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HANFORD WORKS MONTHLY REPORT

FOR

MARCH 1951

HW--20671-Del.

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HANFORD WORKS
RICHLAND, WASHINGTON

Operated for the Atomic Energy Commission
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HANFORD WORKS MONTHLY REPORT

General Summary

MANUFACTURING DIVISIONS

Production Divisions

A total of 82 tons of metal was discharged during the month at the goal value. The special request program required 220 man hours of P Division time. Ten tubes of special request material were charged into the piles, 9 tubes were discharged, and 22 casks containing irradiated material were shipped off site. An additional 180 man hours were required for charging, discharging, and shipping of Chemical 68-56.

A new time operated efficiency record of 94.0 percent for five piles was achieved during the month even though there were 34 hours unproductive pile down time due to a planned electrical outage on March 7, and a ruptured P-10 slug on March 22, 1951.

Pile production exceeded that of any previous month by 20 percent. Gains in maximum operating levels for all piles amounted to 170 MW detailed as follows:

	B	D	DR	H	F
March	425	395	526	510	415
February	415	385	484	500	380

The average level overall gain was 132 MW.

A total of 90 tons of acceptable slugs was canned at a yield of 91.6 percent. The machining yield was 80.0 percent. The melt plant produced 16 tons of billets at a record yield of 88.3 percent and a solid metal yield of 93.9 percent. A total of 1200 man hours of overtime work was done by the P Division 300 Area for the du Pont Company.

A total of 141 charges was started in the canyon buildings. This production exceeds the previous high by 8 charges and a new single area record of 75 charges started was also established in T Plant. Charges completed in the concentration buildings also represent a new record at 140 regular runs plus 2 acid washes and 5 P-11 runs. The previous high was 132 charges completed. The T Plant total of 73 regular charges plus 1 acid wash completed is a new record.

A record total of 149 runs were completed in the isolation building, which included 2 acid washes and 11 special runs. The total material bottled exceeded previous records by approximately 5 percent.

The average cooling time was 60 days with the minimum cooling period for dissolved material being 44 days. The average purity of completed charges was 98.4 percent.

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Plant Utilities and Maintenance Divisions

The electric power demands for the month were:

Process - 3-8-51 (1:00 - 2:00 P.M.)	69,550 KW
Village - 3-5-51 (5:00 - 6:00 P.M.)	31,100 KW
	100,650

The process load demand is at a new all time high. The Village peak demand is declining from the January seasonal high.

There was a planned electrical outage on March 7, 1951 for the completion of the 230 KV temporary by-pass line and other work associated with the 251 substation expansion.

Work on revising the preliminary specifications for our industrial lubricants was completed. These are now ready for distribution to interested oil companies. Before this can be done, however, a procedure must be developed to handle the samples that will be submitted by the oil companies for approval consideration. This procedure must cover the laboratory and field testing of the samples.

At the request of the Atomic Energy Commission, the Transportation Division presented a program on the "Operation of the Transportation Division at Hanford Works", at the March 9 meeting in Richland of the Inter-Agency Motor Equipment Advisory Committee of Oregon and Washington. Agencies represented included BPA, General Services Administration, Fish and Wild Life Service, Atomic Energy Commission, Bureau of Reclamation, Corps of Engineers, Bureau of Public Roads, U. S. Forest Service, U. S. Soil Conservation Service, and Bureau of Animal Industry. The program included tours of Richland, North Richland, and vicinity, and presentation of briefs on Hanford Works Transportation operations, costs, savings programs, et cetera.

TECHNICAL DIVISIONS

Pile Technology Division

Problems in connection with the design of the C Pile have required the diversion of effort from some of the longer range programs. Studies undertaken include shielding changes, ball third safety design, coring of graphite channels, improved and increased test facilities, provisions for increased water flow, and use of enriched uranium.

The programs of investigation of plutonium critical mass, pile lattice design, radiation shielding development, xenon cross section, and test pile measurements were continued normally during the month.

Predicted long term reactivity changes in the H-10 load indicate that losses during the next three months can be compensated by charging natural uranium without the use of additional U-235. Improved xenon poison values from tables prepared by the IBM Computing Group are expected to enable more accurate pile reactivity control and balances.

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Measurements of graphite samples exposed in the F Pile indicate a burnout rate of 0.6 percent per 1,000 days in the center of the pile at 380° C. and a build-up of 0.5 percent per 1,000 days in the fringe zone at 105° C. The general program of graphite radiation damage is being expanded although handicapped by a shortage of laboratory facilities.

A review of the transient water flow requirements for the C Pile was completed and a similar study for the operating piles is under way. Installation of flow laboratory equipment for the water quality study was continued.

Seven in-pile experiments were under irradiation during the month, two for plant assistance and five for off-site reactor development.

Plant assistance studies of uranium machining and canning directed towards improved slugs were continued. Examination of a ruptured slug in the radiometallurgy laboratory resulted in widespread contamination.

Tritium production was limited to experimental runs. Tests of the all-metal production line with inactive gases progressed satisfactorily during the month. Construction activities on projects P-10-C, P-10-D, and P-10-D, Part II were continued.

Separations Technology Division

A new system of material accountability, which is expected to result in more nearly correct yields and material balances, was initiated in the separations plants during the past month. Production testing of reduced Bismuth Phosphate process volumes has been carried to a 30% volume reduction without significant changes in either waste losses or decontamination. Recent abnormally high hold-ups of product in the Isolation Building nutsches have made it necessary to institute more frequent leaches and clean-outs. Production testing of direct hydrofluorination of oxalate precipitates in Building 234-5 has been successfully completed and the new procedure is being given a trial in the plant. Recent difficulties with high lanthanum content of plutonium castings were corrected by changing the addition f Chemical 70-58 back to Casting from Reduction.

In Redox and TBP process development, Technical Manual preparation has continued to 69% completion of the Redox Manual and 16% completion of the TBP Manual. The first group of 20 "S" Division supervisors and 28 operators has completed its six-weeks operations training assignment in Building 321, and a second group is now being trained. The program of assistance to ORNL Purex process design has been carried to the point where the design of the Purex columns can now be scoped. Engineering development studies are continuing on Production Plant pumps and materials of construction. The lump sum construction of the Hot Semi-Works was started during the month, with excavation for the Hot Process Building approximately 60% complete at month's end.

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In the research laboratory, studies have been continued on the use of scavengers for the decontamination of Bismuth Phosphate first cycle supernatants, concentration of Redox final product solution and its coupling to metal production, and the recovery of plutonium from 234-5 slag and crucible wastes. Efforts are being made to improve the methods of scavenger separation in the Redox process. Additional fundamental investigations have been carried out in the stability of TBP, pulse column mechanisms, and the effects of head-end treatment on Purex process decontamination. Supporting studies for the P-11 Critical Mass Project have also been carried out.

Further study of the proposed skull recovery process has uncovered improved methods of skull dissolution. Continued investigation of the number of peroxide cycles required to obtain the required plutonium metal purity has succeeded in narrowing impurity problems to only a few elements. Laboratory Reductions with sulphur instead of iodine used as the booster have given yields only slightly below those normally obtained with iodine. Further investigation of methods of oxalate destruction for supernatant recovery is being carried out in the laboratory.

The program of investigation of the concentrations of ammonia and oxides of nitrogen in the Dissolver off-gas during the change-over from coating removal to metal dissolution has indicated that the previously suspected formation of ammonium nitrate in the Silver Reactor and Fiberglas filter is extremely unlikely. A spot check of the I^{131} removal efficiency of the 4-5L Silver Reactor at B Plant during the month indicated an efficiency of 99.9%.

Technical Services Division

An automatic recorder has been installed on the mass spectrometer used for P-10 process sample analyses, and has been used in the routine analysis of 309 samples during the month. Although not offering greater speed, the unit does give more information and in a recorded form. A review of the completed spectra reveals that about 2% methane is present in out-gas samples but not in other extracted fractions. A 50 foot section of copper tubing has been connected to the mass spectrometer head to allow study of direct in-line analyses and has given promising results.

Mass spectrometers for the isotopic analysis of uranium oxide recovered from the Redox and Metal Recovery Processes are being ordered. The original instrument specifications were altered to allow delivery of these instruments by September 15, 1951.

A series of six plutonium nitrate solutions has been analyzed for Pu^{240} with the recently installed spontaneous fission counter. The values obtained are in reasonable agreement with those calculated by the Pile Physics Section, and with experimental data obtained in the 231 Building laboratory indicating the presenthly employed isotopic correction factors to be in error.

A modified extraction-spectrochemical procedure has been introduced into control practice for the determination of impurities in plutonium metal. Although the procedure is still difficult and subject to uncertainties, more accurate results will be obtained by the use of optimum conditions of spectrographic exposure and by the use of reference standards that have been processed through the entire analytical procedure.

An investigation of infrared absorption techniques for the determination of carbon monoxide has yielded an accurate procedure that will prove to be of assistance to Pile Technology Division projects for the study of in-pile experiments on graphite reactions and the rate of graphite burn-out. Observations of value to in-line monitoring include a method for making air-tight seals of cell windows on the absorption cell and the effect of inert gases on the absorption by carbon monoxide.

Final design of the Radiochemistry Building was completed by the Leland S. Rosener Company on schedule, and most questions regarding it had been resolved by monthend. An A.E.C. directive modification was received, authorizing the construction of this building and raising to $4,680,000 the total expenditure authorized for this new Works Laboratory facility.

Close field liaison continued on the new Redox Analytical & Plant Assistance Laboratory, construction of which was 95% complete by month-end. Several special tongs and a slave-type manipulator were designed for the multicurie cells in this new laboratory, and these are being fabricated in the Technical Shops. Development of Junior Cave and gloved box accessories for use in this building also was continued.

A.E.C. Directive No. HW-219 was modified to cover the design and construction of the rescoped Library and Files Building. The design of this facility was subcontracted to the C. T. Main Company (of Boston), which A-E firm also has the Pile Technology Building. Good design progress was reported for both of these facilities.

The Dix Steel Company (of Spokane) broke ground on the Phase I construction of the Mechanical Development Building in the Works Laboratory Area, and made good progress on the footings for this prefabricated steel structure. A Part 2 Project Proposal covering the interior construction (Phase II) of this building was approved by the A & B Committee and forwarded to the A.E.C. Commission consent was obtained by Engineering and Construction for the negotiation of a lump sum design and construction subcontract for this Phase II work with the Dix Steel Company. The required design criteria are being prepared.

At Pile Engineering Section request, a statistical study was begun of panellit pressure readings for the H-10 loading to see if the rupture of P-10 lithium-aluminum alloy slugs can be predicted and prevented. Another study of the expected exposures of tubes in the H-10 loading in the production piles was made by the Computing Laboratory. Considerable statistical effort was devoted to the study of isotope correction factors and chemical assay-radioassay ratios in connection with analytical control of the separation process.

The Technical Information Group resolved several Hanford questions in connection with the forthcoming A.E.C. revision of the Standard Distribution Lists for research and development reports. Arrangements also were completed for treatment of the files in the Schenectady Office (of the Nucleonics Department) as a branch of the Hanford Classified Files, with local accountability for all classified documents transmitted there.

HEALTH INSTRUMENT DIVISIONS

There were three informal investigations and one Class I investigation of special hazards incidents.

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The control programs of all the divisions showed no result significantly different from the expected pattern, except in the increased release and deposition of I^{131}.

The development division appeared to have proved specifically the production of tritium in the P-13 experiment, beyond the concentrations suggested by the current physical constants. Further investigation of this interesting problem would be outside the responsibilities of the division.

The biology division reported several experiments suggestive of ways in which tritiated water may be introduced into the body, and how it would be utilized by the body. The fish laboratory work tended to confirm the previous interpretation that pile effluent was more toxic as a chemical poison than as a radiological one.

PLANT SECURITY AND SERVICES DIVISIONS

There were no major injuries during the month. The major injury frequency rate was further reduced to 0.25 for the year to date.

The Hanford Works of the General Electric Company was declared the winner of the AEC Safety Improvement Contest for Group I in 1950.

There were no industrial fires during March.

Laundry volume decreased slightly in the plant laundry and remained approximately the same in the 700 Area Laundry.

Volume of work demanded of the Clerical Services group continued to increase.

All records have now been transferred from 712-A and 712-B Hutments to the Records Service Center.

Methods and forms control activities resulted in estimated savings of $16,734 of which $14,308 will be on a recurring annual basis.

A joint AEC - GE security educational program was begun this month.

EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

The number of applicants interviewed decreased from 1,934 in February to 1,671 in March. Of these applicants, 712 were individuals who applied for employment with the General Electric Company for the first time. In addition, 821 new applicants submitted applications through the mail. Open, nonexempt, non-technical requisitions increased from 548 at the beginning of the month to 621 at month end. Total plant roll increased from 8,027 to 8,080. Turnover rate increased from 1.73% in February to 2.38 % in March. During March, 70 new requests for transfers to other type of work were received by the Employment Office, and 63 transfers were effected. During March the Employment Office again remained open on Saturdays, with the result of 375 applicants being interviewed on those days, of which 206 were new applicants. Of these, 79 were placed in process and 30 others are under consideration. During March, advertisements were placed in 17 Pacific Northwest newspapers on 15 different dates, and spot radio announcements were given over 14 local radio stations five times weekly. Field recruitment was conducted in Portland, Oregon, for draftsmen and designers, and for cost and accounting clerks on March 19, 20 and 21.

There were 255 applicants interviewed, of which 20 were made offers and 36 are being given active consideration. Lower Columbia Junior College, Longview, Washington, was visited on March 22, 1951, and 5 laboratory assistant candidates were interviewed. Offers were made to 2 and the others are being considered.

During March, four employee deaths occurred and four employees retired. Two hundred and five visits were made to employees confined at Kadlec Hospital, and 67 salary checks were delivered to employees either confined at the hospital or at home. The plant Red Cross Drive was completed on March 16, with employees at Hanford Works contributing 114.8% of the $13,650 quota established by the County Chairman. During the month, 54 letters were written to employees relative to the new ruling of the Pension Board concerning the survivorship options. At the end of March, there were 737 employees registered under the Selective Service Act and 653 military reservists on the rolls. Since August 1, 1950, 117 employees have terminated to enter military service. At month end, participation in the Pension Plan was 95.5%, the Insurance Plan 95.3%, and the Employee Savings and Stock Bonus Plan 37.5%.

A total of 23 supervisors attended the 40-Hour Training Program during March. PMS Groups 13, 14, 15 and 16 met during March. The 8-Hour Nonexempt Training Program was held on March 9, 1951, with eleven "S" Division employees in attendance. During the months of February and March, a total of 228 meetings, or 76 complete series of conferences, on "How Our Business System Operates" was made available at Hanford Works. A total of 785 people, or 41.3%, participated in the three-session program. A schedule will be prepared for presentation of HOBSO to nonexempt employees in April. During March, orientation was given to 4 re-engaged, 5 transferred, and 216 new employees. Re-engaged and transferred employees indicated 100% participating in the G-E Insurance Plan, and 89.8% of new employees signed to participate. A net of 16 copies of the Supervisor's handbook on Employee Relations were distributed during March. Thirty-two Handbooks were turned in and re-issued. Section 1.7 was revised and distributed to Handbook holders during the month of March. Twenty-four copies of the book, MEN AND VOLTS were sold. "Let's Talk It Over" discussions were held at the time of Annual Ratings with exempt members of the Training Staff.

A total of 90 news releases were written and distributed during March, 63 of which were sent to the "local list", and 27 were sent to the "daily list". During the month of February, 360 column inches were printed of news concerning Hanford Works in newspapers throughout the Northwest.

An instruction letter defining the responsibility for the release of information at Hanford Works was distributed.

A magazine article about the Health Instrument Division, with photographs, was sent to the MONOGRAM, and will appear in an early issue.

A survey was conducted during the month to determine whether or not Richland businessmen and ministers and educators would like to receive a "Community News Letter", to be put out by Community Relations. Of the 30 percent returns from the survey, the majority indicated that they would desire to receive the news letter, which will be produced and distributed regularly in the near future.

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The News Bureau Supervisor, Editor of the Works News, and the Community Relations Supervisor addressed journalism students at Columbia High School on the subject "Journalism's Part in Employee and Public Relations". An invitation was extended for students to visit the Community and Public Relations Division, in the near future, and put out a section of the Works News.

During the month, a meeting was held with presidents of the local Kiwanis, Rotary, and Lions Clubs to outline a suggested procedure for presenting HOBSO to Richland residents.

Civil defense information was released to residents through local newspapers, radio stations, and the Works News.

Five speeches were delivered during the month by G-E employees. Twenty-one hand prints and 11 glass slides were prepared for two of the speeches.

Arrangements were completed during the month for the Employee and Community Relations Divisions Manager's presentation of HOBSO before three groups in Portland.

Arrangements were made for use of the AEC Security darkroom on a temporary basis by one employee of the Photo House until more space is made available. The congestion in the Photo House darkroom was thus relieved sufficiently to allow handling of the increased volume of requests for services being received from Hanford Works Divisions.

Black and white photographs, 16 mm color motion pictures and 35 mm color slides were made of the AEC Safety Award Ceremony.

One hundred three general photo assignments were completed during the month, involving the production of a total of 7,298 prints.

Services by Special Programs to Union Relations included a letter to all H. W. patrolmen and Richland policemen concerning the representation election; and the Works News column "Union Relations News" which appeared twice.

A 12-page booklet, "Let's Get Acquainted", was produced for distribution to hospital patients by Kadlec Hospital.

A public relations outline to accompany the current construction and improvement program at Kadlec Hospital was drawn up and put into effect. It includes meal tray cards, inserts for the new patients' booklet, a four-color hospital floor plan for the lobby showing the improvements being made, and a newspaper photo of the "ground breaking ceremonies".

Publicity carried in the Works News included: Red Cross Drive, metering of electricity in Richland, the need for rooms in homes of employees to house new employees, civil defense activities, employee benefit plans, suggestion system, and the need for certain classifications of employees at Hanford Works.

Four women's pages appeared in the Hanford Works News during the month. They featured the YWCA Supper Club, recipes, Spring fashion forecast, and spring housecleaning.

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The women's activities feature writer supplied a feature story with pictures for the Works News on the new North Richland teen-age center. This writer also completed a double page feature for an April issue of the Works News on the new Records Service Center in the 700 Area.

In an NLRB conducted election on March 23, 1951, the Richland and North Richland Police and Plant Security Guards voted in favor of representation by the International Guards Union in collective bargaining matters. The NLRB gave notice on March 7 that proposed union shop election had been postponed. A hearing was scheduled in the case of the Village Firemen for April 4. The HAMTC-GE contract was not reopened.

On March 22, the Davis Panel requested further negotiations at the local level on the isolation pay issue. Negotiations with Painters concluded March 14, granting ten cents an hour effective December 9, 1950, and seven cents an hour effective May 1, 1951. A new premium of fiteen cents an hour was agreed upon for work on Swinging Scaffold or Boatswains Chair. It is reported that the Teamsters will hold representation and union authorization elections in the near future. Puget Sound Sheet Metal (Seattle), Atkinson-Jones vendor, is faced with the possibility of a strike on April 2. They are to furnish and erect 19 tanks. This office is prepared to assist in the event an actual work stoppage occurs.

Compiled data of the Northwest Survey was completed and sent to Printing. Also completed was the special Pacific Coast Design and Drafting Wage Rate Survey. A case was prepared for presentation to Wage Stabilization Board for increased rates for Designers and Draftsmen, the classification of Chlorinator Serviceman, and a plan for granting merit increases to Designers. The survey of non-unit clerical jobs in the Medical Division was completed.

PURCHASING AND STORES DIVISIONS

The number of purchase requisitions received and assigned was 3,900 as compared with 2,848 in the previous month.

The dollar value of orders placed during the month amounted to $2,794,475.18 as compared with $2,397,876.82 for the previous month.

Alterations to purchase orders as a result of design changes and material substitutions increased 35% during the month. It was necessary to requisition additional personnel to handle this additional work load.

Claims from vendors totaling $150,000 as a result of design changes were received. At month end thorough review and analysis of these claims was under way.

The initial requisitions for Project C-431 were received and at month end orders had been negotiated for all of the masonite requirements, all the reinforcing steel requirements and a portion of the structural steel requirements.

Because of limited funds approved for Project C-431, the Purchasing Division arranged to submit a daily report of commitments to respective Technical, Engineering and Construction managers.

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An order originally placed by the University of California for 300 vacuum tanks was taken over by the General Electric Company for the P-10 Program.

Contracts were awarded for our requirements of oxygen and acetylene gas.

Escalation clauses in coal contracts were invoked by the suppliers due to increased wages effective February 1, 1951. As a result, the Continental Coal Company contract was cancelled and price increases allowed to the Bair-Collins Company and the Kemmerer Coal Company.

The inspection work load continued heavy on fabricated equipment for the Redox and TBP Programs.

It was necessary to place additional bulk orders for stainless steel for Projects C-361 and C-362 due to failure of the Kellex Corporation to make complete take-offs at the time the initial orders were placed.

The work load with respect to priorities and allocations increased substantially. Several of the more critical materials are now under allocation which necessitates keeping detailed records in accordance with NPA Regulations.

The number of purchase requisitions processed through screening was 3,383, with the result that 2,545 items were supplied from project inventories thus obviating the necessity of expenditure of new funds by purchasing from outside sources.

There were 86 items of stainless steel not immediately available on the open market and were supplied to our fabricators from project inventories to expedite delivery of critical vessels.

Maintenance materials and supplies valued at $262,451.15 were disbursed from operations inventories.

Materials and equipment valued at $215,891.79 was disbursed to construction forces from inventories of Construction Materials Held for Possible Future Use. In addition, materials valued at $31,177.60 were disbursed for use in operations and materials valued at $72,770.62 were declared excess from this same account.

Material and equipment valued at $80,085.14 was withdrawn from excess inventories for use on the project. Of this amount, $75,962.46 was for construction.

5,054,512 board feet of excess lumber was shipped from the project at the direction of the Commission.

A decision was reached by the Commission that they would handle the contracts for construction of the new Central Warehouse facilities and at month end they were negotiating an architect-engineering contract covering functional study and final design.

Thirty representatives of the government and private business were escorted through our warehouses and scrap yards for the purpose of negotiating sales of scrap and transfer of surplus property.

Scrap sale revenue for the month was $24,564.93.

The Union Pacific Railroad changed their time of delivery to the project thereby providing an additional 24 hours of free time for loading and unloading cars.

The Interstate Commerce Commission, on March 14, granted the railroads a freight rate increase of 4% within Eastern Territory, 2% within Southern and Western Territory, and 2% interterritorially among the three territories which resulted in a maximum increase on coal of 6 cents per ton.

As a result of rate reductions obtained from carriers, a total savings of freight rate charges for the month amounting to $16,145.28 was effected.

MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS

The Richland Investment Company building commenced operation on March 30, 1951, with the following businesses as sub-lessees; McKay's Variety Store, The Wren House, Wiley's Shoe Repair Store and an optometry office operated by Dr. Charles A. McCartney.

Total housing applications pending - 508.

MEDICAL DIVISIONS

An epidemic of influenza which reached a peak during the month has almost ended. It influenced all phases of medical activity. About 15% of the population was involved according to a rough estimate.

The operating room supervisor attended a 5-day institute on operating room techniques at Santa Monica, California, for one week.

Dr. Herman Smith, consultant on the Kadlec Hospital construction program, was here on March 10 and 11.

Miss C. Kinney, University of Washington School of Nursing, visited the division of Public Health.

Employee physical examinations increased from 2,346 to 2,817. Dispensary treatments increased from 7,894 to 9,161 largely due to a high incidence of influenza among employees.

