenectady, New York	Inspection equipment relative to P-10X Project	D. E. Garr D. H. Marquis	11-13-50	11-15-50	X		
PLANT SECURITY AND SERVICES DIVISION							
I. Visits to other Installations							
F. J. McKinnon to: Knolls Atomic Power Lab. Schenectady, New York	Safety conference	Mr. Lind	11-9-50	11-11-50	X		

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PURCHASING AND STORES DIVISION

I. Visitors to this Works

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
F. Burdick Mathews Lumber Company Yakima, Washington	Deliver load of material H. H. Hart on order HW 71766-M	[redacted]	11-2-50	11-2-50		X	100-B 1703
F. Colbertson United Truck Lines Kennewick, Washington	Deliver load of material H. H. Hart on order		11-6-50	11-6-50		X	200-W 234
O. L. Dickson United Truck Lines Kennewick, Washington	Deliver load of material H. H. Hart on order		11-6-50	11-6-50		X	200-W 234
A. Schuman United Truck Lines Kennewick, Washington	Deliver load of material H. H. Hart on order		11-6-50	11-6-50		X	200-W 234
B. Fulks West Coast Freight Yakima, Washington	Deliver load of material H. H. Hart on order		11-7-50	11-7-50		X	100-D XXX
H. Brockman West Coast Freight Yakima, Washington	Deliver load of material H. H. Hart on order		11-7-50	11-7-50		X	100-D XXX
R. J. Livermore West Coast Freight Yakima, Washington	Deliver load of material H. H. Hart on order		11-10-50	11-10-50		X	100-B 105 100-D 105
F. Burdick Mathews Lumber Company Yakima, Washington	Deliver load of material H. H. Hart on order		11-15-50	11-15-50		X	100-B 105
H. Halberson United Truck Lines Kennewick, Washington	Deliver load of material H. H. Hart on order HW 71643-M	[redacted]	11-20-50	11-20-50		X	200-E 271-B

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
F. Culbertson United Truck Lines Kennewick, Washington	Deliver load of material on order	H. H. Hart	11-22-50	11-22-50		X	200-W 234 Whse.
H. Brockman West Coast Freight Yakima, Washington	Deliver load of material on order	H. H. Hart	11-22-50	11-22-50		X	100-D 105
J. L. Verschveron Liquid Carbonic Company Seattle, Washington	Deliver load of material on order	H. H. Hart	11-27-50	11-27-50		X	100-H 105
H. Brockman West Coast Freight Yakima, Washington	Deliver load of material on order	H. H. Hart	11-27-50	11-27-50		X	100-D 105
G. Zank Lee & Estes Kennewick, Washington	Delivery load of material on order HW 72862	H. H. Hart	11-28-50	11-28-50		X	200-W 271-T
L. Nelson Consolidated Freightways Kennewick, Washington	Deliver load of material on order HW 69125	H. H. Hart	11-28-50	11-28-50		X	100-F 189
D. Mock Consolidated Freighways Kennewick, Washington	Deliver load of material on order HW 69125	H. H. Hart	11-28-50	11-28-50		X	100-F 189
H. Zunker Consolidated Freighways Kennewick, Washington	Deliver load of material on order HW 69125	H. H. Hart	11-28-50	11-28-50		X	100-F 189
P. Plummer Layrite Concrete Products Co. Yakima, Washington	Deliver load of material on order HW 73603-M	H. H. Hart	11-29-50	11-29-50		X	100-B 108-B
P. Plummer Layrite Concrete Products Co. Yakima, Washington	Deliver load of material on order HW 73603-M	H. H. Hart	11-30-50	11-30-50		X	100-B 108

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
II. Visits to other Installations							
G. E. Hotaling to: Electric Steel Foundry Portland, Oregon	Expediting of steel orders	R. W. DeWeese	11-14-50	11-16-50		X	
J. C. Hamilton to: Newport News Shipbuilding & Dry Dock Company Newport News, Virginia	Inspection of equipment	Commander Dean	11-6-50	11-16-50		X	
J. C. Hamilton to: G. O. Carlson, Inc. Thorndale, Pennsylvania	Inspection of equipment	W. Hurst Mr. Cohen	11-6-50	11-16-50		X	
J. C. Hamilton to: American Locomotive Com. Dunkirk, New York	Inspection of equipment	Mr. Ward	11-6-50	11-16-50		X	
J. C. Hamilton to: Struthers-Wells Corp. Warren, Pennsylvania	Inspection of equipment	Mr. Petersen	11-6-50	11-16-50		X	
J. C. Hamilton to: Nat'l Annealing Box Co. Washington, Pennsylvania	Inspection of equipment	Miss McKinney	11-6-50	11-16-50		X	
J. C. Hamilton to: Allegheny-Ludlum Co. Brackenridge, Pennsylvania	Inspection of equipment	Mr. McKnight	11-6-50	11-16-50		X	
J. C. Hamilton to: Alloy Manufacturing Co. Pittsburgh, Pennsylvania	Inspection of equipment	Mr. Daniell	11-6-50	11-16-50		X	
J. C. Hamilton to: U.S. Steel Supply Co. Pittsburgh, Pennsylvania	Inspection of equipment	G. Foster	11-6-50	11-16-50		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
J. C. Hamilton to: Crane Company Chicago, Illinois	Inspection of equipment	P. Weiss	11-6-50	11-16-50		X	
A.W. Bradley to: U.S. Pipe & Mfg. Co. San Francisco, California	Expedite material on orders HWC 9305, HWC 9508 and HWC 8476	P. B. Wallace, Jr.	11-19-50	12-2-50		X	
A. W. Bradley to: Hawley Forge Co. San Francisco, California	Expedite material on order HWC 9044	G. Hawley	11-19-50	12-2-50		X	
A. W. Bradley to: Foxboro Company SanFrancisco, California	Expedite material on order HWC 9099	H. B. Brooks	11-19-50	12-2-50		X	
TECHNICAL DIVISIONS							
I. Visitors to this Works							
G. E. Turnquist International Business Machines Seattle, Washington	Service IBM equipment	P. M. Thompson	11-24-50	12-2-50	X		101
A. U. Seybolt Knolls Atomic Power Laboratory Schenectady, New York	Metallurgy & P-10 discussions	D. M. Knott R. Ward J. C. L. Chatten W. M. Harty L. D. Turner	11-13-50	11-15-50	X		300 3706, 321 100-B 105, 108
Z. D. Sheldon Knolls Atomic Power Laboratory Schenectady, New York	Liaison and product discussions	D. M Knott W. M. Harty J. C. L.Chatten	11-27-50	12-1-50	X		300 3706, 321 100-B 108
G. W. Watt University of Texas Austin, Texas	Research and development consultations	R. H. Beaton	11-2-50	11-10-50	X		300 3706, 321 100-B 105,108 200-E 221-B 200-W 221-T 221-U, 231, 234, 235

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
J. W. Moyer Knolls Atomic Power Laboratory Schenectady, New York	Consultation on spectroscopic methods of product analysis	A. R. Matheson W. M. Harty	11-1-50	11-3-50	X		300 3706 100-B 105,108
C. E. Stilson Nuclear Energy for the Propulsion of Aircraft Division Oak Ridge National Laboratory Oak Ridge, Tennessee	Run in-pile creep test	J. F. Sullivan	11-11-50	11-19-50	X		100-D 105 100-F 105
H. E. Robertson Nuclear Energy for the Propulsion of Aircraft Division Oak Ridge National Laboratory Oak Ridge, Tennessee	Run in-ile creep test	J..F. Sullivan	11-11-50	11-19-50	X		100-D 105 100-F 105
J. G. Morgan Nuclear Energy for the Propulsion of Aircraft Division Oak Ridge National Laboratory Oak Ridge, Tennessee	Run in-ile creep test	J. F. Sullivan	11-11-50	11-21-50	X		100-D 105 100-F 105 300 3706
R. W. Coyle Nuclear Energy for the Propulsion of Aircraft Division Oak Ridge National Laboratory Oak Ridge, Tennessee	Run in-ile creep test	J. F. Sullivan	11-15-50	11-19-50	X		100-D 105 100-F 105
II. Visits to other Installations							
A. B. Greninger to; Brookhaven National Lab. Upton, Long Island New York, New York	Attend AEC meeting	L. J. Haworth	11-26-50	11-29-50	X		
A. B. Greninger to: Knolls Atomic Power Lab. Schenectady, New York	Technical consultation concerning Tech. Division problems [redacted]	K. H. Kingdon	11-30-5	12-1-50	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
A. B. Greninger to: Gen. Eng. & Con. Lab. Schenectady, New York	Technical consultation concerning Tech. Division problems	M. A. Edwards	11-30-5	12-1-50	X		
J. F. Fletcher to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	C. Mannal J. Marsden	11-6-50	11-30-50	X		
J. F. Fletcher to: Gen. Eng. & Con. Lab. Schenectady, New York	P-10 consultation	D. H. Marquis	11-6-50	11-30-50	X		
P. F. Gast to: Oak Ridge National Lab. Oak Ridge, Tennessee	Technical consultation on H-10 Slugs	A. D. Callihan	11-28-50	11-30-50	X		
P. F. Gast to: E. I. du Pont de Nemours Wilmington, Delaware	Discussions regarding design of new piles	C. W. J. Wende	11-27-50	11-27-50	X		
M. K. Harmon to; Mallinckrodt Chemical Works St. Louis, Missouri	Discuss problems of Project 362	W. H. Keller	11-16-50	11-22-50	X		
W. M. Harty to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	C. Mannal	11-16-50	11-18-50	X		
W. M. Harty to: Gen. Eng. & Con. Lab. Schenectady, New York	P-10 consultation	D. H. Marquis	11-16-50	11-18-50	X		
O. F. Hill to: Oak Ridge National Lab. Oak Ridge, Tennessee	Separations process discussion	F. L. Steahly	11-6-50	11-7-50	X		
O. F. Hill to: Knolls Atomic Power Lab. Schenectady, New York	Separations process discussion	J. Marsden	11-8-50	11-9-50	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
W. R.Lewis to: Oak Ridge National Lab. Oak Ridge, Tennessee	Attend lectures at School of Nuclear Engineering	N. Lansing	11-20-50	11-21-50	X		
C R McCully to: Consolidate Eng. Co. Pasadena, California	Discuss mass spectrometer uses	H. W. Washburn	11-15-50	11-16-50		X	
C. R. McCully to: Radiation Laboratory Berkeley, California	Consultation regarding isotopic analyses of heavy metals	D. H. Templeton	11-17-50	11-17-50	X		
C. R. McCully to: Knolls Atomic Power Lab. Schenectady, New York	Consultation regarding P-10 analyses on mass spectrometer	J. Marsden H. C. Mattraw	11-27-50	11-29-50	X		
C. R. McCully to: Argonne National Lab. Chicago, Illinois	Consultation regarding isotopic analyses of heavy metals on mass spectrometer	M. G. Ingram	11-30-50	11-30-50	X		
W.W. Marshall to: Oak Ridge National Lab. Oak Ridge, Tennessee	Consultation on uses of mass spectrometer	F. W. Hurd	11-27-50	11-28-50	X		
A. E. Smith to: Los Alamos Scientific Lab. Los Alamos,New Mexico	234-5 inspection procedures	M. F. Roy	11-5-50	11-12-50	X		
D. F. Snoeberger to: Argonne National Lab. Chicago, Illinois	Discuss ANL in-pile experiments	G. A Anderson	11-6-50	11-6-50	X		
D. F.Snoeberger to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discuss in-pile experiments.	J. W. Boyle, Jr.	11-7-50	11-11-50	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
D. F. Snoeberger to: Knolls Atomic Power Lab. Schenectady, New York	Discuss in-pile experiments	C.E. Webber J.R. Blowney	11-7-50	11-10-50	X		
A. T. Taylor to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	C. Mannal J. Marsden	11-6-50	11-30-50	X		
A. T. Taylor to: Gen. Eng. & Con. Lab. Schenectady, New York	P-10 consultation	D. H. Marquis	11-6-50	11-30-50	X		
H. F. Zuhr to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	C. Mannal J. Marsden	11-6-50	11-30-50	X		
H. F. Zuhr to: Gen. Eng. & Con. Lab. Schenectady, New York	P-10 consultation	D. H. Marquis	11-6-50	11-30-50	X		
R. J. Hale to: Leland S. Rosener, Co. San Francisco, California	Discuss design of Radio-chemistry Bldg.	L. S. Rosener	11-7-50	11-8-50		X	
R. J. Hale to: Pacific Cost Engineering Alameda, California	Inspect facilities for fabrication of junior caves	G. Morrissey	11-9-50	11-9-50		X	
R. J. Hale to: Hausermann Partition Co. San Francisco, California	Discuss components to be supplied for 222-S Building	W. Hausermann	11-10-50	11-10-50		X	
J. M. Fouts to: Leland S. Rosener Co. San Francisco, California	Discuss plot plan and utilities and waste disposal facilities	L. S. Rosener	11-13-50	11-17-50		X	
A. H. Bushey to: Northwestern University, Ohio State College and Purdue University	Interview Ph.D. candidates - -		11-12-50	11-21-50		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
J. W. Hall to: University of Colorado and Denver University	Recruiting technical personnel	- -	11-27-50	11-30-50			
F. W. Albaugh to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Meeting on 234-5 Building product specifications	M. F. Roy C. F. Metz	11-1-50	11-2-50	X		
F. J. Leitz to: University of Washington Seattle, Washington	Education conference	- -	11-21-50	11-21-50		X	
C. F. Callis to: University of Washington Seattle, Washington	Education conference	- -	11-21-50	11-21-50		X	
K. M Harmon to: University of Washington Seattle, Washington	Education conference	- -	11-21-50	11-21-50		X	
L. L. Burger to: University of Washington Seattle, Washington	Education conference	- -	11-21-50	11-21-50		X	

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PURCHASING AND STORES DIVISIONS
SUMMARY
NOVEMBER, 1950

Personnel of the Purchasing and Stores Divisions showed a net decrease of six as indicated by the tabulation below:

	Total Personnel as of 10-31-50	Total Personnel as of 11-30-50	Net Change
Exempt	65	67	+2
Non-Exempt	289	281	-8
TOTALS	354	348	-6

The work load in the Purchasing Division continued at the high level reached in the previous month.

J. F. Spease of Design and Construction Divisions, W. L. Sapper of the Manufacturing Divisions, and W. W. Koenig of the Technical Divisions, were assigned for an estimated period of six months to the Purchasing Division to assist in expediting critical material. These men will act in the capacity of Assistants to the Manager, Purchasing and Stores Divisions, and will be supplied with business cards to that effect.

Mr. Spease is covering the West Coast and Messrs. Sapper and Koenig the Middle West and East Coast. At month end all three men were reporting satisfactory progress.

Materials, particularly stainless steel, continued to be the bottleneck in the procurement of vessels and other equipment for the current construction programs.

Arrangements were concluded whereby the United States Steel Supply Company of Pittsburgh entered into an agreement to receive, warehouse, cut to required sizes and lengths, and ship the stainless steel covered by our bulk orders. This action was necessary inasmuch as the steel mills who are producing our bulk orders were unable to do the necessary cutting to size before shipment to our fabricators.

In instances where no cutting or shearing is required prior to shipment to fabricators, arrangements will be made wherever possible to ship direct from the mill thereby saving the warehousing charge.

Contracts covering our three-year requirements for nitric acid were awarded to E. I. duPont deNemours Company and the General Chemical Division, Allied Chemical and Dye Corporation. The General Chemical Division plans to construct a production unit at Hedges, Washington near Kennewick.

Due to the shortage of phosphoric acid we were unable to obtain offers from the various producers on our entire requirements. In order to meet our requirements, arrangements were made to procure phosphorus from the Tennessee Valley Authority for shipment to a processor for conversion into phosphoric acid.

PURCHASING AND STORES DIVISIONS
SUMMARY

At the request of the Commission, requirements data were being developed on a number of critical materials for the calendar year 1951, included were stainless steel, carbon steel, aluminum, and copper.

A total of 2,918 purchase requisitions were screened against project inventories with the result that 1,534 items were supplied from plant sources thus obviating the necessity for outside purchase.

Surplus materials valued at $898,908.17 were shipped during the month.

Fifty-five representatives of government and private business were escorted through our warehouses for the purpose of inspecting property being offered for sale or transfer.

Materials valued at $319,298.71 were declared to the Commission as excess.

Some difficulty was experienced by the Traffic Section in obtaining suitable freight cars for shipment of equipment from our suppliers at various locations throughout the country.

We were advised on November 8, 1950 by the Regional Representative of the Interstate Commerce Commission that the General Electric Company at Hanford Works had an outstanding record with respect to efficient use of freight cars and payment of freight charges in accordance with ICC Regulations.

As a result of reductions obtained from carriers, savings in freight charges during the month amounted to $19,732.96.

PURCHASING AND STORES DIVISIONS
STAFF SECTION
NOVEMBER, 1950

ASSIGNMENTS

The final procedure write-up to centralize all Stores Accounting activities for the 903, 904, 906 and 912 accounts was completed and approved. The major advantage gained was, relieving the Stock Record Clerks of reconciliations and Receiving Report pricing.

Reconciliations will be done in the future by the Control Section on a current and set standard method basis.

The Stock Record Clerks will spend more of their time on stock level reviews and controls.

To control the identification and distribution of procedures, a code system was established for the Stores manual.

The final write-up and lists of reconciliation schedules for the 10.10 Excess Material accounts were completed for distribution in December.

The Returnable Container Inventory in conjunction with the procedures, was submitted to Stores Supervision for review and processing.

Distribution was made of the approved Platinum studies and procedures.

General Accounting's Audit Reports of Memo Sales were reviewed and recommendations are being submitted.

The Accounting Machine Studies are completed and the final recommendations are written for approval.

Surplus, Salvage and Scrap procedures were reviewed for final completion.

A partial Stationery Supply Survey requested by Design Division was completed and recommendation was submitted.

A special survey for outmoded stocks of door and windshield glass for older model cars was finished and recommendations were submitted to the Transportation Division.

Unit Cost Studies on Stores requisitions were reviewed again with the General Accounting Offices.

Liquidation charges from Stores Code 132 to Design and Construction were increased based on increased receiving activities due to accelerated construction; recommendations were forwarded to the General Accounting Office.

The Daily Progress Report on Status of Materials at Pasco was discontinued November 1, 1950 on the request of Stores Supervision.

A Quarterly Review of Fiscal Year 1951 Inventory Budget Estimates was submitted as requested by the General Accounting Office, showing an estimated net reduction of approximately $7,000,000 by June 30, 1951.

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
Quarterly Review of Fiscal Year 1951 Budget Estimates - Inventories

The following graphs and tabulations were kept current:

Buyers Weekly Purchase Order Data
Indirect Labor Analysis
Purchase Order Data for Mr. G. R. Prout

PERSONNEL

	As of 10-31-50			As of 11-30-50			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Methods-Procedure Cost Budget Cont'l	2	4	6	2	3	5	0	-1	-1
Audit Section	2	12	14	2	11	13	0	-1	-1
TOTAL ----	4	16	20	4	14	18	0	-2	-2

SAFETY AND SECURITY

Safety and Security Meetings Schedule - 1
Number of Employees Attending - 12

The following Accounts were physically inventoried and audited:

903-4	Bearings	100%
904-A	Spare Parts	100%
904-B	Spare Parts	100%
904-C	Spare Parts	100%
904-D	Spare Parts	100%
904-E	Spare Parts	75%
904-F	Spare Parts	50%
906	Cash Sales	100%

Upon request of the General Accounting Auditing Office, Caption 903-10, 26 and 21 folders and copies of reports were forwarded to them.

The following Caption Audit Reports were submitted to Stores Supervision:

903-4, 12, 17, 21, 26 and 904-A

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PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION
NOVEMBER, 1950

GENERAL

The work load during the month of November continued at the high level reached the previous month. 2,162 purchase orders were placed as compared with 2,126 placed in October. 3,113 purchase requisitions were received and assigned as compared with 3,498 placed in October. Requisitions on hand at month end dropped to 821 as compared with 1,061 at the end of the previous month.

The dollar value of orders placed during the month of November totaled $1,910,109.15. This was a decided drop under the $4,850,382.16 commitment in October. Of 490 construction requisitions received during the month, 68 were for Projects C-187-D and C-187-E, 100 for Project 362 and 26 each for Projects C-361 and the DR Water Works. The balance of the requisitions were for construction MS Stores and consisted chiefly of items required for the establishment of the General Electric Construction Division Warehouse.

The first seven stainless steel vessels required in the mock-up of Building 202-S were shipped from Newport News Ship Building and Drydock Company during the last week of November. The arrival of these tanks will permit the starting of mock-up work by the construction forces.

Material shortages, particularly piping and fittings, are one of the delaying factors in the production of stainless steel vessels and equipment. A second delaying factor in the manufacture of Class I vessels has been the failure of stainless steel to meet our corrosion test requirements. In a number of instances, the material that failed corrosion requirements has been utilized by fabricating it into components which do not come in contact with the process solution. However, new material had to be secured for replacement of rejected material and this will cause a delay in the finished product.

The tonnages of stainless steel to be shipped monthly from the steel mills on our bulk steel purchases have been fairly well established. The actual specifying of particular sizes to be produced each month is progressing as rapidly as information is received from the Design and Construction Divisions. Instructions are also being issued on bulk steel purchase orders advising the mill where to ship the material. Wherever practical, the steel is being shipped direct from the mill to the fabricator or to Hanford Works. Where final destination is not known, instructions are being issued to ship the stainless steel to a warehousing company in Pittsburgh, Pennsylvania, who has an order to receive, store and re-ship steel for our account.

The field expeditors located several lots of stainless steel pipe and plate which were purchased for immediate delivery. Requisitions covering the material were received from the Stores Division and the Design and Construction Divisions. Material will be placed in Stores for use in meeting emergency requirements.

The E. I. duPont deNemours Company and the General Chemical Division, Allied Chemical and Dye Corporation were awarded three-year contracts, each covering a portion of our projected nitric acid requirements during the three-year period. The General Chemical Division will construct a new A.O.P. unit at Hedges, Washington, for the production of nitric acid.

GENERAL (continued)

We were unable to obtain a single complete bid in answer to our request for quotation on our phosphoric acid requirements. The acid producers were unable to obtain elemental phosphorus which is used for conversion into phosphoric acid. In order to meet our requirements, 10 cars of Government owned phosphorus will be obtained, through the Atomic Energy Commission for shipment to one of the phosphoric acid producers, to be converted into phosphoric acid.

Bids have been received from Hooker Electrochemical Company, Tacoma, Washington, and Pennsylvania Salt Manufacturing Company of Washington, Tacoma, Washington, each covering 1/2 of our total requirements for caustic soda over the next three calendar years. These bids are at present being studied and awards will be made during December.

Firm specifications have been received from the Technical Divisions for the majority of the new materials required for Redox and TBP. Sources of supply have been located for all materials presently projected and firm procurement arrangements will be made to meet storage requirements and start-up as rapidly as is required.

The National Production Authority issued new controls on tin, copper, zinc and cobalt during the month. Priority rating DO-41 has been applied to purchase orders and contracts valued at $13,569,235.45. Priority rating DO-40 has been applied to purchase orders and contracts valued at $1,612,081.08 for the fourth quarter 1950; $152,858.60 for the first quarter 1951; $72,916.19 for the second quarter 1951 and $23,200 for the third quarter 1951. A review of Defense Order allotment for calendar year 1951 was made and recommendations forwarded to the Atomic Energy Commission for increasing the authority.

Requirement studies on critical materials continued during the month with reports being submitted for stainless steel alloy requirements for calendar year 1951. Studies are currently being made to determine requirements for alloy steel other than stainless, carbon steel, aluminum, and copper.

PERSONNEL

	As of 10-31-50			As of 11-30-50			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	1		1	1		1			
Purchasing	13	16	29	13	17	30		+1	+1
Expediting	8	12	20	8	11	19		-1	-1
Inspection	18	2*	20*	20	2*	22*	+2		+2
Clerical	1	18	19	1	19	20		+1	+1
Priorities	1	2	3	1	2	3			
	42	50	92*	44	51	95*	+2	+1	+3

*The above figures do not include 6 rotational trainees assigned to Inspection.

SAFETY AND SECURITY

Safety and Security Meetings Scheduled - 4
Number of employees attending ---------- 90
Minor Injuries ---------- 0

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PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION

STATISTICS

	G	D	TOTAL
Requisitions on hand 11-1-50 (Includes 96 assigned to government)	833	228	1,061
Requisitions assigned during November	2,623	490	3,113
Requisitions placed during November	2,808	545	3,353
Requisitions on hand 11-30-50 (Includes 109 assigned to government)	648	173	821

		Number	Value
HW Orders Placed		1,731	$ 808,794.25
HW Alterations Placed		165	38,228.75
	TOTAL	1,896	$ 847,023.00
HWC Orders Placed		431	1,478,606.10
HWC Alterations Placed		127	415,519.95 Cr.
	TOTAL	558	$1,063,086.15
AEC Orders Placed		132	160,963.99
DC Orders Placed		45	103,591.93

	CR	ORC	Total
Government Transfers	2	0	2

Return Orders Issued — Number - 98

Dollar Value of Orders to which Priority Rating was applied:

	4th Quarter 1950	1st Quarter 1951	2nd Quarter 1951	3rd Quarter 1951
DO-40	$ 1,612,081.08	$ 152,858.60	$ 72,916.19	$ 23,200.00
DO-41*	13,569,235.45			

* Includes Contract Section, Design & Construction Divisions

OPEN ORDERS

HW Orders	1,177
HWC Orders	788
Government Orders	57

Number of New Orders requiring inspection during month	89
Number of Orders requiring inspection completed during month	13
Number of Orders outstanding requiring inspection at month's end	362
HW Orders expedited (Special Request)	240
HW Orders expedited (Routine)	580
HWC Orders expedited (Routine)	700

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PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION
NOVEMBER, 1950

GENERAL

Upon advice from the Purchasing Division that arrangements had been made for warehousing stainless steel bulk orders at Pittsburgh, Pennsylvania, steps were immediately taken to arrange for transit privileges on all shipments which move in and out of the warehouse in carload quantity. This will effect a substantial savings in freight charges on such shipments.

Due to the critical freight car shortage existing it has been necessary for this Section to spend considerable time and effort in securing suitable equipment from the carriers for vendors at various locations throughout the country. Similar action has been necessary with respect to outbound carload shipment of excess materials from Hanford Works. This has resulted in expediting delivery of critically needed construction and operations materials, and has permitted prompt shipment of excess materials to other Government installations.

On November 8, the Regional Representative of the Interstate Commerce Commission, Bureau of Service, called at this office. He advised that he had just completed a thorough check of the records of rail carriers serving Hanford Works regarding such matters as Demurrage, efficient use of cars, and payment of freight charges in accordance with ICC regulations. He stated that General Electric Company had an outstanding record with respect to all these items.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of November amounting to $19,732.96. This makes a total savings from September 1, 1946 to date of $1,401,134.35.

PERSONNEL

	Total Personnel as of 10-31-50	Total Personnel as of 11-30-50	Net Change
Exempt	2	2	0
Non-Exempt	7	7	0
TOTAL	9	9	0

SAFETY AND SECURITY

Safety and Security Meetings Scheduled - 1
Number of Employees Attending ---------- 8
Minor Injuries ---------- 0

PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION

STATISTICS

Savings Report

1. Rate reductions obtained from the Carriers:

Commodity	Origin	Savings for November	Savings 9-1-46 thru Oct. 1950	Total Savings 9-1-46 to date
Coal	Kemmerer, Wyo.	$ 8,249.04		
Coal	Roslyn, Wash.	2,661.75		
Coal	Roundup, Mont.	5,246.76		
Lime	Evans, Wash.	173.39		
Caustic Soda	Willbridge, Ore.	2,390.09		
Soda Ash	Trona, Calif.	505.00		
Railway Express Shipments	Various	506.93		
		$19,732.96	$1,381,401.39	$1,401,134.35
2. Freight Bill Audit:		1,179.99	52,777.25	53,957.24**
3. Loss and Damage and Overcharge Claims		971.64	99,533.23	100,504.87
4. Ticket Refund Claims		1,320.88	9,676.29	10,997.17
5. Household Goods Claims		112.37	14,022.71	14,135.08
		$23,317.84	$1,557,410.87	$1,580,728.71

** Includes $19,495.23 for A.E.C.

Work Volume Report

Reservations Made	Rail	113
	Air	70
	Hotel	69
Expense Accounts Checked		148
Household Goods and Automobiles	Movements Arranged Inbound	5
	Shipments Traced	1
	Insurance Riders Issued	7
	Furniture Repair Orders	2
	Requests for Claim Billing	7
	Claims Filed	4
	Claims Collected - Number	4
	Claims Collected - Amount	$112.37
Ticket Refund Claims	Filed	28
	Collected - Number	55
	Collected - Amount	$1,320.88
Freight Claims	Filed	7
	Collected - Number	8
	Collected - Amount	$971.64

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PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION

STATISTICS (Continued)

Work Volume Report (Continued)

Freight Bill Audit Savings		$1,179.99
Freight Shipments Traced		60
Quotations	Freight Rates	188
	Routes	272
Bills Approved	Air Freight	11
	Boat	2
	Air Express	51
	Carloading	178
	Express	175
	Rail	1025
	Truck	287
Over and Short Reports Processed		16
Damage Reports Processed		10
Carload Shipments	Inbound - General Electric	992
	- Others	178
	Outbound- General Electric	9
	- Others	6

Report of Carloads Received

	MILW	N.P.	U.P.	TOTAL
General Electric Company:				
Miscellaneous Acid	1			1
Filing Cabinets	1			1
Chemicals	2			2
Liquid Chlorine	2	2		4
Coal	87	136	682	905
Steel Flumes		1		1
Hydrated Lime	1	2	1	4
Nitric Acid	10	10		20
Hydrogen Peroxide		1		1
Phosphoric Acid	3	3	1	7
Caustic Potash		1		1
Caustic Soda	2	9	7	18
Soda Ash	3	1	1	5
Sodium Bismuthate			1	1
Sodium Nitrite	3			3
Ferrous Ammon. Sulphate	1			1
Ferric Sulphate	2	1	1	4
Tin, Pig		1		1
Merchandise		7		7
Express	4			4
Fir Lumber		1		1
TOTAL	122	176	694	992

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STATISTICS (Continued)

Report of Carloads Received (Continued)

	MILW	N.P.	U.P.	TOTAL
Atkinson & Jones Const. Company:				
Cement		24		24
Insulation Material	2			2
Sewer Pipe			4	4
Steel Pipe	1		1	2
Sand	10		1	11
Siding	1			1
Steel Sheets	1			1
Steel	7	2		9
Steel Bars		2		2
Stoves	2			2
Merchandise	7			7
Pitch	1			1
TOTAL	32	28	6	66
U. S. Army:				
Boilers		1		1
Portable Buildings		1		1
Coal			20	20
Grease		1		1
Trailers		19	18	37
TOTAL	—	22	38	60
Bailey Plumbing & Heating Company:				
Radiators & Sheet Metal			1	1
F. J. Early Company:				
Cement	3			3
Cotton Cloth	1			1
Sewer Pipe		2		2
Steel - Structural		4	6	10
Tanks and Steel	2			2
TOTAL	6	6	6	18
Taylor Bros. Construction:				
Glass Blocks			3	3
C. & E. Construction:				
Paving Equipment and Oil			2	2
S. S. Mullen, Inc.				
Sash Bars			1	1
Richland Fuel & Lumber Company				
Coal		1	22	23

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PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION

STATISTICS (Continued)

Report of Carloads Received (Continued)

	MIIW	N.P.	U.P.	TOTAL
L. W. Vail Company:				
Insulation Material			1	1
Roofing Material			1	1
TOTAL	—	—	2	2
Metal Products:				
Stoves	1			1
Pioneer Insulation Company:				
Insulation	—	1	—	1
TOTAL - SUBCONTRACTORS	39	58	81	178
TOTAL - ENTIRE PROJECT	161	234	775	1170

1222620

PURCHASING AND STORES DIVISIONS
STORES DIVISION
NOVEMBER, 1950

GENERAL

2918 purchase requisitions were processed through screening and 1534 items were furnished from plant sources. In addition to the normal screening of purchase requisitions, 52 items of stainless steel, not immediately available on the open market, were furnished to fabricators from plant inventories.

Materials valued at $12,501.43 were declared excess from active inventories during the month. This was accomplished by the discontinuance of 71 obsolete stock items.

Materials valued at $211,916.20 were shipped from the Construction Material Account (10.20) to other government agencies as directed by the Commission.

Materials valued at $184,849.38, involving 14 captions in the 10.20 Account, were disbursed to construction forces during the month. In view of the foregoing, materials excessed during this period from the 10.20 Account were limited to $32,699.30.

Receipts of incoming shipments during the month reached an all-time high as 5,572 receiving reports were issued.

Maintenance material and supplies disbursed from the active inventory accounts during the month were valued at $213,401. Based on current inventory levels, this represents the largest percentage of stock turn-over experienced within the last 12 months.

Materials and equipment valued at $181,558.74 were withdrawn from Excess and returned for use on the Project. A limited number of shipping documents for construction equipment required by contractors for the Commission at other locations were received the latter part of the month. It is anticipated that the movement of such equipment within the next few weeks will materially increase.

68 shipping documents valued at $898,908.17 for excess material were processed and shipped during the month.

55 representatives of government and private businesses were escorted through our warehouses and scrap yard for the purpose of negotiating the sale of scrap and the transfer of excess property.

15 formal excess lists totaling $319,298.71 were submitted to the Commission during the month.

Large quantities of miscellaneous stores items and tools have been withdrawn from Account 10.20 for Design and Construction Stores (Account 10.16). Definite inventory levels for that operation have not been firmly established, but were progressing satisfactorily at month end.

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PURCHASING AND STORES DIVISIONS
STORES DIVISION

PERSONNEL

	As of 10-31-50			As of 11-30-50			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	35	37			
Operations Matl. Sect.	4	105	109	4	103	107		-2	-2
Surplus, Salvage & Scrap Materials Section	5	68	73	5	64	69		-4	-4
TOTALS	15	208	223	15	202	217		-6	-6

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	10
Number of Employees Attending	194
Minor Injuries	4

STATISTICS

INVENTORY CONTROL SECTIONS

Construction Materials Section

Items in Stores Stock	40,932
Items in Small Tools (Estimated)	8,208
Items added to Stock	33
Items completely liquidated from Stock	309
Store Orders Posted - Materials (Items)	3,427
Store Orders Posted - Tools (Items)	527
Number of Requisitions Screened - A.J.	510
Number of Items Screened - G. E.	3,179
Number of Items furnished from Stock	304
Number of Items Excessed	772
Value of Disbursements - Materials	$201,906.53
Value of Disbursements - Tools	28,782.50
Inventory Valuation at month end - Materials	7,851,311.45
Value of Materials Shipped	211,916.20
Value of Materials Excessed	32,699.30
Value of Materials Received	29,851.40

Operations Materials Section

Number of Items added to Stores Stock	549
Number of Items deleted from Stores Stock	71
Items in Stores Stock at month end	46,783
Store Orders Posted	20,237
Number of Requisitions Screened this month - G. E.	2,408
Number of Items furnished from Plant Sources this month	1,230
Inventory valuation at month end (903-all captions, 906 & 912)	$1,150,329.60
Inventory valuation at month end (Spare Parts)	1,669,759.92
Inventory valuation at month end (Special Materials)	3,162,394.95
Total value Inventory Accounts	5,982,484.47

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PURCHASING AND STORES DIVISIONS
STORES DIVISION

STATISTICS (Continued)

Value of Disbursements, not including cash sale items	$228,883.48*
Value of Cash Sales	543.83
Value of Sales, Payroll Deduction	1,648.01
Value of Materials Declared Excess	12,501.43
Value of Materials Returned to Stores Stock for Credit	2,974.65

* Includes $23,000.93 disbursed to Construction and CPFF Subcontractors

Surplus, Salvage and Scrap Materials Section

Balance of Account 10.10 as of 10-25-50			$8,759,248.47
Receipts 10-25-50 to 11-25-50			
Lumber	$3,539.12		
Automotive Equipment	27,401.92		
Office Furniture	546.00		
Material and Supplies	128,771.03		
Miscellaneous Equipment	34,614.41		194,872.48
Adjustments - Classes & Current Market Prices			9,116.59
			8,963,237.54
Disbursements 10-25-50 to 11-25-50			
On Project			
Lumber	32,991.77		
Automotive Equipment	60,764.72		
Machine Tools & Equipment	10,204.90		
Office Furniture	61.96		
Material & Supplies	51,056.30		
Miscellaneous Equipment	26,479.00		
		$181,558.74*	
Off Project			
Lumber	1,258.80		
Automotive Equipment	115,424.74		
Machine Tools & Equipment	701.84		
Office Furniture	3,474.97		
Household Furniture	780.75		
Material & Supplies	761,644.33		
Miscellaneous Equipment	15,622.74	898,908.17	1,080,466.91
Balance of Account 10.10 as of 11-25-50			$7,882,770.63
Total Receipts to Date			$33,634,650.29
Total Disbursements to Date			$25,751,879.66

*Includes Disbursements to Construction $131,653.03

15.

1222623

PURCHASING AND STORES DIVISIONS
STORES DIVISION

Scrap and Salvage Disbursed	
Scrap Sales Completed	12
Scrap Sales in Process	4
Scrap Sales Revenue for month of November	$13,197.00
Total Scrap Sales Revenue to Date	175,802.45

WAREHOUSING, RECEIVING, DISBURSING & SHIPPING SECTIONS

Construction Materials Section	
Store Orders Filled	4,481
Items Excessed	772
Operations Materials Section	
Receiving Reports Issued	5,572
Emergency Store Orders Filled	3
Shipments Processed (Containers & Material)	302
Shipments Received	5,078
Store Orders Registered	23,327
Surplus, Salvage & Scrap Materials Section	
Store Orders Filled	456
Truckloads of Material Shipped	98
Carloads of Material Shipped	7

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EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

SUMMARY - NOVEMBER, 1950

The number of applicants interviewed increased from 1,210 in October to 1,384 in November. Of these applicants, 466 were individuals who applied for employment with the Company for the first time. In addition, 106 new applications were received through the mail. Open, nonexempt, nontechnical requisitions increased from 238 at the beginning of the month to 329 at the month end. Total plant roll increased from 7,838 to 7,865. Turnover rate decreased from 1.59% in October to 1.30% in November. During November, 42 new requests for transfers to other type of work were received in the Employment Office, and 26 transfers were effected.

Two employee deaths occurred during November. Forty-eight visits were made to employees confined to Kadlec Hospital and two visits were made to employees confined at home. In addition, twenty-nine salary checks were delivered to employees during the month of November. During November, this Group was responsible for presenting the Company's new Security Package to all employees at this Works. At the end of November, there were 704 employees registered under the Selective Service Act and 612 reservists on our rolls.

During the week of November 6-10, the Supervisor's 40-Hour Training Program was presented with 42 supervisors participating. Two issues of the Hanford Works "SAGE" were distributed during the month. At the request of the "S" Division, the 17-subject Nonexempt 8-Hour Training Program [redacted]

[redacted]

ployees of the "S" Division in the 200-W Area attended. A total of 189 Security Package Meetings were held during November, with a total of 6,554 employees, or 83% of the entire Hanford Works personnel, attending.

In addition to continuing work on Union Relations information for release by press and radio, Community Relations conducted a meeting in Richland during the month for all of the town's clergy and members of the staff of the superintendent of schools.

The News Bureau took advantage of opportunities to obtain interviews with

Employee and Community Relations Divisions
Summary

One of the significant activities of Public Functions during November involved the setting up of sound and slide equipment at the new Uptown Theater and other arrangements necessary to furnish the information to supervisors for their use in presenting the G.E. "Security Package" to employees. The same meeting was conducted on two successive days in the Uptown Theater and was repeated the following week at the North Star Theater.

A second series of information releases concerning Union Relations activities required preparation for material for use in radio broadcasts, newspaper advertising, and in the Works NEWS.

A new booklet entitled "Opportunity for You at Hanford Works," was completed during the month, for use by the Technical Personnel Office in recruiting graduates from the present mid-year graduating class.

Hanford Works NEWS provided employees information on the Red Cross Blood Program, the U.S. Savings Bond Drive, the new insurance plan as part of the G.E. "Security Package," and needs at Hanford Works for personnel to fill various job classifications. In addition, the Works NEWS was used to urge voting by employees, to promote safety at Hanford Works, and as a medium for urging participation by employees in the "Security Package."

The Works NEWS also published two Women's Pages. One was used for a feature story on the G.E. Community Recreation Program for adults, and the other was devoted to suggestions on preparation of the Thanksgiving meal.

Wage negotiations continued during November with Federal Conciliator, Albin Peterson, in attendance, but as of November 30, a settlement had not been reached and it appeared that the Council intended to seek intervention by the President's Davis Panel. An NLRB examiner began preparations here for the union shop election though the Company is questioning the legality of such an election. Considerable time was spent drafting a reply to a letter from the NLRB wherein many questions were asked concerning the HAMTC petition covering Health Instrument Inspectors and Laboratory Assistants. Notice that a petition for representation was filed by the Hanford Guards Union was received from the NLRB.

Negotiations with Operating engineers continued with Conciliator Peterson attending three of the four meetings. Substantial agreement was reached on most of the working rules, no progress on settlement of monetary items. Information was received that the Operating Engineers have referred their demands to the Davis Committee. Withdrawal of the Carpenters and Plumbers from the Building Trades Council may simplify negotiations for the Master Agreement without further consideration of the Building Trades Council as a party thereto. Meetings have been held on the Isolation pay increase demand, but no agreement has been reached. Carpenters reopened their Schedule "A" for a new wage scale. After one meeting, it was decided to

await the outcome of the Spokane negotiations (now in progress) before further meetings are held. Millwrights and Roofers have requested wage negotiations; no meetings have been held. Certification of results in the Machinists UA election (52 for, 12 against) was received from the NLRB effective November 2, 1950. Technical Engineers were granted a $5 increase in all classifications (in no case exceeding the present maximum rate) effective September 22, 1950. A wildcat strike by nine Plumbers on the Early tank farm occurred on November 13; work resumed on the 15th. Ironworkers threatened to stay off the job on November 22 because of the firing of an Ironworker Foreman. However, they came to work on November 22 and the Foreman was later reinstated as further investigation exonerated him from causing a major injury to a fellow worker. On November 20 Atkinson-Jones indicated that Asbestos Workers are objecting to leaving for work earlier than 7:15 A.M., and that this may result in a work stoppage; there have been no new developments since that date.

Work was started on the annual Northwest Community Wage Survey and participating concerns were contacted. A special survey was made of the rates paid Electric Meter Testers and meter readers in the Northwest. Complete card files were prepared on all employees in the H.MTC bargaining unit, all Patrolmen and all Richland and North Richland Firemen. Four Reimbursement Authorizations were issued by the AEC regarding classifications and rates.

EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

NOVEMBER, 1950

ORGANIZATION AND PERSONNEL

Effective November 7, 1950, H. E. Scott, Division Head, Employee Relations, was transferred to the Knolls Atomic Power Laboratory, and as a result the Employee Relations Division was broken down as follows:

Employment and Employee Services -- G. D. Barr, Supervisor

Training and Program Development -- J. A. Wood, Supervisor

The Suggestion System and Insurance Group was transferred to the Union Relations Division.

Employment and Employee Services

Effective November 1, 1950, a messenger was engaged and assigned to the Investigation and Files Group to replace a messenger who was upgraded and transferred to the Health Instrument Division effective November 13, 1950.

Effective November 17, 1950, a Stenographer-Typist "B", assigned to the Employee Services Group, was removed from the roll because of illness.

Training and Program Development

No organization changes were made during November.

Union Relations

Effective November 1, a Staff Assistant was transferred from the Payroll Division to the Union Relations Division.

Due to changes made in the Employee Relations Division, the Suggestion System and Insurance Group, consisting of six employees, was transferred to the Union Relations Division, effective November 1.

Community and Public Relations

No organization changes were made during November.

Number of employees on payroll	November, 1950
Beginning of month	94
End of month	93
Net loss	1

Employee and Community Relations Divisions

ACTIVITIES

Employment and Employee Services

Employment

	October, 1950	November, 1950
Applicants interviewed	1,210	1,384

466 of the above applicants interviewed during November were individuals who applied for employment with the Company for the first time. In addition, 106 new applications were received through the mail.

Open Requisitions	October, 1950	November, 1950
Exempt	4	6
Nonexempt	238	329

Of the 238 open, nonexempt, nontechnical requisitions at the beginning of the month, 119 were covered by interim commitments. Of the 329 open, nonexempt, nontechnical requisitions at the end of the month, 159 were covered by interim commitments. During November, 94 new requisitions were received requesting the employment of 170 nonexempt employees.

	October, 1950	November, 1950
Employees added to the rolls	173	142
Employees removed from the rolls	130	115
Net gain or loss	+ 43	+ 27

Of the 115 employees removed from the rolls, only 6 were removed due to lack of work. All of these employees were in the bargaining unit.

Turnover:	October, 1950		November, 1950	
	Male	Female	Male	Female
Excluding employees laid off for lack of work	1.32%	2.81%	.99%	2.57%

Over-all plant turnover:	October, 1950	November, 1950
Excluding employees laid off due to lack of work	1.59%	1.30%

During November, 16 employees terminated voluntarily to accept other employment, and 10 terminated to enter military service.

At the end of November, there were 90 employees in lack of work status, divided into the following categories:

	October, 1950	November, 1950
Nonbargaining unit employees	37	31
Bargaining unit employees	57	59

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Employee and Community Relations Divisions

Transfer Data

Accumulative total of requests for transfer received since 1-1-50	441
No. of requests for transfer received during November	42
No. interviewed in November, including promotional candidates	49
Transfers effected in November, including promotional transfers	26
Transfers effected to date since 1-1-50, including promotional transfers	334
Transfer requests active at month end	73
Transfers effected in November, for employees given lay off notices	5
Transfers effected since 1-1-50, for employees given lay off notices	52
No. of stenographers transferred out of Steno. Pool in November	5

During November, 19 people whose continuity of service was broken while in an inactive status were so informed by letter.

During the past few months a study has been underway to improve our letters utilized in connection with conducting investigations of personnel. Separate letters have been designed to be sent to former employers, personal references and to schools, in order to permit a more specialized type of inquiry and to eliminate the need for addressees to give consideration to questions that are not necessarily applicable. Also, according to instructions received from the Atomic Energy Commission under date of July 27, 1950, these letters eliminated all questions pertaining to loyalty or membership in un-American organizations. These new letters were placed in use during November, and it is expected that more specific information will be received in the future.

On November 11, 1950 the Central Washington College of Education, at Ellensburg, Washington, held a meeting of college and high school commercial teachers in the various schools throughout Central Washington, to form a permanent organization for the purpose of discussing problems and new techniques applicable to their special work. Two representatives of our Employment Group were invited to speak at the noon luncheon meeting of this group, to outline positions, both those of a clerical nature and others available at Hanford Works, as well as discuss the General Electric Company and the community of Richland. The teachers attending (approximately 40) expressed their interest and enthusiasm of the speeches by their complete participation when the meeting was opened to questions concerning the Hanford Works or the General Electric Company.

Employment Statistics

Number of employees on rolls	10-31-1950	11-30-1950
Exempt		
Male	1,844	1,852
Female	48	48
Nonexempt		
Male	4,4487	4,485
Female	1,459	1,480
TOTAL	7,838	7,865

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Employee and Community Relations Divisions

ADDITIONS TO THE ROLLS

	Exempt	Nonexempt	Total
New Hires	13	101	114
Re-engaged	0	3	3
Reactivations	2	11	13
Transfers (from other plants)	0	0	0
Actual additions	15	115	130
Payroll exchanges	10*	2**	12
GROSS ADDITIONS	25	117	142

TERMINATIONS FROM THE ROLLS

Actual Terminations	13	66	79
Removals from the rolls (deactivations)	2	22	24
Payroll exchanges	2***	10****	12
GROSS TERMINATIONS	17	98	115

92% of all terminations were on a voluntary basis, and most of these were for the following reasons: (a) Personal reasons (b) Another job (c) Other reasons

GENERAL

	10-1950	11-1950
Applicants interviewed	1,210	1,384
Photographs taken	303	301
Fingerprint impressions taken (in duplicate)	370	377

ABSENTEEISM STATISTICS
(Weekly Salary Rolls)*****

Male	2.21%	2.56%
Female	2.90	2.69
Total plant average	2.51	2.84

INVESTIGATION STATISTICS

Cases received during the month	200	248
Cases closed	269	201
Cases found satisfactory for employment	165	212
Cases found unsatisfactory for employment	6	3
Cases closed before investigations completed	6	5
Special investigations conducted	13	33

* Transferred from Weekly Payroll
** Transferred from Monthly Payroll
*** Transferred to Weekly Payroll
**** Transferred to Monthly Payroll
***** Statistics furnished by Weekly Payroll Division

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PRIVACY ACT MATERIAL REMOVED

Employee and Community Relations Divisions

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	48
Employees visited at home	2
Salary checks delivered to employees confined to Kadlec Hospital	27
Salary checks delivered to employees confined at home	2

During November, four notices were posted on all bulletin boards throughout the plant, namely: Thanksgiving Holiday notices, a poster on "What America Means", and two posters on the new Security Package.