New equipment for the more scientific testing of hearing and seeing was obtained and will greatly improve these phases of employee physical examinations.

Cancer was the health topic for the month.

Sickness absenteeism (weekly employees) for March increased by 1.49% to 3.92% while total absenteeism increased by 1.61% to 4.65%. This is the highest monthly rate of sickness absenteeism since the beginning of operations here and was due to the epidemic of influenza.

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The average daily census at Kadlec Hospital increased from 102.3 to 112.0 (97.7 adults, 14.3 infants). The census was 86.4 a year ago. This is the highest infant census ever recorded at Kadlec, 90 deliveries being made. The high adult census was partially due to the epidemic of influenza. The adult occupancy rate was 94.9%. The rate for the mixed services (all services except obstetrics) was 100%. The very high occupancy rates for the past several months indicate a need for more adult beds at Kadlec. A modification of the scope of project C-204 A, B is being requested to allow for adding more bed space at Kadlec with whatever funds remain after completion of the project in its present scope. Dr. Herman Smith, our hospital consultant, concurs in this recommendation.

The Public Health Division arranged for a regional meeting of the Washington State Public Health Association, with about 64 local and out of town people in attendance. This was the first regional meeting of this type to be held in this state and received commendation from the state organization.

The net cost of operating the Medical Divisions, before assessments to other divisions, was $82,415, a decrease of $9,403 and $7,876 below the budget figure.

The improvement resulted in large part from the (1) lower salary costs due to the shorter month, (2) decrease in transferred charges from other divisions which more than offset (a) lower assessments to other divisions and (b) a small decrease in revenue. The revenue was high because of a higher average hospital census than was anticipated.

GENERAL ACCOUNTING DIVISION

Volume of work handled in the Accounts Payable Section during March, 1951, exceeded that handled during any month since decentralization of the Accounting Divisions in 1948. In spite of the shortage of personnel, all invoices were paid when due and were promptly audited and forwarded to AEC for final approval. As of March 31, 1951, total vouchers on hand and in process, including those paid and unpaid, numbered 1,513. This represents approximately 58% of the number currently received in one month. Final audit of approximately 20,000 purchase order folders which contain information as to quantities received and amounts paid is being deferred until additional personnel is made available. This audit is necessary before these files can be forwarded to permanent storage.

Revision of budgets for FY 1952 and preparation of budgets for FY 1953 progressed during the month. As budget data was received from division heads and coordinated by the Budget Accounting Section, a close working arrangement was maintained with the AEC budget office. As a result, AEC recommendations and questions were considered as the work progressed and preliminary approval was obtained on a considerable amount of completed work.

As a result of the incorporation of Project Engineering with Engineering and Construction Divisions, bases of all assessment studies were thoroughly reviewed and revisions were made where necessary.

Arrangements were made for the segregation of work and selection of employees who are to be transferred to Technical, Engineering and Construction Divisions. Work substantially comprises compiling, analyzing and reporting Technical operating and research and development costs and related budgets. A total of seven employees (3 from Cost, 2 from Budget Accounting and 2 from Accounts Payable) are to be transferred.

Plant Accounting personnel is in process of reviewing depreciation rates of several classes of plant and equipment. Rates were established at the time of the plant appraisal in June 1949, and in many instances it has become apparent that revisions to rates originally established should be made. Plans were nearing completion relative to the assignment of Plant Accounting personnel to the areas where they will be responsible for coordinating work in connection with plant accounting. Continuing physical inventories of certain types of equipment are also to be conducted by these employees.

Internal Auditors started work on two new audit programs in March; namely, Standardization of Inventory Sub-Accounts and Physical Inventory and Booking of Special Materials. The following audits are currently in progress: Timekeeping Procedures, Hospital and Bus Revenue, Receiving and Shipping, State Excise Tax, Physical Inventory procedures and Study of Termination Clearance Procedure. Audits were completed and reports issued on Review of Proposal to Purchase Marine Insurance Policy and Revenue and Change Funds of School of Nuclear Engineering.

Request for reimbursement authorization covering the Emergency Loan Plan for ill or laid-off pension participants was transmitted to the Commission on February 28, 1951, and Reimbursement Authorization No. 142 dated March 26, 1951, was issued by the Atomic Energy Commission approving the plan for reimbursement effective February 1, 1951. Hanford Works Instructions Letter No. 166 was issued in March covering the provisions of the plan, which was placed in effect as of February 1, 1951 on a company-wide basis.

Payroll deductions for Red Cross contributions amounted to $5,388.85. Deductions were made in March from salaries of 1,122 weekly paid employees and 603 monthly paid employees. A check covering these collections will be issued to American Red Cross and forwarded to the chairman of the Nucleonics Department Red Cross Drive.

The retroactive portion of the 3% General Salary Increase (minimum 4¢ per hour) applicable to July 2, 1950 rates, effective September 18, 1950 for employees represented by the H.A.M.T.C. and for employees represented by Local 201, Building Trades Service Employees Union, was paid during the month of March. The retroactive payment covered the period September 18, 1950 through February 11, 1951 amounted to $147,894.74 and was paid to 3,332 employees.

There are 135 employees, as of March 31, 1951, who have left the Company to enter the Armed Forces of the United States. Military Duty allowance equivalent to one month's salary has been paid to 36 weekly paid employees and two monthly paid employees totaling $11,481.52 as of March 31, 1951.

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The high percentage of absenteeism during March was also reflected in an increase in the number of disability claims processed under the G.E. Insurance Plan. Absences of payroll personnel in March and the high percentage of absenteeism in all divisions, which increased the work load in the Weekly Payroll, made it necessary to reschedule many of the statistical reports and related payroll work in order to complete calculation and distribution of payrolls according to normal schedules.

Advances from AEC increased from $5,000,000 as of February 28, 1951 to $6,500,000 as of March 31, 1951. Advances are accounted for as follows:

	March	February
Cash in Bank - Contract Accounts	$5 596 364	$4 470 490
Cash in Bank - Salary Accounts	50 000	50 000
Cash in Transit	428 636	79 510
Advances to Subcontractors	300 000	300 000
Travel Advance Funds	125 000	100 000
Total	$6 500 000	$5 000 000

Hanford works cash disbursements and cash receipts, excluding advances from Atomic Energy Commission for the month of March 1951 as compared with February 1951 may be summarized as follows:

	March	February
Disbursements		
Material and Freight - GE	$2 380 070	$2 353 419
Payrolls - GE (Net)	2 530 812	1 972 441
Payments to Subcontractors	4 015 533	3 611 335
Pension Trust Fund - Company Portion	-0-	1 213 300
Payroll Tax	396 907	434 035
General & Administrative expenses	200 000	200 000
Stock Bonus Plan - Employers contribution	168 451	-0-
U. S. Savings Bonds	140 325	143 156
Others	409 811	364 775
Total	$10 241 909	$10 292 461
Receipts		
Rents	$ 124 438	$ 114 924
Refunds from vendors	11 308	2 012
Hospital	51 598	52 515
Income from Special funds	40 277	-0-
Telephone	18 265	12 795
Miscellaneous Accounts Receivable	21 940	8 574
Bus Fares	9 315	9 199
Scrap Sales	24 236	2 460
AEC Cost-type contractors	1 212	6 450
Other	10 684	4 023
Total	$ 313 273	$ 212 952
Net Disbursements	$ 9 928 636	$10 079 509

[redacted]

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, Engineering and Construction Divisions	R. E. Davison
Manager, Manufacturing Divisions	C. N. Gross
Manager, Technical Divisions	A. B. Greninger
Manager, Health Instrument Divisions	H. M. Parker
Manager, Medical Division	W. D. Norwood, MD
Manager, Employee and Community Relations Divisions	H. E. Callahan
Manager, Purchasing and Stores Divisions	W. A. Jeffrey

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FORCE REPORT MARCH 1951

	EXEMPT		NON EXEMPT		TOTAL	
	2-28-51	3-30-51	2-28-51	3-30-51	2-28-51	3-30-51
GENERAL	19	20	31	31	50	51
LAW	2	2	3	2	5	4
ENGR. & CONST. DIVISIONS						
Construction	3	2	38	25	41	27
Const. Acctg.	11	10	62	63	73	73
Design	235	230	211	232	446	462
No. Richland Realty	17	17	97	96	114	113
Proj. Engr--MJ	50	40	36	31	86	71
Proj. Engr--MD	52	52	78	76	130	128
MANUFACTURING DIVISIONS						
Mfg. General	15	13	5	4	20	17
Mfg. Acctg.	7	7	56	55	63	62
Industrial Engr.	0	13	0	6	0	19
Plant Utilities & Maint.						
Power	88	92	483	480	571	572
Maintenance	56	54	341	326	397	380
Electrical	54	53	249	246	303	299
Instrument	54	55	223	231	277	286
Transportation	60	58	548	556	608	614
Production Divs------"P"	77	76	290	288	367	364
"S"	146	152	456	469	602	621
TECHNICAL DIVISIONS						
Administrative	4	4	2	2	6	6
Pile Tech.	115	116	96	100	211	216
Separations Tech.	106	105	37	42	143	147
Technical Services	132	130	240	331	288	461
MEDICAL	48	45	240	237	288	282
HEALTH INSTRUMENT DIVS.						
General	6	6	3	4	9	10
Operational	54	54	171	174	225	228
Development	42	42	76	79	118	121
Biology	34	32	42	43	76	75
ACCOUNTING DIVISIONS	25	25	163	164	188	189
EMPL. & COMM. RELATIONS	36	36	65	71	101	107
PLANT SEC. & SERVICES						
Patrol & Sec.	54	56	562	577	616	633
Safety & Fire	38	42	107	106	145	148
Gen. & Off. Services	23	23	224	232	247	255
PURCHASING & STORES DIVISIONS						
Purchasing	59	69	86	94	145	163
Stores	19	18	216	203	235	221
COMMUNITY DIVISIONS	208	211	456	444	664	655
TOTAL	1949	1960	6078	6120	8027	8080

PERSONNEL DISTRIBUTION - MARCH 1951

	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	-	-	-	-	-	-	-	-	-	-	20	20
Clerical	-	-	-	-	-	-	-	-	-	-	31	31
Total	-	-	-	-	-	-	-	-	-	-	51	51
LAW	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	-	-	4	4
ENGR. & CONSTRUCTION DIVISIONS												
CONSTRUCTION												
Supervisors	-	-	-	-	-	-	-	-	-	2	-	2
Clerical	-	-	-	-	-	-	-	-	-	25	-	25
Total	-	-	-	-	-	-	-	-	-	27	-	27
CONST. ACCOUNTING												
Supervisors	-	-	-	-	-	-	-	-	-	10	-	10
Clerical	-	-	-	-	-	-	-	-	-	63	-	63
Total	-	-	-	-	-	-	-	-	-	73	-	73

	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
DESIGN												
Supervisors	-	-	-	-	-	-	6	-	-	35	43	84
Engineers & Inspectors	-	-	-	-	-	-	42	-	-	37	58	137
Other Exempt	-	-	-	-	-	-	-	-	-	6	3	9
Draftsmen & Designers	-	-	-	-	-	-	-	-	-	-	53	53
Clerical	-	-	-	-	-	-	12	-	-	30	120	162
Others	-	-	-	-	-	-	-	-	-	8	9	17
Total	-	-	-	-	-	-	60	-	-	116	286	462
NO. RICHLAND REALTY												
Supervisors	-	-	-	-	-	-	-	-	-	17	-	17
Janitors	-	-	-	-	-	-	-	-	-	20	-	20
Clerical	-	-	-	-	-	-	-	-	-	53	-	53
Others	-	-	-	-	-	-	-	-	-	23	-	23
Total	-	-	-	-	-	-	-	-	-	113	-	113
PROJECT ENGR.--MD												
Supervisors	-	-	-	-	-	-	-	-	-	10	-	10
Engineers	-	-	-	-	-	-	-	-	-	42	-	42
Draftsmen & Designers	-	-	-	-	-	-	-	-	-	47	-	47
Clerical	-	-	-	-	-	-	-	-	-	17	-	17
Others	-	-	-	-	-	-	-	-	-	12	-	12
Total	-	-	-	-	-	-	-	-	-	128	-	128
PROJECT ENGR.--MJ												
Supervisors	-	-	-	-	-	-	-	-	-	15	-	15
Engineers	-	-	-	-	-	-	-	-	-	25	-	25
Clerical	-	-	-	-	-	-	-	-	-	14	-	14
Others	-	-	-	-	-	-	-	-	-	17	-	17
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
MANUFACTURING DIVISIONS												
General												
Supervisors	-	-	-	-	-	-	-	-	-	-	9	9
Engineers	-	-	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	-	-	17	17
Mfg. Accounting												
Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	-	-	55	55
Total	-	-	-	-	-	-	-	-	-	-	62	62
Industrial Engr.												
Supervisors		-	-	-	-	-	1	1	-	-	1	3
Engineers	-	-	2	-	-	-	1	7	-	-	-	10
Clerical	-	-	-	-	-	-	-	-	-	-	1	1
Others	-	-	-	-	-	-	2	3	-	-	-	5
Total	-	-	2	-	-	-	4	11	-	-	2	19
Production Divisions												
"P"												
Supervisors	8	18	8	10	-	-	-	13	-	-	2	59
Supv. In Training	2	1	-	1	-	-	-	1	-	-	-	5
Engineers	2	-	1	-	-	-	-	1	-	-	8	12
Operators	34	64	34	34	-	-	-	101	-	-	-	267
Clerical	2	3	2	2	-	-	-	3	-	-	5	17
Others	-	1	1	2	-	-	-	-	-	-	-	4
Total	48	87	46	49	-	-	-	119	-	-	15	364

	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
"S"												
Supervisors	-	-	-	-	-	18	42	10	-	-	5	75
Supv. In Training	-	-	-	-	-	7	16	9	-	-	-	32
Engineers	-	-	-	-	-	-	34	-	-	-	11	45
Operators	-	-	-	-	-	136	241	52	-	-	-	429
Clerical	-	-	-	-	-	6	19	-	-	-	6	31
Others	-	-	-	-	-	3	6	-	-	-	-	9
Total	-	-	-	-	-	170	358	71	-	-	22	621
Plant Utilities & Maint.												
Power												
Supervisors	12	17	12	12	-	8	6	5	3	-	1	76
Engineers	-	-	-	-	-	-	7	-	6	-	3	16
Operators	75	116	75	73	10	22	55	11	9	-	-	446
Clerical	1	1	1	1	-	-	1	-	5	-	2	12
Others	4	4	4	4	-	-	5	1	-	-	-	22
Total	92	138	92	90	10	30	74	17	23	-	6	572
Maintenance												
Supervisors	1	7	8	2	-	4	14	5	1	-	1	43
Engineers	-	-	2	-	-	-	2	1	-	-	6	11
Craftsmen	22	55	51	17	-	32	89	41	-	-	-	307
Clerical	-	1	3	1	-	1	3	2	2	-	1	14
Others	-	1	-	1	-	1	1	1	-	-	-	5
Total	23	64	64	21	-	38	109	50	3	-	8	380
Electrical												
Supervisors	2	1	1	3	-	1	6	2	16	-	11	43
Engineers	-	-	-	1	-	-	1	1	3	-	4	10
Craftsmen	14	17	14	12	2	10	17	9	59	-	27	181
Clerical	-	-	1	1	-	-	1	1	4	-	25	33
Operators	4	4	4	4	-	-	-	-	12	-	-	28
Others	-	-	-	1	-	-	-	-	2	-	1	4
Total	20	22	20	22	2	11	25	13	96	-	68	299

	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
Instrument												
Supervisors	2	5	2	2	-	2	6	8	1	-	3	31
Engineers	1	1	-	-	-	-	3	11	1	-	7	24
Craftsmen	18	24	17	11	-	19	52	50	1	-	10	202
Clerical	-	2	1	1	-	1	3	7	3	-	4	22
Others	1	-	-	-	-	-	1	5	-	-	-	7
Total	22	32	20	14	-	22	65	81	6	-	24	286
Transportation												
Supervisors	2	4	1	2	-	2	2	1	8	-	32	54
Engineers	-	-	-	-	-	-	-	-	-	-	4	4
Bus Drivers	-	-	-	-	-	-	-	-	-	-	166	166
Journeymen	2	4	3	11	-	1	4	-	11	-	66	102
Trainmen	-	-	-	-	-	-	-	-	25	-	-	25
Serviceman	1	7	1	2	-	3	4	1	17	-	21	57
Clerical	1	1	1	1	-	1	1	1	1	-	24	32
Equipment Operators	4	9	3	4	-	4	7	4	17	-	28	80
Others	9	11	2	4	-	10	4	2	10	-	42	94
Total	19	36	11	24	-	21	22	9	89	-	383	614
TECHNICAL DIVISIONS												
General												
Supervisors	-	-	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	-	-	6	6
Separations Tech.												
Supervisors	-	-	-	-	-	1	4	17	-	-	1	23
Chemists & Chem. Engrs.	-	-	-	-	-	5	12	63	-	-	2	82
Tech. Grads	-	-	-	-	-	-	2	6	-	-	-	8
Clerical	-	-	-	-	-	-	3	7	-	-	1	11
Chemical Opers.	-	-	-	-	-	-	1	7	-	-	-	8
Others	-	-	-	-	-	-	3	11	-	-	1	15
Total	-	-	-	-	-	6	25	111	-	-	5	147

	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
Pile Technology												
Supervisors	3	1	1	1	3	-	-	11	-	-	-	20
Mettallurgists & Engrs.	21	4	2	3	14	-	2	25	-	-	3	74
Physicists	1	1	3	3	2	-	-	12	-	-	-	22
Tech. Grads.	11	2	1	2	5	-	-	5	-	-	-	26
Technologyists	9	-	-	4	-	-	-	-	-	-	-	13
Laboratory Assts	13	2	1	2	5	-	-	13	-	-	-	36
Clerical	5	-	-	2	1	-	-	9	-	-	5	22
Engr. Asst.	-	2	-	-	-	-	-	1	-	-	-	3
Total	63	12	8	17	30	-	2	76	-	-	8	216
Tech. Services												
Supervisors	1	-	-	2	5	6	12	22	-	-	3	51
Chem., Engrs, & Statisins.	6	1	1	2	9	1	14	42	-	-	4	79
Technologists, Tech. Grads	2	-	-	-	1	6	17	17	-	-	-	43
Laboratory Assts.	3	-	-	6	-	28	61	40	-	-	-	138
Others	-	-	-	9	24	-	-	24	-	-	2	59
Clerical	1	-	1	3	1	2	3	44	-	-	36	91
Total	13	1	2	22	40	43	107	188	-	-	45	461
MEDICAL												
Supervisors	-	-	-	-	-	-	-	-	-	1	25	26
Physicians	-	-	-	-	-	-	-	-	1	2	9	12
Other Exempt	-	-	-	-	-	-	-	-	-	-	7	7
Technicians	-	-	-	-	-	-	-	-	1	4	14	19
Nurses	2	4	4	1	-	4	10	2	-	2	57	86
Clerical	1	-	-	-	-	-	2	-	-	7	50	60
Others	-	-	-	-	-	-	-	-	-	1	71	72
Total	3	4	4	1	-	4	12	2	2	17	233	282

	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
HEALTH INST DIVS.												
General												
Supervisors	-	-	-	-	-	-	-	-	-	-	3	3
Engrs.	-	-	-	-	-	-	-	-	-	-	3	3
Clerical	-	-	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	-	-	10	10
Operational												
Supervisors	1	1	1	2	-	1	5	8	-	-	2	21
Other Exempt	4	5	5	4	-	5	6	4	-	-	-	33
Clerical	-	-	-	1	-	-	1	1	-	-	-	3
Others	15	19	14	10	-	20	37	37	8	-	11	171
Total	20	25	20	17	-	26	49	50	8	-	13	228
Development												
Supervisors	-	-	-	-	-	3	7	4	-	-	1	15
Other Exempt	-	-	-	-	-	1	11	14	-	-	1	27
Clerical	-	-	-	-	-	1	2	2	-	-	-	5
Others	-	-	-	-	-	18	32	12	-	-	12	74
Total	-	-	-	-	-	23	52	32	-	-	14	121
Biology												
Supervisors	-	-	7	-	-	-	-	-	-	-	-	7
Other Exempt	-	-	25	-	-	-	-	-	-	-	-	25
Clerical	-	-	2	-	-	-	-	-	-	-	-	2
Others	-	-	41	-	-	-	-	-	-	-	-	41
Total	-	-	75	-	-	-	-	-	-	-	-	75

	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. Payroll												
Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Other Exempt	-	-	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	-	-	80	80
Total	-	-	-	-	-	-	-	-	-	-	88	88
Gen. Acctg. Acctg.												
Supervisors	-	-	-	-	-	-	-	-	-	1	7	8
Other Exempt	-	-	-	-	-	-	-	-	-	1	8	9
Clerical	-	-	-	-	-	-	-	-	-	-	84	84
Total	-	-	-	-	-	-	-	-	-	2	99	101
EMPLOYEE & COMM. RELATIONS												
Supervisors	-	-	-	-	-	-	-	-	-	-	25	25
Empl.Rel.Counselor	-	-	-	-	-	-	-	-	-	-	1	1
Other Exempt	-	-	-	-	-	-	-	-	-	-	10	10
Clerical	-	-	-	-	-	-	-	-	-	-	56	56
Others	-	-	-	-	-	-	-	-	-	-	15	15
Total	-	-	-	-	-	-	-	-	-	-	107	107
PLANT SEC. & SERVICES												
Patrol & Sec.												
Supervisors	5	6	6	5	-	5	7	7	6	-	4	51
Other Exempt	-	-	-	-	-	-	-	-	5	-	-	5
Patrolman	60	50	66	43	-	62	151	88	8	-	30	558
Clerical	-	-	-	-	-	-	-	-	15	-	2	17
Seamstress	-	-	-	-	-	-	-	-	2	-	-	2
Total	65	56	72	48	-	67	158	95	36	-	36	633

	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
Safety & Fire												
Supervisors	14	-	-	-	4	-	4	4	7	-	-	33
Engineers	-	2	-	1	-	2	-	2	-	-	2	9
Firemen	46	-	-	-	8	-	20	16	10	-	-	100
Clerical	-	1	-	1	-	1	-	-	-	-	3	6
Total	60	3	-	2	12	3	24	22	17	-	5	148
Gen. & Off. Serv.												
Supervisors	-	-	1	-	-	1	1	1	1	-	18	23
Laundry Operators	-	-	-	-	-	-	1	-	-	-	1	2
Janitors & Serviceman	7	5	5	6	2	5	19	12	4	-	41	106
Clerical	-	-	-	-	-	-	-	-	-	-	33	33
Others	-	-	-	-	-	-	32	-	-	-	59	91
Total	7	5	6	6	2	6	53	13	5	-	152	255
PURCHASING & STORES DIVISIONS												
Purchasing												
Supervisors	-	-	-	-	-	-	-	-	-	-	14	14
Other Exempt	-	-	-	-	-	-	-	-	31	-	24	55
Clerical	-	-	-	-	-	-	-	-	-	-	87	87
Rotational Trainee	-	-	-	-	-	-	-	-	7	-	-	7
Total	-	-	-	-	-	-	-	-	38	-	125	163
Stores												
Supervisors	2	-	-	-	-	-	-	-	-	3	13	18
Clerical	12	-	-	-	-	-	-	-	-	24	45	81
Others	22	-	2	-	-	-	1	-	-	20	77	122
Total	36	-	2	-	-	-	1	-	-	47	135	221

	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
MUN. REAL ESTATE, GEN. SERVS.												
GOVERN., ACCTG. ENG.												
Supervisors	-	-	-	-	-	-	-	-	-	5	102	107
Other Exempt	-	-	-	-	-	-	-	-	-	9	34	43
Firemen	-	-	-	-	-	-	-	-	-	24	37	61
Patrolmen	-	-	-	-	-	-	-	-	-	15	20	35
Journeymen	-	-	-	-	-	-	-	-	-	-	174	174
Servicemen	-	-	-	-	-	-	-	-	-	-	35	35
Truck Drivers	-	-	-	-	-	-	-	-	-	-	33	33
Power Operators	-	-	-	-	-	-	-	-	-	-	35	35
Clerical	-	-	-	-	-	-	-	-	-	-	80	80
Others	-	-	-	-	-	-	-	-	-	-	52	52
Total	-	-	-	-	-	-	-	-	-	53	602	655
GRAND TOTAL	491	485	444	333	96	470	1200	960	323	647	2631	8080

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MANUFACTURING DIVISIONS

MARCH 1951

SUMMARY

Production Divisions

A total of 82 tons of metal was discharged during the month at the goal value. The special request program required 220 man hours of P Division time. Ten tubes of special request material were charged into the piles, 9 tubes were discharged, and 22 casks containing irradiated material were shipped off site. An additional 180 man hours were required for charging, discharging, and shipping of Chemical 68-56.