As of the end of November, participation in Company Benefit Plans were as follows:

Pension Plan	94.5%
Life Insurance Plan	78.0
Group Health Insurance Plan	95.2
Employee Savings and Stock Bonus	40.8

Two employee deaths occurred during November, namely:

Village Maintenance Division: and
Village Labor Division

Glenn P. Sebree, Transportation Division, who was listed as retiring during October, was named in error and did not retire until this month.

During November the Company's new Security Package was presented to all employees of the Works, with special emphasis being placed on the new insurance plan. This Group was responsible for all mailing of information to employees, publicity, and arranging meetings to present the plan to both exempt and nonexempt employees. A representative of this Group conducted 47 meetings to present this plan during the past month.

Reserve and Selective Service

The statistics with respect to employees effected by the Selective Service Act of 1948 are as follows:

Employees registered under the Act	704
Employees registered who are veterans	436
Employees registered who are nonveterans	268
Employees classified as 1-A	95
Deferments requested to date	72
Deferments granted	27
Deferments denied and appealed	15
Deferments denied and not appealed	3
Deferments still pending	27

Employee and Community Relations Divisions

The statistics with respect to employees who are members of the reserve are as follows:

Number of reservists on roll	612
Number receiving calls to active duty to date	53
Number receiving calls during November	7
Deferments requested to date	31
Deferments requested in November	5
Number entering service	22

Employee and Community Relations Divisions

TRAINING AND PROGRAM DEVELOPMENT

The Supervisor's 40-Hour Training Program was held during the week of November 6, 1950. A total of forty-two (42) supervisors attended this Program. An anonymous questionnaire was completed by the participating supervisors, which resulted in a tabulation indicating objectives were achieved and program was well received.

The first four groups of supervisors enrolled in Principles and Methods of Supervision completed the program in November. A dinner meeting was held on Tuesday, November 21, 1950. A total of 73 members of the Groups and nine guests, members of the Advisory Committee and Education Committee, were present. The dinner meeting consisted of a program including a ten-minute skit presented by each of the Groups, and a brief talk by Mr. G. R. Prout. Presentation of Completion Certificates by Dr. W. I. Patnode, Chairman of the Education Committee, completed the dinner meeting. An additional 160 supervisors are attending PMS conferences weekly. Additional groups will be started in January, 1951, including supervisors working shifts.

The recommended procedures included in the Program Leader's Guide, were followed to present the provisions of the amended Pension and Insurance Plans of the new G-E Security Package. Two special preview meetings were held November 13, to introduce these changes to Senior Management. Special Supervisory-Management meetings were held November 14 and 15, to assist supervision in gaining uniform interpretation and administration of these revisions. A total of 183 additional meetings were held throughout the entire Hanford Works to present the revisions included in the new G-E Security Package, and to explain in detail the revised Insurance Plan to all employees. A total of 6,554 employees attended a total of 189 Security Package meetings during November. This represents an attendance of 83% of the entire Hanford Works personnel, explaining the benefits of the new Insurance Plan and the revised Pension Plan of the G-E Security Package.

The 17-subject, Non-Exempt 8-Hour Training Program was again presented on November 3 and 17. A total of 55 non-exempt employees of the "S" Division in the 200-W Area attended. This program was presented at the request of the "S" Division, and is being found successful by them to disseminate such information which will inform and interest the employees and objectively improve employee morale and attitude. Compilation of an anonymous questionnaire completed by all employees attending, indicates the desire for such training, as well as objectives being attained.

A total of 113 new hires were given Orientation during November. 85% elected to participate in the Group Life Insurance Plan, and 94% elected to participate in the Group Health Insurance Plan. An additional four re-engaged employees were given Orientation. 100% of these elected to participate in both the Group Life and Group Health Insurance Plans. Effective November 20, presentation of the new Group Insurance Plan was made available at Orientation.

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Employee and Community Relations Divisions

TRAINING AND PROGRAM DEVELOPMENT

Two issues of the Hanford Works "SAGE" were prepared and mailed to all members of Hanford Works Supervisory-Management. A total of 36 copies of the book, "Men and Volts", were sold during November. Word has been received from R. C. Holmquist that he will be present in Richland the week of January 8, 1951, to review the Company-wide "HOBSO" Program with members of the Training Staff to qualify as instructors. A safety meeting was held November 10, in the Main Reception Room of Building 705, for all employees of the Employee and Community Relations Divisions.

Employee and Community Relations Divisions

Community and Public Relations Division

PUBLIC INFORMATION - News Bureau

Interviews Arranged

Fulton Travis from the Yakima Morning HERALD visited Hanford Works to interview Dr. Patnode and Walt Singlevich. He discussed G.E.'s Technical Education Program with Dr. Patnode and accompanied Walt Singlevich on a typical site survey trip to Benton City and back.

Bob Reed, new SPOKESMAN-REVIEW roving reporter, made two trips to Richland during November. On the first trip he interviewed Cecil Poe and was given a package of information by the News Bureau on the uptown business district. This interview resulted in a full page feature, including both the story and photos.

On his second trip he interviewed Ed Gates about his work as a glass-blower in the 300 area, and George Barr about his search for new employees.

Don Carlson, roving reporter from the Walla Walla Union-BULLETIN, averages a trip once a month to Richland. During November he interviewed E. G. Jones about the area and village bus system.

News Bureau members sat in each of the interviews.

Meetings

Representative Jackson visited Richland and held a press conference. As usual the News Bureau sent a representative and produced a report which was sent to the Management "A" list. The object of these reports is to give a clearer and more complete picture of such press conferences than can be gained from newspapers.

Clergy and Ministers Meeting. The News Bureau arranged for coverage by reporters from SPOKESMAN-REVIEW, Yakima Morning HERALD, Tri-City HERALD and Columbia Basin NEWS.

Coverage

A total of 56 news releases were written and distributed by the News Bureau during November. Of these 45 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 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:

Seven stories on Union Negotiations explained the Company's stand on cost of living increases, use of radio time for advertising, union shop questions and other phases of the problem.

Employee and Community Relations Divisions

Construction work necessitated 10 releases. Seven bid openings were publicized and other stories were written warning of changes in traffic routing at the Bailey bridge, describing new paving work and announcing that Swift Boulevard would be extended to the by-pass highway.

The fall recreation program was publicized with 13 news releases.

The extension of G.E.'s contract at Hanford Works was announced.

The "Security Package" was publicized by two stories, one of which was confined to the insurance plan.

The successes of the Graduate School of Nuclear Engineering were publicized in a story to the "local list."

G.E. representatives who spoke out of town during November included Maurice Gardner, F. J. McKinnon, F. J. McCune. Their talks were publicized through stories and pictures distributed by the News Bureau.

Newspaper Space Report

Beginning in this News Bureau report is a new section entitled "Newspaper Space Report," which will reveal the number of column inches of space Pacific Northwest and West Coast newspapers devote to Nucleonics Department information releases. This report will always be one month old because the clipping files cannot be brought up-to-date until well after the end of the month. (See last page of C & PR report).

PUBLIC INFORMATION - Community Relations

Press interviews were arranged for the following individuals, and the subjects noted were discussed:

Don Carlson, feature writer for the Walla Walla Union-BULLETIN. He discussed housing policies and tenant relations problems with the Housing Division Superintendent. Carlson plans to write a feature article about these subjects and have it published the first Sunday in December.

Bob Reed, feature writer for the SPOKESMAN-REVIEW. He interviewed W. C. Poe, supervisor in the Commercial and Other Property Division, and four merchants in Richland's Uptown business district, preparatory to writing a feature article on the Uptown district. His article was published in the November 24 issue of the REVIEW and was praised by members of the Commercial Property group as highly beneficial to relations with Uptown merchants, and helpful in encouraging new businesses to come into Richland.

Hill Williams, reporter for the Tri-City HERALD. He talked with L. F. Huck, Manager of the Municipal, Real Estate, and General Services Divisions, to gather background material for a biographical sketch. His feature story about Mr. Huck is expected to appear in an early December issue of the paper.

Glenn McCann, instructor at Washington State College. He discussed the sociological aspects of Richland with managers in the Municipal, Real Estate, and General Services Divisions. McCann is studying for his Doctor's Degree in Sociology, and plans to write his thesis on some phase of life in Richland.

It is significant to note that all of the above visitors showed a friendly, understanding, and cooperative attitude. All of them expressed the opinion that their interviews were interesting and highly informative. They were more than abundant in their thanks for the cooperation they received from the Community and Public Relations Division.

A Ministers-Educators-Management meeting was held November 30, in an effort to further acquaint clergymen and school leaders with General Electric's responsibilities as operator of Hanford Works and administrator of Richland. About 35 guests attended the meeting and luncheon.

The General Manager of the Nucleonics Department gave a welcoming address in which he pointed out the Company's desire to be a good citizen in the community; its ambition to keep residents and leaders in the community informed of G-E activities; and its effort to operate the plant and community in an efficient, economical, and commendable manner.

The Assistant to the General Manager on Technical and Educational matters described, in security-wise language, the steps involved in producing plutonium. He drew particular attention to the safety precautions observed in the plant and the outstanding safety record established and maintained at Hanford Works.

The Manager of the Municipal, Real Estate, and General Services Divisions discussed "G.E. and the Community." He pointed out that the Company would rather not operate Richland, but since it must, by terms of its contract with the A.E.C., General Electric tries to administer the Community in a way that is compatible with the democratic method of governing a municipality.

The Manager of the Employee and Community Relations Divisions talked about the G-E "Security Package." the nine-point job program, and the services available to community groups through the Division. He emphasized that the Company endeavors to be a good employer and a good neighbor in all communities where G-E plants are located.

From the number and variety of questions asked during a "Question and Answer" period that followed lunch, it was obvious that guests were very interested in the subjects discussed by speakers. An informal survey at the meeting's end revealed that ministers and educators felt the get-together was interesting, informative, and worthwhile.

Representatives from three newspapers and two radio stations attended the affair. It is expected that they will publicize the event through their respective media. The next issue of the Works NEWS will carry a report of the meeting, and guests will be sent a "thank you for attending" letter, in the near future.

Employee and Community Relations Divisions

An Encyclopedia Americana write-up about Richland and Hanford Works was checked and corrected for accuracy, at the request of the publication's editor and the local Chamber of Commerce. The edited write-up was approved by the A.E.C. Public Information Office, before it was returned to the book's editor.

Ways of reducing Richland dormitory operating costs were discussed with the Housing Division Superintendent, from the standpoint of what effect the various ways might have on employees who live in dormitories, and the effect on other interested parties in the community.

The fact that the Housing Division Superintendent requests this meeting and discussion shows that substantial progress is being made in influencing management to consider the human relations aspects of the actions they propose and take.

Junior high student counselors and the superintendent of schools were furnished copies of the MONOGRAM featuring the article about Richland. The magazines were sent to the student counselors at the request of the local junior high school principal, who requested, also, that the counselors be placed on our mailing list to receive the Works NEWS and other G-E publications regularly. The superintendent of schools requested and received 50 copies of the "Richland" MONOGRAM to give new teachers in the community.

The Program Chairmen of the Lions, Kiwanis, and Rotary Clubs were informed that the movie about the G-E "Security Package" is available for showing at one of their meetings, if they care to make use of it. All expressed interest in showing the film sometime during the first half of December.

The above action represents another effort to acquaint community groups with the provisions of the Package.

A Radio program dealing with the fire hazard of Christmas ornaments was written for presention at the December safety meeting of the Employee and Community Relations Divisions. This five-minute radio program will be tape-recorded and offered to local radio stations for broadcast. It is expected that they will make use of it; thus, the safety meeting will not only benefit members of the Division, but the people of the community, as well.

PUBLIC INFORMATION - Public Functions

Papers and Speakers

Warren R. Lewis delivered three lectures on Hanford Piles to classes of the Nuclear School of Engineering, Oak Ridge, Tennessee.

W. N. Carsons, Jr. prepared a paper for publication in ANALYTICAL CHEMISTRY.

Roy Ko collaborated with W. N. Carsons, Jr. in the preparation of a paper for publication in ANALYTICAL CHEMISTRY.

Employee and Community Relations Divisions

K. R. Keene spoke on the subject "Radiation Problems During Atomic Disaster" at Sunnyside, Washington and his audience was the Chamber of Commerce.

A letter was written to the General Electric representative in Columbus, Ohio, informing him of the appearance of E. R. Irish before AIChE in that city.

Maurice Gardner appeared before the Spokane Exchange Club and his subject was "Eight Hours a Day with the Atom."

A speaking appearance was arranged for two members of Employee Relations at the district meeting of the Washington Educators group at Ellensburg.

Film Showings

Arrangements were made with the Instructional Materials Section of the University of Washington whereby it is possible to utilize their film rental service at a 20 per cent discount.

Ten films were provided various plant and civic groups throughout the month, as were G.E. films, with the exception of one procured from the Treasury Department.

Radio

Four General Electric union relations broadcasts were recorded and broadcast over the three local radio stations KALE, KPKW, and KWIE.

A five minute radio program on pedestrian safety entitled "Don't Walk Yourself to Death" was produced in collaboration with the Public Safety Division.

The concluding program of the "Hi, Neighbor!" series produced for the Richland Health Council was broadcast direct from the Desert Inn over station KWIE.

Program Development

A complete auditorium presentation of the G.E. "Security Package" was suggested and produced by this group for presentation at the Uptown Theatre to Hanford Works supervisors, including recording and public address system services.

A presentation of the "9 Point Program" and the "Security Package," including both text and visualizer, was prepared for the manager of Employee and Community Relations to be used in his appearance before the local clergy, educators, and press and radio representatives.

Photo House

The S Divisions color slide assignment was completed in which one hundred eight (108) color slides, 3 1/4" x 4", were exposed and processed by the Photo House

Photos of common types of aircraft were made for A.E.C. for use in their training program in identification.

Employee and Community Relations Divisions

EMPLOYEE INFORMATION - Special Programs

"Security Package" Promotion activities during November included writing and arranging distribution of a letter to all employees from Mr. Prout and two letters from H. E. Callahan to supervisors, the first announcing the start of the "Security Package" promotion, and the second letter announcing that the Plan had been accepted by employees. Special Programs also assisted in developing and writing Works NEWS publicity.

Wage dispute with the HAMTC necessitated the development of a series of information materials utilizing radio, newspaper advertising, and the Works NEWS. In addition to developing a timetable for release of this information, Special Programs developed a full page Works NEWS message which stressed the Company's reasons for wanting to avoid flat "across the board" wage increases. Two display advertisements were prepared and placed in the two local daily newspapers, the first of which stressed that according to Bureau of Labor Statistics, cost of living had gone up less than 3 per cent. The second advertisement which appeared as a full page in the November 17 Columbia Basin NEWS, and in the November 18 issue of the Tri-City HERALD, pointed out why G.E. attempts to avoid flat wage increases and compared G.E.'s total wage offer to the HAMTC with other recent settlements in major industries. Four radio scripts were prepared and broadcast over the three local radio stations from November 15 through November 19, They explained: (1) how the cost of living increase, as shown by the BLS, compared with G.E.'s wage offer; (2) that the Company's offer is better than settlements made elsewhere; (3) why G.E. attempts to avoid flat wage increases; (4) that rates at Hanford Works are substantially higher than elsewhere in the Northwest.

Wage dispute with the HAMTC also brought about the development of a series of publicity materials, and a tentative timetable for release of this information, in the event that the jurisdiction over the case is taken by the Davis Panel. Materials included one radio script, a letter to employees from Mr. Prout, and two display newspaper advertisements.

To aid recruiting of technical graduates, a 12-page booklet entitled "Opportunity for You at Hanford Works" was produced and distributed to the Technical Personnel office for use in recruiting graduates from the present mid-year graduating class. A permanent type booklet for this purpose also was planned.

The standard G.E. sign procedure was followed in having a new Employee and Community Relations Divisions "Employment Office" sign produced. Assistance was rendered to two other Divisions in developing their new signs according to standard specifications, and development of an instruction letter covering the sign procedure was started.

The Kadlec Auxilary's gift to the hospital of a new hydrotherapy tank was publicized through a news story and photos with captions prepared for release to the local press through the Auxilary.

The Company's attitude toward including a Union Shop clause in an agreement with the HAMTC was explained to all employees in a letter prepared for the General Manager's signature.

Employee and Community Relations Divisions

A letter inviting ministers and educators to attend a luncheon with G.E. management in the Desert Inn was written and mailed.

The Nucleonics Department's section of the G.E. Organization Directory was brought up-to-date and forwarded to the Advertising and Publicity Department for inclusion in forthcoming revisions of the directory.

The "Hi, Neighbor!" radio series of weekly broadcasts covering mental health problems, which was sponsored by the Richland Health Council, was publicized through a series of news releases, photos and captions released to local newspapers through a member of the Council.

Assistance in developing a monthly or semi-monthly news publication for Rotational Training Program trainees was furnished at the request of the Technical Personnel Office. Assistance included establishing format, news style, publicity techniques, and arranging for printing and distribution.

The monthly health topic,"Good Posture," was publicized through the Works NEWS with a photograph, caption and news story. In addition, assistance was rendered the Works NEWS in a feature article on Health Activities Committee through which the monthly health topic is developed.

EMPLOYEE INFORMATION - Works NEWS

During the month of November the Works NEWS gave promotion to the following community and plant programs:

Red Cross Blood Program was publicized through a front page story announcing the arrival of the Bloodmobile Unit in Richland, the responsibilities of the Red Cross in the Civil Defense Program, and pictures of volunteers at the local chapter. Follow-up pictures were published in a subsequent issue showing blood donors giving their blood.

U.S. Savings Bond Drive received front page publicity in a syndicated story urging all employees to support the Drive to help the war effort. Additional promotional material was given in a subsequent story advising that a film produced by the Treasury Department was available for showing to employee groups.

ADVENTURES AHEAD magazine feature in the November-December issue on two Richland high school students was recognized in a lead story on the front page. A picture of the two students was included in the following issue.

The importance of employees voting in the election was a theme heavily publicized in the issue immediately preceding the elections on November 7. A five column map of Richland showing all precincts and polling places was published including a full page syndicated message, an editorial, and an editorial cartoon.

Safety promotion included a continuous report on the status of the awarding of safety gifts to all plant personnel, and introduced through lead stories and pictures the new gold safety award pins being received in Areas completing an injury-free year.

Employee and Community Relations Divisions

New Insurance Plan publicity was included in three issues, and was coordinated according to plans made in New York on promotion of the Plan. The stories were prepared by the Special Programs section and were combined with syndicated releases. Material included lead stories, two editorials, an editorial cartoon, and a four page colored, comic insert.

G-E's School of Engineering received front page promotion feature article to provide employees information on its activities to date. Additional material was planned for publication prior to the opening of the second semester.

Reporter incentive was encouraged through feature article published with their bylines on both the front and sports pages. Stories by reporters included promotional material on the announcement of the fifth annual Maintenance Division Safety Derby, and hunting activities of employees.

Employment needs of the Company were reviewed, and additional material was planned for early publication.

Six page paper was published over the holiday due to the shortage of time at the printer's to run an eight page paper. Two pages contained Company messages.

EMPLOYEE INFORMATION - Women's Activities

Two women's pages appeared in the Works NEWS during the month of November. The first appeared on November 10 featuring the recreation program at Spalding school, which is conducted by the G.E. Community Recreation Division for adults. The second women's page appeared on November 17, featuring a G.E. Consumer's Institute mat with directions for roasting the Thanksgiving turkey. Also included on the page were recipes for turkey-dressing and fancy squash.

As a service to employees "What's Doing" publicized the following events during the month of November: Community Concert Series; J. Samuel Taylor Orthopedic Guild Fair; General Election; high school football; Richland Light Opera Company production; Richland Orthopedic Guild Card Party; AAUW Town Hall series; square dancing, folk dancing; G.E. recreation program at Spalding school for adults; Olympics football contest; leathercraft classes; U.P. church family fun night; Richland Players tryouts; tryouts for "Messiah" solos; and Dormitory Club Thanksgiving party.

Over 300 calls were received during November from people requesting rides or riders from week end or vacation trips through the "Share a Ride" service. Calls were received for rides or riders to cities in the Northwest, California, New Mexico, Alabama, and Wyoming.

NEWSPAPER SPACE REPORT
October, 1950
As compiled from Nucleonics Department News Bureau Clipping Files

SUBJECT	DATE	NEWSPAPERS	COLUMN INCHES	PHOTOS
GE safety chief attends manager s conf.	Oct. 5	Tri-City HERALD	2½	
	Oct. 6	Columbia Basin NEWS	2½	
Dr. Matheson - Organization Announcement	Oct. 4	Columbia Basin NEWS	1½	
	Oct. 15	Tri-City HERALD	1¼	
	Oct. 15	Walla Walla BULLETIN	1	
G.E.'s contribution to Community Chest	Oct. 10	Tri-City HERALD	3	1
GE offers 3 per cent wage increase	Oct. 3	Columbia Basin NEWS	8	
Non-union employees receive wage boost	Oct. 2	Tri-City HERALD	6	
	Oct. 3	Tri-City HERALD	4	
Hanford pay scales hiked	Oct. 3	Yakima Morning HERALD	3½	
Raise offer refused	Oct. 4	SPOKESMAN-REVIEW	1	
	Oct. 4	Seattle TIMES	1	
GE defends living cost wage boost	Oct. 4	Columbia Basin NEWS	9½	
GE union statement				
GE union statement	Oct. 5	Columbia Basin NEWS	16 3/4	
GE reveals BLS Index figures	Oct. 6	Columbia Basin NEWS	13	
Firemen, H.I. Inspectors, and Lab Ass'ts get wage increase	Oct. 6	Columbia Basin NEWS	4½	
	Oct. 8	Walla Walla BULLETIN	4	
GE declines joint survey with union	Oct. 7	Columbia Basin NEWS	8	
"Security Package" value listed	Oct. 8	Walla Walla BULLETIN	6½	
GE reveals HW wage rates higher than in Pacific Northwest	Oct. 10	Columbia Basin NEWS	11½	
	Oct. 12	Walla Walla BULLETIN	6½	

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SUBJECT	DATE	NEWSPAPERS	COLUMN INCHES	PHOTOS
E. S. Jordan speech in California	Oct. 1	Walla Walla BULLETIN	4	
	Oct. 1	Seattle DAILY JOURNAL OF COMMERCE	9	
	Oct. 1	Portland DAILY JOURNAL OF COMMERCE	11½	
Bids called for Hot Semi-Works at Hanford	Oct. 12	Columbia Basin NEWS	4	
	Oct. 12	Yakima Morning HERALD	2	
	Oct. 12	Tri-City HERALD	2	
	Oct. 15	Salem Statesman	1	
	Oct. 15	Lewiston TRIBUNE	1	
	Oct. 16	Port Angeles NEWS	1¼	
	Oct. 16	Moscow IDAHONIAN	1½	
	Oct. 20	Spokane County NEWS	2	
	Oct. 16	Portland DAILY JOURNAL OF COMMERCE	7	
Low bid for inst. maintenance & dev. bldg.	Oct. 5	Prosser BULLETIN	2	
Hiring at Hanford	Oct. 27	Columbia Basin NEWS	5½	
	Oct. 27	Tri-City HERALD	9	
	Oct. 29	SPOKESMAN-REVIEW	4½	
	Oct. 29	Walla Walla BULLETIN	6	
	Oct. 30	Ashland TIDINGS	1	
Fire drills at Kadlec	Oct. 8	Columbia Basin NEWS	7½	1
Mental health series	Oct. 6	Columbia Basin NEWS		1
	Oct. 19	Tri-City HERALD		1
Polio Cases	Oct. 10	Columbia Basin NEWS	1½	
	Oct. 10	Tri-City HERALD	2	
	Oct. 12	ORTGONIAN	1 3/4	
H.I. Division feature	Oct. 8	Walla Walla BULLETIN	2	
Tenants pay for windows	Oct. 31	Columbia Basin NEWS	3½	
Rehabilitation of prefabs	Oct. 6	Seattle DAILY JOURNAL OF COMMERCE	2	
	Oct. 22	Walla Walla BULLETIN	1	
	Oct. 27	Seattle DAILY JOURNAL OF COMMERCE	3	
	Oct. 29	Walla Walla BULLETIN	4	

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SUBJECT	DATE	NEWSPAPERS	COLUMN INCHES	PHOTOS
Bids for radio system	Oct. 10	Tri-City HERALD	2½	
	Oct. 13	Seattle DAILY JOURNAL OF COMMERCE	2¼	
	Oct. 13	Portland DAILY JOURNAL OF COMMERCE	3½	
New uptown theater	Oct. 12	SPOKESMAN-REVIEW	3	
Power outages	Oct. 1	Walla Walla BULLETIN	2	
	Oct. 6	Columbia Basin NEWS	1¼	
	Oct. 25	Columbia Basin NEWS	1½	
Fire prevention	Oct. 15	Walla Walla BULLETIN	3 3/4	
North Richland tenants supply fuel	Oct. 20	Columbia Basin NEWS	2	
Residents switch to oil	Oct. 5	Yakima Morning HERALD	5 3/4	
Fall recreation program	Oct. 7	Columbia Basin NEWS	13½	
Youth Square dances	Oct. 4	Columbia Basin NEWS	1	
Sports offered adults	Oct. 8	Walla Walla BULLETIN	3¼	
Art classes offered youths	Oct. 20	Columbia Basin NEWS	3	
	Oct. 20	Tri-City HERALD	3	
	Oct. 20	Walla Walla BULLETIN	3½	
Richland ditch water turned off	Oct. 10	Tri-City HERALD	1 3/4	
Railroad system	Oct. 8	Walla Walla BULLETIN		
		TOTAL	274 3/4 in.	1/5
		(Union Relations Statements)	103 3/4 in.	