A new time operated efficiency record of 94.0 percent for five piles was achieved during the month even though there were 34 hours unproductive pile down time due to a planned electrical outage on March 7, and a ruptured P-10 slug on March 22, 1951.

Pile production exceeded that of any previous month by 20 percent. Gains in maximum operating levels for all piles amounted to 170 MW detailed as follows:

	B	D	DR	H	F
March	425	395	526	510	415
February	415	385	484	500	380

The average level over-all gain was 132 MW.

A total of 90 tons of acceptable slugs was canned at a yield of 91.6 percent. The machining yield was 80.0 percent. The melt plant produced 16 tons of billets at a record yield of 88.3 percent and a solid metal yield of 93.9 percent. A total of 1200 man hours of overtime work was done by the P Division 300 Area for the du Pont Company.

A total of 141 charges was started in the canyon buildings. This production exceeds the previous high by 8 charges and a new single area record of 75 charges started was also established in T Plant. Charges completed in the concentration buildings also represent a new record at 140 regular runs plus 2 acid washes and 5 P-11 runs. The previous high was 132 charges completed. The T Plant total of 73 regular charges plus 1 acid wash completed is a new record.

A record total of 149 runs were completed in the isolation building, which included 2 acid washes and 11 special runs. The total material bottled exceeded previous records by approximately 5 percent.

The average cooling time was 60 days with the minimum cooling period for dissolved material being 44 days. The average purity of completed charges was 98.4 percent.

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Manufacturing Divisions

Plant Utilities and Maintenance Divisions

The electric power demands for the month were:

Process - 3-8-51 (1:00 - 2:00 P.M.)	69,550 KW
Village - 3-5-51 (5:00 - 6:00 P.M.)	31,100 KW
	100,650 KW

The process load demand is at a new all time high. The Village peak demand is declining from the January seasonal high.

There was a planned electrical outage on March 7, 1951 for the completion of the 230 KV temporary by-pass line and other work associated with the 251 substation expansion.

Work on revising the preliminary specifications for our industrial lubricants was completed. These are now ready for distribution to interested oil companies. Before this can be done, however, a procedure must be developed to handle the samples that will be submitted by the oil companies for approval consideration. This procedure must cover the laboratory and field testing of the samples.

At the request of the Atomic Energy Commission, the Transportation Division presented a program on the "Operation of the Transportation Division at Hanford Works," at the March 9 meeting in Richland of the Inter-Agency Motor Equipment Advisory Committee of Oregon and Washington. Agencies represented included BPA, General Services Administration, Fish and Wild Life Service, Atomic Energy Commission, Bureau of Reclamation, Corps of Engineers, Bureau of Public Roads, U. S. Forest Service, U. S. Soil Conservation Service, and Bureau of Animal Industry. The program included tours of Richland, North Richland, and vicinity, and presentations of briefs on Hanford Works Transportation operations, costs, savings programs, et cetera.

C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

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MANUFACTURING DIVISIONS

PATENT REPORT SUMMARY
FOR
MONTH OF MARCH 1951

Richland, Washington
April 10, 1951

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

INVENTOR	TITLE
F. C. Schermer Maintenance Division	Alteration of Chapman #660 Valve
H. J. Bellarts Project Engineering Division	Fusible Safety Release - Drawing H-1-2543 (This invention was submitted as Report of Invention S-8576, HWIR-295, Fusible Safety Release, dated 2-1-51, and is a part of invention reported for November 1950, "Tube Cutter, Emergency (Centrifugal)."

C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

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Section 10 Approved By V. D. Donihee
V. D. Donihee
Accountability Representative

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MANUFACTURING ACCOUNTING
MARCH 1951

SUMMARY

Various activities were carried forward during the month looking toward expanded responsibilities, improvement in cost and budget methods, and better utilization of personnel. Among these were:

Preparation for Billing Electricity to Residential and Commercial Users

The Statistics section ordered the following items to implement billing of metered electrical charges beginning September 1, 1951:

a. Post-card style bill forms.
b. IBM Accounting Cards.
c. A "mark-sensing" device for the Reproducer.
d. An additional collator.

Meter readers will employ IBM cards and special pencils to register meter readings. The "mark-sensing" device through the reproducer translates the marks into standard key-punch holes, making the card usable for imprinting by tabulating machine.

Compilation of Operating Reports on IBM

For the purpose of decreasing routine hand clerical labor so that the saved time can be used for better purposes, a study was begun in March of the feasibility of compiling Monthly Operating Reports on existing IBM equipment. The Analysis and Statistics groups are conducting the investigation.

Operation of New Budget Method FY 1952-1953 Budget

Major criticisms of the Operating Budget Procedure used in the past have been:

A. Required excessive clerical work of Operating Divisions.

B. As compilation was made as a whole under a tight dead-line, insufficient time remained for analysis of final figures and discussions between Servicing and Production Divisions as to the correctness of charges.

To minimize clerical work by Operating Divisions, within-division information (number of people, classification, money value of material) was requested and the within-division portion of the Budget built up from these facts in Manufacturing Accounting. Historical information on charges out from servicing divisions were provided in terms of man-

[redacted]

[redacted]

power to operating personnel, enabling them to make estimates in the same terms, decreasing the magnitude of figures to be handled.

By dividing the budget effort into sections, portions of the budget were resubmitted for review by divisions as the work progressed. At the end of March we were able to submit details of servicing divisions charges for review by all Manufacturing Divisions. Adjustments have been made of preliminary figures of operating and accounting divisions through cooperative effort and it is generally felt that the new method is a distinct forward step.

Construction Budget

During the month the Work Order Control Section reorganized its records preparatory to reviewing the Construction Budget, the preparation of which will be a new responsibility of this section.

Distribution of Power Costs

Considerable work was done in the Analysis and Reports Section toward development of a system for charging steam and water consumed to customers on a unit cost basis. This is considered to be a distinct improvement over the present method of direct liquidation by area.

Billing by Service Rather Than Division

In order to "tell a story" with the backs of the Operating Reports rather than showing only the division billing, analysis of code structure of servicing divisions is now under way in the Analysis and Reports Section. Work has been initiated on a functional code structure for Transportation Automotive (412) and Electrical Divisions similar to the code structure established for Railroad Operation in January.

Product Cost Accounting

Meetings attended by Divisions Managers were called by the Assistant General Manager to review the methods used in computing product cost. Alternate methods of computing process inventory value were submitted (weighted average; first-in first-out; and rolling average process cycle).

It was decided that rolling average production costs computed for a period of time that is commensurate with the process cycle would be used.

Assistance was furnished to the Production Divisions in analyzing details to determine the reasons for changes in product unit costs. Plans have been made and some overtime authorized to furnish details of product cost at an earlier date to enable the Production Divisions to make their analyses soon after the Summary of Production Costs statement is issued.

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Manufacturing Accounting

Organization and Personnel

Number of Employees on Payroll:

Beginning of the Month	63
Acquisitions	2
Transfers out	2
End of Month	63

Much difficulty is being experienced in obtaining enough suitable personnel to meet the rapidly increasing work load. The expanded work load is due to accounting for new plants, electricity metering, A.E.C. demands for more details, particularly on budgets and more cost analysis work.

[redacted]

[redacted]

HW-20671-Del

April 5, 1951

P DIVISION

MARCH, 1951

I. GENERAL

Substantial gains in maximum operating levels were achieved during the month of March, totaling 107 MW for all piles. The problem of slug failure during pile operation continued to be an impediment to maximum production. Although no uranium slugs failed during March, 18.6 hours of unscheduled outage time at H Pile were required for the removal of a ruptured and distorted P-10 target slug. Otherwise, operation of all piles was normal, and a gain of approximately 25% in total pile production was realized over the previous month.

The average time operated efficiency for 5-pile operation reached a new maximum at 94%. The total number of outage hours for all piles was 219.7. Eighty-eight percent of this non-operating time is chargeable to plutonium production and 12% is chargeable to other irradiation programs.

The following gains in maximum operating levels were achieved: B Pile was raised from 415 MW to 425 MW, D Pile was raised from 385 MW to 395 MW, DR Pile was raised from 484 MW to 526 MW, H Pile was raised from 500 MW to 510 MW, and F Pile was raised from 380 MW to 415 MW. This brings the total maximum operating level of all five piles to 2271 compared to 2164 MW for last month for a gain of 107 MWD.

A record billet yield of 88.3% was achieved in the 300 Area Melt Plant facility.

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P Division

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - March, 1951

Beginning of Month -	367
End of Month	364
Net Decrease	3

There were no personnel changes in the rotational training program during the month. However, arrangements were completed for the assignment to the P Division of seven additional Technical Graduates from a group of recently hired personnel. These Technical Graduates are expected to report to the P Division during April, 1951, and will provide additional personnel in connection with the operation of anticipated new facilities.

E. J. Filip, Area Supervisor, was promoted to Assistant Chief Supervisor, effective March 1.

R. G. Swift, Shift Supervisor, resigned on March 16 to accept employment elsewhere.

K. V. Stave was promoted from Supervisor-in-Training to Shift Supervisor, effective March 1.

Six new operators were hired into the 300 Area. Five operators and one General Clerk C terminated voluntarily from the 300 Area. Two operators from the 300 Area transferred to the Electrical Division.

Mr. W. W. Windsheimer inspected facilities at Argonne National Laboratory in Chicago, Illinois on March 12 and attended a meeting of the Reactor Safeguard Committee in Chicago on March 13.

III. AREA ACTIVITIES

100 Areas - Pile Irradiation

The March production represents an increase of more than 20% over the highest previous month since the startup of the Hanford piles. This increase was due largely to higher pile levels and better operating techniques. Level increases were primarily the result of improved flattening, graphite annealing and reactivity gains at the DR Pile. The technique of purging during pile operation, recently developed by the P Division, also promises to contribute substantially to future production.

The following table summarizes pile levels, efficiencies, et cetera:

[redacted]

P Division

Pile Production Summary	Pile B	Pile D	Pile DR	Pile H	Pile F
Maximum Level Attained (MW)	425	395	526	510	415
Average Operating Level (MW)	397	376	496	493	391
Time Operated Efficiency (%)	90.9	91.9	97.3	94.2	96.1
Unscheduled Outage Time (Hours)	0	0.1	0.2	1.0	0
*Inlet Water Temperature (°C.)	6.4	8.8	6.3	6.5	5.0
*Outlet Water Temperature (Max. °C., 10 tubes 0.240" zone)	64.8	64.3	72.2	66.1	49.6
Maximum Graphite Temperature (°C.)	374	378	313	392	383
Metal Discharged (Tons)	26.84	33.83	1.76	9.42	9.84
Inhours Gained	-2	27	67	-14	35
Inhours in Rods	76	80	142	87	74
Inhours Poisoned	503	515	319	70	505

* Month end figures.

Pile downtime during the month of March was mainly attributable to the scheduled discharge of metal, removal of a ruptured P-10-A slug from H Pile and a scheduled electrical outage. A tabular breakdown of outage time is given below:

Cause of Outage Time	Pile B	Pile D	Pile DR	Pile H	Pile F	Total
Metal Discharge	39.0	30.3	2.0	23.9	13.0	108.2
Ruptured Slug Removal				18.6		18.6
Pile Maintenance	22.5	20.5			6.5	49.5
Special Requests (Except P-13)	6.0	9.0	2.0		9.5	26.5
P-13				0.4		0.4
Electrical Outage			15.6			15.6
Safety Circuit Trips		0.1	0.2	0.6		0.9
Totals (Hours)	67.5	59.9	19.8	43.5	29.0	219.7

As will be noted from the above tabulation, less than half of the total outage time was actually required for regular metal discharge. Special request handling consumed 12 percent of the outage time, pile maintenance - 22 percent with approximately 8 percent each for removal of a ruptured slug and the electrical outage.

Operating Experience

Operating experience during the month was normal except for a scheduled one-day electrical outage for all piles and a one-day unscheduled outage at H Pile required to remove a ruptured P-10 target slug. Production tests having operational significance are reported below:

105-103-P (Corrosion Rates at Elevated Temperatures, Supplement D) At F Pile, 16 tubes are operating satisfactorily at elevated temperatures under the provisions of this test. During the month, four of these tubes were discharged and recharged.

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P Division

105-354-P (Operation of ANL-140 with Fuel Installed)
Operation of the H Pile was interrupted for 0.4 hour on March 13 due to an unexplained impulse from the P-13 equipment safety circuit. No definite cause could be established. A production loss of 47 MWD resulted. During the March 7 outage, three test sections were removed from the pile tube and replaced by three new sections. Except as noted above, operation of the equipment using hydrogenated water has been normal throughout the month. Reactivity changes were negligible as predicted. Total production loss attributable to the P-13 project to date is 2458 MWD.

105-372-P (Measurement of Vertical Graphite Expansion at Near and Far Sides - B, D, and F Piles)
Measurements taken at D Pile on March 7 tend to corroborate previous data, showing continued annealing of graphite in the central pile regions with some indication of a slight increase in displacement of the colder zone near the front ends of the tubes.

105-407-P (Pile Test of Magnesium Front Dummies)
At B Pile on March 7, the front sections of five process tubes were borescoped and a pattern of 14 solid magnesium dummies installed in the front ends of the five tubes. From the performance of these and other slugs previously charged into the piles, it is expected to obtain data for use in evaluating the installation of solid magnesium dummies in all tubes as a corrosion preventive measure.

105-402-P (Effect of Water Vapor Concentration on Pile Gas Equilibria)
Tests previously reported as in progress on February 28 were completed on March 1, and the use of silica gel driers in the gas circulation system was resumed. Following the test, rate of moisture removal was normal and no unusual operational effects were observed.

105-417-P (Process Tube Purge During Pile Operation)
On March 7, the DR Pile was purged during the normal shutdown period from a level of 472 MW and on March 22, the DR Pile was purged while operating at a level of 350 MW. Both purges were successful and no operational difficulties were encountered.

The special request program required approximately 220 manhours of time during the month. Cask handling and decontamination work continued to consume a large portion of the time charged to this work. Ten tubes of special request material were charged into the piles for irradiation. Nine tubes containing special request samples were discharged and 22 casks containing irradiated samples were

shipped off site. In addition, approximately 180 manhours were required for the charging, discharging and shipping of Chemical 68-56.

A total of 81.69 tons of uranium slugs was discharged during the month of which 1.12 tons was at 114% of goal value, 0.12 tons was at 50% of goal value and 80.45 tons was at 100% of goal value.

At H Pile an unscheduled outage of 18.6 hours duration occurred on March 22 in order to remove a ruptured and distorted P-10 target slug from tube 3483-H. Details are reported in document HW-20653, "Removal of Ruptured P-10 Target Slug from Tube 3483-H". In view of the two failures of P-10 target slugs during recent weeks, the tubes containing P-10 loadings are being carefully monitored in an attempt to spot incipient failures and effect removal before damage occurs. Considerable vigilance is required since the regular water sampling equipment is of no value in detecting P-10 target slug failure.

A planned electrical outage of all piles occurred on March 7 in order to allow for the connection of new 200 Area transformer facilities. Since this outage was scheduled sufficiently far ahead to allow for advance planning of pile discharges, to coincide with the outage, all possible advantage was taken of the downtime. Thus, no actual lost production time was charged to this outage except at the DR Pile where metal was not ready for discharge.

DR Pile gained approximately 67 inhours during the month and additional P-10 charges were loaded into the pile for improved flattening, allowing further increases in the operating level. Flow recording instruments at the DR Pile were recalibrated resulting in a favorable correction to DR Pile level and production figures.

Mechanical Experience

The general mechanical condition of the pile components and equipment continued good throughout the month. Experience was normal except for the failure of a screen during a purge at D Pile resulting in crossheader screen plugging, and the continuation of leakage problems at the H Area retention basin. The program of training operators in the proficient use of the H and DR tool dollies is progressing satisfactorily.

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

a. Horizontal control rod A at 100-D continues to bind in several positions. Investigation has shown that the rod is rubbing on the top of the thimble. It is planned to remedy the condition by replacing the graphite rod track with thinner sections, machined down to correct for the bowing of the pile matrix.

b. Vertical safety rod 11-B cannot be raised from the pile under power. The rod is now tied out of service and repairs are planned for a subsequent outage.

Difficulties with vertical safety rod 20-DR, reported in February, were eliminated by making adjustments to the slack cable limit switch. Horizontal rod 6-F was relieved of the binding tendency, reported in February, by realignment of the rod gate assembly.

The unclad 2-S aluminum tube in channel 2180-B was replaced with a 72-S clad tube on March 21 in accordance with the P Division program for replacement of all unclad 2-S tubes.

Tube 3060-B, reported damaged in February, was replaced on March 21 and returned to service.

During a solids purge at the D Pile on March 6, a valve pit screen at the injection pumps failed, allowing coarse super-cel to pass into the process water which resulted in the plugging of numerous crossheader screens on B and D risers. It was necessary to clean the screens before starting the pile.

Routine testing and practice operation of the tool dollies at 100-DR and 100-H Areas continued through the month. At H Area, the installation of mock-up facilities for complete functional testing of the dolly was begun. This equipment will expedite the training of personnel in operation and testing of the dolly.

A new type ultra-flexible jointed vertical safety rod was installed in #20 position (without VSR thimble) at D Pile on March 7. It was test-operated satisfactorily through the special step plug and gas seal and remained in position until March 28. At that time, the gas seal was leak tested. No leaks were found and the new rod was removed and replaced by the original knuckle rod. Poison effectiveness of the new rod was tested at 31 inhours as compared to 35 inhours for the standard type jointed vertical safety rod.

At H Area, leakage in the 107 retention basin continued. A program of major repairs is awaiting the scoping of a project to provide the necessary funds. Meanwhile, every precaution is being taken to maintain the basin in operable condition until permanent repairs are possible.

Gas Processing

Operation of this equipment was normal during the month. Some acceleration in gas leakage rates was experienced at B and F Piles. As reported under Pile Development, the F Pile gas leaks were greatly reduced by the installation of boots on four leaking front bellows. The leaks in the B Pile gas system have not yet been isolated. It is suspected that one or more bellows on the rear face may be leaking.

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P Division

Pile Development

A new type rubber boot for repair of leaking gunbarrel bellows was developed at F Pile and a technique was worked out which permits installation on front face nozzles during pile operation. Four of these boots were put on leaking front bellows on F Pile reducing consumption from 3400 cubic feet per day to about 1400 cubic feet per day.

An innovation in water sample room monitoring equipment was introduced at DR Pile during the month. Test equipment which allows electrical impulses from adjacent near side headers to "buck" against each other was installed in the near sample room. This arrangement replaced a system in which impulses from a given header on the near side "bucked" impulses from the same header on the far side. This resulted in an erractic recording pattern. The new system has effectively eliminated exit water monitor pattern shifts and irregularities due to reactivity changes within the pile. It is expected that a considerable increase in instrument reliability will result, making detection of ruptured slugs easier and more certain.

Special Hazards

Since the startup of H Pile, airborne effluent vapor contamination has been a chronic problem in various areas of the H Pile building. Recent studies have indicated that the principle source of contamination is the unsealed hole through which the downcomer vent reaches the roof. This allows contaminating vapor from the vent to enter the building. Under certain atmospheric conditions, the problem becomes critical. During the outage of March 22, the space around the vent pipe was tightly sealed with lead wool. Subsequent surveys have shown that contamination immediately beneath the vent has been reduced by a factor of 10,000 and gratifying improvements have been made in airborne contamination throughout the entire pile building.

At D Pile, continued effort is being made to eliminate the source of effluent vapor contamination in the water sample rooms. The installation of large vents at the upper ends of the sewer risers has improved the situation considerably. However, the X and Y rooms are still generally above tolerance level and are in a restricted status.

A loose manhole cover on the far effluent line from the DR Pile was found to be emitting vapors giving dosage rates as high as 35 rep/hr. including 2 r/hr. at eight inches from the leak. The situation was handled by switching to the near effluent line. Repairs are planned for the next scheduled outage.

Process Control

In addition to routine activities, a new monthly production study was developed giving a comprehensive forecast picture of production,

[redacted]

manpower and cost for the 100 Areas and the 300 Area. It is planned to issue this report monthly, improving and modifying it to meet the needs of the P Division and other divisions affected by production schedules.

On March 5, Process Control was extended to the 300 Area with the assignment of a Process Control Engineer to that area.

During the month, steps were taken to insure adequate continuity of records required for pile production scheduling in the event of a disaster affecting the Richland Area.

300 AREA METAL FABRICATION

OPERATING SUMMARY

All 300 Area operations were normal throughout the month. A new record billet yield of 88.3% was attained in Melt Plant operation. Intensive investigation was continued in all phases of slug fabrication and testing which might result in improvements of slug quality and eliminate the possibility of slug failure during pile exposure. Substantial progress was made in canning production and in the elimination of marred surface rejects through an improved organization of the canning lines.

Uranium Fabrication	February	March	To Date 1951
Billets Produced (Tons)	17	16	53
Bare Pieces Machined (Tons)	85	91	275
Briquettes Produced (Tons)	12	12	37
Oxide Burned (Weight Out - Tons)	3	2	9
Acceptable Pieces Canned (Tons)	82	90	267
Melt Plant Billet Yield (%)	86.7	88.3	87.7
Melt Plant Solid Yield (%)	93.9	93.9	93.5
Machining Yield (%)	81.6	80.0	81.2
Chip Recovery Yield (%)	87.6	85.3	87.5
Canning Yield (%)	91.2	91.6	91.3
Autoclave Frequency (No./M)	0.17	0.24	0.19

OPERATING EXPERIENCE

Melt Plant

The billet yield for March was the highest attained at Hanford to date. This record yield was attributed mainly to the absence of broken stopper rods. Two leaky stopper rods and one cracked crucible were the only operating difficulties encountered during the month.

Machining

The lower yield for March resulted from poorer surface quality of the rods machined. All lots processed, except one, were U type material received in January and exhibited a high percentage of

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laps, cracks and seams. Many of these defects failed to clean up during machining and caused abnormally high tool breakage.

The installation of pneumatic rod feeders on all roller turner lathes was completed in March. During the short period these feeders have been in use they have proved to be very satisfactory and have successfully eliminated a serious strain hazard.

Chip Recovery

The chip recovery process was operated without incident.

During the month, calcium nitrate was substituted for calcium chloride as a flocculating agent for treating the chip recovery wash solutions. The use of this material has made it possible to produce a precipate which has less bulk, is free of chlorides, dries more rapidly and has less tendency to cake.

Canning

The canning yield for March was slightly higher than that reported for February. From a total of 90 tons classified, 2.2% were rejected for marred surface, 1.3% for non seating, 1.2% for Al-Si on outside of the can, 1.0% for bad welds and 2.7% for miscellaneous causes.

Reorganization of the canning crews so that each crew handles only its own material has been instrumental in reducing marred surface rejects.

Defective cans accounted for the rejection of 0.7% of the total slugs canned. Although this percentage is similar to that experienced in February, cans processed toward the end of the month did not exhibit the blisters which were noticed previously. During the month, correspondence was received from the Aluminum Company of America in which they indicated the blisters originated from gas bubbles in the aluminum casting from which the cans were fabricated. To further study the cause for defective cans, the Aluminum Company has been asked to segregate cans from each casting.

Inspection

A total of eleven autoclave failures occurred during the month. Five of the failures were the result of minute pin holes extending through the weld into unbonded areas between the cap and can side wall. Three failures were caused by very fine cracks in the caps. The cause of the remaining failures could not be definitely established.

None of the slugs tested for penetration during the month were found to be penetrated within 0.010" of the outer can surface.

P Division

305

The following tests were run during March:

Description	No. of Tests
Regular slugs	67
Billet egg	31
Determine the density correction factor to be used in graphite testing	74
Measure the purity of graphite bars	22
Measure the reactivity of uranium slugs with varying thickness of end caps	20
Determine the variation in reactivity of slugs in the same lot	54
Determine the surface contamination on uranium egg samples	18
Test aluminum to be used for the fabrication of cans	14
Measure the absorption cross section of material to be charged into 105 piles	2

Special Fabrication Work

One thousand nine hundred seventy-seven poison slugs were canned.

During the month, considerable time was spent fabricating slugs for the duPont Company. This work consisted of processing approximately 700 pieces 6 to 8 inches long and 3/4 to 1 inch in diameter. All of this work was performed on a scheduled overtime basis and required approximately 1200 manhours.

In addition, 10 manhours were spent in fabricating 80 single dipped canned dummies for corrosion tests.

Material Handling

Sixty-nine tons of normal canned slugs were shipped to the 100 Areas. Seven and one-half tons of solid uranium scrap were shipped to Los Alamos.

A total of 1447 U_{235} aluminum alloy slugs and associated scrap materials were shipped to ORNL. In addition, five slugs were transferred to Pile Technology for use as standards in a production test.

Approximately 26 manhours were devoted to making miscellaneous off-plant shipments.

A total of 221 tons of alpha rolled rods was received from Simonds Saw and Steel Company.

Special Hazards

No unusual conditions developed during the month.

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P Division

Development

The timing equipment installed previously on two welding machines to control the rate of preheating and welding has produced very satisfactory results. Similar equipment is currently being installed on the two remaining machines. When the installation is complete, optimum rates of revolution will be established and the speed regulators will be fixed permanently to standardize the process.

To guarantee proper centrifuging and to reduce tin carry-over into the Al-Si canning baths, a centrifuge was altered so that after starting it would operate on a definite time cycle and then be automatically stopped. Use of this device has proved very satisfactory in that tin carry-over has been reduced, and the automatic control is influential in keeping the canning operation on the required time cycle. Steps are being taken to convert the three remaining centrifuges.

The use of dry ice in the melt plant cold traps was discontinued during the month. Information obtained at Mallinckrodt Chemical Works and ANL indicated this practice was unnecessary. Operation without the benefit of the cold traps has not affected the furnace vacuum. An annual savings of $3400 in material costs will result from this change.

The time required to load canned slugs into the vans for routine shipment to the 100 Areas was reduced by 80% during the month. This development was made possible by altering a high-lift so that it can be driven inside the vans to eliminate individual handling of the slug boxes. Through this system, a 10 ton shipment can be loaded in less than 45 minutes. Previously, it took about 4 hours to perform the job. It is estimated that this change will result in a savings of $590 per year.

At the request of the production group, a study was made by the Process Control Group to determine the benefits to be derived from recanning reclaimed slugs by the lead dip canning process. Preliminary results indicate that the adoption of the practice would increase the one shift canning capacity of the 300 Area by approximately 75 tons per year. In addition, the cost of processing this material would be reduced by approximately $8,000 per year. The final report on this study will be published in the near future and the program will be submitted for approval.

ENGINEERING PROGRAM

Contact Engineering Section

The Contact Engineering Group continued work on Project C-431-B, 100-C plant, on a six day per week basis. The reactor building design criteria, with the exception of the instrumentation section, were reviewed and approved.

[redacted]

P Division

The design and associated drawings for Project C-411 (J Slug Handling) are complete and approved. The revised scope of the project has been submitted to the Atomic Energy Commission.

Engineering Control Section

The efforts of the Engineering Control Group were applied mainly toward preparation of the Division's operating and construction budgets. The construction budget was essentially completed but, due to major revisions of the budget assumptions, preparation of the operating budget was only about 50% complete at month end. Various cost studies and reports were completed during the month in addition to the normal cost control work. Preparation of project proposals and follow-up of approved projects was continued throughout the month.

Projects and proposals requiring considerable attention included: C-438 - Ball 3X Facilities; B-865 - Repairs to 107 Basins; B-821 - Repair to Effluent Downcomers; C-330 - Improved Ventilation Bldg. 313 and 314; and M-713 - Design and Development of Flexible VSRs.

Project Status

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

C-330 (Improved Ventilation - Building 313-314 (Engineering and Development Only)
Preliminary results on Hersey bag filters indicate better than 90 percent efficiency with exhaust air below tolerance limits. Improvements in crucible burnout design, chip recovery ventilation and rod straightener ventilation are in progress.

M-713 (Flexible Vertical Rod)
The full scale rod was tested in position 20 at D Pile on March 7. Performance under power and by scramming was satisfactory. An extension of the directive date will be requested to allow time for additional gravity drop tests simulating emergency operation.

C-411 (J Slug Storage and Shipping Facilities)
A letter is being prepared requesting the Atomic Energy Commission to modify the directive to reflect the reduction in estimated project cost due to curtailment of the program previously reported.

C-431-B (New Production Facilities)
Design and development work are proceeding as authorized in directive HW-222.

C-420 (CO_2 Bulk Handling Facilities)
The low pressure tank concrete supports at 110-D have been installed. Further work is awaiting

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materials, procurement of which is in progress.

M-825 (Mechanical Feeds for Building 313 Turning Lathes)
The field work has been completed. The feeds are installed and functioning satisfactorily.

M-826 (Crossheader Pressure Monitoring, 105-H)
Installation of the pressure monitoring system at H Pile is approximately 30% complete. It is expected that the job will be completed during April.

M-829 (D-DR Safety Circuit Interlock)
Work is in progress, but being delayed by lack of essential parts.

B-1886
C-438 (Ball 3X System)
A letter project proposal has been submitted to the Atomic Energy Commission for engineering and procurement of critical items.

B-544-R (Steel Process Sewer - 105-107-B)
The recommendation for replacement is now being considered in the light of the new production facility contemplated in B Area.

E P Lee
Superintendent
P Division

EP Lee:ges

[redacted]

[redacted]

HW-20671 Del

Richland, Washington
April 5, 1951

S DIVISION

MARCH, 1951

I. RESPONSIBILITY

There were no changes in S Division responsibilities during March.

II. ACHIEVEMENT

A. Operating Experience

1. Production Statistics

a. Over-all Performance - Canyon, Concentration and Isolation Building (3-1-51 thru 3-31-51, inclusive)

	B Plant		T Plant		Combined	
	Normal	Acid Wash	Normal	Acid Wash	Normal	Acid Wash
Charges started in 221	66	0	75	0	141	0
Charges completed thru 224	67	1	73	1	140	2
Special Chgs. thru 224	5		-		5	
Charges completed thru 231	64	1	72	1	136	2
Special Chgs. thru 231	-		-		11	
Avg. purity comptd. chgs.	-		-		98.4	
Avg. elapsed cooling time metal processed (days)	55		66		60	
Yield thru process	97.6		98.4		98.0	
Material Balance thru process	102.4		101.2		101.7	

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b. Canyon and Concentration Building Performance Data for Completed Charges (3-1-51 thru 3-31-51, inclusive)

	B Plant	T Plant	Combined
Percentage of starting product in waste:			
This month	2.3 (a)	2.2 (a)	2.3
Last month	3.4 (b)	3.3 (b)	3.4
Cumulative to Date	3.8 (c)	3.7 (c)	3.8
Percentage of starting product recovered:			
This month	100.6	100.1	100.3
Last month	96.2	95.6	95.9
Cumulative to Date	96.9	95.9	96.4
Percentage of starting product accounted for:			
This month	102.9	102.3	102.6
Last month	99.6	98.9	99.3
Cumulative to Date	100.7	99.6	100.2
Gamma decontamination factor (Log.)			
This month	6.95	7.06	6.97
Last month	7.14	7.08	7.11
Cumulative to Date	7.28	7.35	7.31

(a), (b), and (c): Includes waste from processing recycle. The recycle wastes are estimated as: (a) 0.012%, B Plant; 0.013%, T Plant. (b) 0.017%, B Plant; 0.017%, T Plant. (c) 0.011%, B Plant; 0.066%, T Plant.

c. Isolation Building Performance Data (3-1-51 thru 3-31-51, inclusive)

	Prepared for Shipment	Recycle	Waste	Retained Samples	Material Balance
Average for this month	93.7	5.45	0.04	0.04	99.2
Average for last month	90.8	6.20	-0.10	-0.09	96.9
Average to date	95.1	4.90	0.04	0.011	100.1

d. Depleted Uranium and Waste Storage Status

200 East Area

	Gallons (10^3) in Storage					Reserve Capacity in Batches to Process				
Tank Farm	B	C	BX	BY	Total	B	C	BX	BY	Total
Metal Waste	1579	3374	3180	2418	10551	0	0	0	1033	1033
1st Cycle	2645	3170	2645	765	9225	0	0	152	428	580
2nd Cycle	1195	0	0	0	1195	377,072 gal cribbed from 112-B				
TBP Reserve	-	-	-	-	-	-	-	-	109BY (758,000 gal)	
Waste Evap. Reserve	-	-	-	-	-	106B (530,000 gal)				

Tank Farm	200 West Area Gallons (10^3) in Storage T	U	TX	Total	Reserve Capacity in Batches to Process T	U	TX	Total
Metal Waste	1579	4737	3248	9564	0	0	799	799
1st Cycle	3145	1585	3700	8430	7	0	671	678
2nd Cycle	1467	0	0	1467	143,000 gal cribbed from 112-T			
TBP Reserve	-	-	-	-	-	-	115-TX (758,000 gal)	
Waste Evap. Reserve	-	-	-	-	-	-	116-TX (758,000 gal)	

2. Production Activities

a. General

Over-all time cycles of 10.6 hours and 10.3 hours were maintained at the Canyon and Concentration Building, respectively, during March. This includes standard charges and acid washes which had been started in extraction just prior to the beginning of the month. Also included are five charges of P-11 test material which were returned for re-processing through the Concentration Building at B Plant. This particular phase required time equivalent to five standard charges, therefore the production of Plutonium was decreased proportionately. The number of total charges started in the Canyon Buildings and completed through the Concentration Buildings constitute the highest production level yet attained at Hanford Works. At T Plant, the effluent line from the 202-T settling tank for Concentration Building wastes continues to exhibit partial plugging. Efforts to relieve this condition during the month were mediocrely successful and further work is contemplated. The depleted Uranium loss which occurred at the 241-BX Tank Farm during February has been finally calculated to amount to approximately 10.7 tons. Also, a loss of Plutonium associated with this Uranium loss was estimated to be approximately 10 to 12 units.

b. Extraction

Significant data on extraction waste losses are tabulated below:

	B Plant March	B Plant February	T Plant March*	T Plant February
Analyses before rework	1.84	1.80	2.43	1.91
Analyses after rework (throw-away)	1.45	1.45	1.98	1.44
Average MWD/Ton	410	405	445	415

*Includes twelve charges from 632 MWD/T metal.

c. Acid Washes - B and T Plants

An acid wash was completed through one parallel line of the Canyon Buildings and through the Concentration Buildings. The B Plant results are higher than normal due to the pick-up of a Plutonium heel in the product hold-up tank in the extraction section and a defective distributor in the first decontamination cycle precipitator tank. At T Plant, the Concentration Building preflush was higher than normal due to the pick-up of plutonium in the F-Cell precipitator tank. Corrective measures have been instituted by replacing defective equipment and by modifying operating procedures. Data is tabulated below which indicates the percentage of product recovered in terms of a standard charge:

Run	Extraction	Sect. 12 & 1st Cycle	2nd Cycle	221 Bldg.	224 Bldg.	Total thru Process	Preflush B, E&F Cells
B-11-02-AW-1	14.86	39.43	-0.48	53.81	5.19	59.00	16.00
T-11-02-AW-1	6.57	21.33	10.53	38.43	-4.57	33.86	34.86

d. Depleted Uranium Loss - B Plant

After confirmation that a plug existed in the cascade line between the 102-BX and 103-BX tanks, the current extraction wastes were diverted to the 104-BX series where it will cascade through into the 104-BY series. Meanwhile the special jet assembly which was installed in the 102-BX tank, during February, was used to transfer supernate to the 103-BX tank, where it cascades into the 101-BY series. Eventually this series will be filled, thus utilizing its capacity to the fullest extent by diverting back at a later date to the 101-BX series in order to refill the 102-BX tank. It has been determined that the spread of contamination, due to the leak in the 102-BX tank, will not interfere with future construction work on Project C-362 (TBP) since the soil is contaminated in a zone considerably below the lowest elevation of construction activities. Further exploratory work will possibly be undertaken following the installation of the new facilities.

e. Neutsch Filter Block Cleanouts - Isolation Building

Since it appeared that 60 percent nitric acid leached the filter blocks more efficiently than 25 percent nitric acid, the first cycle filter blocks in Cells 2, 3 and 4 were treated with the higher strength acid. The total combined recovery of Plutonium amounted to 595.64 percent of a standard charge. This abnormal hold-up probably respresents a long term hold-up. Effective immediately, the frequency of cleanouts will be increased from a monthly to a semi-monthly basis

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using the stronger acid, and the results will be examined carefully.

f. Recovery of Americium

Twenty-four milligrams of Americium were recovered by making a third peroxide precipitation of aged Isolation Building product from two sample cans. The Americium bearing supernatant as obtained after precipitation of the plutonium was shipped off-site without any attempts being made to further concentrate the solution.

g. Cribbing of Second Decontamination Cycle Waste

Approximately 377,000 gallons of second decontamination cycle waste supernatant were cribbed from the 112-B tank. Also, about 143,000 gallons were cribbed from the 112-T tank. The cribbing operation was suspended at month end in the T tank farm when work was initiated on constant overflow facilities. (Project C-415)

3. Process Control

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

The major portion of materials for the fabrication of the fifth reactor filter assembly have been ordered and the construction of the unit is scheduled to start in April.

One of the new higher capacity steam ejectors has been installed. It is indicated that a satisfactory increase in the vacuum on the dissolvers has been realized, however, a complete evaluation of its performance will be made before installing the remaining three units.

b. First Decontamination Cycle Waste Evaporator (Project C-369)

The over-all construction phase of the project is proceeding satisfactorily with 85 percent completion at month end.

A small portion of the aged First Decontamination cycle waste formerly stored in the T Tank Farm was transferred successfully to the designated storage tanks in the TX Tank Farm, in preparation for start-up which is tentatively scheduled early in May.

The Project Proposal for the 200-E evaporator has been resubmitted to the Engineering and Construction Division for a re-estimate.

c. Cell Drain Conductivity Meters (Project C-397)

The installation of the conductivity meter leak detection device was completed in Cell 7R at 221-T. This completes the work outlined in the project and formal acceptance has been made.

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

Project C-417 has been cancelled, since approval has been received from the AEC to increase the metal enrichment level to 600 MWD/Ton, which precludes the necessity for the construction of additional process waste storage facilities at this time in the 200-E Area.

Preliminary construction work has been started on Project C-418, and will continue as rapidly as conditions permit, in the 200-W Area.

e. Section 5 Waste Disposal (Project C-415)

Construction work was started in the 241-T Tank Farm during the past month.

f. Special Samples

A five liter sample of unneutralized process waste was obtained from a settling tank at the 234-5 Building and shipped to the Separations Technology Division, Chemical Research Section, 300 Area.

4. Investigation and Development

a. Extraction Precipitation Bismuth Concentration (Production Test 221-B-10)

Since the previous month's experience indicated that processing in the extraction precipitation step could be successfully accomplished with a bismuth ion concentration of 2.5 g/l, further volume reduction aspects were explored at B Plant. A series of ten runs were processed at 56% and 49% of the original standard, with intervening series of normal volume runs for control. There were no significant differences in the waste losses of the runs at reduced volume as compared to the standard runs. However, there was a definite increase in the number of turbid product solutions in the first and second decontamination cycles. At month end this condition is being investigated and further evaluation will continue during the coming month.

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b. Elimination of Radio-iodine from Stack Effluent (Production Test 221-B-9)

Tests continued during the month, and it was indicated that the radio-iodine may be driven off effectively by the controlled air sparging of the metal solution. However, further confirmatory tests are scheduled for April.

c. Reprocessing of P-11 Test Material

The equivalent of five standard runs of material, with the phosphate ion present, were returned from P-11 for reprocessing through the Concentration Building at B Plant. Essentially these runs were processed as master recycle runs and only routine processing difficulties were experienced.

B. Equipment Experience

1. Operating Continuity

There were no equipment failures which effected the continuity of operations.

2. Inspection, Maintenance and Replacements

a. Canyon Equipment Failures - B & T Plants

Equipment failures in the Canyon Buildings are summarized below:

1) In B Plant, the Section 14 precipitator tank distributor failed, due to a broken dip tube, and was replaced. The unit removed was stored for disposal.

2) In B Plant, the dip leg plugged on the Section 14 precipitator tank weight determination assembly. Repeated attempts to dislodge the plug were unsuccessful and the dip leg was replaced. The dip leg removed was stored pending disposal.

3) In B Plant, the Section 14 centrifuge developed a leak in the overflow line to the catch tank. After decontaminating the centrifuge successfully to reasonable working limits, a new overflow line was installed and the unit was restored to service.

4) In T Plant, the Section 7 precipitator to centrifuge A jet assembly failed at the discharge flange of the jet and was replaced. The defective assembly is stored for possible salvage.

5) In T Plant, the Section 14 precipitator tank distributor became inoperative due to plugging, and was replaced. The

defective distributor was stored for possible future renovation.

6) In T Plant, the jet assembly which is used to transfer unneutralized extraction waste from the catch tank in Section 7 to the neutralizing tank in Section 9, failed. A spare assembly was installed as a replacement and the defective assembly was stored for possible removal of the faulty gasket in the steam inlet connector head.

7) In T Plant, a transfer jet assembly, which is used to transfer second decontamination cycle by-product waste from the hold-up tank in Section 18 to the collection tank in Section 15 became inoperative due to plugging. Several attempts to unplug the assembly were unsuccessful; however, it is possible that it will be salvaged, eventually, when the press for time decreases.

8) At T Plant, the Section 16 first decontamination cycle precipitator to centrifuge A jet assembly has been inoperative for several weeks due to the inability of connecting the steam inlet connector head to the cell wall stub. Investigation revealed pipe creepage has occurred and the flanged wall stub has moved toward the kick plate. This is the first occurrence of this type, although the reverse has been observed to a limited extent. The problem will be further investigated.

9) In T Plant, at Section 19, the connector failed, due to plugging, in the assembly which is used to obtain samples of waste solutions from the second cycle decontamination centrifuge catch tank. A spare unit was installed and the plugged connector will be salvaged.

10) In T Plant, an agitator assembly was renovated by the replacement of the motor, which had failed in January 1951. This assembly was formerly in service at Section 15 in the second decontamination cycle waste neutralizing tank. The defective motor will be examined to determine the possibility of salvaging.

b. Concentration Building Mechanical Difficulties - B & T Plants

1) In T Plant, the B Cell centrifuge drivehead upper bearing failed. The failure was determined to be caused by lack of lubrication due to the fact that an improper type of oil pick-up nozzle had been used. Further investigation revealed that the replacement drivehead was similarly equipped. This condition has been corrected and no further difficulty has been experienced. The reason that these two driveheads were equipped with this type of oil pick-up nozzle is not readily explainable since four other similar

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units in the same building are equipped with nozzles of proper design. However there is very little difference between this nozzle and the nozzle actually designed for the drivehead and it is assumed that an error occurred during assembly.

2) At the 224-T Building, a centrifuge spray assembly failed when corrosion occurred on a disc which is welded to the bottom end of the vertical section of pipe to which the spray nozzles are attached. It is suspected that Type 347 Stainless Steel was used, instead of Type 309, when the spray assembly was fabricated. The replacement assembly appears to be satisfactory.

c. Coil Failures, Sodium Hydroxide Storage Tanks

A routine analysis of the steam condensate from Sodium Hydroxide solution storage Tanks SQ 141 and 143 in B Plant indicated that the heating coils were leaking in both tanks. At month end preparations have been made to empty and clean these tanks in order to effect repairs.

d. Inspection of Hydrofluoric Acid Storage Systems

At B Plant the hydrofluoric acid system at the Concentration Building was drained to permit inspection and testing of the relief value, rupture disc and pipe lines. No abnormalities were encountered. At T Plant, all of the principal storage tanks were audigaged to determine the thickness of metal in the tank shells. There was no appreciable variation from the results obtained in August 1950, and no abnormalities were apparent.

C. Improvements

1. Adoptions

a. Volume Reduction and Bismuth Concentration

The results thus far obtained in accordance with Production Test 221-B-10 indicate that volumes may be reduced as far as 49% of the original volume (9-1-46) in extraction with a bismuth concentration of 2.5 g/l. However, the total effect of the volume reduction requires further evaluation in steps up to metathesis, and additional work is planned during April. At the present time it appears that the extraction and first decontamination cycle waste volumes will be substantially reduced, dependent upon which volume reduction basis is adopted as standard.

b. Use of 50 Percent Hydrogen Peroxide - Isolation Building

During the latter part of the month the use of 27.5 percent hydrogen peroxide was discontinued in favor of the 50 percent

reagent. It is indicated that the volume of solution recycled to the Concentration Buildings will be reduced with no sacrifice in Plutonium losses in the waste effluent.

c. Sample Can Adaptor Plugs - Isolation Building

Following extensive investigation, the stainless steel adaptor plugs were replaced by plastic plugs on sample cans shipped to the 234 Building. This substitution of material effects a cost reduction of about 50 percent and is in keeping with the program to conserve stainless steel.

d. Americium-Curium Correction Factor

Following extensive research and investigation as to the Americium-Curium content of Canyon Building process waste effluents, beginning this month a correction factor was applied which reduced the total apparent plutonium content of process wastes approximately 50 percent. It is believed that about 65% of the Americium-Curium is accounted for in extraction while the balance is removed in the first and second decontamination cycles. Total waste losses through the Concentration Buildings amount to approximately 1.8% as compared to the 3.4% previously reported.

2. Inventions and Discoveries

No inventions or discoveries of a patentable nature were reported during the month.

III. PERSONNEL EXPERIENCE

A. Organization Changes

R. B. Bixler, M. L. Short and J. F. Newland were promoted from Shift Supervisors to Senior Supervisors, effective March 1.