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Employee and Community Relations Divisions

Hanford Works Photo House

	8" x 10"	5" x 7"	2" x 4"	2" x 2"	Negatives	3¼" x 4" Color Slides	3¼" x 4" B&W Slides	Prefab. A. Badges	Laminated	Portraits	35 mm Films	16 mm Films
EMPLOYEE & COMMUNITY RELATIONS												
Public Functions	24	2				3	26				20	
Employment			417	3137	301			417	5			
Special Programs	35											
News Bureau	38											
Works NEWS		182										
Training	75											
MANAGEMENT												
Rotational Training										5		
MEDICAL		53										
MUNICIPAL, REAL ESTATE & GENERAL SERVICES												
Community Safety	26					63						
Community Activities	398											
Community Patrol	90	7										
MANUFACTURING DIVISIONS												
Transportation	27											
S Division						42	41					
ATOMIC ENERGY COMMISSION	78											200 ft.
DESIGN & CONSTRUCTION DIVISIONS												
Reproduction	6											
Reactor Division	20											
Design Division	12			348	348							
Pile Technology	12											
TOTAL	841	204	417	3485	649	108	67	417	5	5	20	200 ft.

	Nov.	Oct.	Sept.
TOTAL PRINTS	5,177	5,476	4,935
TOTAL NEGATIVES	824	800	687
TOTAL ASSIGNMENTS	90	121	106

Employee and Community Relations Divisions

Union Relations and Wage Rates

Union Relations - Operations Personnel:

Negotiations continued spasmodically during November between the HAMTC and the Company regarding a blanket wage adjustment for all employees of the bargaining unit. The Council appealed to many of its international representatives to assist in the negotiations and several such officers participated in some of the meetings. The Federal Conciliator, Albin Peterson, also was present but as of November 30 a settlement had not been effected and it appeared that the Council intended to seek intervention by the President's Davis Panel.

A representative of this division spent several days in New York in discussing and outlining the Company's position in this controversy.

The National Labor Relations Board sent an examiner to this facility to work out plans and details of a union shop election as a result of a petition filed by the HAMTC for that purpose. Payroll records were being verified and a survey conducted to determine appropriate polling places. At this writing, however, the Company has raised a question concerning the legality of such petition and its status at this time has not been determined.

The NLRB directed a letter to this office wherein many questions were asked relative to the Company's position in the matter involving a petition from the HAMTC who is seeking to recognize Health Instrument Inspectors and Laboratory Assistants. Considerable time was spent in research and a reply was made to the NLRB, indicating that the Company considered inappropriate the merging of these classifications with other groups which the HAMTC represents. The Company referred to a parallel case at the Monsanto Chemical Company which resulted in the NLRB's failing to honor a petition from workers in these classifications on the premise that they were technically skilled employees, rather than production and maintenance employees.

The Company also was advised that a petition had been filed by the Hanford Guards Union who is endeavoring to represent all Guards on the Project.

Notification was received by this office on November 28 that D. E. Williams was replacing W. M. Wellman as Business Representative for the HAMTC.

Grievance Statistics

Fourteen grievances were received during the month, bringing the total received this year to 196. Three hundred seventy-two grievances have been received since the grievance procedure was established in April, 1949. Grievances were received this month from the following divisions:

Medical	1
Mfg. Instrument	1
Mfg. Maintenance	4

Employee and Community Relations Divisions

Mfg. Transportation	2
Mfg. "P" Division	1
General & Office Services	1
Plant Security & Services	1
Technical Services	1
Village Maintenance	1
Village Realty & Housing	1
Total	14

Employee grievance reports received during the month of November were regarding the following subjects:

Jurisdiction	3
Overtime Rates	1
Holidays	1
Sick Leave	4
Information to Council	1
Wage Rates	4
Total	14

The status of all grievances received to date is as follows:

	1949	1950	Total
Settled satisfactorily, Step I	56	53	109
Settled Step I - Time Limit	59	73	132
Pending at Step II	--	17	17
Settled at Step II	61	49	110
Pending - Arbitration	--	4	4
Total	176	196	372

Twelve per cent of the total grievances received this year have been submitted by employees outside the bargaining unit.

The Council Grievance Committee and the Company Negotiating Committee met once during the month for the purpose of processing grievances at the Step II Level.

Union Relations - Subcontractor Personnel:

Negotiations with the Operating Engineers continued on November 2, 8, 16-21. Conciliator Peterson was in attendance at three of these sessions. A substantial agreement has been reached on most of the working rules, but no progress has been made on monetary items, viz.: wages, overtime, effective date and isolation pay. The Unions have held firm to their original demands. The Project Negotiating Committee has refused to recognize any wage increase

or conditions of employment in excess of those negotiated in Spokane. Information has been received that the Operating Engineers have referred their demands to the Davis Committee, also that the Operating Engineers International will assume responsibility for negotiations; however, further negotiations at the Local level are now scheduled. We were also informed that the International representatives in Washington, D.C. have been in contact with Dunlop of the Panel and that the discussion has centered around (1) a six-day week, (2) an effective date for wage increases prior to January 1, 1951 (the date increases are to be effective in Spokane), (3) overtime rates, and (4) isolation pay.

Master Agreement negotiations continued throughout November with a major barrier being removed when the Carpenters and Plumbers withdrew from the Building Trades Council, thus indicating that a final agreement with the Unions signatory to the Master Agreement without further consideration of the Building Trades Council would be a possibility. On November 6, a member of our division met with the Negotiating Committee and Union representatives in Portland for a meeting with Ray Northcutt in an attempt to clarify the isolation pay question. Northcutt was successful in convincing the Union that the $1.50 and $2 isolation pay agreement was for the duration of construction. However, the Unions contend the "duration" ended in 1949 and that the construction work presently in progress is a new job, i.e. represents a new "duration." At a meeting November 17, the Union representatives acknowledged that a Building Trades Council agreement is no longer a possibility, but continued their demands for an increase in isolation pay. It was agreed that the Unions would write a letter to the Project Negotiating Committee setting forth their reasons for an isolation pay increase. No such letter has been submitted to date. At the end of the month, no further negotiations are scheduled.

On November 6, Atkinson-Jones received notice of the Carpenter's desire to open their agreement for the purpose of negotiating a new wage scale. A meeting was held on November 28, at which time the Carpenters demanded (1) increased isolation pay, (2) 30¢ an hour wage increase, (3) two weeks vacation with pay, (4) sick leave, and (5) minor changes in the working rules. Inasmuch as Spokane is negotiating at this time, which may result in establishing a wage for Eastern Washington, it was agreed to await the outcome of their negotiations before further meetings are scheduled here on the Project.

Certification of the results of the Machinists Union Authorization Election (52 for, 12 against) was received from the NLRB effective November 2, 1950.

Negotiations with Bricklayers were conducted on November 2, which resulted in a tentative agreement to put the demanded $3 wage into effect November 1, 1950.

Atkinson-Jones has received notice from the Millwrights of their desire to negotiate wage changes; at this time no date has been set for this meeting.

Employee and Community Relations Divisions

Atkinson-Jones received notice from the Teamsters of their desire to negotiate new wage rates. It is anticipated that the Spokane rates will be agreed to; however, Atkinson-Jones also received a registered letter which in effect made demands upon Atkinson-Jones for increases in excess of those prevailing at Spokane if such increasesare given to the Operating Engineers.

There have been no developments during the month concerning the Plumber's vacation plan.

Atkinson-Jones received a notice from the Roofers on September 22, of their desire to negotiate a new wage scale; as of this date no meeting has been scheduled.

An agreement was reached in negotiations between Atkinson-Jones and the Technical Engineers which involves wage increases in the amount of $5 per week in all classifications; however, in no case will an increase exceed the presently existing maximum rate for each group. The effective date is September 22, 1950.

Requests for Reimbursement Authorizations handled during the month:

1. Addition of "IBM Machine Operator" classification to Reimbursement Authorization No. 69

2. Boilermakers - Wages

3. Machinists - Agreement, Wages, etc.

All of the above requested Reimbursement Authorizations were received during the month.

Work Stoppages - Actual and Threatened

On November 13, nine Plumbers and Fitters employed by Monterey Plumbing, subcontractors on the Early Tank Farm, walked off the job at noon. This action was based on (1) Laborers opening one valve and closing another valve on a water line after quitting time the previous Friday, (2) the Early bus leaving the 3000 Area at 7:09 in the morning (six minutes early) (all Plumbers were aboard), and (3) the assertion that Monterey should employ more men of their craft in order to properly do the job. This wildcat strike ended when they returned to work on the morning of November 15.

As of quitting time on November 21, Ironworkers had decided to stay off the job the following day. Atkinson-Jones contacted Pasco and Spokane Ironworker representatives who agreed to keep the men on the job if possible. Men did report for work the following morning. The basis for this wildcat strike was firing a Structural Ironworker Foreman after he was

adjudged guilty (along with a Teamster) by the Safety Division of causing a major injury to a fellow worker. The Ironworker Foreman was reinstated after Atkinson-Jones decided, upon further investigation, that he was not at fault.

On November 20, Atkinson-Jones indicated that the Asbestos Workers are objecting to leaving for work earlier than 7:15 in the morning and that the dispute may result in a work stoppage.

Wage Rates:

During the month of November, 1950, personal contacts were made with firms participating in the General Electric Northwest Community Wage Survey to obtain up-to-date wage rate information.

The questionnaire used in the annual Northwest Community Wage Survey was revised. Work was started on the annual survey and participating concerns were contacted.

A special survey was made of the rates paid electric meter testers and meter readers in the Northwest area.

Copies of the completed Glass Blower survey were distributed to the participating firms.

A complete card file on all bargaining unit employees represented by the Hanford Atomic Metal Trades Council was prepared by the wage rate office. This file was used by a National Labor Relations Board representative in a check of signatures on the petition for a union shop election. Card files were also prepared on all Patrolmen and all Richland and North Richland Firemen. These files were also checked by the NLRB representative.

On November 20, 1950, a Reimbursement Authorization was granted by the Atomic Energy Commission establishing classifications and rates for a Survey Boat Operator and a Survey Boat Assistant.

November 9, 1950 a Reimbursement Authorization was issued by the Atomic Energy Commission changing the starting rates of the Draftsman I and Draftsman II classifications and increasing the grade of the Design III classification from grade 21 to grade 22. These changes will permit more flexibility in the application of hiring rates in line with the employee's accumulated experience and ability.

In November, the Wage Rate Division assumed responsibility for administration of the new Supervisor-in-Training classification. The necessary records are being set up. This is a nonexempt monthly salary classification.

The payment to employees assigned to the auxiliary fire brigade during the period April 11, 1949, to September 1, 1950, was made by the Payroll Divi-

sion on November 10, 1950. This has resulted in questions being raised by 59 employees in reference to the method of payment, as well as claims that they were not properly paid. Each of these cases is being individually reviewed and the review involves contacts with supervisors, Payroll and the Safety and Fire Divisions.

Two meetings were held with representatives of the Building Service Employees International Union in reference to assignment of work to Cooks by classifications in the Kadlec Hospital. It was indicated that further discussion may be necessary before the problem is finally resolved.

A list of employees in the Power Operator group who are not considered qualified for promotion was prepared and submitted to the Union Relations Division. This list was requested by the Hanford Atomic Metal Trades Council.

The progression schedules and accumulated experience required for upgrading to higher classifications in the Instrument Technician group were the subject of discussion with Instrument Division supervisors and representatives of the Union. These discussions were a continuation of previous discussions on the subject.

The rate for the Coal Leader classification was discussed with Union representatives, who contended that it was low. After considerable discussion, the Union representatives appeared to be satisfied the job was being properly paid at present. The method of handling transfers between the Coal Handler and miscellaneous Operator classifications and the rate of pay for the Coal Handler classification was discussed informally.

Several studies were made to prepare wage rate statistical data for use in negotiations and for other purposes.

Nonexempt jobs in the Pile Technology Division were reviewed and classifications and rates determined. Jobs being performed by Laboratory Assistants in the Health Instrument - Operational Division were reviewed. In addition to the above, many individual jobs were studied and discussed with supervisory personnel and classifications and rates established.

Insurance, Workman's Compensation, and Suggestion System:

Suggestion System

	October, 1950	November, 1950	Total since 7-15-47
Suggestions received	128	140	5,797
Investigation Reports completed	202	142	5,479
Awards granted by Suggestion Committee	52	27	875
Cash Awards	$ 580.00	$ 325.00	$ 12,975.00
Estimated Savings	6,243.50	3,848.46	

Employee and Community Relations Divisions

The largest single award made during November was to a "P" Division employee who suggested the combining of the slug catcher and radius tool and the machining off of part of the dummy slug used in the facing lathes. This proposal saves on manhours and eliminates some minor tool adjustment.

Insurance and Compensation

Compensation

One case was closed during the month and three were still pending at month-end.

Life Insurance

Code information which is known only to Home Office Life Underwriters Association, has been furnished 74 insurance companies and investigation agencies during the month of November, 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

	October, 1950	November, 1950	Total since 9-1-1946
Claims reported to the Department of Labor and Industries	92	79	3,815
Claims reported to the Travelers Insurance Co.	8	7*	470

* Of the above claims reported during November to the Travelers Insurance Company, all were property damage claims.

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MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS
SUMMARY-NOVEMBER, 1950

ORGANIZATION AND PERSONNEL

Number of employees on roll:	Beg.of Month	End of Month
Administration	11	11
Accounting	28	31
Engineering & Contracts	30	31
Municipal Divisions		
Public Works	125	115
Parks & Recreation	33	35
Patrol	45	45
Fire	57	57
Safety	2	3
Real Estate Divisions		
Housing	196	199
Commercial & Other Property	13	13
General Services Divisions		
Steam & General Maintenance	73	79
Patrol	20	19
Fire	36	37
	669	675

There was an increase of six employees in the Divisions during the month of November, 1950.

GENERAL

The old bridge over the Yakima River was closed November 10, 1950. All traffic is to be routed over the Bailey Bridge while the new bridge is being constructed.

The following commercial facilities began operation during the month of November: By's Burgers, Radio Station KWIE, Allene's Gift Shop, Uptown Thrifty Drugs and Uptown Tavern.

Total housing applications pending - 426.

HARoot/jak
12/15/50

MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS
ACCOUNTING DIVISION

MONTHLY REPORT FOR NOVEMBER, 1950

ORGANIZATION

Employees - Beginning of Month	28	Exempt	5	Male	11
Transfers In	2	Non-exempt	26	Female	20
Transfers Out	0		31		31
New Hires	1				
Terminations	0				
Total end of month	31				

RENTS

House Leases Processed	November	October
Total active leases beginning of month	5679	5692
New Leases	163	128
Cancellations	137	141
Total active house leases end of month	5705	5679
Modifications	11	9
Dormitory		
Total occupancy beginning of month	963	965
New assignments	114	128
Removals	115	130
Total occupancy end of month	964	963
Rental Revenue Was as Follows:		
Equipment	$ 18.80	$ 19.30
Houses		
Basic Rent	197,485.27	197,134.67
Electricity	48,205.50	48,038.52
Water	7,980.11	7,960.87
Steam	1,095.68	1,069.45
Dormitory	13,689.70	13,378.88
Facility		
Basic Rent	28,746.61	37,720.74
Electricity	3,433.92	3,433.92
Water	490.00	490.00
Steam	10,416.67	10,416.67
	$311,562.26	$319,663.02
Unoccupied Dormitory Revenue Loss	942.80	1,253.62
Unoccupied House Revenue Loss	3,120.39	3,708.94
	$315,625.45	$324,625.58

Telephone

Number of work orders processed	291	294
Number of working telephones	5070	5050
Revenue including services	$ 18,708.15	$ 18,921.05

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Municipal, Real Estate and
General Services Accounting

Miscellaneous	November	October
Invoices prepared during month	214	213
Revenue derived from above invoices	$ 7,351.22	$ 4,008.07

Building permits paid during November	
Thrifty Drug Store	$ 19.10
Richland Supply Co.	3.40
C. D. Joseph	3.25
Total	$ 25.75
Previously reported	6,986.22
	$ 7,011.97

General

Fifty-three collection letters were written during the month resulting in the collection of eighteen delinquent accounts totaling $148.21.

Four accounts were submitted to the Yakima Adjustment Service:

One telephone	$ 16.25
One rent and miscellaneous	18.56
Two miscellaneous -	13.55
Total submitted - November	48.36
Twenty-nine accounts previously submitted	433.40
Total thirty-three accounts submitted	481.76
Collected by Yakima Adjustment Service	7.99
Collected by General Electric Company	59.34
Balance Agency Accounts	$ 414.43

Nineteen minor balances accounts totaling $2.46 were written off during November.

Eighty-seven of the ninety-three active telephone accounts delinquent thirty days or over as of October 31, 1950 have been paid.

ACCOUNTS PAYABLE

Statistics	November	October
Accounts payable vouchers	226	301
Freight Bills processed	12	18
Purchase orders received	53	41
Net amount of purchase orders	$ 17,226.06	$ 13,726.58
Receiving Reports received	91	118
Total net amount disbursed	$103,607.10	$130,483.19
Number of checks issued	185	226

Municipal, Real Estate and
General Services Accounting

A summary of Active Subcontracts is shown below:

Subcontractor	Subcontract Number	Amount Awarded	Paid This Month	Total Paid	Amount Retained
Newland Cafeteria	--	* 127.30	9.85	127.30	-0-
Richland Maint. Co.	--	*140,921.73	7,208.96	140,921.73	-0-
Associated Engineers, Inc.	G-305	89,462.05	-0-	66,892.95	7,432.55
Empire Electric Co.	G-310	16,760.00	-0-	-0-	-0-
Grant, Algot C.	G-318	26,135.00	7,114.68	20,604.55	2,289.40
American Steel & Wire Co.	G-319	7,688.67	-0-	-0-	-0-
Packard Pipe & Pump Co.	G-326	10,248.50	-0-	2,169.22	241.03
C & E Construction Co.	G-328	165,992.95	44,240.94	64,947.69	7,216.41
F. O. Repine Co.	G-329	29,263.00	790.10	3,950.50	438.95
Pasco Electric Co.	G-331	7,035.70	1,203.10	1,203.10	133.68
		493,634.90	60,567.63	300,817.04	17,752.02

* Total amount of contract will be total of estimates as submitted.

COST

Reports

The October Operating Report was issued November 24, 1950.
The Comptroller's Appropriation Report and Supplemental Report was issued November 21, 1950.
The Construction Budget Status Report was issued November 24, 1950.

Budget

Operations

At the request of the AEC our operating budget was reduced and the budgeted funds returned for use on other AEC programs. This reduction was the direct result of re-programing of work.

The third quarter budget review was completed and the entire revision of the detailed budget to agree with the review was 75 per cent completed.

Construction

Appropriation Requests written

a) Parking Lot - Columbia Playfield
b) Fencing Water Recharge Basins

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Municipal, Real Estate and
General Services Accounting

Miscellaneous

A request for two fire trucks (1000 G.P.M. Pumper and Rural Fire Truck) was transmitted to Mr. V. B. Lewis, AEC Budget Office on November 22, in narrative, together with photographs of present fire equipment, for inclusion in the FY 1951 Third Quarter Budget Review.

Service Orders			Labor		Material		Total	
Code	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.
1	997	869	$1,476.30	$1,575.19	$1,552.14	$1,471.93	$3,028.44	$ 3,047.12
2	1,980	1,982	2,027.06	2,181.57	2,310.15	2,460.36	4,337.21	4,641.93
3	141	376	200.10	796.74	128.67	807.01	328.77	1,603.75
4	39		142.80		83.66		226.46	
5	262	153	371.70	271.46	638.21	514.70	1,009.91	786.16
6	192	329	402.60	898.85	146.93	249.44	549.53	1,148.29
9	30	2	118.56	15.05	95.86	5.53	214.42	20.58
Total	3,641	3,711	$4,739.12	$5,738.86	$4,955.62	$5,508.97	$9,694.74	$11,247.83

Work Orders

	September	October	November	Net Change
Active Routine	313	244	268	+ 24
Active Normal	2,275	3,363	3,077	-286
	2,588	3,607	3,345	-262
W.O. Received	1,592	1,904	1,716	
W.O. Completed	1,435	885	1,978	
	- 157	+1,019	- 262	

Special Work

a. Unit cost information
b. Accounting distribution study
c. Equipment rental study
d. Study of collection methods

General Ledger	No.	Debit	Credit
Second Class Invoices Received	88	$460,741.84	$265,262.90
Second Class Invoices Issued	44	$ 55,784.74	$ 15.44

1222659

ENGINEERING AND CONTRACTS DIVISION
MONTHLY REPORT
NOVEMBER 1950

ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt	Total
Number of employees on payroll:			
October 31, 1950	19	12	31
November 30, 1950	17	14	31

GENERAL

The following changes in office locations were effective during the month of November:

A. J. Delong and H. E. Price moved to Dormitory W-20.
W. C. Armstrong, G. F. Burn, A. H. Melhart, R. F. Noland moved to Building 761.
Roads, Streets, and Grounds Section (R. I. Bissell) moved to Building 704.
B. E. Teeple and the Control Engineer moved to Building 69-X.

A manpower shortage in the Engineering Section has caused overloading and slowing down of some phases of engineering work. Requisitions are being processed and efforts made to find the necessary men.

The following number of jobs were completed on continuous engineering service requests:

ESR-97-CH	Electrical and Structural Inspections	16
ESR-118-CF	Authorization Permits	2

The following Engineering Service Requests were completed or cancelled during the month of November:

Job No.	Description	Remarks
302-CA	Riverside Park, Trees, Parking Area	Completed 11-14-50
331-PW	Diagram of Steam Distribution System	Completed during November
405-PW	Additional Erosion Control--Street Tree Planting	Completed 11-29-50
422-CA	Townsend Playground--Site Grading Stakes	Completed 11-14-50
439-AEC	Records Control Building--Surveying	Completed during November
489-RC	Resurface Parking Lot Between Village Pharmacy and Campbell's #2 Store	Completed 11-28-50
493-AEC	Check Manholes, Fourth Housing Addition	Completed during November
499-RC	Service Drive for Washington State Liquor Store	Completed 11-28-50

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Engineering and Contracts Division (continued)

The status of facility-sponsored construction is as follows:

Theater: Construction started 12-14-49. Building in use. Minor exceptions to clear.

Morgan and Olberg Drugstore: Construction started 8-7-50. Building in use. Minor exceptions to clear.

McVicker Food Store: Construction started 5-22-50. Final inspection made 10-30-50.

Drive-In Restaurant: Construction started 7-24-50. Final inspection made 10-30-50.

Outdoor Roller Rink: Construction started 9-1-50. Work held up. 20% complete.

Richland Laundry and Cleaners: Construction started 9-22-50. Work progressing. 98% complete.

Automatic Laundry Building: Construction started 8-10-50. Final inspection made 10-30-50.

The status of Community Activities' construction is as follows:

Latter Day Saints Church: Construction started 2-5-49. Building in use. Minor exceptions to clear.

Assembly of God Church: Construction started 5-23-50. Work progressing. 5% complete.

Reorganized Church of Latter Day Saints: Construction started 8-22-49. Work progressing slowly. 60% complete.