C. R. Gangnath, G. W. Morrow, G. R. Ruzicka, H. P. Simonds, W. J. Smith, Jr., N. M. Craft, W. J. Luke, A. J. Waligura, W. P. Wood, Luther Welsh, W. A. Haney, R. M. Shervem, and D. E. Peterson were promoted from Supervisors-in-Training to Shift Supervisors, effective March 1.

O. D. Erlandson, Keith Gunnar, C. W. Malody, R. A. Yoder, and C. F. Yuenger, Jr., were promoted from Technical Graduates to Supervisors-in-Training, effective March 1.

A. H. Hinkson was promoted from the weekly roll to Supervisor-in-Training, on March 1.

B. Force Changes

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1. Number of Employees on Roll

	Monthly	Weekly	Total
Beginning of Month	146	459	605
End of Month	153	476	629
Net increase (decrease)	7	17	24

2. Personnel Changes

	Monthly	Weekly	Total
Transfers from other Div.	1	11	12
Transfers to other Div.	0	-2	-2
Reactivated	0	1	1
New Hires	0	18	18
Resigned	0	-5	-5
Transfers from Weekly to Monthly	6	-6	0
Any other description	0	0	0
Total	7	17	24

C. Safety Experience

There were no major or sub-major injuries incurred by S Division personnel during the month of March.

D. Radiation Protection

1. Sampling Incident

Extremely high readings were obtained on the sampling equipment, following the sampling of a first decontamination cycle product solution at T Plant. Efforts to decontaminate the equipment were unsuccessful, and while removing the bayonet tip with a pair of tongs, the bayonet tip shattered, contaminating a small area in the vicinity of the sample port. There was no over-exposure or personnel contamination, and the work area was successfully decontaminated to within permissible limits.

2. Radiation Levels - 241-TX Tank Farm

Coincidental with the diversion of T Plant extraction wastes from the 101-TX series to the 105-TX series, the radiation level at the four inch electrode measuring riser was 100 mr/hr. The necessary precautions are being taken to prevent the overexposure of personnel. It is expected that the present high reading will decrease, as the tank fills, due to the shielding effect of the supernate above the sludge.

S Division

V. EXPANSION SECTION

A. TBP Project (C-362)

1. General

a. Project Status

The project status at month end is as follows:

1) Eighty five percent of the detail design has been completed as compared to a scheduled 80% completion. It is expected that substantially complete design will be reached by April 1, a two month advance from the original design schedule.

2) A total of 734 requisitions or substantially 100% of the required requisitions have been received and approved for all phases of the TBP Project. 95% of those received are covered by purchase orders.

3) Construction is 15.7% complete based on man hour requirement. This progress is slightly behind schedule due to delay in receiving materials. The Engineering and Design Division issued a revised "Composite Construction Schedule for C-362" on 3-1-51 which shows: November 1, 1951 as completion date of the phases required for 8 ton production compared to an original completion date of October 1, 1951; August 1, 1951 as completion date of the 1st waste removal unit compared to an original completion date of June 1, 1951; and February 1, 1952 as the completion date of the whole project compared to an original completion date of May 1, 1952. This revised schedule reflects the effects of the procurement difficulties encountered up to the present date in addition to the construction forces reallocation of manpower.

4) Present commitments on materials and equipment costs for the C-362 Project agree very closely with the project proposal estimate. A revised project proposal will be issued in the early part of May, 1951.

b. Acceptance Test Procedures

A weighted tabulation of Acceptance Test Procedure completions showed 49% of the procedures for all phases to be completed during the month.

c. Tests for Metal Waste Spill

Due to the spillage of metal waste in the vicinity of the 102-BX tank, a series of six test holes was dug at planned locations in the general area in which the tank pits and pipe

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encasements are to be constructed. The test holes were excavated to a depth of 8 - 10 feet, and no detectable radiation was encountered. It was concluded that the spilled material would not interfere with the proposed construction.

2. Essential Materials

a. The Purchasing Division has been making contacts with chemical suppliers this month in an endeavor to firm up chemical requirements for this project. The contract for Sulfamic Acid was released. Progress has been made on limestone procurement as well as on TBP and Diluent procurement.

b. The Manufacturing Divisions requested procurement of excessed 46" x 54" pallets available at the Pasco Depot to replace 5' x 5' pallets originally ordered.

3. Procurement

During the month corrosion failures which have previously been reported have dropped off to a negligible quantity; therefore, if this present trend continues there will be virtually no adverse effect on the vendor fabricated items other than those which were involved in the failures of January and February.

The delivery schedules of most of the bulk orders for plate and pipe are satisfactory at this time and are rapidly approaching completion. It appears, however, that the delivery of new pipe which is required by the Kellex requisition alterations will be between September and December, 1951. Flanges, strainers, valves, and fittings ordered on bulk requisition alterations will probably have similar dates. These bulk items are represented by 27 requisition alterations.

The total estimated dollar value of purchase orders, contracts and material transferred prior to March 23 is $13,255,000.

4. Design

a. Phase I, Metal Removal - One Cascade; Phase II, Metal Removal-Remaining Cascades

1) Sanitary Water Supply

Original scoped plans to provide sanitary water to UR installations by tank truck and at CR tank farm by the installation of a small chlorinator and filter unit on the raw water system have been abandoned. On the basis of recent Health Instrument Division directives and the request of the Manufacturing Divisions, sanitary water

will be piped to these areas. The work is currently being covered under Phase VI and is being expedited to insure the needs of construction forces currently working in these areas.

2) TY Tank Farm Tie In

Since present plans indicate that metal waste is to be stored in the first two tanks of the new TY Tank Farm, the Manufacturing Divisions have requested three additional 6" spare connectors to be installed in the TXR-151 master diversion box in order that this metal waste can be recovered at a later date using existing facilities. In addition plans are being drawn up to construct pump and sluice pits on the two tanks in the TY Farm. Piping to these boxes will be stubbed off at a reasonable distance for future cold tie in to waste removal facilities. Detail drawings for the new tank farm pits will be drawn up to conform with Kellex drawings so that interchangability of equipment can be realized.

3) Blend Tank Cooling Coils 244-UR

Corrosion tests on the 1½" pipe allotted for these cooling coils show the material to be unacceptable. To meet construction schedules, it will be necessary to use 3" seamless tubing available at Hanford Works. Accordingly, the required amount of pipe is being sent to the vendor. Kellex Corporation is modifying the design to make the most efficient use of the larger diameter pipe.

4) Master Diversion Box Piping - Phase II

The original Kellex design routed the various process lines from the East-West pipe Encasement System directly to the B and C area process blend vaults. The Manufacturing Divisions were not in accord with this design since maximum flexibility and utilization of all process lines could only be attained by routing all lines through the master diversion boxes in the B & C areas. This alteration was agreeable with the Engineering and Design Division and the changes are currently being made.

b. Phase III - Design of Underground Pipelines

Physical design is now complete with the exception of "field changes" and Acceptance Test Procedures. Phase III acceptance Test Procedures are about 90% complete.

c. Phase IV - Reactivation and Conversion of 200-U for TBP

1) Use of Sub-Standard Stainless Steel

Due to sub-standard results of corrosion test on

purchased stainless steel, it was necessary to consider means of effectively using this procured material in order to minimize delay in the ultimate project completion. A policy was established and agreed to by the Manufacturing and Engineering and Construction Divisions which included the following points:

a) Stainless steel that passes the corrosion standard of less than .002 i.p.m. will be used for all vessels which cannot be replaced and which are in services requiring high corrosion resistance. A list of vessels subject to severe corrosion conditions was established.

b) Vessels not included in item a) may be fabricated of steel which fails to meet the .002 i.p.m. specification. However, every effort will be expended towards utilizing this sub-standard stainless steel in the fabrication of the minimum number of units and in those units requiring the milder corrosion service.

c) When the extent of the use of the sub-standard stainless steel is determined, members of the Manufacturing and Engineering and Construction Divisions will review the stainless steel usage and issue purchase orders for spare vessels as substitutes for those deemed short lived.

During the month, nine vessels were authorized to be fabricated from the sub-standard steel, all nine being in mild corrosion service.

2) Lubrication Jumpers

A review of the number of canyon equipment pieces requiring the use of the remote lubricator assembly revealed that remote lubrication is required on 24 cell pumps located in 10 different cells. Ten of those pumps are located in five identical concentrator cells, two per cell, and 2" process connectors are available in these cells for conversion to lubrication service for these pumps with no design conflict foreseen. Since the use of the remote lubricator will require the pulling of cell blocks which in turn may require concentrator equipment shut down and since the design for the lubrication of these pumps is not in accord with previous design agreements with Kellex on cell lubrication the Manufacturing Divisions requested that these ten pumps be serviced by lubrication jumpers. The Design Division was in accord and are directing Kellex to make the necessary changes.

3) Differential Pressure Instruments

By letter to the Design Division, the Manufacturing Divisions requested installation of 221-U Building differential air pressure instruments not previously covered in design. At the suggestion of the Design Instrument representative, it has been requested that ring balances be used for this service instead of the inclined manometers now in use in $BiPO_4$. Two such instruments will be requested to measure the four differential pressures to be read. These pressures are as follows:

1. Atmosphere to operating gallery
2. Atmosphere to canyon
3. Operating gallery to canyon
4. Operating gallery to SWP lobby

d. Phase VI - Increased Power Facilities for 200-W Area

The 283-W filter plant addition drawings were approved with minor comments. Filter plant design is 90% complete. Approved vendors drawings for the 284-W water softener have been received allowing the P & M Division to proceed with their portion of that design. Vendor's approved electrical prints for 284-W are about 2 months overdue, however; thus P & M electrical work is being held up pending arrival of these drawings.

Design is 100% complete on the following portions of Phase VI.

1. 277-U Mock-up Building
2. 282-W pump house and reservoir

5. Construction

a. Phase I

Concrete pouring continues for the pump and sluice pits over the "U" tanks; forms are being set and steel is being placed for the pit floor of TK-UR-004, the HNO_3 Acid Storage Tank. The slurry accumulator tank, 244-UR-001, is now being installed in the vault. The exhaust duct from the 244-UR Blend Tank Vault to the ventilation filter and stack is being installed. The 244-UR Vault is 49% complete. Concrete pouring continues on the 241-WR Diversion Tank Vault, and backfilling has been completed to the 676 foot elevation. The 241-WR Tank Vault is 28% complete.

b. Phase II

Forms are being set and concrete is being poured for the foundation for the 244-CR Blend Tank Vault. Excavation is

in progress for the pits over the "C" farm tanks. In the "B" farm area, excavation is underway for pits over the BY tanks, for the 244-BXR Blend tank Vault, and master diversion box. The 244-TXR Blend Tank Vault excavation continues.

c. Phase III

1. The East-West transfer line is 60% complete.

   At months end 16,350 feet of the required 19,860 feet of the six line encasement have been poured and 8,400 feet of pipe have been installed, which represents the installation of six pipes in 1,400 feet of encasement. 6,880 feet of the six line encasement have been Amercoated to date. In the three line encasement 6,240 feet of encasement have been poured and 12,000 feet of pipe installed, representing the installation of three pipes in 4,000 feet of trench.

2. Work continues on the uncovering of the existing encasements in the vicinity of the 221-U Building as well as the cutting out and relocating of pipe located in these encasements.

d. Phase IV

291-U Stack Facilities

Concrete pouring and form setting continues for the walls of the 291-U sand filter. The sand filter is 22% complete.

277-U Mock-Up Building

In the 277-U Building work continues on the erection of fabricated structural steel for mock-up assemblies, and is about 33% complete. Over-all 277-U Building is 62.5%.

221-U Building

In the 221-U Building painting of the cells and pipe trench continues as does the installation of utility lines and panel boards. Work has also begun on the fabrication of a 6" header which is to be installed in the pipe trench. Approximately 2.5% of the 221-U Building is complete.

e. Phase VI

Work continues on the fabrication and welding of the 10" and 14" steam line. The 10" cast iron sewer from the 224-U Building has been completed and tested. The test, however, indicated a leak in the sewer line which was found upon re-excavation to be due to a hole broken in the top by a stone during backfilling. This is being corrected.

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The 282-W pump house portion of Phase VI is 45% complete.

B. UO_3 Project

1. General

a. Project Status

The project status at month end is as follows:

1) Detail design is substantially 100% complete, exclusive of segregation.

2) Requisitions have been issued on all design-procured items. Current information on several fabricated vessels indicates a 3 month delay in deliveries beyond the required dates. These deliveries will be expedited.

3) Construction is estimated to be 15% complete. A revised construction schedule based on the latest procurement outlook shows the UO_3 construction to be completed August 1, 1951 in comparison to an original scheduled date of July 1, 1951.

2. Design

a. Segregation of Feeds

The feasibility study on segregation of Redox and TBP feed through the UO_3 Conversion Plant was reviewed by the various interested Divisions. Several changes to the original proposal were adopted in order to attain an operable plant. The Atomic Energy Commission was requested to authorize an additional expenditure of $150,000 to the C-361 Project to provide for the installation of these segregation facilities. Modification #5 of Directive HW-158 authorizing this added expenditure was issued by the Atomic Energy Commission on 3-23-51.

Every effort will be made to complete the installation of these facilities in time to effect segregation of the first TBP production from Redox production but uncertainties of procurement indicate that this may not be possible. Tie in of the segregation facilities will be made as soon as they are completed and can be done without over-all production loss. In the meantime, the existing design is being modified in such a manner that the segregation facilities can be installed with a minimum of change to structures and equipment.

The segregation facilities will include in essence the addition of two 8' x 30' stainless steel tanks, one for the storage of the 76% UNH concentrate from the TBP product concentrators, and one for the storage of the 60% UNH Redox

solution. This latter tank will have facilities to enable the solution to be concentrated during its storage hold up period prior to its feed to the decomposition pots. The feed and return loop header to the decomposition pots will be altered to take care of intermittent feed of these two sources to the decomposition pots.

b. Fabrication of Decomposition Pots

A meeting was held with members of the Design and Manufacturing Divisions to adopt a policy towards procurement of cast decomposition pots based on examination of the first cast pot which was dissected. Although several flaws and some sponginess existed near the center of the 5/8" thick wall the Design Division feels confident that the pots are structurally sound for all services expected of them.

The cost of these cast pots is estimated at $1,300 each, compared to an estimated cost of $3,000 for pots fabricated from plate. The delivery of the cast pots is estimated at five months compared to a seven month delivery for plate fabricated pots. Considering the above facts it was concluded that cast pots will be purchased provided the quality of the units will be equal to or better than the original one examined. Purchase specifications are being drawn up with this factor included.

3. Construction

a. Over-all this project is 15% complete.

b. 2714 Warehouse

Construction is 73% complete. Structural steel erection is complete and painted.

c. 244-U Building

Construction is 7.7% complete. Concrete removal is essentially complete. Form work for the operating platform in the pot room is complete and 30% of the pot room slabs have been poured. Additions and changes to electrical wiring are in progress as is shop fabrication and installation of process piping.

d. Outside Facilities

Construction is 19.5% complete. The 210-U cribs are essentially complete except for piping. The railroad spur to the warehouse is complete except for ballasting. Tests are in progress on the process sewer.

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C. Redox (Project C-187-D)

1. General

a. Reports continued to be received through the Purchasing Division during the past month of various heats of stainless steel required for Class I vessel fabrication which had failed to meet the corrosion test specifications. In almost all cases the use of the off-standard material in the specified locations could be reasonably justified from the standpoint of mild process conditions; however, failure of a heat of Type 309 sCb stainless steel used in the fabrication of the reinforcing pad on the inside of the tower flange nozzle of the T-160 Pot (Waste Concentrator) is regarded as serious since corrosive conditions to which the part is subjected are fairly severe and, in addition, the part is a major structural element of the vessel. Because the vessel is urgently needed at the construction site and because any attempt at replacement of the inferior grade flange would almost certainly result in damage to the vessel, the vessel has been accepted. Steps are being taken to assure that only specification grade material is fabricated into the T-160 "operational spare" pot.

b. In order to expedite the installation of 4" piping in the hot pipe tunnel, the subcontractor was authorized to install untested 4" stainless steel pipe in certain specified locations concurrent with the performance of corrosion tests on sample coupons. Should the corrosion tests dictate, this piping will be replaced with acceptable material.

c. Recommendations of the Separations Technology Division Equipment Development Section concerning changes to the nitric acid-hexone blending system have been transmitted to the Design Division and are currently being put in the form of a field change request for incorporation in the silo piping.

d. Because of somewhat delayed 211-S tank fabrication schedules, it has been agreed by the Purchasing Division that initial delivery of 72% ANN solution originally scheduled for 5-1-51 may now be delayed until 6-1-51. This delay will also aid in relieving unnecessary pressure on the ANN vendor to complete his facilities.

e. Equipment tests performed in the Mock-Up Building during the past month designed to determine absolute tolerance limits for the proper fit of cell jumpers has resulted in some relaxation of the nozzle dimension tolerances on Class I vessels. These tolerances previously specified as ± 1/16" in the horizontal plane and ± 1/32" in the vertical plane have now been doubled and are set at ± 1/8" in the horizontal plane and ± 1/16" in the vertical plane. This action was

taken in order to expedite delivery of Class I vessels for the 202-S Building and is based on the premise that any corrective measures to compensate for off-tolerance nozzles will be made during vessel mock-up. The authorization does not constitute an official change in specifications and is not intended for transmittal to the vessel vendors.

f. All purchase orders for the dissolver off-gas silver reactors and associated auxiliaries have now been placed, and it appears possible to arrive at a decision in mid-April as to whether the silver reactors or the previously designed caustic off-gas scrubbers will be installed initially in the dissolver cells. Electrical switch gear components are the limiting factors in this equipment delivery.

g. Some difficulty has been experienced during the past month with seal water leakage through several Class I agitator shaft seals during the initial two-hour run in period in the Mock-Up Building. Several seals have been adjusted by subcontractor personnel with good initial results, and efforts are being made to run in all such equipment as rapidly as possible to determine the norm for seal water leakage and to determine what, if any, corrective action must be taken on the seals.

2. Construction

a. 202-S Building

At month end the 202-S Building structure was estimated to be 94% complete. Pouring of concrete in the silo region of the building has progressed to the silo roof level at the north end of the building and in the remainder of the silo to the operating gallery floor level. Roofing work for the service portion of the building progressed rapidly. Concrete block partitioning work in the service areas is approximately 75% complete.

Cell finishing operations are nearing completion with the pouring of the finished floor in D Cell and the fabrication of stainless steel floor liners in Cells E and F.

Installation of piping in the hot pipe tunnel is nearing completion and is expected to be 100% complete (except for hydrostatic testing) by April 9. Work on service headers and chemical headers in the gallery portions of the building continued at a rapid rate. Piping around the gallery weigh tanks is progressing very slowly, however rapid gains in pipe installation in the aqueous make-up portion of the building are being made.

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Mock-Up operations progressed at a reasonable rate during the past month, with eight tanks mocked up as far as is practical, and awaiting installation in the building cells. Sufficient equipment was on hand during the month to prevent a lag in mock-up operations.

Installation of the stainless steel stack liner was started during the month and reached a height of 160' in the stack by month end. Placement of the final layer aggregate in the sand filter has been completed and the filter has been sealed.

The over-all project, (excluding the 241-S Waste Facilities, under the Fred J. Early contract) is estimated to be 68.6% complete versus a scheduled 79.9%. Actual progress during the month lagged slightly with respect to scheduled progress; the lag resulting in part from the fact that canyon and cells have not been completed sufficiently to allow the installation of process equipment which is passed through the Mock-Up Building.

2. 241-S Waste Facilities

Construction work on the 241-S Tank Farm and associated facilities progressed at an even pace through the month. Due, however, to the rapid progress scheduled for this month, added lag in actual percentage completion versus scheduled completion was experienced. (Scheduled, 73%; Actual, 57.5%)

The welding and X-ray of all tank liners was completed during the past month, and the over-all percentage of field weld repairs on the liners was quite low (2.10%).

Membrane water proofing, guniting, and concrete pour is continuing on the tanks in sequence. Some backfilling has been started and dome forms and reinforcing steel for the domes are being placed on Tanks 104 and 107.

D. Training and Procedures

1. Training

a. Training Lectures

The Training Lecture Series is currently in its fourth and last cycle. These lectures will end on April 25, 1951.

b. Redox-TBP Training School - 321 Bldg.

The first six-week training cycle ends on April 2.

On March 19, the responsibility for operation of the simulated Redox equipment at the 321 Bldg. was turned over to the "S" Division Shift Supervisors and Trainees. This step provided a two week period of more intensified training in the performance of all phases of the building operation. Similar freedom of operation of the simulated TBP equipment cannot be realized at present. "Data-runs" are currently being run on the pulse column battery and the rigid conditions established preclude the possibility of operating with trainees.

The Second Training Cycle begins on April 2. Operator-Trainee personnel will include seven (7) Chemical Trainees. Seventeen (17) Supervisor-Trainees are scheduled to attend the Second Cycle.

The Chemical Development Section expect to remove three of their Column Engineers from the shift training organization to other assignments early in April. These Engineers are to be replaced by the "S" Division Supervisor-Instructors presently assigned to the Training School.

2. Procedures

a. Redox

Further agreements have been made between the S Division, the Instrument Division, and the Separations Technology Division in regard to the areas of responsibilities, and the methods to be used, in the calibration of Redox process instrumentation. The writing of the detailed procedures and the setting up of the data sheets is in progress.

Further agreement has been reached with the General Chemical Company on responsibilities and procedures to apply in the unloading, at the Redox plant, of nitric acid and aluminum nitrate solution to be delivered via tank truck by this vendor.

b. TBP and UO_3

Rough drafts of Forms, Records and Reports for the 221-U, 224-U, and 241 Buildings have been prepared and submitted for comment.

The procedure for unloading HNO_3 from tank trucks was returned with comments from the vendor. All comments were of a minor nature and will be incorporated in the procedure. Corrections and revisions are being made to the Special Hazard procedures as a result of the comments made on the original drafts.

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S Division

At months end the rough drafts of Job Hazard Breakdowns for the 221-U, 224-U and 241 Buildings were being completed.

Superintendent
S DIVISION

RS Bell:mvk

DECLASSIFIED

HW-20671 Del

INSTRUMENT DIVISION

MONTHLY REPORT

MARCH 1951

GENERAL

The six day work week continued for those maintenance forces required to meet current work load requirements. This amounted to 64% of total division forces. The total force was increased by five through new hires and transfers from other divisions.

Construction of the new Instrument Maintenance and Development Shop, Building 3717-B is nearing completion. It is expected that the building will be occupied in the early part of April, with a few minor items remaining to complete the project.

100 AREAS (Reference: HW-20738)

100-B Area

One process tube thermocouple failed and was replaced by another from a tube charged with solid aluminum. The protective tubing and wire insulation was found to be deteriorating from exposure to the neutron field.

Responsibility for leak detection on the P-10 Metal Line has been assumed by the Maintenance Division, with the Instrument Division continuing this work on the glass lines.

100-D Area

Routine inspection of process water pressure monitor gauges has been resumed, revealing numerous minor defects.

100-DR Area

A correction of 2% was made on each of the two riser transmitters of the Bailey Power Calculator system to compensate for the 2% error discovered in a volumetric flow rate test.

[redacted]

100-F Area

An additional range was added to the Power Level recorder to allow for the increase in power.

During the recharging operation of the P-11 unit an electronic liquid level indicator, having an accuracy of 0.01 inches, was installed.

100-H Area

Three thermocouple wells on the process tube temperature monitor developed leaks during the month. One of these had been replaced in December.