Christian Science Society: Awaiting information.

Catholic Church Site: Awaiting information.

Northwest United Protestant Church: Construction started 9-25-50. Work progressing. 25% complete.

Westside United Protestant Church: Detailed plans and specifications received.

First Baptist Church: Awaiting start of construction.

Episcopal Church: Awaiting information.

Central United Protestant Church: Awaiting information.

Redeemer Lutheran Church: Construction started 8-21-50. Work progressing. 60% complete.

Free Methodist Church: Awaiting information.

Richland Lutheran Church: Awaiting information.

Addition to Masonic Temple: Construction started 8-11-50. Work progressing. 55% complete.

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Plans and specifications were checked for code compliance on the following construction work:

For Design and Construction Divisions:
Kadlec Hospital Additions: Plans checked. Comments submitted to D & C. Work 80% complete.

For Atomic Energy Commission:
Jason Lee Elementary School: Received plans. Work started.
Fourth Housing Addition: Preliminary plans approved 11-13-50.

The status of "C" projects (over $20,000) is as follows:

C-232-A Carmichael Junior High School Irrigation: Irrigation system 90% complete. Grass seeding satisfactory; some patching necessary in the Spring. No further work will be done until March, 1951.

C-233-A Spalding Grade School Irrigation: Work completed. Final acceptance made 11-14-50 without exceptions.

C-282-R Dust and Pollen Control Program: Modification of directive has been requested to extend completion date to 6-1-51. Mulch and manure have been spread over ball field area at Columbia Playfield to correct soil condition.

C-351-R Frankfort Playground: Grass seeding completed but not accepted. Seeding has germinated but shows no appreciable growth. Irrigation system is installed and completed with exception of lowering heads.

Columbia Playfield: Irrigation system approximately 90% complete. Balance of work around parking area now under construction. Grass seeding deferred until Spring to prevent excessive patching and regrading.

Riverside Park: Irrigation system installed and complete with exception of one battery of pop-ups and lowering of some heads. Job will be completed during December.

Marcus Whitman Grade School: Site work necessary for drainage is in progress and will be completed by 12-10-50. Storm sewer line is being installed from northwest corner of Administration Area parking lot to Lee Boulevard to provide drainage around school. Areas are being reserved but not developed for additional parking, as well as for bicycle racks, walks, and service entrances, which has resulted in some re-designing of irrigation system. Excavation for irrigation system is in progress with installation scheduled for completion by 12-22-50. Sprinkler equipment has not yet been received.

C-353 Richland Water Study: Operational information and cost information collected for the Atomic Energy Commission.

C-356 Recreation Facilities--Schools and Parks: The over-all job is approximately 18% complete. Awaiting preparation of documents for invitation to bid on all subcontract work.

C-357 Additional Capacity of Richland Sewage Lift Station: Recommendation of contract award forwarded to Contract Section. Equipment delivery held up by 50 H. P. electric motors which are scheduled to be shipped from the East 1-20-51. Delivery is expected in Richland 3-1-51.

C-359 Duane Avenue Street Improvement: Modification of directive requested extending completion date to 12-15-50. All sidewalks, curbs, and drainage have been completed. Paving is in progress; about 60% completed.

C-363 Exterior Rehabilitation of Prefabs: Subcontract approved and notice to proceed issued 11-22-50 to Baldwin-Dunham. Construction started 11-28-50. Replacement of foundation posts by Project forces continuing; approximately 413 units have been completed.

C-367 Moving Ten Prefabs from Columbia Camp to Richland: Construction completed 11-30-50; ready for final inspection 12-1-50. Modification of directive requested to extend completion date to 12-1-50.

C-372 Exterior Painting--141 Houses, 16 Dormitories, and Buildings 770, 770-A, and 770-B: Modification of directive requested to extend completion date to 6-30-51. Work suspended until April, 1951.

C-374 Casey Street Improvements: Modification of directive requested to extend completion date to 12-15-50. All paving, sidewalks, curbs, and drainage complete with the exception of approaches. Also, clean-up to be done.

C-373 Roof Replacement--South Storage Reservoir: Awaiting further instructions from Municipal Division management.

C-376 Spalding Grade School Irrigation: Work completed. Final acceptance, without exceptions, made 11-14-50.

Carmichael Junior High School: Irrigation system 90% complete. No further work to be done until March, 1951.

C-382 Well 1100-D, Duke Field Area: Directive modification requesting change in scope of work approved 11-3-50. Work on 8" test well completed. Test indicates satisfactory capacity for development and equipping 20" well. Field order prepared, signed by GE and AEC, and forwarded to subcontractor. Awaiting further approvals.

C-387 Interior Painting--16 Dormitories: Bid opened 10-28-50 and are being evaluated for award recommendation. Directive modification extends completion date to 4-1-51.

C-400 Re-roofing, Painting, and Siding of 700 Area Buildings: Plans and specifications approved and submitted for bid purposes 11-13-50. Invitation to bid issued 11-17-50.

C-405 Asbestos Siding--A & J Houses: Awaiting further instructions on disapproved project proposal.

C-407 Bathtub, Tileboard, and Linoleum Installation--206 Conventional-Type Houses: Approved by AEC 11-28-50. Plans and specifications being prepared.

Engineering and Contracts Division (continued)

C-408 Shelterbelt Planting and Irrigation: Revised project approved by AEC 11-28-50.

The status of "S" projects ($5,000 to $20,000) is as follows:

S-244 Irrigation Ditch Fencing--Wright to Van Giesen: Approved by AEC 11-24-50.

S-255-A Levee Irrigation--Newton Street to Gowan: Request for modification of informal approval to extend completion date to 12-30-50 issued.

S-255-B Grass Seeding--Marcus Whitman School: Modification of informal approval to extend completion date to 6-30-51 requested. Site grading at playground underway to prepare area for grass seeding.

S-255-C Levee 2-C: Installation of irrigation system 70% complete. Job anticipated to be completed during December.

S-255-D Parking Lot--Columbia High School: Modification of informal approval requested to increase authorized funds. Construction of curbs complete. Base rock 90% complete.

S-269 Fencing Water Recharge Basins: Modification of informal approval issued to extend completion date to 10-16-50 and increase funds. Project completed on time.

S-290 Traffic Control Signals: Modification of informal approval to extend completion date to 1-15-51 requested. Work 17% complete.

S-299 Radio Communication System--Fire Division: Modification of informal approval requested to extend completion date to 3-15-51. Bids opened 11-9-50; awaiting approval of low bidder.

S-321 Steam Pits to Dormitories: Held up pending determination of dormitory disposition.

S-333 Air-Conditioning Controls--Dormitories: Modification of informal approval requested to extend completion date to 2-15-51. Work interrupted because of lack of meters.

S-342 Repair Roof Over New Wings of 703 Building: Roofing finished and ready for application of aluminum coating on both north and south wings.

S-349 Interior Painting of 703 Building: All work completed and ready for final inspection.

S-350 Improvement of Lighting in 705 Building: Awaiting meters.

S-362 Relocation of Water Shut-Off Valves--Prefab Houses: Funds approved by AEC 11-24-50.

S-366 Exterior Painting of Hospital, Medical-Dental and Municipal Buildings: Modification of informal approval requested to extend completion date to 6-30-51. Detailed specifications to be issued 12-1-50.

S-394 Moving Hutment 1125-1: Estimates are being prepared to determine disposition of warehouse. Factors being considered are: (1) Cost to procure new members and rebuild at new site; (2) Cost to disassemble and move to salvage; (3) Cost to remove and sell to subcontractor.

S-397 Radio Communication for Tenant Service: Turned over to Real Estate Division.

S-405-B Street Tree Planting: Delayed by late shipment of plant material. To date, no materials have been received. Planting has started on public ground where trees are available from the storage yard.

S-415 Hospital Soft Water Line: Meeting held with General Services Divisions' project engineer and Engineering and Contracts Division to discuss background of design data. All in agreement to proceed with work. Minor revisions being made to drawings and specifications.

S-432 Extension to Swift Boulevard: Approved by AEC. Design completed. Construction started 11-27-50. Work includes paving, necessary repair to concrete walks, curb, gutter, and storm water drainage.

The status of "L" type 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. Contract Supervisor will forward to D & C Contract Section during the week of 12-8-50.

L-330 Install New Oil Burners in "T" Houses: Awaiting approval of funds by A & B Committee.

L-406 Installation of Cyclone Fence: Held up pending inclusion with other fencing jobs.

L-480 Service Drive, Up-town Theater (Rear): Necessary data prepared to include this work in C & E's contract. Design 75% complete.

The status of "K" projects (under $2,000) is as follows:

K-430 Exterior Painting of Kadlec Hospital, Municipal Building, and Two Churches: Detailed specifications to be issued 12-1-50.

MUNICIPAL DIVISIONS

SUMMARY

NOVEMBER

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
Fire	56	1	56	1
Parks & Recreation	10	23	11	24
Patrol	16	29	16	29
Public Works	18	107	19	96
Public Safety	2	0	2	1
	102	160	104	151

H. W. Strock and J. S. Johnson of Patrol attended the Pacific Coast International Association of Law Enforcement Officials conference in Seattle, November 13th and 14th, 1950. The topic discussed was Civil Defense.

E. E. Miller of Traffic Control and P. O. Crowder of Public Safety attended the Second Annual Governor's Safety Conference held in Olympia on November 16, and 17, 1950.

C. F. Barnes attended the Washington State Parks and Recreation Commission Advisory Board, November 17 and 18, 1950, in Tacoma, Washington.

R. H. Hopkins, Manager, Municipal Divisions, attended the Municipal Managers' Conference in Houston, Texas, November 27 through November 30, 1950.

1222bbb

PUBLIC WORKS DIVISION
MONTHLY REPORT
NOVEMBER 30, 1950

ORGANIZATION AND PERSONNEL

		Preceding Month
Number of Employees on Roll:		
Beginning of Month	125	138
New Hires (Re-activations)	1	1
Transfers In	4	2
Terminations	2	7
Transfers Out	13	9
End of Month	115	125

GENERAL

The old bridge over the Yakima River was closed to traffic, and both north and south traffic was routed over the Bailey Bridge at 4:00 P. M., on 11-10-50. A letter was received from the AEC commending the Public Works Division on the manner and time period in which the work involved in this detour was performed.

There were seven minor injuries to Public Works personnel during November; this being a frequency rate of 3.5.

Completion of Public Works hutment on Lee Boulevard was delayed on account of other urgent work, and date of occupancy has now been firmly set as 12-6-50.

Damage to Public Works properties during the severe windstorm of 10-27-50 amounted to $1,082.00.

STATISTICAL AND GENERAL

Sanitation

Collection and disposal of trash and garbage was carried on routinely during the month and total weight of collections was 918 tons as compared to 857 tons in October.

Sanitation (Continued)

A new method of towing trash trailers was developed and placed in operation during November, and cost of this operation has been decreased by 35%. The new system involves use of an adjustable trailer hitch, (designed by this Division), which eliminates the need for a helper riding with the driver to make connections to the trailer. The helper now spends all his time at the disposal pit emptying trailers, and the driver is not required to wait while a trailer is unloaded, but merely hooks up to one already emptied.

A further reduction in cost was accomplished through adjustment of work load on Saturdays. This change involved elimination of pick-ups at dormitories on Saturdays, (through agreement with Dormitories Supervisor), and discontinuance of certain trash trailer unloadings which experience shows were not necessary on Saturdays. This re-scheduling made possible the elimination of overtime work for two men on each Saturday, and was placed in effect on 11-18-50.

Erosion Control

Removal and burning of weeds in open areas throughout the city has been held up considerably by rainy weather, and is about 85% complete.

The fall discing of Duane shelterbelt was completed, and this area was sown to grain rye.

Several dead trees along the parking lot west of 700 Area were replaced as part of Project S-405-B.

One-hundred hackberry trees were received at the end of the month, and temporarily healed-in at the plant stock storage area. These, and others to follow, are intended for street tree plantings, and it is expected that work will begin on the street tree project, (S-405-B), in about two weeks.

Grading and drainage work at Richland School District Administrative Building is about 75% complete. This work is preliminary to the installation of the irrigation system and grass seeding by sub-contractor.

Public Works Divisions

STATISTICAL AND GENERAL

Roads and Streets

Routine maintenance of roads, streets, sidewalks, storm drainage systems and street sweeping was carried on according to schedule.

Thirty-six street marker signs were replaced during the month.

All work required for the routing of both north and south bound traffic over the Bailey Bridge across the Yakima River was completed on schedule and the change-over was made at 4:00 P. M., on 11-10-50. This work involved the building of a connecting road on the north side of the bridge, the erection of numerous signs, and the installation of traffic-channelizing bars and posts, and was necessary so that the old bridge could be turned over to the contractor for dismantling. This work was charged to a work order issued by the AEC.

Work on the extension of Swift Boulevard from Elm Street to the By-Pass Highway was started by the sub-contractor on 11-27-50, and completion is scheduled for approximately 12-15-50.

Projects C-374 and C-359, (improvements on Benham, Casey, Comstock, Davenport, Duane, and Goethals), are approaching final stages. At the end of the month all curb and gutter, storm sewers, sidewalks, and paving had been completed by the sub-contractor, with the exception of a strip of paving on Duane from the By-Pass to Gillespie. Considerable clean-up work remains, such as back-sloping where cuts were made into lawns, and filling where curb grade is higher than lawns.

Work performed for General Services Divisions included the completion of road and walk repairs in the 700 Area; resurfacing of Post Office compound; walkway repairs at Building 770; the removal of an old, deteriorated drainage ditch bridge under Stevens Drive north of the 3000 Area; grading of shoulders and repair of pavement edge on Stevens Drive from city limits to 3000 Area, which work is still in process.

A walkway was installed along the dike in the 1700 block of Hunt Avenue to replace one removed during dike construction. This work was at the cost of the U. S. Engineers.

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Public Works Divisions

STATISTICAL AND GENERAL

Utilities

Domestic Water:

Normal operations were carried on throughout the month with average daily water consumption dropping to 4.5 million gallons. This represents a decrease of 0.5 million gallons from October's daily average.

The Columbia Well Field has been placed in stand-by condition, and 3000-D well taken out of service for the winter months.

Two wells, Nos. 13 and 14, were pulled, and turbines and motors are in process of overhaul. Meters are also being calibrated while these wells are out of service.

The 8" test well recently drilled by a sub-contractor in the Duke Well Field was operated for the purpose of obtaining water table draw down curves, both while 1108 well is in operation and when it is in-operative. The tests indicated sufficient water supply for development at this location, and determination was made to drill a 20" well at the site.

Domestic Water System

	Well Production Million Gallons	Avg. Daily Production	Total Consumption Million Gallon	Avg. Daily Consumption
Richland	82.0211	2.7340	83.2821	2.7761
North Richland	4.9590	0.1653	28.6894	0.9563
Columbia Field	46.0118	1.5337		
300 Area			21.6730	0.7224
Totals	132.9919	4.4330	133.6445	4.4548

Irrigation System:

Complete winterization of the pressure system was accomplished by 11-16-50, and work is progressing on cleaning of silt and other debris from the supply canal. Cleaning of the drainage ditch from Lee to Swift Boulevard has been completed.

4.

Public Works Divisions

STATISTICAL AND GENERAL

Sewerage System

Routine operation was carried on during the month.

The recording meter at the Parshall flume of the old treatment plant was changed from 7-day chart rotation to daily chart rotation for more accurate recording.

A 6" by-pass line and valve were installed at the Treatment Plants to allow pumping of sludge from clarifiers of old plant to digestor of new plant.

All three mixers at primary digestor of new plant are now in operation after re-modeling and repair.

Electric heaters were installed in the pumphouse of the old plant to substitute for gas furnace, since digestors at this plant are not now in operation.

The lead caulking of 14" by-pass valve at the lift station was blown out and repairs were made on an emergency basis.

A study is in process to determine the effectiveness and desirability of using copper sulphate treatment for control of root growth in sewer mains.

Sewerage

	Total Sewage Flow Million Gallons	Average Daily Flow Million G.P.D.	Average Rate Flow Gals. per Min.
Plant No. 1	33.660	1.122	779
Plant No. 2	58.756	1.959	1,360
Totals	92.416	3.081	2,139

Maintenance Section

In addition to the work performed for various groups within the Municipal Divisions, work completed during the month by this section also includes -- removal of temporary irrigation line at Marcus Whitman School; installation of test pump at Duke Field; a 6" valve installation at Wright and Putnam; and a 4" irrigation tap near the Desert Inn for Engineering and Contracts Division -- installation of a 6" sewer service at new records building in the 700 Area for the AEC -- center-striping of 72 miles of road for Transportation Division -- and miscellaneous sign painting for various groups.

MUNICIPAL DIVISIONS

PARKS AND RECREATION DIVISION
November, 1950

ORGANIZATION AND PERSONNEL

		Preceeding Month
Beginning of Month	33	32
New Hires	3	2
Terminations	1	0
Transfers - IN	1	2
OUT	1	3
End of Month	35	33

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of November 30, 1950:

Administration	6
Principals & Supervisors	15
Clerical	23
Teachers	250
Health Audiometer	1
Building Custodians	45
Cooks	36
Nursery School and Extended Day Care	11
Bus Drivers	2
Farm Manager	1
	390

CLUBS AND ORGANIZATIONS

As of November 30, 1950, organizations' personnel included:

Boy Scouts	1
Camp Fire Girls	2
Hi-Spot Club	2
Girl Scouts	2
Justice of the Peace	1
Y.W.C.A.	1
	9

On November 3, the American Legion 12th District Conference was held at the Richland Legion Hall. This conference was attended by members of the Legion from the newly formed 12th District and is the first meeting held for this new organization.

November 3, the Richland Camp Fire Girls began their annual Mint Candy Sale to raise funds for their troops and to make up Community Chest deficit. The sale continued for a two week period.

The Recreation Advisory Committee held its regular monthly meeting November 14. The Richland Jewish Congregation was recommended for approval subject to proper security clearance.

1222672

Parks and Recreation Division

Mona Paulee, Soprano, was presented on November 13, at the first in the series of four concerts sponsored by the Richland Community Concert Association. The concert was held in the Carmichael Junior High School before a capacity crowd.

On November 6, 103 pints of blood were collected by the Bloodmobile in their monthly visit to the Richland Red Cross Building.

"The Pirates of Penzance" was presented in the Columbia High School Auditorium by the Richland Light Opera Company on November 10, and 11. Due to conflicts with other events these performances were given before small audiences.

The November 11, Armistice Day celebration was held in the Richland Plaza by the Veterans Organizations in Richland. The Richland Columbia High School band provided the music for this ceremony.

Nicol Smith spoke in Richland on November 15. "Venezuela Venture" was his topic. The program was held in the Carmichael Junior High School under the sponsorship of the American Association of University Women.

Mrs. Vivian Burke, the secretary for the Youth Council, resigned from this position effective November 30, 1950.

The number and types of organizations presently served by the Parks and Recreation Division include:

Business and Professional Clubs		20
Churches & Church Organizations		25
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
	Camp Fire Girls	36
	Girl Scouts	49
	Misc.	10
Miscellaneous		9
		290

RECREATION

The Junior Football Program which ran from September 30, to November 5, on Saturday mornings was successfully concluded with well over 1,000 boys receiving worthwhile instruction and recreation.

Arrangements were made with Carmichael P.T.A. to sponsor a Junior High square dance group until January, 1951, at which time the Parks and Recreation Division and Youth Council will co-sponsor segregated classes each Saturday night for

Parks and Recreation Division

A study was made of Community House with regard to renovations needed for successful operation when the entire south half of the Recreation Hall is transferred to the Parks and Recreation Division.

Attendance figures for the Month of November were as follows:

Community House	Boys	Girls	Totals	Sub-Totals
Physical Activities Room (25 days)	1699	400	2,099	
General Art-Juveniles (3 days)	16	44	60	
General Art - Juniors (1 day)	5	6	11	
General Crafts - Open (4 days)	59	47	106	
Leather (2 days)	5	0	5	
Textile Painting (2 days)	9	7	16	
				2,297

Lewis & Clark

Square Dancing - all youth 4 sessions) - Sub-Total 788
(100 parents observed activity)

Spalding Gym	Adults	Boys	
Women's Night - 4 sessions	59		
Men's Night - 4 sessions	144		
Co-Recreation Night - 5 sessions	126		
Badminton - 4 sessions	56		
Fencing - 4 sessions	59		
Weight lifting - Senior, Junior 5 sessions		66	
	444	66	510

Columbia High School	Boys	Girls	Total	
Minnesingers Boy's Chorus - ages 8-14 (4 sessions)	296			296
Archery Instruction - Senior, Junior (3 sessions)	190	22	212	212

Servicemen's Center	Recreation Count Men	Recreation Count Women	Actual Peak Count Men	Actual Peak Count Women	
November 5	137	25	55	10	
" 12	30	12	12	5	
" 19	35	20	14	8	
" 26	68	35	28	14	
	270	92	109	37	362 (Rec. Count)

Bomber Bowl	Boys	
Junior Football School - 14 and under	149	149
	GRAND TOTAL	4,614

1222674

Parks and Recreation Division

LIBRARY

The Librarian, MissMaryan E. Reynolds, reported for work on November 16. Miss Eleanor Paulson, clerical, reported for work on November 13. At present one vacancy exists on the clerical staff due to the transfer of Miss Amidon to the Recreation Division.

Clearance has been requested for the employment of Miss Bertonia Hoyler, Children's Librarian, and Miss Doris Roberts, Reference Librarian. Negotiations have been started on the final selection of an Order-Catalog Librarian and clerk to complete the staff.

The Library Advisory Board met on November 28. Action was taken on the organization of the Board, duties of the Board, and general library policy.

The completion date of the library has been delayed because of the inability of the contractor to obtain delivery of necessary materials. The library staff will move to the new library building soon after January 1, 1951.

PARK MAINTENANCE

During the month work was continued on the damaged trees and playground facilities, caused by the high winds the latter part of October.

Repairs to equipment and the general cleanup of all parks and playgrounds were accomplished with the exception of replacements.

During the month the interior of the Burlin Camp building was repaired. The necessary carpentry work was done previous to the required maintenance painting of the interior.

Cleanup and necessary site work was started on the establishing of a rough picnic and play area in the extreme north end of Riverside Park. This area will be available for use next summer.

Renovations of Building 1125, Parks Maintenance Division Warehouse, including the lawn mower repair shop, continued during the month. This included electrical, painting, and carpentry work.

The Parks Maintenance Division loaned labor to the Public Works Division. This loaned time totaled 56 hours during the Month of November.

Eighty-four loads of top soil were added for leveling work at Riverside Park. This preceded the grading work ahead of the contractors on Project C-3514-14-394 for the installation of a pop-up irrigation system.

Two Engineering Service Requests were issued by the Parks and Recreation Division during the month.to prepare cost estimate and plans and specifications for the installation of adequate ceiling lighting in the south room at the Community House and also to prepare a study of the drainage problem on the land side of the levee in the vicinity of the Desert Inn.

Ten Work Orders were issued during the month.

1222675

Parks and Recreation Division

SPECIAL EVENTS

On November 7, 1950, a general election was held. The Parks and Recreation Division assisted in this election by transporting the voting booths, ballot boxes and flags to and from each voting place. Precinct maps were posted by the Parks and Recreation Division on their bulletin boards. A supervisor from this division was on duty call during the election and arrangments were made to have tables and chairs available wherever they were needed at the polling places.

On November 10, 1950, arrangements were made to have janitorial services provided for the lavatories and press box before and after the Yakima High School versus Richland High School football game held in Bomber Bowl. Arrangements were made for the necessary traffic patrol assistance during the game.

The Christmas decorations program, which is co-ordinated by the Parks and Recreation Division, is as follows:

1. Arrangements have been made with the Electrical Division to assist in the maintenance of the decorations provided by the Greater Richland Chamber of Commerce at 19 intersections through the community. These arrangements provide that if wind damage occurs to this equipment and it is considered a hazard to traffic that the decorations will be taken down and wrapped around the pole until the concern renting the equipment can come to Richland from Yakima and make the necessary repairs.

2. The Girl Scouts have nearly completed 260 patterns which will be used as Christmas pole decorations. Money was obtained to purchase paints for these decorations from the American Legion Post #71 and the Richland Junior Chamber of Commerce. These pole decorations will be installed by the Junior Chamber of Commerce, the members of the Greater Richland Chamber of Commerce, fathers of the Girl Scouts, and members of the Richland Lions Club.

3. Arrangements were made for the use of a semi-truck by the Junior Chamber of Commerce to pick up and deliver trees from the National Forest in the Tollgate area. Arrangements were also made for the loan of equipment to repair and make light strings for the lighting of the trees to be installed in the Plaza by the Richland Junior Chamber of Commerce. This equipment included sodering irons, soder, wire cutters, electricians' pliers, wire strippers and 6,000 feet of #14 electrical wire. Arrangements were also made to pick up and deliver a Nativity Scene from the storage hutment to the Plaza. This will be installed and maintained by the Junior Chamber of Commerce.

1222676

Parks and Recreation

MAJOR EVENTS DURING MONTH OF NOVEMBER

November 3	American Legion District #12 Conference	Legion Hall
3	Camp Fire Girls Mint Sale	Community
3	Mona Paulee - Community Concert	Carmichael Jr. High
6	Bloodmobile	Red Cross
7	General Election	Community
10	Richland vs. Yakima - Football	Bomber Bowl
10 - 11	"The Pirates of Penzance" - Richland Light Opera Co.	Columbia High School
11	Armistice Day Celebration	Plaza
15	Nicol Smith - American Association of University Women	Carmichael Jr. High

1222677

MUNICIPAL DIVISIONS

RICHLAND FIRE

November 1950

ORGANIZATION AND PERSONNEL

Number of Employees on Roll:	Present Month	Preceeding Month
Beginning of Month	57	58
New Hires	0	0
Terminations	0	0
Transfers In	0	0
Transfers Out	0	1
End of Month	57	57

FIRE PROTECTION

Response to Alarms		17	15
Fire Loss (Estimated):	Hanford Works	$247.40	$2,054.00
	Personal	31.75	544.00
	Total	$279.15	$2,598.00
Investigation of Minor Fires and Incidents		7	11
Safety Meetings		8	8
Security Meetings		4	5
Inside Drills and Schools		46	43
Outside Drills		12	32
Fire Alarm Boxes Tested		183	183

Two Boy Scouts examined for Firemanship Merit Badge.

Fireman adressed twenty-four members of a Red Cross Safety group on "Fire Prevention In The Home".

Ladder company placed ropes on flag pole at U. S. Army Headquarters in North Richland.

Apparatus dispatched fourteen times during the month to A.E.C. Airport to standby for aircraft landings and take-offs.

During routine inspection of fire hydrants, one was found defective and work order issued for necessary repairs.

1222678

RICHLAND FIRE DIVISION November 1950

FIRE PREVENTION

Fire Inspections:		Fire Extinguishers:	
700 Area Buildings	38	Inspected	284
1100 Area Buildings	21	Installed	3
Commercial Facilities	14	Relocated	8
A.E.C. Airport	6	Refilled	2
Public Schools	21		
Homes	2		
Total	102		

Fire inspections during November resulted in the following reports submitted on existing hazards:

Real Estate	3
Municipal Engineering (new construction)	2
Public Schools	9
Miscellaneous (700 and 1100 Areas)	29
Total	43

Collected reports, records, scripts and photographs of Richland's 1950 Fire Prevention Week campaign, compiled a comprehensive scrap book of such material and mailed book on November 29th to National Fire Prevention Committee in New York City for entry in the national contest.

Assisted Engineers in review of plans on new construction at Kadlec Hospital and Commercial Facilities. Also assisted on inspection of new wing to Medical Clinic.

Annual winterizing begun on fire extinguishers located in unheated buildings.

1222679

MUNICIPAL DIVISIONS

RICHLAND PATROL DIVISION

NOVEMBER 1950

ORGANIZATION AND PERSONNEL

		Preceding Month
Number of Employees on Roll:		
Beginning of Month	45	47
New Hires	0	0
Terminations	0	0
Transfers In	0	1
Transfers Out	0	2
End of Month	45	45

GENERAL

On November 5, 1950, Capt. J. S. Johnson of the Crime Prevention Section and Walter Johnson, Juvenile Probation Officer, appeared on a radio skit over Station KWIE. The topic for the skit was "Juvenile Delinquency" and was part of a series of broadcasts called "High Neighbor" sponsored by the Health Department of the hospital.

On November 13 and 14, 1950, Chief H. W. Strock and Capt. J. S. Johnson attended a conference in Seattle on Civil Defense. This conference was sponsored by the Pacific Coast International Association of Law Enforcement Officials. Both Chief Strock and Capt. Johnson are members of the Association.

On November 15, 1950, a group of Richland patrolmen toured the Washington State Penitentiary.

On November 16, 1950, Capt. J. S. Johnson and Ptm. C. S. Powell attended a meeting in North Richland sponsored by the military of the North Richland Army Base for the purpose of determining the religious and recreational facilities available to Army personnel.

A movie film entitled "Think It Over" dealing with incendiary fires was obtained from the National Board of Fire Underwriters by Capt. J. S. Johnson of the Crime Prevention Section and was shown to all personnel in the Richland Fire and Patrol Divisions during the week of November 20 through 24, 1950.

During the month of November, the Washington State Patrol discontinued the renewal and issuance of drivers licenses at Patrol Headquarters due to a shortage of manpower. This service will be reinstated in December.

Alterations of the Patrol Building were made during the month to accommodate space for combining the Traffic Section personnel and other related activities.

1222680

Arrangements were made at the request of Mr. Jay Perry, County Commissioner, to use the Richland Patrol Desk as the air raid warning contact point for Benton County. A special telephone was installed for this purpose.

During the month, 112 traffic violation reports were received. These consisted mainly of speeding cases. A total of 91 other reports were received. These consisted mainly of petit larceny cases.

During the month, a total of 127 letters were received, compared to 164 last month. These consisted of 114 inquiries on arrests and 13 requests for assistance.

During the month, 15 prisoners were processed through the Richland Jail.

During the month, 18 gun registrations were recorded.

During the month, 41 bicycle registrations were recorded.

TRAFFIC

There were 22 reportable accidents for the community of Richland for the month of November. This was nine more than the preceding month and two more than the same month last year. There was one of these accidents which resulted in minor injuries to two persons.

Three of the above accidents were caused as a result of reckless driving, seven were caused by negligent driving, six were caused by failure to yield right of way, four accidents were caused by one car following the preceding vehicle too closely, and two were caused by improper backing.

There were no fatalities and no major injuries as a result of traffic accidents this month.

Two safety films were shown at safety meetings upon request. One general traffic safety meeting, which included a bicycle safety lecture, was given to the student council at Spalding School.

The old Yakima River Bridge south of Richland was closed to traffic, and traffic entering Richland was routed over the Bailey span. This change has slowed down traffic leaving Richland during shift change to some extent but so far has not caused a traffic jam.

On November 16 and 17, 1950, Sgt. E. E. Miller attended the Governor's Safety Conference at Olympia, Washington.

A temporary change in assignments has been made in the Traffic Section. Ptm. D. F. Metz has taken over the supervision of the School Boy Patrol in place of Ptm. E. L. Edgar who has been assigned to shift work. Five meetings were held with the School Boy Patrol. One group was supplied with ear muffs, and other groups will be supplied as soon as meetings can be arranged.

1222681

TRAINING

Subjects covered in the lieutenant's training classes for the month were as follows:

Traffic Accident Investigation
Criminal Investigation
Preservation of Accident Scene
Preservation of Crime Scene

Advance training at the small arms range for the period in field instruction was as follows:

Pistol 2 hours

Qualifications on the Army-L Course were as follows:

Score	No.	Per cent
Expert	1	33%
Marksman	1	33%
Unqualified	1	33%

A total of three men reported to the Range for training.

ACTIVITIES AND SERVICES

	September	October	November
Check on absentees *	1	1	2
Persons assisted **	135	154	122
Doors & windows found open	24	31	29
Lost and found children	21	4	13
Ambulance runs	21	20	19
Ambulance driver provided		5	0
Lost dogs reported	0	8	10
Dog, cat, loose stock complaints	35	46	44
Persons injured by dogs	8	7	5
Bank escorts and details	37	39	38
Fires investigated	15	20	17
Miscellaneous escorts	37	41	36
Complaints investigated	39	42	37
Deaths reported	1	6	0
Lost and found articles	19	20	40
Totals	393	439	412

* Check on absentees was discontinued November 24, 1950

** Includes assisting other departments, assisting outside police agencies, assisting private persons, delivering emergency messages, etc.

1222682

1222683

RICHLAND PATROL DIVISION
RICHLAND JUSTICE COURT CASES
NOVEMBER 1950

VIOLATION	NO OF CASES	NO OF CONV.	NO OF FORF.	CASES CONT.	CASES PEND.	CASES DISM.	WARR ISS.	SENT JAIL	SENT SUSP	LIC REV	CASES ORIG. PREV. MON.	CASES INCL. OTHER VIOL.	BAIL FORF	FINES	FINES SUSP.
Dr. Lic.	12	8	1			3					2	6	$ 7.50	$ 35.00	$ 15.00
Def. Equip.	4	2	2								1	3		5.00	5.00
F.T.S.&.I.	2	2								1				130.00	102.50
F.T.Y.R.O.W.	3	2		1										25.00	
Foll. to close	1	1												12.50	12.50
Ill. Parking	13	8	3				2				2		10.50	28.00	28.00
Ill. use of one way road.	1	1										1			
Lic. Plates	1	1												5.00	5.00
Neg. Driving	10	5	4	1							2		90.00	127.50	
Reck. Driving	2	2								2				105.00	
Speeding	27	17	9	1							4		96.50	197.50	10.00
Stop Sign	10	7	2	1							2	1	11.00	37.50	12.50
Indecent Exposure	1	1												27.50	
Indc. Lib. with Minor	1	1 (Taken to Superior Court)													
Public Intox.	1	1						1						20.00	20.00
Public Nuis.	2	2												55.00	
Third Deg. Assault	1	1												12.50	12.50
TOTALS:	92	62	21	4		3	2	1		3	13	11	$215.50	$823.00	$223.00

NOTE: Two Reckless Driving amended to Negligent Driving.

MONTHLY REPORT
RICHLAND PATROL DIVISION
NOVEMBER, 1950

OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
PART I				
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.	3	0	0	2
6. Larceny—Over $50.00	2	0	2	5
Larceny—Under $50.00	24	1	5	30
Bicycle Theft	28	0	0	30
7. Auto Theft	1	0	0	1
TOTAL PART I CASES	58	1	7	68
PART II				
8. Other Assaults	1	0	1	1
9. Forgery & Counterfeit.	1	0	1	0
10. Embezzlement & Fraud	1	0	0	1
11. Stolen Prop:Buy:Rec:Poss:	0	0	0	0
12. Weapons: Carrying:Poss:	0	0	0	0
13. Prostitution	0	0	0	0
14. Sex Offenses	2	0	2	0
15. Offense Ag.Fam. & Child.	4	0	1	3
16. Narcotics—Drug Laws	0	0	0	0
17. Liquor Laws—	1	0	1	0
18. Drunkenness	1	0	1	0
19. Disorderly Conduct	5	0	3	2
20. Vagrancy	0	0	0	0
21. Gambling	0	0	0	0
22. Driving While Intoxicated	0	0	0	0
23. Violation Rd. & Dr. Laws:				
Speeding	23	0	23	0
Stop Sign	8	0	8	0
Reckless Driving	2	0	2	0
Right of Way	3	0	3	0
Negligent Driving	8	0	8	0
Defective Equip.	3	0	3	0
24. Parking	11	0	11	0
25. All Other Traffic Viol.	15	0	15	0
26. All Other Offenses:				
Public Nuisance	2	0	2	0
Prowlers	4	0	0	8
Pickup for Outside Agency	1	0	1	0
Dest. of Personal Prop.	5	0	0	4
Dest. of Gov't. Prop.	2	0	0	0
Malicious Mischief	10	0	2	10
Vandalism	3	0	3	7
Car Prowls	3	0	2	2
Illegal Use of Firearms	1	0	1	0
27. Suspicion	2	0	1	2
TOTAL PART II CASES	121	0	94	40

(Continued on Page Two)

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PAGE TWO—MONTHLY REPORT, RICHLAND DIVISION—NOVEMBER, 1950

OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
PART III				
28. Missing Persons	8			8
Lost Persons	7			7
Lost Animals	6			6
Lost Property	4			4
29. Found Persons	3			3
Found Animals	1			1
Found Property	38			38
TOTAL PART III CASES	67			67
PART IV				
30. Fatal Mot.Veh.Traf.Acc.	0			
31. Pers.Inj.Mot.Veh.Traf.Acc.	1			
32. Prop.Dam.Mot.Veh.Acc.	21			
33. Other Traffic Accidents	0			
34. Public Accidents	No Accurate Statistics Kept			
35. Home Accidents				
36. Occupational Accidents				
37. Firearms Accidents	0			
38. Dog Bites	0			
39. Suicides	0			
40. Suicide Attempts	1		1	
41. Sudden Death & Bodies Found	0			
42. Sick Cared For	0			
43. Mental Cases	0			
TOTAL PART IV CASES	23		1	
COMPOSITE TOTALS PARTS I,II,III,IV CASES	269	1	102	175

*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 are no arrests.

Property Reported Stolen During Month $3,648.95 (29 bikes)
Property Recovered During Month 3,739.51 (30 bikes)

JUVENILES INVOLVED

4 P.L. Cases 7 Juv. 6 Age 12, 1 Age 15 (Males)
2 Car Prowls 6 Juv. Ages 12 (Males)
3 Mal. Misch. 4 Juv. Ages 11;12,14 & 15. (Males)
2 Vandalism 8 Juv. Ages, 8,10,3-11,14,15, & 17. (Males)
1 Illeg. Poss. of Liquor, 1 Juv. Age 16 (Male)
1 Illeg. Use of Firearms, 3 Juv. Ages 2-11, & 13.(Males)
1 Invest. 3 Juv. Ages 2-16, & 17. (Males)

46 Offenses occurred in previous months but cleared this month.

6 1222685

RICHLAND PATROL DIVISION
NOVEMBER, 1950

Number of offenses known to police per 25,000 inhabitants in cities of 25,000 people.

Class.	Wash.Oregon & Calif. Six Months (July-Dec. 1949)	Wash.Oregon & Calif. One Month Average	Richland Six Months (July-Dec. 1949)	Richland Oct. 1950	Richland Nov. 1950
Murder	.68	.11	0	0	0
Robbery	18.95	3.15	0	0	0
Assault	8.37	1.39	0	1	1
Burglary	200.7	33.4	27	2	3
Larceny	654.07	109.01	175	30	26
Auto Theft	76.8	12.8	2	4	1
Bike Theft			109	20	28

Number of offenses known to police per 25,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

Class.	State of Washington Six Months (July-Dec. 1949)	State of Washington One Month Average	Richland Six Months (July-Dec.1949)	Richland Oct. 1950	Richland Nov. 1950
Murder	.91	.15	0	0	0
Robbery	25.7	4.4	0	0	0
Assault	7.5	1.2	0	1	1
Burglary	167.3	27.8	27	2	3
Larceny	509.0	84.8	175	30	26
Auto Theft	81.2	13.5	2	4	1
Bike Theft			109	20	28

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

Class.	National Average Six Months (July-Dec. 1949)	Richland Six Months (July-Dec. 1949)	Richland Oct. 1950	Richland Nov. 1950
Robbery	54.1	0	0	0
Burglary	59.5	3	0	0
Larceny	44.8	43	3	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."

7 1222686

PATROL DIVISION - TRAFFIC CONTROL STATISTICS

November, 1950

1222681

MOTOR VEHICLE ACCIDENTS:

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.
Richland	13	22	0	0	0	0	0	2

ACCIDENT CAUSES:

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Causes	
	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.
Richland	5	7	2	6	2	3	4	6

PLANT WARNING TRAFFIC TICKETS ISSUED:

	Speeding		"Stop" Sign		Parking		Imp. License		Def. Equipment		Other Violations		Total	
	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	N
Richland	1	2	0	0	51	52	4	1	9	4	0	1	65	

TRAFFIC CHARGES AND COURT CITATION TRAFFIC TICKETS ISSUED:

	Speeding		"Stop" Sign		Drunken Dr.		Reckless Dr.		Right of Way V.		Neg. Dr.		Parking V.		Other V.		Totals	
	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	Nov.	Oct.	No
Richland	26	28	9	9	2	0	5	3	2	3	6	7	22	11	24	17	96	7

TRAFFIC VOLUME: Average 24-hour Traffic Volume Count for week ending on 11-17-50, at the intersection of Jadwin Avenue and Williams Boulevard - 10,299 Motor Vehicles.

Note: Traffic Control Statistics show ORIGINAL CHARGES ONLY.

MUNICIPAL DIVISIONS

Public Safety Division

November 1950

ORGANIZATION AND PERSONNEL		Preceeding Month
Number of Employees on Roll	3	2
Beginning of Month	2	3
New Hires	1	0
Terminations	0	1
Transfers	0	0

STATISTICAL AND GENERAL:

The Public Safety Office spent considerable time in accumulating and compiling data on the Fire Prevention Week activities which was sponsored by the Richland Chamber of Commerce and coordinated by the Richland Safety Council. This material was turned over to the Fire Prevention Division to compile into an entry for the National Contest of the National Fire Protection Association, New York City.

One Hundred and twenty column inches was published in local newspapers including four editorials, the greater part involving Pedestrian Safety, which was the national theme for the month.

Two special news articles were published on Pedestrian Safety and one radio interview, entitled "Don't Walk Yourself to Death" was broadcast twice over station K W I E, sponsored by the Richland Safety Council and Public Safety Division.

A letter was received from the National Safety Council requesting the use of the Lady From Safety Land radio stories originated by Betty Szulinski, for the Richland Safety Council and produced by this office. The National Safety Council intends to release this program on a nation wide basis (over 485 radio stations) for children up to ten years of age.

An invitation was extended to the following eight organizations for the appointment of a member to represent their organizations in the Richland Safety Council:

School Health Council
Toastmistress Club
Toastmaster's Club #406
Toastmaster's Club #400
Dr. J. Samuel Taylor Orthopedic
New Richland Orthopedic Guild
American Legion Auxiliary
Y. W. C. A.

Several spot announcements covering Pedestrian Safety were forwarded to the local radio stations and used.

Various public educational Safety Films were furnished several civic organizations, youth groups and the Army. The total attendance to these showings total between 1100 and 1200.

Safety material pertaining to child care will be distributed to mothers attending training classes given by Public Health. This material will be furnished by this office.

Plans and Specifications for installation of additional sprinkler system in Kadlec Hospital were reviewed by this office.

The Supervisor of the Public Safety Division attended the Governor's Safety Conference in Olympia, October 16th and 17th.

MUNICIPAL, REAL ESTATE AND GENERAL SERVICE DIVISIONS

HOUSING AND REAL ESTATE MAINTENANCE DIVISION

November, 1950

ORGANIZATION AND PERSONNEL

Number of employees on payroll		November
Beginning of month	(23 exempt employees (173 non-exempt employees)	196
End of month	(23 exempt employees (176 non-exempt employees)	199

RICHLAND HOUSING

Housing Utilization as of Month End

Houses Occupied by Family Groups	Conventional	Block	T	Pre Cut	Ranch	Pre Fab	Apt	Tract	Total
G. E. Employees	2215	258	8	383	843	1163	58	41	4969
Commercial Facilities	94	9	1	26	68	62	5	5	271
Medical Facilities	6	13	--	2	--	1	---	—	22
Community Activities	9	—	--	1	7	3	---	1	21
Post Office	7	--	--	1	3	10	---	3	24
A. E.C.	97	30	--	13	40	23	4	4	211
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
J. G. Turnbull					1	1			2
J. A. Terteling					1				1
Newberry Neon	3	1	--	1	--	--	—	—	5
Vernita Orchards								4	4
Fred J. Early Co.					1				1
TOTAL HOUSES OCCUPIED	2489	331	9	443	995	1319	73	58	5717
Houses assigned-Leases written	6	1		2	1	2	—	—	12
Houses assigned-Leases not written	1	1		4	4	3	1		14
Houses available for assignment	4	—	1	1		8	—	—	14
TOTAL HOUSES	2500	333	10	450	1000	1332	74	58	5757

1.

Housing and Real Estate Maintenance Division

Housing Turnover During Month	Month	Moved In	Moved Out	Month End	Difference	
Conventional	2480	34	25	2489	Plus	9
Block Type	331	4	4	331		
"T" Type	10		1	9	Minus	1
Precut Type	440	17	14	443	Plus	3
Ranch Type	991	13	9	995	Plus	4
Prefab Type	1305	43	29	1319	Plus	14
Apartments	74		1	73	Minus	1
Tract	58			58		
Total	5689	111	83	5717	Plus	28

Dormitory Statistics

Dormitories

			Occupants	Vacancies	Total Beds
Men	Occupied	14	531	35	566
Men	Unoccupied				
Women	Occupied	12	***405	**126	*531
Women	Unoccupied	1			

Women's Dormitories occupied by:	
G. E. Offices	2
Education	1
Apartments	1
	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 Service 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

Houses Allocated to new tenants	51
Exchanged houses	22
Moves (Within the Village)	24
Turnovers	9
Total Leases Signed	111
Terminations	37
Total Cancellations	83
Applications Pending	426

Allocation Section Statistics

Voluntary Terminations	15
R. O. F.	1
Discharge	1
Transfers	11
Retirement	
Houses assigned "As Is"	21
Move Off Project	3
Houses sent to renovation	40

1222691

GENERAL

A Supplement to the original Appraisal Report of the Vaillage was completed on November 1, 1950 by Messrs. Wheeler and Eastman.

The rehabilitation of the ten 2 bedroom prefabs, brought in from Columbia Camp was started this month by the Real Estate Maintenance Division.

TENANT RELATIONS

Processing of Service Orders, Work Orders, and Service Charges

	Orders Incomplete As of 10-31-50	Orders Issued From 10-31 to 11-30	Total Orders Incomplete as of 11-30-50
Service Orders	445	2605	279
Work Orders	3304	702	3658
Service Charges	56	192	55
Renovation Work Orders	—	77	39

Principal Work Order Load

	Incomplete as of Oct. 31, 1950	Incomplete as of November 30, 1950
Laundry tub replacements	81	94
Bathroom renovation (tub-linc-tile)	226	272(206 Sub-Contract)
Tileboard only (bathroom)	51	37
Kitchen cabinet linoleum	168	233
Kitchen floor linoleum	13	39

MAJOR WORK PROGRAM

Repair to prefab foundations (827 foundations are complete) 505
Relocation of prefab stop and waste (308 stop and wastes complete) 325

WORK ORDERS COMPLETED DURING THE MONTH OF NOVEMBER

6 Two bedroom prefabs utility rooms were lined with wallboard and linoleum installed on floor.
18 Ranch and A & J sidewalks were raised to grade.
10 Houses had concrete steps installed.
8 Two bedroom prefabs had sliding cupboard doors changed to swinging doors.
38 Bathtubs were installed.
111 Floor linoleums were repaired and replaced.
70 Table top linoleums were repaired and replaced.
64 Bathrooms had tileboard installed.
45 A & J houses were jacked up and shimmed.
9 Precut houses were jacked up and shimmed.
54 Sinks were sealed with Chempoint.
100 (Approximately) Trees were removed. These were blown down as result of windstorm.
39 Houses had sheet metal gutters installed.

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TENANT RELATIONS (continued)

12 Houses had hot water heaters replaced.
212 Fill caps were installed on oil tanks.
40 Shower stalls were installed in Prefabs.
23 Prefabs and 5 tract houses were painted on the interior.
16 Basement walls were water proofed.
18 Interior touch-up paint jobs were completed.

Alteration Permits issued during the month of November totaled 50 compared to 84 in October.