The range of the Brown Power Level Recorder was increased due to the increase in operating power level. Temporary modification was made until a decision is reached on the design change for all areas.

Shutdown Experience

100-B Area - None due to instrument failure.

100-D Area - Scrammed at 8:45 A.M., March 30, due to alarm on pressure monitor that would not reset in allotted time. A power surge occurred coincident with the scram, apparently the cause for the alarm relay tripping. Unit was back to full power at 9:15 A.M.

100-DR Area - Scrammed at 8:53 P.M. March 3, due to short circuit in instrument power supply during work in electrical equipment room. Unit was back to full power at 9:30 P.M.

100-F Area - None due to instrument failure.

100-H Area - Unit was manually shut down at 5:34 A.M., March 9, when pressure monitor alarm could not be reset in allotted time. Faulty switch terminal was found in the pressure gauge. The unit was back to full power at 6:28 A.M.

Unit scrammed at 7:32 A.M. March 13, due to an alarm on P-13 equipment. Investigation indicated no operating irregularities and unit was started up, reaching nominal power at 8:18 A.M.

Unit was manually shut down at 5:10 A.M., March 22 due to rapid temperature and pressure increase on tube No. 3483. Investigation revealed a ruptured slug. Unit was started at 11:55 P.M., March 22, and reached full power at 2:25 A.M., March 23.

200 AREAS (Reference: HW-20739)

T & B Plant Production Instruments

Resistance thermometers were installed on gang valve vents in building 221-T to indicate steam leakage, as this had been found to spread contamination within the canyon.

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Project C-397 - Cell Drain Conductivity Meters

Instrument work has been completed on the installation of conductivity meters in individual cell drains in Building 221-T. The unit in 7-R has not functioned properly, but was found to be due to fouling with debris and not a fault of the installation.

Z Plant Production Instruments

Depletion of oxygen supply dropped pressure on the gas mixing system of Hood 8, building 234-5, allowing H.F. gas to back-diffuse through the glass rotameter tubes. Ten were damaged to varying degrees, one being a total loss. Inquiry is being made into the cost of replacing all glass tubes with fluorothene and improving the oxygen pressure alarm so that it cannot be shut off during a condition of this nature.

Installation of a heat trap in the Pirani tube vacuum gauge lines on Hood 25-B has increased the life of the tubes over 400%.

300 AREA (Reference: HW-20740)

MANUFACTURING SECTION

Project C-424 - Safety Circuit Controllers

Fabrication of four safety circuit controllers for the 105-D flow-lab corrosion test was started late in the month.

Project C-399 - Toepler Pump Control Units

The remaining six units of the thirty to be fabricated for this project have been delivered, completing all assigned work on the project.

Appropriation M-820 - Procurement of Three South Bend Lathes

The three 10 inch South Bend lathes ordered as replacements have been installed and are now in operation. The old lathes have been prepared for shipping to the vendor.

Project C-289 - Additional Laundry Facilities

Two additional Beta-Gamma clothing monitors were completed and delivered, bringing the total shipped to five. The completion of the final unit is awaiting receipt of a special power transformer.

DESIGN SECTION

Drawings have been completed for the waste tank periscope that allows the periscope to be moved from tank to tank, with the protective sleeves and light sources remaining in their respective tanks. Scanning with the periscope is independent of the movement of the light.

DEVELOPMENT SECTION

Process Tube Temperature Mapping Display

Assembly of the demonstration equipment for visual indication of multiple temperature conditions taken at intervals of 0.1 second is nearly complete. The equipment is being assembled on a carriage preparatory to making tests and demonstrations in the 100 Areas. Performance to date has been encouraging.

Beckman Automatic Range Changer

Further work on the automatic range changer has been postponed pending the outcome of a developmental test to determine the feasibility of converting a Beckman micro-microammeter to a logarithmic instrument indicating from 10^{-6} to 10^{-13} amperes on one scale. To date it has been possible to go as low as 10^{-12} and work is progressing to extend this down to 10^{-13}.

ENGINEERING & CONSTRUCTION GROUP - 760 BLDG. (Reference: HW-20747)

Project C-431 - 100-C Area

A list of troublesome items that have appeared as a result of 100-DR water plant design has been compiled and steps taken to eliminate or correct them for the 100-C Area design.

Design criteria have been prepared on certain major items for the reactor. A report is in progress outlining to the Kellex Corporation changes in interconnections and building layout required by instrumentation .

Project C-414 - Pile Technology Building

It has been decided that the Instrument Section will complete the panel design for this facility. Instrument specifications and wiring diagrams are complete for two of the three panel arrangements.

Project C-187 - Redox Process and Facilities

Installation of instrumentation in Building 202-S is following equipment installation as closely as practical. Field changes have been made to improve operation and maintenance as suggested.

Project C-362 - Tri-Butyl Phosphate Process and Facilities

Requisitions have been issued to cover 99% of the total instrumentation for Phases I, II and IV. It has been established that there is no obstacle at the present time to prevent completion of engineering on the graphic panels. Procurement of electric switches for the alarm system may delay shipment of the panels.

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MAINTENANCE DIVISION

MARCH, 1951

GENERAL:

The division's backlog of work as of February 28 was 5126 mandays, which represents 17 days of work for the present force.

100 AREAS:

All of the 100 Areas were shut down for sixteen hours on March 7 to allow a tie-in to be made between existing and new facilities at the 251 substation.

100-B Area:

During the planned shutdown on March 21 the gun barrel on process tube #3060 was repaired. New 72 S aluminum tubes were installed in process tubes #3060 and #2180 in accord with the program to replace 28 tubes with 72 S.

100-D Area:

One of the 50 mesh screens in the valve pit failed due to fatigue during the pre-shut down purge of the "D" pile. This allowed coarse material to clog the 30 mesh screens on the cross headers off the B and D risers. These screens had to be removed and cleaned causing maintenance work planned for the shutdown that required the use of the front elevator to be postponed.

Project M-713 - Vertical Rod Corrective Design

One rod was fabricated and then installed on the scheduled shutdown on March 7. After the rod was operated successfully it was removed and in the near future will be given a test to destruction. This will be done in 181-F Building where a thimble will be installed in a vacant pump well.

105-F

A new method of repairing ruptured gun barrel bellows while the pile is in operation has been developed. To do this a sheet of neoprene is wrapped around the bellows and clamped at either end. The horizontal joint is cemented and held tight by a length of spring wire against the gas pressure until the cement has set. Previously these repairs were made during a shutdown and required the use of the elevator for three hours per repair. This time will now be available for other elevator requirements.

105-H

A track and roller assembly was installed to facilitate moving the 4000 pound cask at the "Y" test hole on the X-2 level away from the side of the unit.

SECRET

On March 22 there was an emergency shutdown of the "H" pile caused by a ruptured slug in process tube #3284. The removal of this slug was accomplished with no abnormal difficulties.

200 AREAS
200 West

Final design drawings have been prepared for the installation of equipment to be used in replacing cell connector gaskets. They cover the installation of a movable work platform and two monorails with hoists above the Deep Cell in 221-T. The method to be used was devised in conjunction with the "S" Division after a trial job was done on one connector in December. The connector is submerged in water in the Deep Cell and then the gaskets are changed by the use of long handled tools. Prior to this job some connectors had been discarded because high radiation readings had made it impossible to work on them. It is estimated that as many as ten connectors a year may be salvaged in this manner, at a savings of $1,000 each. In addition, connectors, which are now being repaired at considerable expense due to short exposure time limits, will be done more economically in the Deep Cell.

An equipment manual is being prepared covering the Redox Plant. This will contain descriptions and specifications on all the equipment installed in the Redox Building and will be a useful tool in planning and executing the maintenance program in this new facility.

Project C-397 - Conductivity Meters for Cell Drains - 221 - T&B Buildings

The work is complete and final acceptance was made after an inspection on March 21.

200 East

A trailer to be used when working on diversion box jobs has been designed and built. It contains a water tank, pump, electric generator, and flood lights and will eliminate the necessity of bringing a water truck, flat bed truck, and a portable electric generator to the job. It is expected that a savings of $500 per job will be made by the use of this trailer.

Metal Fabrication

The oil reservoir for the spare roughing pump was revised to be interchangeable with the ones used on Hoods #25 and #26. This saves three hours of down time for each bi-weekly oil change in the roughing pumps.

The monel diaphragms on the #1 Pulsfeed pumps on Hoods #29 and #30 failed during the month evidently due to the use of nitric acid in special operating runs. These were replaced and the special runs have been discontinued.

A list of proposed spare parts to be bought by Construction for Phase III of 234-5 has been prepared by the GECL. This list is being studied to ascertain if the coverage will be adequate and economical. Recommendations for any revisions to the list will be made by May 1.

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Project C-366 - Auxiliary Hood Enclosure for Part I - 234 Building

The installation of the hood assembly was nearly completed during the month. The remaining work will be finished in April.

Project M-739 - Auxiliary Ventilation for Dry Box Hoods - 234-5 Building

All work is complete and the project was inspected and accepted on March 21.

300 Area

Fabrication was completed on an experimental device, designed by Plant Assistance, to cool slugs after canning by water spray instead of by immersion. This slug cooler consists of a stand, a container to hold two slugs, and brass spray heads that fit over the cap of the slug. The cap will be held in place and cooled before the rest of the slug. It is expected that a better braze between the cap and can will result from this method.

Two mild steel laboratory sinks were fabricated and the interior spray coated with Polyethelene. These will be used to replace stainless steel sinks in Buildings 3706 and 222-T. The resistance of Polyethelene to corrosive agents and the ease with which it may be decontaminated should make it a satisfactory substitute for stainless steel laboratory sinks at a lower cost.

Project M-825 - Mechanical Rod Feeders - Building 313

The installation of the rod feeders on the 10 Gisholt Roller Turner lathes is complete. This installation, which was designed by the Maintenance Division, consists of an air actuated cylinder and a clamping device to grip the rods. Rods weighing as much as 250 pounds that formerly had to be pushed or pulled through the lathe spindle by the operator are now fed by operating a valve lever. This has eliminated a safety hazard and reduced the fatigue previously associated with the job.

Project C-330 - Increased Ventilation - Buildings 313 and 314

A new type of burner for the Melt Plant crucible burn out station was fabricated and installed. This completed the work assigned to the Maintenance Division.

[redacted]

ELECTRICAL DIVISION

MARCH, 1951

GENERAL:

The schedule of work assignments at month end was 6,192 mandays for the ensuing month, or 24.9 mandays per non-exempt employee. This represents a very slight increase from the previous month end.

The power demands for the month were:

	Date	March KW Demand	Comparative February Demand
Process Load	3-8-51 (1:00-2:00 pm)	69,550	69,000
Village Load	3-5-51 (5:00-6:00 pm)	31,100	31,500

The process load demand is at a new all-time high. The Village peak demand is declining from the January seasonal high. A chart is attached showing the two peak day loads.

Co-ordinating activities with design groups were:

(1) Establishment of final plans to provide construction power for Project C-431 from a 66 KV source.

(2) General review of specifications and drawings pertaining to "inside" electrical work, 382 and 384 Buildings in the 300 Area.

Hanford Works Instructions Letters Nos. 167 and 168 were prepared and issued, pertaining to the telephone system and to the electrical distribution system, respectively. The Electrical Division will be responsible for effecting arrangements whereby required services are available when needed. Substantial over-all savings will be achieved by providing for co-ordinated system expansion, minimum cost for new facilities, improved capital accounting routine, and centralized responsibility for service.

The principal activities of the Electrical Standards Subcommittee pertained to development of inside lighting standards and outside line material specifications.

The Electrical Superintendent and the Assistant to the Superintendent attended the 20th Session of the Bonneville Regional Advisory Council in Portland. The discussion of system planning, long range as well as immediate, to meet defense requirements will be of material assistance in correlating our own requirements to the overall Regional plans.

AREA ACTIVITIES:

Process Pump Motor No. 7 in Building 190-B failed during an attempted start-up on March 7. This was the seventeenth winding failure of these 800 HP 2200 volt motors and was similar to previous failures as a turn-to-turn breakdown in the coil end turns. The two motors which burned out last month have been rewound. One was

returned to service and the other is being held in 190-B as a standby until motor No. 7 can be rewound.

In the 105-DR Pile Building, a "scram" occurred at 9:40 p.m. on March 3, concurrent with the operation of the switch supplying D. C. power to the tool dolly. A careful investigation revealed no electrical trouble and no relation between the tool dolly circuit and the safety circuit.

The 105-H Pile Building was "scrammed" at 7:32 a.m. on March 13, apparently due to the P-13 Project. However, checks of the equipment failed to reveal any conclusive evidence as to the specific cause. The Electrical Division has developed a time delay feature for the P-13 safety circuit, which, when installed, should eliminate most of the unexplained scrams from this source.

The new instrument installation at Meteorological Tower Building 622 was completed on March 26. This involved the installation of instrument cables in conduit to the 400 foot level of the tower.

Auxiliary trolley pick-up shoes were installed on the 221-T Building 75 ton crane to serve as an emergency means of supplying power to the trolley and hoist motors in case of failure of the regular shoes. This was necessary because of the very short time limit allowed for working in this area during certain operating periods.

New Exide 120 volt storage batteries were installed in the Power House Buildings 284-E and 284-W to replace the original Gould batteries which were in very poor condition after approximately seven years of service.

A push button station was installed in the tripping circuit of the main circuit breaker in Substation BB3-S4 in the 300 Area. The push button is mounted in a locked metal box outside the substation fence, with the key under control of Patrol. This will allow Patrol to trip the breaker to completely de-energize all the 300 Area circuits in the event of an emergency evacuation.

TRANSMISSION AND DISTRIBUTION:

Special arrangements were again made for March 18 tests by the manufacturer of the 220 KV high interrupting capacity oil circuit breakers at Grand Coulee. The isolation of the Hanford loop from the Bonneville Power Administration system together with one generator each at Grand Coulee and Bonneville enabled continuous operation at Hanford without loss of production in the 100 Areas. These tests of Brown-Boveri breakers, we believe, complete the series of tests by various manufacturers.

Project C-295 (Enlarging 251 Substation) - a new dead-end structure was constructed in the 230 KV loop just west of the substation and the temporary by-pass line was tied in. Six incoming 1250 MCM lead covered 13.8 KV cables from the "R" transformer which were no longer being used were removed, and work was started on temporary wiring for the new "Y" bank. All work is proceeding on schedule.

The 100-H Area Army Camp 13.8 KV feeder was energized on March 22. The 100-D and 200-W Area Army Camp feeders were energized on March 27.

A total of 57 broken and rotted poles were changed out throughout the areas, mostly in the 2.3 KV and telephone circuits in the vicinity of Hanford, Riverland and the 200 North Areas.

One-hundred eighty-eight services were spliced out and relocated to new service entrance attachments of the prefab rehabilitation program.

TELEPHONE SECTION:

A new 26 pair cable and terminal was installed to serve the Desert Inn, replacing the 11 pair cable formerly used.

Nine additional trunk circuits were established between the North Richland exchange and the "BY" Tandem Office, making a current total of 15.

Several engineering studies and estimates were made relative to the use of telephone and radio communication equipment in the Civil Defense program. A chart of proposed communication channels and equipment was prepared.

Detailed plans were completed relative to the method of providing telephone service for construction activities on Project C-431.

All necessary details and information were prepared for the Project Engineering Division, permitting preparation and submittal for approval of two important Project Proposals:

B-1889 - Additional Line Equipment and Conversion to Four Party Service - Richland

B-1846 - BY Telephone Exchange - Additions and Changes

Telephone drops were relocated on 220 prefab houses in Richland as required by the rehabilitation program.

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

	Lines in Service	Stations in Service	Extensions in Service	Vacant Lines
Richland	3,792	5,988	1,010	208
Project Total	5,259	7,534	1,833	691*

* The number of vacant lines reported last month did not include the Richland Exchange.

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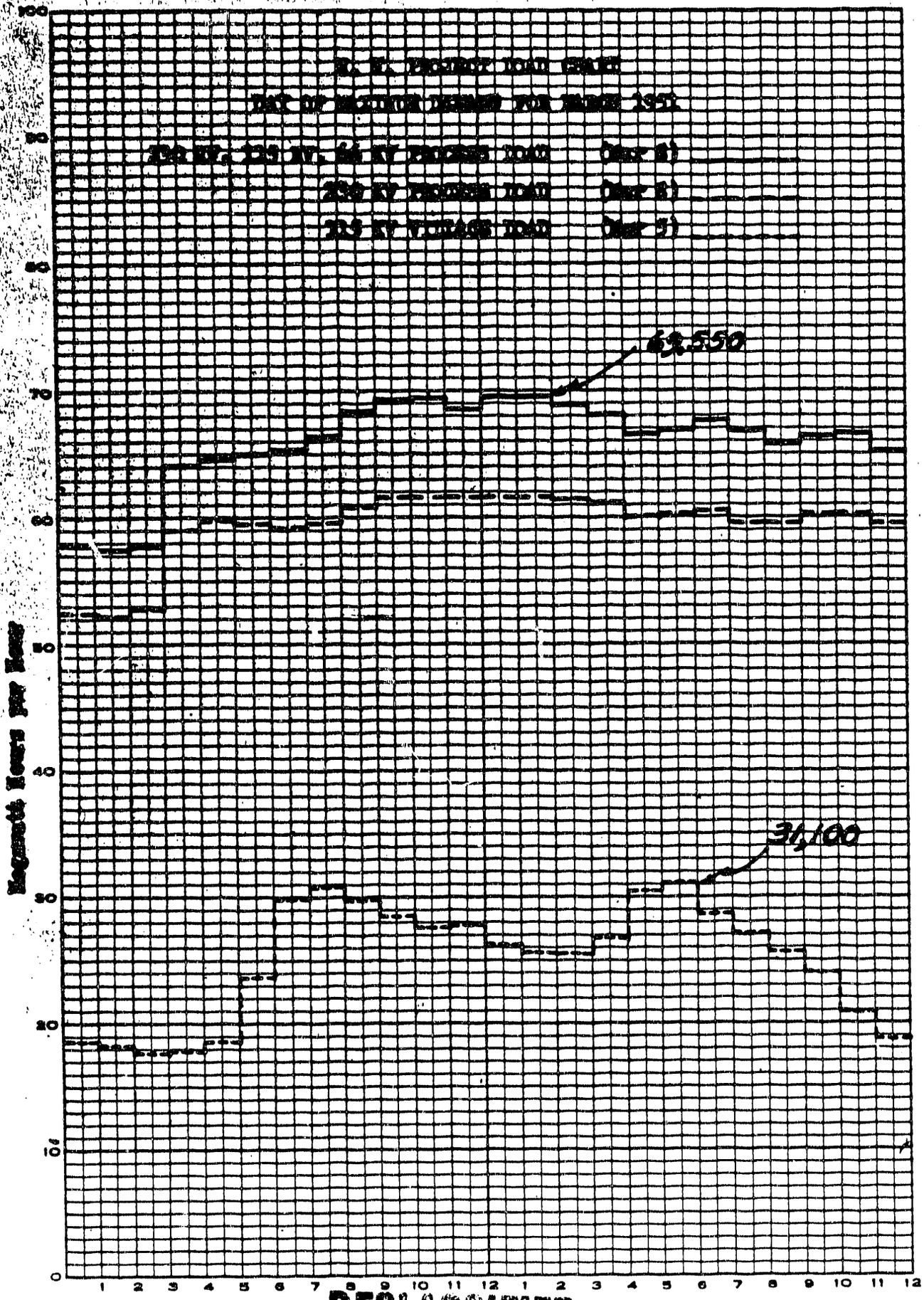
POWER STATISTICS - ELECTRICAL DIVISION
FOR MONTH ENDING MARCH 31, 1951

ITEM	ENERGY - MW HRS. Feb.	ENERGY - MW HRS. March	MAX. DEMAND - KW Feb.	MAX. DEMAND - KW March	LOAD FACTOR - % Feb.	LOAD FACTOR - % March
230 KV SYSTEM						
A-2 Out (100-B)	7,040	7,740	12,200	12,400	85.9	83.9
A-4 Out (100-D)	12,090	13,570	20,700	21,000	86.9	86.9
A-5 Out (100-H)	6,984	8,856	19,800	18,000	52.5	66.1
A-6 Out (100-F)	6,330	7,050	11,000	11,200	85.6	84.6
A-8 Out (200 Areas)	4,212	4,500	7,920	7,920	79.1	76.4
TOTAL OUT	36,656	41,716	71,620**	70,520**	76.2	79.5
MIDWAY IN	37,262	42,523	62,000*	62,000*	89.4	92.2
Transm. Loss	606	807				
Percent Loss	1.6	1.9				
115 KV SYSTEM						
B1-S4 Out (N.Rich.)	2,040	2,165	3,686	3,974	82.4	73.2
BB1-S1 Out (Richland)	6,884	7,354	15,570**	15,120**	65.8	65.4
BB1-S2 Out "	7,236	7,564	16,200**	16,110**	66.5	63.1
BB3-S4 Out (300 Area)	752	832	1,840	1,840	60.8	60.8
TOTAL OUT	16,912	17,915	37,296**	37,044**	67.5	65.0
Benton In	10,060	18,410	36,000*	36,800*	41.6	67.2
So. Richland In	7,160	0	36,300*	0	29.4	0
TOTAL IN	17,220	18,410	72,300**	36,800**	35.4	67.2
Transm. Loss	308	495				
Percent Loss	1.8	2.6				
66 KV SYSTEM						
B7-S10 Out (W.Bluffs)	417	465	1,237	1,237	50.2	50.5
Hanford Out	309	330	600	600	76.7	73.9
TOTAL OUT	726	795	1,837**	1,837**	58.8	58.2
HANFORD IN	729	797	1,700*	1,700*	63.8	63.0
Transm. Loss	3	2				
Percent Loss	.4	.2				
PROJECT TOTAL						
230 KV Out	36,656	41,716	71,620**	70,520**	76.2	79.5
115 KV Out	16,912	17,915	37,296**	37,044**	67.5	65.0
66 KV Out	726	795	1,837**	1,837**	58.8	58.2
TOTAL OUT	54,294	60,426	110,753**	109,401**	72.9	74.2
230 KV In	37,262	42,523	62,000*	62,000*	89.4	92.2
115 KV In	17,220	18,410	72,300**	36,800**	35.4	67.2
66 KV In	729	797	1,700**	1,700**	63.8	63.0
TOTAL IN	55,211	61,730				
Transm. Loss	917	1,304				
Percent Loss	1.7	2.1				

* Coincidental Demand
** Non-Coincidental Demand

Average Power Factor - 230 KV System--94.3
Average Power Factor - 115 KV System--95.4
Average Power Factor - 66 KV System--85.6

[redacted]



EUGENE DIETZGEN CO.
MADE IN U.S.A.
ONE DAY BY HOURS

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HW-20671 Del

Classification Cancelled

(Change [redacted])

By Authority of AEC Non-Tech Doc Review Board

By Marjorie Tracy 2-1-52

Date 12-18-51

TRANSPORTATION DIVISION
MONTHLY REPORT
MARCH 1951

GENERAL

At the request of the Atomic Energy Commission, the Transportation Division presented a program on the "Operation of the Transportation Division at Hanford Works" at the March 9 meeting held in Richland of the Inter-Agency Motor Equipment Advisory Committee of Oregon and Washington. Agencies represented included the Bonneville Power Administration, General Services Administration, Fish and Wild Life Service, Atomic Energy Commission, Bureau of Reclamation, Corps of Engineers, Bureau of Public Roads, United States Forest Service, United States Soil Conservation Service, and Department of Animal Industry.