Coal furnace to oil	11	Automatic Washer	7
Automatic Dishwasher	1	Longer cord on Range	1
Back door in prefab	2	Coal furnace to gas	2
Water softener	2	Refinish floors	2
Clothes Dryer	3	Raise Threshold	2
Driveway	2	Extra Cupboards	1
Basement partition	3	Basement excavation	3
Ventilating Fan	1	Radio Antenna	1
Furnace stoker	2	Removal of Broom Closet	1
Tool Shed	1	Air Conditioners	1
Dampers in heat ducts	1		

1095 Inspections were made during the month of November as compared to 1334 made during October.

Alteration Permits	99	Bathtubs	108
Cupboards	15	Drainage	5
Driving on Grass	1	Floor Boards	21
House siding	7	Jack and Shim	20
Leaking basements	8	Linoleum	220
Paint	16	Porch and Steps	16
Screen doors	11	Shades	40
Shower stalls	31	Sidewalks	22
Sinks	13	Tileboard	117
Toilet seats	4	Top Soil	13
Trailers	7	Walls	28
Windows	34	Miscellaneous	206
Laundry tubs	33		

1222693

MAINTENANCE (HOUSING AND REAL ESTATE) FOR MONTH OF NOVEMBER, 1950

HEAVY MAINTENANCE STATISTICS

	Man-Hour Backlog Non-Routine	Man-hour Backlog Routine	Craft	Non-Exempt Manpower	Crew days
	65560	0	Carpenters	55	149
		640	Millwrights	4	20
	2660		Painters	17	19
	3867	1000	Plumbers & Fitters	13	46
	1270	1000	Serviceman	10	15
	1906		Sheetmetal	4	59
	381	300	Truck Drivers	3	15
	80		Upholsterers	1	10
Sub-Total	75724	2940		107	333

RENOVATION STATISTICS

			Carpenters	1	
			Painters	16	
	594		Truck Drivers	1	4
			Janitresses	3	
Sub-Total	594			21	4

SERVICE ORDER STATISTICS

	160		Carpenters	2	10
	64		Electricians	5	2
	16		Locksmiths	1	2
	288		Plumbers	3 + 1 borrowed	9
Sub-Total	528			11	23
GRAND TOTAL	76846	2940		139	360

1222694

MAINTENANCE (HOUSING AND REAL ESTATE) FOR MONTH OF NOVEMBER, 1950

Repairs to dwellings, commercial facilities, and premises occasioned by extensive wind damage on the morning of October 27 have largely been completed. Repairs to roofs of approximately 1200 houses and facilities were completed. Approximately 100 trees were removed from Housing and Real Estate properties, roots and stumps were taken out and yards repaired. Large amounts of debris were hauled out of inner-blocks, compounds, and yards.

Work on foundations of Prefabricated dwellings (Project 3630) is being pushed to complete the 633 houses scheduled for rehabilitation; 223 units remain to be completed.

Revision of Prefabricated dwellings water service entry will be discontinued by project forces immediately; 325 will be contracted to complete the job on those houses scheduled for rehabilitation.

Minor overhauls of the steam systems serving dormitories W 3, W 5, W 6, W 7, and the Dental Clinic Building have been performed.

Installation of Prefab shower stalls, metal gutters, and furnace pipe work is occupying the sheet metal crew to capacity.

Weather conditions have been mild enough to preclude shift work for millwrights on furnace repair; electric heaters are delivered in case of furnace failure on the afternoon shift.

Non-scheduled miscellaneous painting in approximately ninety dwellings was accomplished during the month.

Service Order crafts closed the operating month with a slight improvement in the backlog of emergency work.

1222695

M. S. WAREHOUSE SUMMARY FOR October 25, thru Nov. 25, 1950

TOTAL INV. $103,159.56

INVENTORY ITEMS AMOUNT $58,880.69

RECEIVED IN INVENTORY	CODE	AMOUNT
ON STORE ORDERS		$313.86
ON PURCHASE ORDERS		473.39
FROM EXCESS		
FROM HOUSING	61-20	4954.83
FROM DORMS	64-20	11,320.83

TOTAL RECEIPTS $17,062.91

INVENTORY DISBURSED		
MISC. CHG.		$2,051.18
TO SALVAGE		
FREE ISSUE	61-20	1,538.19
CASH ITEMS	61-20	68.47
DORM SUPPLIES	64-20	618.44
DORM LINENS	64-20	153.23
DORM SHADES & REFLECTOR	64-20	108.34
DORM FURNITURE	64-20	67.55
WHSE. SUPPLIES	63-20	20.84

TOTAL DISBURSED $4,626.24

INVENTORY ITEMS BALANCE $71,317.36

PLANT ITEMS AMOUNT $44,278.87

	CODE	AMOUNT
RECEIVED		$2,692.71
DISBURSED		2,533.01
DISBURSED TO EXCESS		
DISBURSED TO SALVAGE		

Additional Inventory includes approximately $12,000 - Furniture from Dorm. W 17 and W-20 which are closed.

TOTAL DISBURSED

PLANT ITEMS BALANCE $44,438.57

GRAND TOTAL INVENTORY $115,755.93

	PIECES
DORM FURNITURE EXCHANGE	101
RANGES EXCHANGED	6
REFRIGERATORS EXCHANGED	24
PREFAB HEATERS EX.	32
SENT TO MAINTENANCE	126
RECEIVED FROM MAINT.	112

1222696

DORMITORY REPORT

A severe windstorm caused a large amount of damage to roofs and doors of all dormitories. Door locks have been purchased to replace old panic hardware, which will eliminate future damage to doors.

A house cleaning program including a complete washing of walls where spotted, and cleaning and polishing all furniture was accomplished in 16 dormitories.

Floors have been refinished in ten mens dormitories. All dormitory floors were waxed and buffed in preparation for wet weather. Total 26 dormitories.

Laundry changed in dormitories in a four weeks period is as follows

7440 Sheets
4006 Pillow Cases
323 Spreads
38 Bed Pads
374 Shower Curtains

1,931 light bulbs changed in dormitories during this month.

The heater cleaning program is three fourths accomplished. This program has shown the need for a periodic inspection of heaters because of the large number of frayed and loose cords, and damaged shells. Also an accumulation of dust and lint.

An inventory of all furnishings was completed in the womens dormitories this month.

1222697

COMMERCIAL AND OTHER PROPERTY DIVISION

NOVEMBER, 1950

DIVISIONAL PERSONNEL:

Number of Employees on Payroll:	November
Beginning of month	13
End of month	13
Net difference	0

COMMERCIAL AND NONCOMMERCIAL PERSONNEL:

Number of Employees on Payrolls:

	Commercial	Noncommercial	Total
October	1,091	82	1,173
November	1,192	85	1,277
Net Increase	101	3	104

SUMMARY OF ROUTINE ITEMS PROCESSED:

Work Orders	29
Back Charges	5
Service Orders	15

CONTRACTS AND NEGOTIATIONS:

A. Commercial:

1. Supplemental Agreements:

(a) Stanley N. Randolph Insurance - to provide for the lessee to engage in real estate transactions at the Facility in addition to uses of the premises provided by lease.

(b) Klopfenstein's, Inc. of Richland - to provide for subleasing in the Facility by the Operator.

1222698

SUMMARY OF OCCUPANCY AND EXPANSION STATUS:

		October	November
A.	Commercial:		
1.	Number of Government-owned buildings	37	37
	(a) Number of businesses operated by prime lessees	45	45
	(b) Number of businesses operated by sublessees	12	13
	(c) Total businesses operating in Government-owned buildings	57	58
2.	Number of privately-owned buildings	34	36
	(a) Number of businesses operated by prime lessees	33	35
	(b) Number of businesses operated by sublessees	24	26
	(c) Total businesses operating in privately-owned buildings	57	61
3.	Total number of businesses in operation	114	119
4.	Doctors and dentists in private practice, leasing space in Government-owned buildings	21	21
5.	Privately-owned buildings under construction	4	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	4
	(c) Sites tentatively allocated or leases in process of negotiation	10	10
	Total	19	19
3.	Grazing leases	43	43

GENERAL:

A. Commercial:

1. Desert Inn Barber Shop, formerly operated by William J. Newell, opened for continued operation under the management of Elwood Hamilton.

344

1222699

2. By's Burgers - Drive-in restaurant opened under the management of Byron P. Meyers.

3. Desert Inn - Radio Station KWIE commenced operation of a branch broadcasting facility.

4. Midstate Amusement Corporation - Allene's Gift Shop commenced operation under the management of Mrs. Allene Winham.

5. Richland Thrifty Drugs - The Uptown Thrifty Drugs commenced operation under the management of M. S. Morgan.

6. Automatic Laundry Company - The Uptown Tavern commenced operation under the management of Sam Volpentest.

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:

Floral Shop
Jewelry Store
Shoe Repair Shop
Shoe Store

GENERAL SERVICES DIVISIONS
MONTHLY REPORT
NOVEMBER, 1950

ORGANIZATION AND PERSONNEL

Number of Employees on Roll:	Beginning of Month Exempt	Non-Exempt	Total	End of Month Exempt	Non-Exempt	Total
North Richland Patrol Division	5	15	20	5	14	19
North Richland Fire Division	36		36	37		37
Maintenance and Operation Division	9	64	73	9	70	79
Total	50	79	129	51	84	135

Personnel changes during month:	Exempt	Non-exempt
Transfers to "S" Division		1
Transfers to Real Estate Divisions		1
Transfers to Power Division		2
Transfers from Plant Security and Services	1	1
Transfers from Plant Electrical		1
Transfers from Public Works		3
Transfers from Maintenance		1
Reactivated Employees		3
New Hires		1
Terminations		1

STEAM AND GENERAL MAINTENANCE DIVISION

General Maintenance:

Requisitions are now pending for one machinist and one carpenter trainee. One vacancy for service man is to be filled by transfer, to replace upgrade to tool attendant.

Roof repairs to 703 Building were completed except for application of Aluminum Coating, which will be applied as weather permits.

Most of the damage caused by last month's wind storm has been repaired.

Ventilating stack at 722-A Building has been removed, venetian blinds replaced and doors and windows repaired.

Several partitions were moved to facilitate office space and enlarge rest rooms.

Preparation of excess materials for shipment requires approximately ten man-days per week.

Bridge on Stevens Drive across the abandoned irrigation ditch north of North Richland has been removed and ditch and road grade filled. East shoulder of Stevens Drive from Snyder Road north through North Richland was regraveled. Considerable erosion had occurred, causing a sharp drop at edge of blacktop.

1222701

Ventilating systems in parts of 760 and 762 Buildings were revised to effect better circulation and a supply of fresh air in winter months.

Plate glass was replaced in four show windows in Klopfenstein's and three in Shoe Salon. These windows were damaged or broken by the October wind storm. Window glass was reputtied in 75 prefab homes. Fifteen pieces of window glass were replaced.

Interior painting was completed in 703 and 762 Buildings: 761 Building work will be completed December 15. Sign work consisted of name plates for offices, miscellaneous signs, placques, bulletins, stencils and various sign work for 300 Area and Plant Divisions.

The Electrical group performed various services to the Community Divisions, including repair of kitchen ranges, replacement of refrigerator units, repairing electric motors, providing electrical heat and checking services, including fire alarm systems.

A steam condensate economizer was made and installed in hot water system of 723 Laundry to effect more economy in use of steam. Steam meter removed from commercial laundry is being installed in 723 Laundry. Steam hot water booster tank was made and installed in hot water system at Kadlec Hospital to raise water temperature to required temperatures for glass and dish washers. Thirty safety valves were tested and repaired and hydrostatic tests made to air tanks of five air compressors.

Additional heating radiation was provided in Kadlec Hospital, 761 and 762 Buildings to provide more efficient heating.

Crew days work on hand:

Carpentry	52	Glazing	18	Millwright	25
Painting	36	Electrical	37	Welding	16
Sign Painting	18	Machinist	57	Sheetmetal	56
				Pipefitting	20

Power Operation:

Steam operation at 1131 Boiler remained normal. Only one boiler was required to meet load requirements.

Steps are being taken to replace 8 steam line poles broken off in recent wind storm.

A change in quality of coal received at 784 Boiler House resulted in inefficient burning under normal operating methods. A third boiler was placed in operation November 13 to reduce unit load and thus reduce drafts to a minimum, to prevent "carry over" of fly ash and carbon particles which were coming from stack. Overloads on boilers result in greater inefficiency with this inferior coal. Steps taken to obtain a better quality coal. Other types of coal were tried and burned successfully. Third boiler was taken out of operation November 20. Continued efforts are being made to get the most efficient operation from the present supply of coal.

Steam service to the commercial laundry was discontinued November 27 and steam line serving the laundry blanked off. Any future service will be on an emergency basis. The Instrument Division is recalibrating and overhauling boiler meters, draft

1222702

gauges, automatic controllers, alarm and recorders. This will provide a more accurate record of operations.

Steam generated - 26,312.7 M. lbs.: steam leaving plant - 22,455.7 M. lbs.; coal consumed - 2,024.10 net tons.

NORTH RICHLAND FIRE DIVISION

General:

One fireman was dispatched to North Star Theater to stand-by while welding was being done.

Four trucks were reloaded with 2½" and 1½" tested hose.

T-2 Tanker reloaded with 1½" tested hose.

All personnel attended meetings on Company "Security Package".

One fireman reported to Kadlec Hospital to donate blood.

2½" and 1½" hose tested and washed.

Received 51 extinguisher charges and 30 gallon drum of CTC from Atkinson & Jones Inspection Department.

Received for cleaning, repairing, and refilling three one quart CTC extinguishers, one 1 gallon CTC extinguisher, and 8 water pump cans.

Pull handles and barrel bolts installed on all windows in Fire Station.

"Requisites of a Fire Chief" was distributed to each fireman.

NORTH RICHLAND PATROL DIVISION

Current North Richland population:

Bremerton Houses - 629; Trailer Camp - 2,724; Barracks (Men) - 895; Barracks (Women) - 42; Total - 4,290. Total occupied lots in Trailer Camp - 976.

Ten posts are being maintained - five fixed posts and five re-posts.

Unusual Incident Reports:

Public Intoxication	1	Automobile Accident (1 Private Car)	1
Public Nuisance	1	Possible Breaking and Entering	1
Negligent Driving	2	Burglary and Car Prowls	1
Pick Up for Richland Patrol	1	Petty Larceny	1
Automobile Accident (2 Private Cars)	3	Grand Larceny (Gov't. Property)	1

Special Services Performed:

Emergency Messages Delivered	28
Emergency Long Distance Telephone Calls	54
Western Union Telegrams	10

Special Services Performed Con't.:

Death Messages Delivered	4
Pacific Telegraph Telegrams	3
Fires (Sig. 12)	3
False Fire Alarms	4
Unusual Conditions Reported to Maintenance	5
Patrolmen Used for Ambulance Detail	2
Escort to First Aid	3
Escort for Wide or High Loads	4
Bicycles Found	4
Bicycles Returned to Owner	3
Bicycles Reported Stolen	5
Stolen Automobiles	2
Recovered Automobiles	2
Automobiles Impounded at Patrol Headquarters	3
Personnel Locked out of Barracks Rooms	7
Children Bitten by Dog	1
Firearms Checked in to Contraband Room	9
Firearms Registered with Arsenal Officer	11
Firearms Checked out of Contraband Room	34

General:

During the month of November all North Richland Patrol cars were equipped with side view mirrors, and lighted clipboard was attached to the dash of each car.

Six soldiers who were causing disturbances in North Richland were picked up and turned over to M. P. Detachment.

Sixteen Traffic Violation Reports were received, consisting mainly of speeding, lack of operator's license, and failure to observe Stop Sign.

On November 5, Robert James LaChance was arrested and charged with the jewelry robbery at North Richland. He also confessed to the car prowls that have taken place during the months of September and October.

There were nine automobile accidents in the North Richland Area during the month. Two persons required hospitalization.

Ten persons were incarcerated in the Richland jail. Charges were drunken driving, public nuisance, public intoxication and burglary.

All facilities, warehouses, buildings and John Ball School were checked on #1 and #3 shifts daily, and on all shifts on Sundays and Holidays.

On November 8, at 8:30 a.m., a staff meeting was held by Chief C. H. Overdahl in the North Richland Patrol Headquarters.

All fire, safety and traffic hazards observed by North Richland Patrol were reported to proper authorities.

Open Doors and Windows:

John Ball School - 15 doors open, 7 windows open: Facilities - 9 doors open, 5 windows open; Buildings - 10 doors open, 3 windows open: Hospital - 3 doors open, 1 window open.

Complaints:

Grand Larceny - 2; Petty Larceny - 2; Cases Cleared - 21.

The 21 cases cleared represents the cars that were prowled by Robert LaChance.

1222705

DESIGN & CONSTRUCTION DIVISIONS

I. ORGANIZATION AND PERSONNEL

Employees on D&C Payroll:

	November		
	Beginning	End	Net Change
	665	664	- 1
Employees on Loan or Under Contract from:			
Instrument Division	9	9	
"S" Division	0	1	
Technical Division	0	1	
Project Engineering Division	1	0	
Flour Corporation	7	0	
Schenectady, N.Y.	1	1	
	18	12	
Total D&C Divisions	683	676	- 7

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.

Inventor	Subject	Report of Invention (Dat.
P.P. Smith	Free Falling Piston for Vertical Safety Rods and Control Rods	11-16-50
P.P. Smith	Remotely Controlled - Ridge Milling Machine	11-24-50
P.P. Smith	Rod Cooling Device	11-15-50
P.P. Smith	Cable and Rod Seal	11-2-50
J.B. Medlin	Control Valves Safety Latch	11-30-50

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ACCOUNTING DIVISION

I. SUMMARY

Agreement was reached with Atkinson-Jones during the month of November to handle Major Construction Equipment as a direct charge. This will result in a reduction of about 3.1% in the ratio of Direct Costs (700 Accounts) to Direct Labor and a reduction of about 1.6% in the ratio of Indirect Costs (800 Accounts) to Direct Labor based upon the past four months. The accumulated charges to date will be transferred to Direct Costs and a revised chart will be prepared to show the effect on the costs to date and on the projection of the ratios.

Atkinson-Jones Reimbursement Authorization No. 69 was approved October 13, 1950, for retroactive pay to non-manual non-exempt employees covering period April 12 to October 29, 1950. Payment estimating $59,000 will be made in December.

Total cash disbursed during the month of November was $3,338,484 compared to $3,355,449 disbursed during October.

II. STATISTICAL AND GENERAL

Accounts Payable Distribution Summary follows:

	November	October
General Electric Purchases	$ 408 602	$ 420 850
Reimbursement - Atkinson-Jones CPFF Subcontract - Construction	2 169 864	1 971 636
Reimbursement - Atkinson-Jones CPFF Subcontract - Service	131 255	45 780
Reimbursement - Other CPFF Subcontracts (Architect Engineers)	374 977	434 517
Partial Payments to Lump Sum Subcontracts	162 907	169 476
Travel (General Electric)	5 155	1 616
Miscellaneous	40 118	121 942
Total Credited to Accounts Payable	$ 3 292 878	$ 3 165 817

Subcontractors Payroll Statistics:

	November	October
Total number of employees reported by CPFF Subcontractors	4 827	4 395
CPFF Construction Subcontractors Payrolls	$ 1 505 902	$ 1 527 061
CPFF Service Contract Payroll	110 165	65 996
Architect Engineers Payrolls	272 357	313 838
Total CPFF Payrolls	$ 1 888 424	$ 1 906 395

	November	October
Average per week (4 week period excluding Architect Engineers)	$ 404 017	$ 393 264
Average weekly earnings per employee	$ 90.26	$ 90.31

A detailed shop equipment catalogue was prepared for the D&C Divisions and for the Construction Division. A catalogue detailing transfer of shop equipment to Atkinson-Jones is in process.

III. PERSONNEL

Employees on payroll:

November

Beginning	End	Net Change
70	70	0

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CONTRACT DIVISION

I. SUMMARY

Considerable interest is being shown by contractors in our Invitation to Bid No. B-95 "Hot Semi-Works" as 46 firms are now holding plans.

A project proposal for the design of the Pile Technology Building has been submitted to the A.E.C. for approval and the design criteria is in preparation. Upon issuance of the directive, final negotiations will be instituted with Chas. T. Main, Inc. of Boston, Mass. covering the necessary design.

During November, agreement was reached with the Commission to attempt to negotiate lump sum design subcontracts for all remaining portions of the Hanford Works Laboratory Area with such design to be scheduled for completion at such time as to allow negotiation of lump sum construction subcontracts prior to the end of the current fiscal year (June 30, 1951).

II. STATISTICAL AND GENERAL

Twenty-two contract items, totaling a net increase of $6,758,367, were completed in November.

Amount per contract type is indicated below:

CPFF		$4,765,850
Fees (Constr.)		70,610
Fees (A-E)		135,910
L.S. & U.P.		1,785,997
	Total	$6,758,367

Four contract items showing an increase of $42,980 and one contract item showing a decrease of $1,214 were estimated to be completed in November.

III. PERSONNEL

Employees on payroll:

November		
Beginning	End	Net Change
31	30	- 1

[redacted]

CONSTRUCTION DIVISION

I. SUMMARY

New work authorized to the Construction Division, D&C during November 1950, consisted of (1) Project C-362 "Waste Metal Removal", (2) Project C-295 "Construct a 230 KV By-pass Line" and (3) Installation of Partitions in 101 Building, Hanford.

Layout work and construction work was started on all new work assignments. Construction schedules and manpower forecasts for C-362 were completed and submitted to D&C Separations Manager.

The temporary "Central Shop" facilities established at the M&M Shop area in White Bluffs are serving as shop area for our heavy equipment repair work and a small amount of shop fabrication work and warehouse facilities for stores stock materials. The project proposal for constructing Construction Division permanent fabrication shops facilities at the old M&M Shop area at White Bluffs was completed.

II. STATISTICAL AND GENERAL

Project C-362

Take-offs and bills of material for the project was started and over-all construction schedules and manpower forecasts were completed.

Temporary construction and change house facilities were started at 241-U building site on November 13, 1950, and work is currently about 33% complete. Excavation at 241-U Tanks area started November 29, 1950.

Project C-342

The two (2) work orders assigned to our Division for work within the 115-D Building were complete November 29, 1950. Considerable overtime was necessary in order to release temporary blower for other required work.

Project C-394

The work assigned to this Division for the preparation of Hanford Laboratory area site including site grading, railroad extension and survey monuments was 100 percent November 30, 1950.

Relocation of fence lighting, temporary electrical line and transformer bank was completed in November.

Project C-295

Construction of a 230 KV By-Pass line was started November 28.

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101 Building - Hanford

Installation of partitions in locker rooms started November 22.

MWI-13 - Repair of Excess and Reserve Equipment for AEC

All of the equipment stored in the 3000 Area storage yard has been inspected and repair work is complete with the exception of those units waiting for repair parts. All repair work is now being performed in the White Bluffs area. An additional authorization was received this month to include painting of certain equipment units.

Shipment schedules were such that assistance of the Atkinson-Jones shops in White Bluffs are not being used. Painting and machine work is being performed by Atkinson-Jones Construction Company. All mechanical work on the 63 units being shipped to Indiana is complete. The first shipment of equipment will be loaded December 1, 1950.

SAFETY

The Division Safety Engineer is preparing our safety manual outlining the procedures to be followed by Construction Division personnel. A draft of the procedures has been distributed to all concerned.

OFFICE ENGINEERING

Procedure was established for issuing a "Stores Cost Distribution". The first distribution is scheduled for December 4 and on December 11. The second distribution will be made which will put the Stores Section on an up-to-date basis. Subsequent distribution will be issued weekly.

Initial material and equipment requirements for the 241-U Tank Farm were submitted to the Separations Division and procedures established for the handling of materials.

List of requirements for construction and stores materials was received from the Project Engineering Division and Construction Services Division. Procurement action has been initiated for these materials.

183 Purchase Requisitions were issued.

III. PERSONNEL

Employees on payroll:

	November		
	Beginning	End	Net Change
General Electric	18	21	+ 3
Sub and Sub-subcontractors			
Non-Manual	25	27	+ 2
Manual	256	365	109
	281	392	111

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ENGINEERING AND CONSTRUCTION SERVICES DIVISION

I. SUMMARY

On November 13 the Engineering Services Division and the Construction Services Division were consolidated. Mr. J. G. Carriere was appointed Manager, with Mr. T. G. Lafollette assistant manager in charge of Engineering Services, and Mr. J. W. Fitzpatrick assistant manager in charge of Construction Services. Mr. J. W. O. Ash was appointed Equipment Control Superintendent vice D. M. Schmitt - Resigned.

The work load in all Sections of the Division remained constant.

A multigraph offset printer machine was installed in the Reproduction Section which will effect a considerable savings in the production of certain forms, reports and photostat material.

The Reproduction Section supervisor attended a meeting of the Graphic Reproduction sub-committee at Cleveland (Nela Park) in which general reproduction practices, economics, and coordination of methods of reproduction was studied. The highlight of the meeting was the reproduction process known as "Zerography" as related to offset printing.

The Drafting Supervisor attended a meeting of the General Electric Drafting Committee at Schenectady, N. Y. in which all phases of drafting application within the Company were studied. The highlight of the meeting was the "New Horizons" Program.

II. STATISTICAL AND GENERAL

NORTH RICHLAND CAMP

Population*

Trailers	2,722	
Barracks	906	
Houses	629	
Total	4,267	Net Increase 151

*Note: This does not include U. S. Army personnel.

ARMY

Bldg. #192 (Former Colored Tavern) was released to the Army. Trailer Bathhouse #56 and twenty-two trailer lots were turned over to the Army on November 7, 1950.

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Steam Generating Plant

Steam generated, M lbs.	47,363,000
Oil consumed, gals.	7,474.000
Coal consumed, tons	3,001.380
Boiler efficiency, average %	75.137
Steam cost, per M lbs.	$.826*

An estimated administration cost figure of $2,000 was used.

Water consumption for the month was 29,601,200 gallons or an average daily consumption of 954,877 gallons.

General

There was a meeting of the Civil Defense Committee on Power and Water Problems on Thursday, November 2.

The Bremerton Houses were inspected with a possibility of preparing for winter conditions and the cost for doing work.

Data on water consumption rates was developed and future rates were promised, based on employment forecasts.

Commercial Facilities

There were nineteen (19) commercial facilities still operating in North Richland during the month.

Community Activities

The recreation evenings in the Richland gyms have been gaining momentum each week. Teenage and Christmas parties are being arranged for all children.

There were 36 religious and 60 social meetings held during the month.

SECURITY

Statistical Information

During the month 417 Safety and Security meetings were held for the sub-contractor's forces. Seven bulletins were issued.

Total lost badges during November	40
Total number of Subcontractor and Vendor employees as of November 28, 1950	5,232
Total hires	800
Total terminations	416
Visitor clearances requested this month	24
Total clearances requested this month	850
Total clearances received this month	930

SAFETY

Construction Injuries	Contractors
Major Injuries	5
Sub-Major Injuries	6
Minor Injuries	445

No fires were reported during the month.

DRAFTING SECTION

Drafting Production:

New Drawings	216
Miscellaneous	20
Drawing revisions	35
Drafting efficiency index, man-days/drawing	5.8

ESTIMATING AND STANDARDS SECTION

Estimating:

Estimates scheduled	16	
Estimates completed	9	
Estimates to be completed	7	
Total estimated value		$30,000,000.00

Results of Unit Cost studies transmitted to Mr. W. E. Johnson.

REPRODUCTION SECTION

Production Group Activity:

Originals Handled	17,882
Prints Produced	169,049
Square Feet of Paper	648,824
Average Square Feet per Employee	38,166

Included in these figures is an alltime daily production high of 57,370 sq. feet accomplished in an 8 hour shift November 25, 1950.

PERSONNEL, RECORDS AND HISTORY SECTION

Security Clearances Processed:

Requests for Area Badges	171
Area Badge Cancellations	2
Requests for Access Authorization	13
Requests for Material and Package Passes	186

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D&C Payroll Additions, Terminations and Transfers

Additions	21
Terminations	16
Transfers within D&C Divisions	15
Transfers out of D&C Divisions	6

Secret and Confidential Documents Processed:

Documents Issued, Routed and/or Destroyed	1844

Procedures Issued:

D&C Instructions Issued	9

Status of Histories:

Histories ready to issue	15
Others in process	105

Reports Issued:

Nine, covering weekly and monthly forces, visitors. Destroyed and reclassified documents.

PROJECT COST AND PROGRESS ANALYSIS SECTION

Forecasts, charts, analyses, and reports were developed and issued to show status and progress of D&C Projects.

III. PERSONNEL

Employees on payroll:

November		
Beginning	End	Net Change
304	302	- 2

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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

Project RDA-D&C-1 - Design and Development of New Pile Area "G"

Supply Voltage Criteria for Beckman Process Instruments.

Project C-385 - Radiometallurgy Building

Adequacy of design criteria and performance of Architect-Engineers Work.

Project C-394 - Plot Plan and Utilities for Hanford Works Laboratory Area

Study and recommendations for Design Criteria for layout of the Technical Center Area, in compliance with the Uniform Building Code communicated to Architect-Engineer.

Consulting and Advisory Services

Project C-204-B - Extension of Existing Kadlec Hospital and Medical Arts Building

The use of Vapor Seal paper under shingles on exterior walls.

Project C-257 - Health Instrument Control and Development Laboratory

Investigation of plastic refractor lens to establish equality with glass lens for lighting fixtures.

Information, supplementary to the specifications furnished to bidding electrical contractors.

Project C-362 - Waste Metal Removal and Recovery Plant

The problem of process pipe heating by electrical methods. The adequacy of telephone cable facilities in the 221 Building Area.

Project C-385 - Radiometallurgy Building for Hanford Works Laboratory Area

Specifications of Scope of Architect-Engineer's Work.

Brochure and letter of transmittal, from O. J. Porter & Co. to W. E. Johnson.

Project C-394 - Plot Plan and Utilities for Hanford Works Laboratory Area

With designers of diesel driven emergency generators in regard to sizes, ratings and arrangement.

The selection and sizing of Sanitary Water Pumps for existing 300 area and future Laboratory area requirements. The complete Scope of Design Work to be performed by the Architect-Engineer.

Project C-406 - Mechanical Development Building for Hanford Works Laboratory Area

Review and modification of Specifications for subject building.

Aggregate Requirements, Central Mix Plant

Tentative recommendations for procurement of concrete aggregates for 1951 requirements.

Mix Design Studies and Concrete Aggregates Investigation. Use of report by Corps of Engineers on Mix Design Studies and Concrete Aggregates Investigation.

Project C-162 - Water Supply & Sewage Treatment Facilities in and around the village of Richland.

Reviewed and corrected history of project.

Fluoridation of Richland-North Richland Sanitary Water Supply

Engineering problems involved in the addition of fluoride ion and casts.

General Services

Participated in Hanford Works Standards Program. Assistance was rendered the Nuclear Engineering School for Mechanical Engineering Students.

Review and Comments

Steam and water facilities in the North Richland Camp was reviewed for the conversion to an Army post.

Electrical

1. Plans for the Kadlec Hospital and Medical Arts Building, Redox Production Plant, 251 Substation.

2. Design Criteria for Plot Plan and Utilities for the Hanford Works Laboratory Area.

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3. Bids for purchase of electric furnace for Metal Conversion Facilities.

4. Design Criteria for Pile Technology Building.

5. Study for Reactor Division for larger Process Pumps in 190 Building.

Mechanical

1. Increased capacity of 384 Steam Boiler Plant

2. Increased capacity 283-W Filter Plant.

III. PERSONNEL

Employees on Payroll:

November

Beginning	End	Net Change
4	4	0

POWER AND MECHANICAL DIVISION

I. SUMMARY

The Engineering Design sections work load continued heavy with 68% of their work performed for other divisions. Schedules are being substantially met despite a net loss of three engineers during the month.

The work load of the Construction sections remained at approximately the previous month's level with the approaching completion of authorized work on three projects.

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 is in the hands of the Atomic Energy Commission for approval.

C-204-B, Additions and Alterations to Kadlec Hospital & Medical Arts Building: Work on the Medical Arts Building extension and outside facilities is substantially complete except for a few days work remaining to complete interior finish.

Plans and specifications covering the additions & alterations to Kadlec Hospital will be transmitted to the Contract Division December 1 for preparation of bid invitations.

C-257, Health Instrument Control Laboratory: The construction contract was mailed on November 24 to the low bidder, Sound Construction & Engineering Company, of Seattle. The contract is now in the hands of the Sound Company for signatures.

C-289, Additional Laundry Facilities, 200-West: Construction on this project is substantially complete with only a few days more work remaining.

C-295, Enlarging 251 Substation: Approved plans for the construction of the temporary 230-KV By-pass line were issued to Construction Division on November 10, 1950.

Preliminary drawings for modifying the substation proper will be issued to the Contract Division for use in preparing lump sum bid invitations about December 15.

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C-342, DR Water Works: Chas. T. Main, Inc., The Architect-Engineer, completed all field work and closed their Richland office on November 17. "As-built" drawings are 100% complete; all material, including spare parts has been requisitioned.

A minor amount of construction work, for which Work Orders have been issued, remains to be completed.

C-353, Richland Water Supply: Two representatives of the lump sum design contractor, Alvord, Burdick & Howson, were in Richland on November 9 for the purpose of reviewing historical data and requesting additional information relative to the Richland Water Study.

C-364, Aquatic Biology Laboratory: The lump sum design contractor on this project received notice to proceed on November 8, and detailed design is in progress. A revision of the earlier comparisons between lump sum and CPFF construction costs has thus far delayed the submission of the Project Proposal by approximately one week.

C-381, Radiochemistry Building: Leland S. Rosener is proceeding with plans and specifications which are now approximately 75% complete.

C-385, Radiometallurgy Building: Modification No. 3 to Subcontract G-304, covering the design of this building, was signed and notice to proceed given Rosener on November 22.

C-394, Plot Plan and Utilities - HW Laboratory: The preliminary site grading and relocation of utilities is 100% complete. The modification of Rosener's subcontract G-304 covering the design of outside utilities less the steam plant extension was signed and notice to proceed issued on November 22.

C-404, (formerly GET-17), Pile Technology Building: The Project Proposal requesting design and construction funds was forwarded to the Atomic Energy Commission on November 27. Preparation of the scoping and design criteria is in process.

C-406, (formerly GET-18), Mechanical Development Laboratory: Bid invitations are being prepared for the construction of the shell of this building on a lump sum basis.

III. PERSONNEL

Employees on payroll:

November		
Beginning	End	Net Change
56	55	- 1

[redacted]

REACTOR DIVISION

I. SUMMARY

During November continuing effort was directed toward completing the planning and scheduling of the test program. This was deemed necessary to insure placing requisitions for test equipment early enough to allow sufficient time for the liquidation of all major commitments early in the fourth quarter.

The Reactor Division participated in the meeting of the Hanford Pile Facilities Scheduling Committee. The committee acted favorably on all of our requests for in-pile time and facilities.

The following inventions were reported by Reactor Division personnel:

Inventor	Subject	(Date) Report of Invention
P.P. Smith	Free Falling Piston for Vertical Safety Rods and Control Rods	11-16-50
P.P. Smith	Remotely Controlled - Ridge Milling Machine	11-24-50
P.P. Smith	Rod Cooling Device	11-15-50
P.P. Smith	Cable and Rod Seal	11-2-50
J.B. Medlin	Control Valves Safety Latch	11-30-50

II. STATISTICAL AND GENERAL

1. Process Tube Heat Transfer Tests

Most of the experiments performed on the heat transfer equipment during the month of November were for the purpose of determining the quantity of experimental data needed for the computation of the heat transfer and flow friction characteristics of a given annulus.

The first step in this direction was an exploration of the variation of the uniform walled heater tube temperature around the circumference at various positions along the tube and at various flow rates and power outputs. It was found that the temperature on top of the tube and opposite each of the two ribs was 2 to 5% greater than the mean and that the low spots were on the bottom and at the two sides. This variation corresponds to about a 10 to 15% variation in heat transfer coefficients.

The second step was the determination of the variation of difference between water and heater tube temperatures along the length of the annulus.

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This difference is inversely proportional to the heat transfer coefficient and it was found that it varied as much as 50% from inlet to outlet, change in viscosity of the water being the main cause. This means that points along the length of the annulus must be treated separately - local heat transfer coefficients rather than average must be determined.

2. Materials Development

A. Process Tubes

The creep tests on both 2S-H14-72S clad process tubes and on 2S-H14 aluminum sheets at 100°C and at stresses as high as 5860 (corresponding to 400 psig in the process tube) continue to exhibit very low creep rates. Considerable emphasis is now being directed to the corrosion testing program and a comprehensive test request has been written on flow corrosion tests of aluminum and zirconium systems at elevated temperatures.

Zirconium

Delay of contract arrangements between KAPL and Superior Tube Company has retarded the tube development program for one month. The development schedule is now as follows:

Produce 3/4" scale tubing - January 1
Produce short sections full size tubing - February 15
Produce process tube - March 1

Superior Tube Company has produced a short section of ribbed, thick-walled tubing from carbon steel. The metal flow was satisfactory to form ribs. The only anticipated problem in applying the same technique to zirconium is the flow of material when using thinner walled sections.

Arrangements are pending for evaluation of corrosion in zirconium-aluminum systems (Test Request No. 52).

Creep tests of normal-grade zirconium sheet at BMI have been started. A stress of 9000 psi will be used at 100°C.

Creep tests of zirconium 3/4" tube sections (without ribs) are scheduled to start at Hanford by December 1. Tests will be conducted at 100°C and 400 and 600 psi pressure.

The creep test (at Hanford) of U.S.B.M. sheet at 8500 psi and 100°C has shown zero secondary creep in 1000 hours. This test will be removed during December, since the specimen has started to bend and readings are of no value.

Arrangements have been made with KAPL for evaluation of zirconium alloys. An attempt will be made to produce a low cross-section, high creep strength and good corrosion resistant alloy.

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B. Control and Safety Rods

Crucible Steel Company reports they do not have facilities to produce a boron-stainless rod with a 0.250" wall. Efforts are under way to locate a fabricator that can produce such a rod.

BMI reports the study of titanium-gadolinium alloy will be completed in December.

KAPL reports aluminum-oxide will be used in lieu of gadolinium oxide in initial nickel alloy studies. These studies are to be started in December.

C. Third Safety System

An order will be placed December 4, 1950 for 137,000 test nickel-boron balls. An order for 1100 lbs. of carbonyl nickel powder has been placed and confirmed for this fabrication.

3. Recirculation Water Test System

Drafting is essentially complete on the changes necessary to adapt the test set up for recirculating heavy water. Procurement of the additional equipment and materials can be initiated in December.

4. Water Plant Design

Preliminary studies indicate the possibility of power recovery from the effluent water. The Industrial Engineering Divisions in Schenectady who are preparing a study of equipment evaluation for the full-scale "G" water plant have been requested to provide additional information needed to complete the analysis of power generating possibilities.

The flywheel evaluation tests in the 100-F area are now scheduled to be performed the second week in January.

5. Gas Cooling of Control Rods

The tests have been completed to determine the gas pressure drop between the control rod and the graphite slot. The data is now being evaluated.

The analogue determination of control rod characteristics is proceeding. The use of the analogue for these and other problems is being received enthusiastically by members of the Reactor Division.

6. Process Tube "O" Ring Seal

The "O" ring seal which is installed on a process tube in the "F" reactor has been in operation during the month of November without any signs of leaks. The tests are continuing.

7. Shielding

A. Concrete Irradiation

Fifteen samples of concrete proposed for the "G" shield were irradiated this month. Physical tests will be performed to determine the effect of radiation on the strength of the concrete.

B. Concrete Program at Battelle

Battelle has reported the preliminary results of their tests to determine the compressive strength, modulus of elasticity, and bond strength for the concrete for the "G" shield. Additional tests are underway to determine the thermal properties of this concrete.

C. Bulk Shielding Test

A bulk section of the "G" front face shield will be installed in the large test opening in the DR pile. Necessary drawings have been completed and the test request has been issued. Plans have been completed for the thermal cycling tests of a section of the rear face shield surrounding one process tube. These tests will be run to simulate the stresses that might be induced in the shield under scram conditions in an attempt to determine the magnitude of the stresses and the possibility of failure of the concrete.

8. Over-all Test of Continuous Charging and Discharging Machines

The prototype charging machine is due to be shipped from the vendor on December 27. The design of the test set up has been completed and should be installed in the 189-D Building ready for the machines by January 1.

The drive carriage for the discharging machine is being designed in the Drafting Room and the layout is approximately 40% complete.

9. Automatic Dew Point Recorder and Drier Control

The G.E. recorder and controller has been ordered and will be shipped in December. The Production Test Request is now being circulated for approval

III. PERSONNEL

Employees on payroll:

November		
Beginning	End	Net Change
48	47	- 1

[redacted]

SEPARATIONS DIVISION

I. SUMMARY

Procurement continues to be the most critical phase governing successful completion of all Separations Division Projects on schedule. Failure to receive equipment originally scheduled for shipment and installation at this time has begun to affect construction progress, and as a result completion of the Redox Facility now is behind schedule for the first time. A special group was set up to direct this critical phase of project work for the Waste Metal Recovery Facility. Procurement for the Redox facility is being surveyed now in detail to determine the feasibility of utilizing additional manpower, overtime and juggling of the equipment installation schedule to meet the July 1, 1951 completion date.

Design of the Waste Metal Recovery Facility by Kellex (Project C-362) is proceeding satisfactorily, ahead of schedule.

Funds totaling $41,900,000 were authorized by the AEC during the month for Project C-362. This is the estimated total engineering and construction costs contained in the latest revised project proposal for this facility.

Construction of Phase III of Project C-362 was released during the month, and work in the field is well underway. The cost estimate for Phases II, IV, and VI for fee purposes was agreed upon with A-J, USW and NNE and the fee for this work is being established.

Construction cost estimates for fee determination on Project C-361 are currently being prepared by GE and A-J with negotiations to start about December 4. Approval of the construction subcontract is expected by December 31 and construction is to start immediately thereafter.

Construction of the Redox Production Facility attained 35.8% completion compared to 37.6% scheduled. This lag in completion was occasioned by failure to receive equipment scheduled for installation at this time. Construction work on the 241-S Tank Farm was 22% complete at the months end, compared to an estimated 38% scheduled. This scheduled completion reflects a revised tank liner erection schedule presented by Gilmore Fabricators, the steel subcontractor. Tank liner sections have been placed on three bases, and difficulties experienced by Gilmore in shop fabrication of knuckle plates are being corrected satisfactorily by the Steel Construction Company in the field.

Construction of the Redox Laboratory attained 70% completion at the months end, as scheduled.

II. STATISTICAL AND GENERAL

A. Project C-187-D - Redox Production Plant

The Kellex job completion is approximately 92% compared to the scheduled 90.5%. As of November 24, 2064 drawings had been received and of these

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2062 had been approved and issued to the field. Efforts are being made to eliminate unnecessary revisions, specifically where vendors of engineered equipment might be affected.

Design work by the Power and Mechanical Division is approximately 98% complete. As of November 24, 256 drawings had been approved and issued to the field.

Separations Division design work is approximately 98% complete, as of November 24, 119 drawings had been approved and issued to the field or to the Fred J. Early Jr. Company.

Late in the month, a re-survey of procurement was inaugurated with members of the design group, construction group and the subcontractor participating. The purpose of this study is to determine the feasibility of utilizing more manpower and/or overtime and juggling the equipment installation schedule to finish the construction work by July 1, 1951. These results will be analyzed to determine what can be done and what absolute requirements must be met to make the July 1 date possible.

CONSTRUCTION PROGRESS STATISTICS

Improvement to Land	0.2%
Temporary Construction	63.0
202-S Building	30.0
211-S Building	-
240-S Building	34.0
276-S Building	-
277-S Building	92.1
282-W Building	86.6
284-W Building	33.8
291-S Building	45.7
2702-S Building	98.0
2726-S Building	-
Waste Facilities	58.4
Electrical Distribution	38.0
Water Distribution	38.0
Steam Distribution	65.0
Railroads	50.0
Over-all Redox Production Facility (A&J)	35.8

The scheduled completion for Redox facilities on this date is 37.6%. This slight lag behind schedule reflects for the first time that lack of equipment originally scheduled for delivery in mid-October is beginning to retard the rate of completion of this facility.

The construction work on the 241-S Tank Farm and associated facilities under subcontract G-302 is approximately 22% completed (compared to an estimated 38% scheduled). This scheduled percent reflects a revised tank liner erection schedule which was presented by Gilmore Fabricators, the steel sub-contractor. Tank liner knuckle sections have been plated on three bases, Tanks 104, 107 and 110, with work being concentrated on Tanks 107 and 110. The difficulties experienced by Gilmore in shop fabrication of knuckle plates are being corrected by the Steel Construction Company in the field.

B. Project C-187-E - Redox Analytical and Plant Assistant Laboratory

The Laboratory cost estimate was submitted to the Technical Divisions on November 14. This estimate was based on complete design with 60% construction of the Laboratory and 8% construction of the Waste Disposal Facilities.

Construction of the Laboratory is 70% complete at months end, on schedule according to the revised schedule of November 1. The freight elevator and dumbwaiters have been installed, tested and accepted.

Construction of the Waste Disposal System is 35% complete. The dry waste disposal vault is completed. Drilling of the test wells for the waste cribs began on November 27 and is progressing satisfactorily.

C. Project C-198 - 234-5 Facility

The AEC, in document GEH-17512 dated October 24, 1950, requested the General Electric Co. to proceed on a suspense code basis with preliminary work leading to the expansion of the 234-5 Building production facilities. Acting on this request, the Manufacturing Divisions issued two letters to the D&C Divisions requesting the preparation of preliminary cost estimates and schedules for the expansion program, and authorized funds to the extent of $5,000 on each. The D&C Divisions have issued two work authorities, GEO-9, and GEO-10, covering the preparation of preliminary reports in response to these letters.

The Scope Committee in reviewing the entire expansion program recommended that the Manufacturing Divisions ask the AEC for authorization of certified funds immediately to expedite the work. This was done in documents HW-19525 and HW-19527. On December 1, 1950 $5,000,000 was authorized for the start of this work.

Delayed completion of the design and installation of equipment for Project C-198, caused by the new expansion program, will be unavoidable. Little effect has been noticed as yet on construction, but the design work has slowed somewhat while personnel have been working on GEO-9 and GEO-10. An analysis of the delays caused by necessary modifications to existing equipment to increase its capacity, flexibility, and operability will be made in conjunction with the preparation of schedules for the new work.

Progress statistics for the month of November are as follows:

	Percent Complete		
	Basic Design	Overall Design	Construction
Phases II & III (Richland)	71.5%	55%	20%
Phase III (Schenectady)	---	---	91%

DECLASSIFIED

[redacted]

D. Project C-361 - Metal Conversion

Progress statistics at the end of the month are as follows:

Scope	100%
Detailed Design	50%
Construction	0%

The 50% completion of detailed design compares with a scheduled 72%. A large portion of the delay has been in instrument requisitions and drawings. An increased amount of engineering time is now being spent on instrument work. Arrangements have been made for increased mechanical engineering help and electrical design and drafting help to further alleviate this situation.

E. Project C-362 - Waste Metal Recovery Facilities

Progress statistics at the end of the month are as follows:

Phase	I	II	III	IV	V	VI	Over-all
% Scope	100%	90%	100%	100%	100%	100%	97%
% Design	80	12	80	22	100	27	33
% Construction	2	0	1	0	72	0	1-

Procurement of stainless steel and equipment continued to receive major emphasis during the month, and a special group was set up to direct this critical phase of the project work. Correlation of stainless steel bulk orders with equipment requirements is essentially complete, and the tabulation kept up-to-date as changes occur. Purchasing has been advised of the desired shipping dates for items on all bulk orders of stainless steel.

III. PERSONNEL

Employees on payroll:

November

Beginning	End	Net Change
106	115	+ 12

[redacted]

HW 19622 - Del

PROJECT & RELATED PERSONNEL NOVEMBER 1950

	10-31-50		11-30-50	
GOVERNMENT EMPLOYEES				
Civilian Personnel - Atomic Energy Comm.	335		340	
Civilian Personnel - G. A. O.	7		7	
Total		342		347
RICHLAND VILLAGE PERSONNEL				
Comm. Facilities (Includes No. Richland)	1091		1192	
Government Agency, Churches, Clubs, etc.,	82		85	
Schools	385		390	
Organizations	9		9	
Total		1567		1676
CONSTRUCTION SUB-CONTRACTORS				
Atkinson & Jones	3319		3617	
Newberry Neon	313		286	
Urban, Smyth, & Warren Co.	146		138	
Hanley & Company	359		373	
Kellex Corp.	524		555	
Charles T. Main Inc.	6		-	
No. Electric Mfg. Co.	2		1	
J. Gordon Turnbull	5		4	
Flour Corp.	7		-	
Booz, allen & Hamilton	2		-	
Edmond P. Erwin	26		48	
Creamer Electric	4		3	
J. P. Head	9		7	
Royal Company Inc.	3		1	
Phare Paint Store	2		3	
E. J. Bartell	11		4	
Fred J. Early, Jr.	97		37	
Steel Const. Co., & Gilmore Fabricators Inc.	33		54	
Valley Roofing	4		4	
Lewis & Queen	9		2	
J. G. Shotwell	12		12	
V. S. Jenkins	21		21	
Sound Elevator Co.	1		-	
Custodis Const. Co.	8		8	
Empire Electric Co.	12		11	
Morrison & Knudsen Co. Inc.	52		37	
Leland S. Rosener	20		20	
Associated Engr. Inc.	23		26	
Algot C. Grant	5		3	
American Steel & Wire Co.	5		-	
Rust Engr. Co.	5		-	
L. A. Hopkins	16		5	
C. E. Const. Co.	338		47	
Asbetous Supply Co. Seattle	6		6	
Johnson Service	1		6	
Monterey County Plumbing Co.	-		12	
Seldons Inc.	-		2	
Acme Electric Co.	-		1	
Swede Color Bar	-		3	
Barrett & Logan	-		5	
Total		5425		5362
GENERAL ELECTRIC TOTAL		7838		7865
GRAND TOTALS				

[redacted]

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