Transportation Division personnel forces increased from 605 to 608 employees during the month by 16 new hires, 9 transfers in, 1 re-activation - personal illness, 13 transfers out, and 10 terminations.

RAILROAD ACTIVITIES

Commercial cars handled during March increased 7.9% over February with the return of normal coal receipts and an increase in outbound shipment of lumber.

Process movements during March increased 34.4% over February with all service being completed as scheduled.

Cars handled in March including process movements totaled 1,984 compared to 1,793 in February and 2,625 in January.

The 200-East Tank Farm Track was out of service from March 6 through March 20 to permit installation of underground lines making it necessary to serve the 221-B Building by a shoofly.

The following recapitulation indicates the number of commercial cars handled:

Carload Movements - General Electric Company

Loads In	Empties In	Loads Out	Empties Out
522	120	120	513

Carload Movements - Subcontractors and Others

	Loads In	Empties In	Loads Out	Empties Out
Atkinson & Jones Co.	61	-	-	58
L. E. Baldwin & Associates	12	-	-	11
F. J. Early	14	-	-	13
Electric Smith Co.	1	-	-	1
Hagen & Wolfe Co.	1	-	-	1
Martin Fireproofing	3	-	-	5

[redacted]

Transportation Division [redacted]

	Loads In	Empties In	Loads Out	Empties Out
McPhail Engineering Co.	3	-	-	5
Morrison-Knudsen Co.	-	4	4	-
S. S. Mullen Co.	1	-	-	1
Pioneer Insulation Co.	2	-	-	2
Richland Fuel & Lumber Co.	1	-	-	1
Roof Service Co.	1	-	-	1
West Coast Heating & Plumbing	1	-	-	1
U. S. Army	2	1	1	2
Corps of Engineers	-	15	15	-

Inspection of 80-ton Diesel electric locomotive 39-3722 revealed that the plates on both ends of the center castings were cracked around the weld and castings were pushing upward into the engine frame. Castings and plates have been removed preparatory to installing new plates and supports over castings to prevent a recurrence of this nature.

Flat car 10-A 3625 was moved from 200-East to Riverland for major repairs to the frame and undercarriage. This work is being performed under Special Work Permit regulations.

Removed snow plow equipment from flat car 10A 3619 and installed weed spraying equipment.

Railroad track maintenance and rehabilitation work continued on a near normal basis throughout the five sections. Removal of ice and snow from switches and flangeways required 169 man-hours. Surfacing was in progress on the 183-B track, Riverland, 200-East lead, 272 shop track, 221-B track, "A" line and throughout Section V requiring 3,305 man-hours. Installed 111 switch ties at Riverland; 151 switch ties and 443 cross ties in 200-East Area; and 742 cross ties in Section III requiring 2,080 man-hours. Hauling and distributing ties required 431 man-hours. Installed 3,400 85# rail anchors requiring 187 man-hours.

AUTOMOTIVE ACTIVITIES

The Area Bus System transported 8.9% more passengers in March than in February. The following tabulation indicates the March passenger volume by shifts and the total revenue received:

No. 1 outbound and No. 3 inbound	25,636
No. 2 outbound and No. 1 inbound	57,641
No. 3 outbound and No. 2 inbound	54,689
Total	137,966
Revenue	$ 6,898.30

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

Passenger busses - 100-B	11
Passenger busses - 100-D	12
Passenger busses - 100-F	11
Passenger busses - 100-[illegible]	10

Classification Cancelled (Change [redacted] Review Board By [illegible] Date 2-1-52

 [redacted]

Transportation Division

Passenger busses - Hanford	4
Passenger busses - 200-West	20
Passenger busses - 200-East	12
Passenger busses - 300 Area	7
Passenger busses - Riverland	3
Passenger busses - Pistol Range	1
Passenger busses - White Bluffs	3
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

Effective March 2, nine K-7 International 37-passenger busses assigned to the Area Bus System were replaced with a like number of White 42-passenger busses.

A special bus tour of Richland and North Richland was made for representatives attending the March 9 meeting held in Richland of the Inter-Agency Motor Equipment Advisory Committee of Oregon and Washington.

Special bus tours were made on March 19 and 20 for the convenience of prospective tract house buyers at the request of Purchasing and Stores Divisions.

Effective March 26, bus service to White Bluffs was established for all shifts at the request of the Safety and Fire Protection Division.

The Richland Local Bus System transported 5.6% more passengers in March than in February. Volume of service rendered is indicated in the following statistics:

Total passengers, including transfers	44,205
Total bus trips	3,765
Total bus miles	20,708
Total revenue	$ 3,066.70

Off-Plant automobile trips (Company business and/or official visitors) totaled 216.

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

Applicants:	Male	111	Number retested	0
	Female	13	Number rejected	0
		124	Number tests given	124

Permits issued:	Limited to driving with glasses	19
	Unlimited	105
		124

Permits reissued: 48

Classification Cancelled

(Changed to [redacted])

By Authority of [redacted] Review Board

By [redacted] 1-5-52

RESTRICTED

[redacted]

[redacted]
Classification Cancelled
[redacted] HW-20671 Del
By Authority of GE Non Tech Doc Review Board
By Marjorie Tracy 2-1-52
Date 12-18-51

Transportation Division

The following tabulation indicates the Plantwide usage of automotive equipment:

Code	Type	No. of Units	Total Mileage
1A	Sedans	320	472,127
1B	Busses	170	206,021
1C	Pickup Trucks	468	233,937
1D	Panel, Carryall, Sta. Wagon	111	115,928
1E	Armored Cars	12	346
1G	Jeeps	2	439
68 Series	Trucks	312	78,185
		1,395	1,106,983

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	44,650	12,970	5,511	4,878	22
Received during month	106,898	26,560	30,263	1,085	212
Total	151,548	39,530	35,774	5,963	234
Delivered to Areas	112,011	23,140	29,612	4,522	79
Stock at end of month	39,537	16,390	6,162	1,441	155

The following tabulation indicates the volume of inspection and maintenance service rendered to Hanford Works automotive and heavy equipment by the Equipment Maintenance Section: 22 motor over-hauls, 94 Class A Inspections and Repairs, 1,330 Class B Inspections and Lubrications, 1,448 other routine maintenance repairs and service calls, 505 tire repairs, and 483 wash jobs.

Received two new Buick sedans and serviced preparatory to assignment.

Inspected, serviced, and made necessary repairs to 26 White 42-passenger busses preparatory to off-Plant assignment by the Atomic Energy Commission.

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	1,035	0	0
Received during month	0	9,467	0	0
Dispensed during month	0	6,072	0	0
Stock at end of month	0	4,430	0	0

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Transportation Divi[redacted]on

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	68	122	55	50	22	13	0	330
Cars other material	4	5	1	4	6	4	5	29
Cars loaded out	0	4	0	0	0	0	0	4

Crushed and stockpiled 1,080 cubic yards of 5/8" crushed rock and 623 cubic yards of 1/4" crushed rock requiring 550 man-hours. Manufactured 365 tons of 3/4" pre-mix material and 221 tons of 1/4" pre-mix material requiring 120 man-hours. Maintenance of primary roads required 260 man-hours; patrol roads required 255 man-hours.

Handling of miscellaneous materials for the Stores Division at White Bluffs required 2,210 man-hours.

Handling, unloading and transporting of materials for the Stores Division in the 700, 1100 and 300 Areas required 478 man-hours.

Movement of material for the Stores Division in the 3000 Area required 800 man-hours.

Handling of Area deliveries required 1,240 man-hours: Stores deliveries 311 man-hours and office furniture 954 man-hours.

Handling and loading of 8 carloads of lumber, 2 carloads of steel, 2 carloads of equipment, 7 carloads of material, 93 truckloads of lumber, 42 truckloads of equipment and 16 truckloads of material required 2,578 man-hours.

Routine Area maintenance and labor services were performed in all Manufacturing Areas.

Labor and transportation equipment were furnished for Projects P-172, P-177, P-290, P-291, P-326, P-340, P-341, P-347, P-349, P-366, P-377, P-382, P-398, P-399, P-410, P-415, P-423, P-432, M-713, M-769, M-770, M-810, M-820, M-822, and M-824.

Classification Cancelled
(Changed to RESTRICTED)
By Authority of HC Non Tech Doc. Review Board
By Marjorie Tracy 2-1-52
Date 12-18-51

[redacted]

POWER DIVISION
MARCH 1951

GENERAL

The semi-annual survey of coal stockpiles was completed in all Power areas during the month.

PERSONNEL

Five weekly roll employees were promoted to shift supervisors on March 15, in connection with the expansion of Power facilities in the 200 West Area.

Number of employees on payroll - March	
Beginning of month	575
End of month	574
Net Decrease	1

The indicated net decrease is the result of the transfer into the Division of four employees, while one supervisor and four non-exempt employees terminated.

100 AREAS

River water turbidity fluctuated greatly during the month, reaching a maximum of 220 ppm on March 28. Coagulant feeds were increased to a maximum of 15-20 ppm in order to produce water of the required quality.

The remaining two deaerators were removed from the 100-D Area, 185 Deaerator Building between March 1 and 3. Removal of structural steel was in progress during the balance of the month. In the 100-B Area, 185 Deaerator Building, removal of deaerators was started on March 24. By month's end, four deaerators had been removed. All work was accomplished on the C-172 Deaerator Removal Project.

In the 100-F Area, 190 Process Pump House, process water pressure was raised to 50 psi above normal for a short production test on March 6, at the request of the "P" Division.

The levels of the elevated process water storage tanks in the 105-DR Area were lowered on March 7 to check the operation of the Groves automatic valve on the export raw water line to the Pile. This valve performed in a satisfactory manner.

The installation of an electric sump pump was completed in the 100-DR, 190 Process Pump House on March 14. This installation was necessary to adequately handle drainage water at this location.

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Power Division

200 AREAS

In the East Area, construction forces removed the 3-inch steam line along the east side of the 241-BX and BY Tank Farms for construction activity in these areas. This line is to be replaced by construction upon completion of the work planned in these areas.

On March 11, the Fire and Sanitary water system supplying the "U" and Redox Construction areas was out of service for six hours while repairs were made on a 10-inch lateral to the "U" Area. This line had been broken by construction forces on March 5 while excavating for the new 20-inch raw water line to Redox.

In the 200 West Area, the ventilation balancing crew made an air flow survey in the 224-T Concentration Building, for use of the Engineering and Construction Divisions, in determining ventilation requirements of the UO_3 Building.

A new set of batteries was installed in the 284 Power House in East Area, on March 19, and the 284 Power House in West Area, on March 22. These batteries replaced the original installation which had served its useful life as indicated by the badly corroded plates.

101 SHOPS

A fire in the coal storage pile was found on March 15. The fire was put out by digging out the burning coal with a bulldozer and repacking the pile.

WHITE BLUFFS ICE PLANT

The production and storage of ice for the 1951 season was started on March 27.

POWER ENGINEERING SECTION

The high flow test through the filter plant at 100-B Area is continuing as planned. The average filter flow rates were 3,450 gpm per filter unit as compared with 2,800 to 3,100 gpm per filter in the other 100 areas. An evaluation of the higher flow rate cannot be made until several additional results experience has been obtained.

The rate of process water pressure drop within the Pile continues to be a problem, especially in 100-H and DR Areas, because of the higher operating levels. Water flow reduction caused by the pressure drop increase is currently in excess of 100 gpm per day in those areas. There seems to be little hope that present methods of water treatment can remedy the rapid increase in pressure drop as long as present power levels are held. Research programs by other Divisions are directed toward developing other means of overcoming this difficulty.

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Power Division

Project Proposal No. C-433, "Expansion of 300 Area Power House and Pumping Station" has been approved by the Appropriation and Budget Committee and has been forwarded to the Atomic Energy Commission for approval. Preparation of design specifications for this project are completed.

Industrial Engineering Report No. 3 "Utilization of Fuel Oil in Hanford Works Boiler Houses", and Report No. 5, "Utilization of Natural Gas Fuel in Hanford Works Boiler Houses" have been reviewed by the Power Division and forwarded with comments to the Atomic Energy Commission.

[redacted]

HW-20671-DEC

POWER DIVISION STATISTICS

From March 1, 1951
Through March 31, 1951

AREAS

RIVER PUMP HOUSE (Building 181)		100-B	100-D	100-DR	100-F	100-H
River Elevation (msl ft.)	(max)	390.5	382.1		368.5	374.1
	(min)	387.9	380.0		366.4	372.2
	(avg)	389.3	381.1		367.6	373.2
River Temperature	avg. °F.	38.1	38.3		38.7	38.8
Water to Reservoir	gpm avg. rate	40,450	53,651		38,158	48,151
Water to 183 DR	gpm avg. rate		31,348			
RESERVOIR (Building 182)						
Flow to Filter Plant	gpm avg.rate	35,377	45,263		34,320	43,515
Flow to Cond. System	gpm avg.rate	3,123	3,056		2,983	3,953
Flow to Cond. System(DR)	gpm avg.rate		3,550			
Flow to Export System	gpm avg.rate	1,950	1,782		855	683
Flow to Export System	gpm nor.rate	5,270	5,270		5,270	5,270
Chlorine, Added (#1 Inlet)	Pounds	11,620	19,653		11,500	12,500
FILTERED WATER (Building 183)						
Flow to Power House	gpm avg.rate	272	500		275	269
Flow to Process (190)	gpm avg. rate	31,114	31,414	36,366	31,012	39,477
Flow to DR	gpm avg.rate		5,775			
Flow to Fire & Sanitary	gpm avg.rate	197	183		232	113
WATER TREATMENT (Building 183)						
Chlorine - Consumed	pounds	4,080	2,507	10,900	4,500	4,000
	ppm avg.	1.08	1.13	.93	1.16	.95
Lime - Consumed	pounds	50,050	80,850	66,600	54,859	82,000
	ppm avg.	3.8	4.8	5.7	4.3	5.1
Coag - Consumed	pounds	148,600	192,000	160,200	135,558	180,260
	ppm avg.	11.3	11.4	13.7	10.6	11.1
Raw Water pH	pH avg.	7.92	7.86	8.02	7.90	8.00
Finished Water pH	pH avg.	7.66	7.73	7.64	7.70	7.78
Alkalinity, M.O. - Raw	ppm avg.	62	61	60	59	64
Finished	ppm avg.	61	58	58	59	61
Residual Chl. - Finished	ppm avg.	.14	.10	.16	.15	.16
Iron - Raw	ppm avg.	.39	.78	.86	.63	.80
North Clearwell	ppm avg.	.019	.019	.017	.016	.020
South Clearwell	ppm avg.	.016	.020	.013	.016	.017
Hardness - Finoshed	ppm avg.	76	66	75	76	82
Turbidity - Raw	ppm avg.	33	43	45	40	45
Filtered	ppm avg.	0	0	0	0	0

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HW-20671 -DEC

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Power Division Statistics

From March 1, 1951

Through March 31, 1951

		AREAS				
		100-B	100-D	100-DR	100-F	100-H
POWER HOUSE (Building 184)						
Maximum Steam Generated	lbs./hr.	162,000	296,000		154,000	161,000
Total Steam Generated	M lbs.	102,756	188,600		102,610	96,578
Steam Load - Avg. Rate	lbs./hr.	138,113	253,495		137,917	129,809
225 psi Steam to Plant(est)	M lbs.	86,354	159,150		86,230	81,115
15 psi Steam to Plant(est)	M lbs.	783	783		783	783
Coal Consumed	Tons	6,652	12,059		6,831	6,292
Coal in Storage (est)	Tons	38,988	37,982		39,294	37,370
BUILDING 190 - TANKS						
Flow to 190	gpm avg.rate	30,864	31,164	36,366	30,762	39,227
Dichromate-Consumed	pounds	23,600	22,000	26,600	22,000	27,300
Chemical Analysis:						
pH	pH avg.	7.62	7.64	7.64	7.64	7.69
Dichromate	ppm avg.	1.8	1.9	1.9	1.8	1.8
PROCESS PUMP ROOM (Building 190)						
Flow to 105	gpm avg.rate	30,689	30,989	35,558	30,587	39,052
	gpm nor.rate	33,000	33,400	36,200	31,400	41,300
Water Temperature	Avg. °F.	40.8	44.6	40.6	40.6	41.0
VALVE PIT (Building 105)						
Solids Consumed	pounds	2,800	4,000	3,400	1,400	6,100
Chemical analysis A, B, C, & D Headers						
Standard limits						
pH 7.5 - 7.8 pH	(max)	7.65	7.65	7.70	7.70	7.75
	(min)	7.60	7.60	7.50	7.60	7.55
	(avg)	7.61	7.63	7.63	7.65	7.65
$Na_2Cr_2O_7$ 1.8 - 2.2 ppm	(max)	1.9	2.0	2.1	2.0	2.0
	(min)	1.8	1.8	1.8	1.8	1.8
	(avg)	1.8	1.9	1.9	1.8	1.8
Iron	ppm (max)	.030	.025	.020	.025	.025
	(min)	.010	.010	.010	.010	.010
	(avg)	.015	.014	.013	.015	.015
Chlorides	ppm (avg)	1.5	1.5	1.4	1.5	1.5

[redacted]

[redacted]

Power Division Statistics

From March 1, 1951
Through March 31, 1951

		200 AREAS	
		200-E	200-W
RESERVOIR (Building 282)			
Raw Water Pumped	gpm avg. rate	2,326	2,944
FILTER PLANT (Building 283)			
Filtered Water Pumped	gpm avg. rate	356	790
Chlorine Consumed	lb.	141	221
Alum Consumed	lb.	2,371	4,927
Chlorine Residual - Sanitary Water	ppm	.46	.35
POWER HOUSE (Building 284)			
Maximum Steam Generated	lbs./hr.	43,000	120,000
Steam Generated - Total	M lb.	26,278	72,396
Steam Generated - Ave. Rate	lb./hr.	35,320	97,306
Coal Consumed (est.)	Tons	1,799	4,740
Coal in Storage (est.)	Tons	8,950	17,314

		300 Area
POWER HOUSE (Building 384)		
Maximum Steam Generated	lbs./hr.	32,000
Steam Generated - Total	M lb.	18,526
Steam Generated - Avg. Rate	lb./hr.	24,900
Coal Consumed - Total (est.)	Tons	1,237
Coal in Storage (est.)	Tons	1,672
SANITARY AND FIRE SYSTEM		
Sanitary Water from 3000 Area	gal.	25,823,793
Well Water Pumped - Total	gal.	20,291,600
Total Water Per Day	gal/day	1,487,593
Total Water	gpm avg. rate	1,033
Chlorine Residual	ppm	.40

		MISCELLANEOUS AREAS
WHITE BLUFFS		
Ice Manufactured	lbs.	174,900
101 SHOPS		
Coal Consumed	Tons	518

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TECHNICAL DIVISIONS

March, 1951

SUMMARY

4/10/51

Pile Technology Division

Problems in connection with the design of the C Pile have required the diversion of effort from some of the longer range programs. Studies undertaken include shielding changes, ball third safety design, coring of graphite channels, improved and increased test facilities, provisions for increased water flow, and use of enriched uranium.

The programs of investigation of plutonium critical mass, pile lattice design, radiation shielding development, xenon cross section, and test pile measurements were continued normally during the month.

Predicted long term reactivity changes in the H-10 load indicate that losses during the next three months can be compensated by charging natural uranium without the use of additional U-235. Improved xenon poison values from tables prepared by the IBM Computing Group are expected to enable more accurate pile reactivity control and balances.

Measurements of graphite samples exposed in the F Pile indicate a burnout rate of 0.6 percent per 1,000 days in the center of the pile at 380°C and a build-up of 0.5 percent per 1,000 days in the fringe zone at 105°C. The general program of graphite radiation damage is being expanded although handicapped by a shortage of laboratory facilities.

A review of the transient water flow requirements for the C Pile was completed and a similar study for the operating piles is under way. Installation of flow laboratory equipment for the water quality study was continued.

Seven in-pile experiments were under irradiation during the month, two for plant assistance and five for off-site reactor development.

Plant assistance studies of uranium machining and canning directed towards improved slugs were continued. Examination of a ruptured slug in the radiometallurgy laboratory resulted in widespread contamination.

Tritium production was limited to experimental runs. Tests of the all-metal production line with inactive gases progressed satisfactorily during the month. Construction activities on projects P-10-C, P-10-D, and P-10-D, Part II were continued.

DEC [redacted]

Separations Technology Division

A new system of material accountability, which is expected to result in more nearly correct yields and material balances, was initiated in the separations plants during the past month. Production testing of reduced Bismuth Phosphate process volumes has been carried to a 30% volume reduction without significant changes in either waste losses or decontamination. Recent abnormally high hold-ups of product in the Isolation Building nutsches have made it necessary to institute more frequent leaches and clean-outs. Production testing of direct hydrofluorination of oxalate precipitates in Building 234-5 has been successfully completed and the new procedure is being given a trial in the plant. Recent difficulties with high lanthanum content of plutonium castings were corrected by changing the addition of Chemical 70-58 back to Casting from Reduction.

In Redox and TBP process development, Technical Manual preparation has continued to 69% completion of the Redox Manual and 16% completion of the TBP Manual. The first group of 20 "S" Division supervisors and 28 operators has completed its six-weeks operations training assignment in Building 321, and a second group is now being trained. The program of assistance to ORNL Purex process design has been carried to the point where the design of the Purex columns can now be scoped. Engineering development studies are continuing on Production Plant pumps and materials of construction. The lump sum construction of the Hot Semi-Works was started during the month, with excavation for the Hot Process Building approximately 60% complete at month's end.

In the research laboratory, studies have been continued on the use of scavengers for the decontamination of Bismuth Phosphate first cycle supernatants, concentration of Redox final product solution and its coupling to metal production, and the recovery of plutonium from 234-5 slag and crucible wastes. Efforts are being made to improve the methods of scavenger separation in the Redox process. Additional fundamental investigations have been carried out in the stability of TBP, pulse column mechanisms, and the effects of head-end treatment on Purex process decontamination. Supporting studies for the P-11 Critical Mass Project have also been carried out.

Further study of the proposed skull recovery process has uncovered improved methods of skull dissolution. Continued investigation of the number of peroxide cycles required to obtain the required plutonium metal purity has succeeded in narrowing impurity problems to only a few elements. Laboratory Reductions with sulphur instead of iodine used as the booster have given yields only slightly below those normally obtained with iodine. Further investigation of methods of oxalate destruction for supernatant recovery is being carried out in the laboratory.

The program of investigation of the concentrations of ammonia and oxides of nitrogen in the Dissolver off-gas during the change-over from coating removal to metal dissolution has indicated that the previously suspected formation of ammonium nitrate in the Silver Reactor and Fiberglas filter is extremely unlikely. A spot check of the I^{131} removal efficiency of the 4-5L Silver Reactor at B Plant during the month indicated an efficiency of 99.9%.

Technical Services Division

An automatic recorder has been installed on the mass spectrometer used for P-10 process sample analyses, and has been used in the routine analysis of 309 samples during the month. Although not offering greater speed, the unit does give more information and in a recorded form. A review of the completed spectra reveals that about 2% methane is present in out-gas samples but not in other extracted fractions. A 50 foot section of copper tubing has been connected to the mass spectrometer head to allow study of direct in-line analyses and has given promising results.

Mass spectrometers for the isotopic analysis of uranium oxide recovered from the Redox and Metal Recovery Processes are being ordered. The original instrument specifications were altered to allow delivery of these instruments by September 15, 1951.

A series of six plutonium nitrate solutions has been analyzed for Pu^{240} with the recently installed spontaneous fission counter. The values obtained are in reasonable agreement with those calculated by the Pile Physics Section, and with experimental data obtained in the 231 Bldg. laboratory indicating the presently-employed isotopic correction factors to be in error.

A modified extraction-spectrochemical procedure has been introduced into control practice for the determination of impurities in plutonium metal. Although the procedure is still difficult and subject to uncertainties, more accurate results will be obtained by the use of optimum conditions of spectrographic exposure and by the use of reference standards that have been processed through the entire analytical procedure.

An investigation of infrared absorption techniques for the determination of carbon monoxide has yielded an accurate procedure that will prove to be of assistance to Pile Technology Division projects for the study of in-pile experiments on graphite reactions and the rate of graphite burn-out. Observations of value to in-line monitoring include a method for making air-tight seals of cell windows on the absorption cell and the effect of inert gases on the absorption by carbon monoxide.

Final design of the Radiochemistry Bldg. was completed by the Leland S. Rosener Company on schedule, and most questions regarding it had been resolved by monthend. An A.E.C. directive modification was received, authorizing the construction of this building and raising to $4,680,000 the total expenditure authorized for this new Works Laboratory facility.

Close field liaison continued on the new Redox Analytical & Plant Assistance Laboratory, construction of which was 95% complete by month-end. Several special tongs and a slave-type manipulator were designed for the multicurie cells in this new laboratory, and these are being fabricated in the Technical Shops. Development of Junior Cave and gloved box accessories for use in this building also was continued.

A.E.C. Directive No. HW-219 was modified to cover the design and construction of the rescoped Library and Files Bldg. The design of this facility was subcontracted to the C. T. Main Co. (of Boston), which A-E firm also has the Pile Technology Bldg. Good design progress was reported for both of these facilities.

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The Dix Steel Company (of Spokane) broke ground on the Phase I construction of the Mechanical Development Bldg. in the Works Laboratory Area, and made good progress on the footings for this prefabricated steel structure. A Part 2 Project Proposal covering the interior construction (Phase II) of this building was approved by the A & B Committee and forwarded to the A.E.C. Commission consent was obtained by E & C for the negotiation of a lump sum design and construction subcontract for this Phase II work with the Dix Steel Company. The required design criteria are being prepared.

At Pile Engineering Section request, a statistical study was begun of panellit pressure readings for the H-10 loading to see if the rupture of P-10 lithium-aluminum alloy slugs can be predicted and prevented. Another study of the expected exposures of tubes in the H-10 loading in the production piles was made by the Computing Laboratory. Considerable statistical effort was devoted to the study of isotope correction factors and chemical assay-radioassay ratios in connection with analytical control of the separations process.

The Technical Information Group resolved several Hanford questions in connection with the forthcoming A.E.C. revision of the Standard Distribution Lists for research and development reports. Arrangements also were completed for treatment of the files in the Schenectady Office (of the Nucleonics Dept.) as a branch of the Hanford Classified Files, with local accountability for all classified documents transmitted there.

(H2)

PILE TECHNOLOGY DIVISION

MARCH, 1951

VISITORS AND BUSINESS TRIPS

Visitor	Address	Date	Purpose
J. A. Ayres	Knolls Atomic Power Lab.	3-1-51 3-2-51	Interview
H. Hurwitz	Knolls Atomic Power Lab.	3-1-51 3-3-51	Discuss the KAPL assistance to Hanford program.
James Moyer	Knolls Atomic Power Lab.	3-1-51 3-5-51	P-10 Consultation
J. G. Morgan and H. E. Robertson	N.E.P.A. Division, Oak Ridge Nat'l. Lab.	3-2-51 3-10-51	Consultation and work on the aluminum creep apparatus at the D Pile.

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Visitor	Address	Date	Purpose
L. A. Welsch	Knolls Atomic Power Lab.	3-8-51 3-9-51	Interview
D. L. Watrous	General Engineering Lab.	3-19-51 3-23-51	P-10 Consultation
Mr. Pickett	Milwaukee General Electric X-Ray Co.	3-28-51 3-29-51	Consultation on x-ray work.
H. W. Bousman	General Engineering Lab.	3-22-51 3-30-51	P-10 Consultation
R. D. McCrosky	E. I. deNemours duPont Co.	3-15-51 3-30-51	To follow canning of special pieces.
F. A. Damewood	E. I. deNemours duPont Co.	3-16-51 3-30-51	To follow canning of special pieces.

Business Trips of Pile Technology Division Personnel during March were as follows:

Name	Place Visited	Date	Purpose
W. T. Kattner	Mallinckrodt Chem. Wks.	3-1-51	To attend a meeting on quality and specifications of metal and to inspect the plant and discuss operating methods.
	Argonne Nat'l. Lab.	3-2-51	Discuss canning operation.
C. E. Lacy	New York AEC	3-5-51	Consultation on metal fabrication.
	Westinghouse Atomic Lab.	3-6-51 3-7-51	Irradiation Damage Meeting
	Battelle Memorial Institute	3-8-51	Consultation on Battelle's program for Hanford.
	Knolls Atomic Power Lab.	3-9-51	Metallurgical consultation.
R. S. Dalrymple	National Association of Corrosion Engineers	3-12-51 3-15-51	Corrosion conference.
	Battelle Memorial Institute	3-16-51 3-20-51	Discussion on anodizing of slugs.

Name	Place Visited	Date	Purpose
R. S. Dalrymple	Alcoa Aluminum Co.	3-21-51	Discussion of aluminum problems.
R. G. Wheeler	Western Metals Congress	3-17-51 3-25-51	Convention
T. C. Nelson	Western Metals Congress	3-17-51 3-25-51	Convention
W. L. Schalliol	Research Welding and Engineering Company	3-19-51 3-20-51	Technical discussions on a vacuum tank.
	American Welding Society	3-21-51	Sessions of the American Welding Society
E. B. Montgomery	Argonne Nat'l. Lab.	3-1-51 3-2-51	Consultation regarding test pile design.
L. P. Dupp, E. P. Warekois, L. A. McClaine, & W. J. Ozeroff	Westinghouse Atomic Lab.	3-6-51 3-7-51	Attend the Radiation Damage Meeting.
C. W. Botsford	Argonne National Lab.	3-12-51	Consultation on graphite problems.
	University of Chicago	3-13-51	Reactor Safeguard Committee Meeting
A. R. Matheson	Los Alamos Nat'l. Lab.	3-12-51 3-13-51	P-10 Consultation
	Oregon State College	3-30-51	Technical discussions.
N. Endow	Knolls Atomic Power Lab.	3-12-51 3-17-51	P-10 Consultation
L. M. Loeb	Knolls Atomic Power Lab.	3-26-51 3-29-51	Consultation on a KAPL engineering experiment.

ORGANIZATION AND PERSONNEL

	February	March
Physics Section	52	53
Engineering Section	63	67
Metallurgy Section	38	39
P-10 Project	53	54
Administrative	5	5
	211	218

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A general clerk and a steno-typist were hired for the Physics Section. One technical graduate transferred in from Project Engineering and a laboratory assistant transferred to the Electrical Division. A steno-typist terminated from the Physics Section.

In the Engineering Section, three engineers, two laboratory assistants, and one steno-typist was hired. An engineer and one steno-typist terminated.

A metallurgist transferred from Separations Technology to the Metallurgy Section.

A chemist was hired for the P-10 Section, and a field clerk transferred in from Transportation. A laboratory assistant transferred from the P-10 Section to the Electrical Division.

PHYSICS

Area Physics Work

The calculation of the number of effective central tubes is sensitive to the water flow rates used in calculating the output of the most productive tubes and there is some uncertainty in the flow rates of individual tubes. The month-end values are tabulated below.

B Pile	1294
D Pile	1327
DR Pile	1186
F Pile	1502
H Pile	1413

There were no outstanding changes during the month. The number of effective central tubes which can be achieved at the B and D Piles is limited by the relation between local power and graphite temperature which exists in various portions of these piles.

A study has been made of the behavior of an operating pile which suddenly acquires an increased reactivity. If the safety circuits are tripped by the resulting power increase and function properly, a pile operating at 500 MW given 100 inhours excess reactivity will rise to a peak of 900 MW before the power begins to fall. For an excess reactivity of 800 inhours, which would result from loss of water, the subsequent peak would be of the order of a million megawatts if the power level increase is the actuator of the safety circuit. However, if a drop in water pressure actuates the circuit the situation is considerably improved since several seconds would elapse between a drop in pressure and the ejection of water from the pile by boiling. In this case the power level increase may be held to a nominal value. An automatic trip, actuated by low water pressure, is therefore highly desirable for the new ball type third safety system. A detailed report on this work is being prepared.

During a start up of H Pile it was possible to calibrate the control rods used in a reactivity coefficient test performed in January. These calibrations were then used to analyse the data obtained during the test. The results were in agreement with previous trends.

Tritium Production

The results of the study of long term reactivity changes, reported last month, have been applied to the H-10 loading and a forecast made of the reactivity and power level of H Pile during the coming months. This forecast was based on presently proposed discharge schedules for H-10 and natural uranium tubes. The results are that the expected reactivity losses during the next three months can be compensated by charging the remaining dummy and P-10 tubes with natural uranium. A drop in power of twenty to thirty megawatts may be expected in the same period due to distortions of the neutron distribution produced by replacing H-10 tubes with natural uranium and it will be necessary to discharge the tubes in symmetrical patterns to avoid additional power cuts.

Critical Mass of Plutonium

The experimental work directly related to the present separation process is substantially complete. Some chemical analyses of the solutions used in the final experiments are still in process and interpretation of the results will require some additional time. Since several troublesome leaks have developed in the equipment, it is expedient to suspend operations at this time for a complete overhaul and revamping. The remainder of the critical mass program will be devoted principally to obtaining basic scientific data on plutonium critical mass problems by a series of experiments with untamped reactors. Fabrication of equipment for this work is proceeding.

Changed operating procedures in the 235 Building were reviewed and recommendations for maintaining nuclear safety were made indocument HW-20572.

Lattice Design

The effect of fast neutrons from the artificial sources used in measurements in the standard pile has been treated by a method described by Chernick and Kaplan in B.N.L. 77. This has produced better agreement between theory and experiment and given an improved value for the thermal neutron diffusion length in the graphite of which the pile is built. Further improvement was obtained by a more careful treatment of the source positions. This work will be described fully in a report on the standard pile which is now being prepared.

Further measurements were made in the exponential pile with the present Hanford lattice to establish the neutron-effective dimensions of the pile.

Development of a small neutron counter for exponential pile work had been unsuccessful due to a change in counting rate with respect to time when the counters were placed in a known constant neutron flux. The source of this trouble has now been traced to the insulating glass used. Although the mechanism is not understood, the difficulty has been eliminated by switching to a different type of glass.

A report, HW-20484, was issued giving a simplified method of computing reflector effects in large thermal piles.

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Shielding

Preliminary design work has been completed on the iron-masonite slabs which will be used to calibrate the shield test facility in the top shield of the DR Pile. Following the calibration study, this facility will be used to test new types of shielding material.

Analysis of the data obtained in the stepped plug shield facility is continuing.

Special Request Program

A total of thirty-two receptacle slugs were opened during the month. In two cases it was not possible to remove the sample casing from the opened slug and in one other case the cap sheared preventing opening of the slug. The requesting laboratory has asked that these three slugs be shipped to them for further efforts to remove the samples.

A proposed revision of the special request cost code system, to reduce the possibility of errors, was prepared and submitted to the Cost Accounting Section.

Because of the diversion of manpower to the design and construction of C Pile, the Engineering and Construction Divisions have asked that the responsibility for the gamma-irradiation of non-metallic materials, now being conducted for the General Engineering Laboratory, be assumed by the Pile Technology Division. Preliminary conversation with a representative of the General Engineering Laboratory has revealed that this work might better be carried out by the preparation of a gamma source, such as radioactive tantalum at Hanford and shipment of this source to the General Engineering Laboratory where the irradiations would be done.

It was discovered that a special request sample was stuck in the B-Hole facility at H Pile and attempts to remove it were unsuccessful.

The view pit in the H area storage basin was cleared of contamination and it is now possible to work in this area without radiation zone restrictions.

Monthly statistics on the special request program are tabulated below:

Number of P-10-A pieces charged	356
Number of P-10-A pieces discharged	349
Number of P-10-A pieces being irradiated (Exclusive of H-10)	1180
Number of irradiated P-10-A pieces being held for recharging	304
Number of special request samples charged	161
Number of special request samples discharged	86
Number of samples on hand awaiting charging	994
Number of samples being irradiated	358
Number of samples awaiting shipment	123
Number of samples shipped	230

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Test Pile

Assistance was rendered to the P Division in obtaining satisfactory performance from the differential galvanometer. This instrument was dismantled and cleaned by Instrument Division personnel who required assistance from the Technical representative in reinstalling it.

Special Work Requests performed during the month were:

SWR-193 for the measurement of the variation in reactivity of uncanned slugs. Slugs from the same lot demonstrated that the variations were within the error of measurement.

Work on SWR-194 indicated considerable surface contamination on billet egg samples.

SWR-195 involved measurements of the purity of graphite bars to be used by the Graphite Studies Group.

Xenon Cross Section Measurement

The test hole facility installed in the DR Pile to furnish a neutron beam for this measurement was opened for short periods of time. The beam intensity was as expected; the general radiation background increased only slightly and the temporary beam catcher was found to be satisfactory.

Work on the development of the xenon production system is continuing.

Instrument Development

Work is proceeding on the fabrication of the magnetic spectrometer. The chamber has been assembled and is vacuum-tight.

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	76	80	142	96	87
In xenon poison*	619	605	685	613	720
In Special Requests					
Materials Testing Program	33	38	0	37	15
Other	10	39	0	34	0
In lead-cadmium columns	0	0	0	0	0
In plant assistance	10	36	0	20	5
In dummy columns	5	12	11	32	20
In overall coefficient	-290	-346	-171	-394	-158
Total cold, clean reactivity	904	853	975	820	719

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* The xenon poison values this month have been calculated using the tables prepared by the IBM Computing Group. These values from HW-20418 are more accurate than the formulas used heretofore. This makes a considerable difference in the final reactivity balance for the B, D, and F Piles. The actual and apparent changes during the month for the piles are as follows:

	Actual	Apparent
B Pile	2 ih loss	30 ih gain
D Pile	5 ih gain	58 ih gain
DR Pile	67 ih gain	67 ih gain
F Pile	32 ih gain	9 ih gain
H Pile	14 ih loss	14 ih loss

PILE ENGINEERING

Ball Third Safety Program

The Ball 3-X program is progressing on schedule. Technical details still under consideration include ball flow-rate timing, shielding requirements, and ball recovery techniques. Ball fabrication and specification work is in progress by the Metallurgical Section, the Battelle Institute, the Universal Ball Company, and the Crucible Steel Company. This development work is being done to insure delivery of the required type balls when needed. Design of the fluted stepped plugs, vacuum system, and other related equipment is in progress by the Plant Engineering Division.

Ruptured Slug Equipment

Mock-up tests have been made of special equipment for the removal of ruptured slugs; these tests indicate that the equipment, with minor modifications, will greatly facilitate this removal problem.

Magnesium Front Dummies

A total of nineteen tubes now have magnesium dummies in the inlet section. As provided in Production Test-105-407-P, these will be discharged after exposures of two to six months and examinations will be made to determine if any unexpected adverse effects are occurring.

Heat Transfer Studies

Calculations are being made to establish new minimum water flow requirements for the present piles following a power outage. At the present time, the requirements are based on the very conservative assumption that only one vertical safety rod, with an approximate strength of 60 ih, will operate. In the interests of economy, the water transient for the C Pile will be based on the assumption that 400 ih of control will enter the pile immediately after a power outage. Because the control strength of the VSR's in the present piles varies from 70 percent to 100 percent of that in the proposed C Pile rods, limits for the present piles will be based on the same amount of control.

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Water Boiling Considerations

As part of the study of boiling limitations, an experimental program is being planned, in conjunction with the Reactor Division, to determine the minimum cross section of the outlet fittings which would move the critical flow condition from the outlet of the downstream pigtail back into the process tube. The pressure drop through pigtails of different cross sections, lengths, and shapes is also to be determined.

Process Water Studies

Construction of the 105-D Flow Laboratory facility is continuing. Work to date has consisted of (a) collecting and modifying equipment which is on hand, including pH and turbidity tanks, the raw water filter, and auxiliary pumps, (b) purchasing off-site equipment, and (c) preparing the site and constructing pump foundations. Work is now starting on fabrication of the heat exchangers and on the actual installation of piping in the flow laboratory. It is anticipated that the flow laboratory will be completed in about six weeks if the necessary materials can be secured on time.

A survey of the possibility of increasing production rates by increasing header pressure is nearly complete. The study indicates substantial increases can be obtained if the pumping system is modified to supply a nominal 3500 gpm/pump at 500 psig casing pressure. Several problems are introduced by this proposed pressure increase; these include consideration of allowable working pressure for the inlet risers, and required changes in instrumentation.

Irradiation Effects of Graphite, RDA #TP-10

The first series of graphite samples for the determination of burnout has been removed from the F Pile. These samples, located at the center, intermediate, and fringe zones were exposed to pile atmosphere in a bare process channel for a period of 52 calendar days during pile operation. Thermocouple readings in each of these zones ultimately reached 380°, 330°, and 105°C and were fairly steady for the last 22 days of exposure during which the pile gas contained 98 percent CO_2 and 0.3 percent H_2O. The burnout rate in the central zone averaged 0.6 percent/1000 days for unirradiated graphite, which seems reasonable in comparison with the rates observed in the D Pile experiment using pure carbon dioxide. The burnout rate in the intermediate zone gave values which were consistent, but not considerably greater than possible experimental errors. In the fringe zone the samples gained weight. For two samples which had previous cold test hole exposure, the rate of build-up was 1.4 percent/1,000 days and for four virgin samples the build-up averaged 0.5 percent/1,000 days. A film was visible on each of the fringe zone samples. Spectrographic analysis of surface scrapings from these samples indicated that no metallic impurities were responsible for the weight increases. These data give the first direct evidence of graphite transport in the piles, and also confirm previous conclusions regarding the accelerating effects of graphite radiation damage.

Sensitive interferometric measurements of transverse physical expansion annealing spectra have been completed for an extensive series of irradiated CSF graphite. Six samples with previous cold exposures between 120 and 680 MD/CT each show an

initial increase in length prior to the expected decrease in length on annealing. This length increase occurs at annealing temperatures below 400°C and appears to be a function of exposure, in that the temperature at which the maximum length occurs decreases with increasing exposure.

The traverse of thermal conductivity measurements on the C hole graphite stringer from the B Pile has been completed. The results are in good agreement with similar measurements made on the A hole keyway from the D Pile and show a sharp gradient of damage extending into the reflector graphite. Maximum damage occurs directly in line with tube-row 96 where the K_o/K value is about 27. The central region graphite exhibits constant thermal conductivity with a K_o/K value of about 14.

X-ray diffraction studies made on the graphite burnout samples indicate that no crystal growth occurred in the virgin samples during the exposure of about 100 MD/CT, however, the previously irradiated samples showed about a 15 percent pile anneal.

Temperatures recorded during the month for the controlled temperature exposure of graphite averaged 215°C, 170°C, 144°C, and 115°C. These represent a further slight increase above initial levels.

The graphite core borer has been modified to remove samples 0.4 in. in diameter. The instrument operates satisfactorily and work has been scheduled to remove pile samples.

Work involving the mechanical properties and density of partially oxidized graphite, development work on the twin calorimeter, and the in-pile controlled atmosphere experiment under project C-410 is progressing satisfactorily.

Pile Power Levels

Power level increases were again made in all piles during the month. The maximum power levels attained during this month and the month of February are listed in the following table:

Pile	February	March
B	415 MW	425 MW
D	385	395
DR	484	526
F	380	415
H	500	510
	2164 MW	2271 MW

The recent installation of additional graphite temperature monitoring thermocouples made possible the optimum use of poison columns and control rods to distort the power generation. This allowed an improved heat distribution which placed the maximum heat generation in those portions of the pile which have the highest thermal conductivity, and does not necessarily result in increased radial flattening. The DR and H Piles currently are limited by the tube boiling considerations while the B, D, and F Piles are limited by graphite temperatures.

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DR Pile Motion

Results of a vertical traverse of the top central process tube have revealed that the DR Pile graphite growth is occurring at approximately the same rate previously obtained on the H Pile. The maximum vertical expansion is 0.31 in. which is about equal to the expansion of the H Pile at a slightly lower total exposure.

Purge of the DR Pile During Operation

The DR Pile was successfully purged while operating at a reduced level of 350 MW, and while shutting down from a 480 MW level. No adverse effects were noted. The test results indicate that purging of piles in which the power level is restricted by film formation is technically feasible and operationally desirable.

J Slug Exposure Behavior

The enriched H-10 fuel slugs are slightly unstable during pile exposure, but the induced changes at present exposure levels have not been of a serious nature. In general, the slugs increase in length and increase in diameter. The rate of elongation decreases with increasing exposure. Measurements on two eight-inch slugs after about 13.5 percent burnup indicated length changes of 0.050 and 0.030 inches and diameter changes of 0.007 and 0.012 inches.

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

The influence of Hanford Pile flux on the behavior of fuel elements in contact with sodium is being determined experimentally. Slug R-5, U^{235} in a stainless steel-jacketed titanium pin, had been irradiated for 253 days in tube 0865-F through March 26. The fuel element capsule R-1 was shipped to KAPL on March 5.

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

The behavior of water, fuel, and structural materials is being determined under conditions simulating those of the STR as nearly as is possible in the Hanford Piles. Operation during March was routine with recirculating water at 540°F and 1500 psi. Cartridges #2, 5, and 6, containing U-Zr fuel plates, canned ceramics, and exposed structural materials, were discharged March 6 and returned to Argonne National Laboratory. Cartridge #10 containing samples of gear and bearing materials exposed to the water, was installed. Authorized hydrogen additions have not been made because of a four to five liters per day water leak.

Differential Transformer Calibration (WAPD-M-103, PT-105-379-P)

A test was in progress to determine the influence of pile flux on the calibration of a differential transformer, and on the electrical resistivity and dimensional stability of zirconium. During the first 30 days of irradiation slug #2 was yielding resistance data similar to that obtained from slug #1. On March 7, a leak developed in the nozzle and the experiment had to be abandoned. Another slug may be charged in April.

SECRET

Creep of Zirconium (PNeumatic Loading) (WAPD-M-106, PT-105-430-P)

A zirconium tensile specimen stressed at 14,000 psi and heated to 260 ± 1°C is being irradiated to determine the creep rate. Installation proceeded as planned. The specimen had been under stress at rated temperature for 124 hrs. before installation, and was charged into the process tube without interrupting the temperature or load condition. Second stage creep had not been established at the time of charging, but enough data have been accumulated to indicate that the creep rate is decreased by irradiation.

Creep of Aluminum (PT-105-381-P)

An experiment was being performed to determine the influence of Hanford flux on the creep rate of annealed 2S aluminum. During the shutdown of March 7, one creep slug designed for water-cooling was charged into tube 1883-D. The slug stuck during charging and some rough handling was necessary to free it. A leak developed several hours after installation and no data were obtained from the test. A slug designed to measure the spring-rate of a stainless steel bellows, and calibrate the LVDT against fixed stops, was charged into tube 2680-D. Data were obtained from this slug for three days, at which time the core travel had apparently been masked by thermal expansion. The data have not been successfully interpreted.

Thermal Conductivity of U-Zr Alloys (ANLM-172 - PT-105-432-P)

It is proposed that an experimental slug be inserted in a process tube to determine the effect of irradiation on the thermal conductivity of U-Zr alloys. A dummy slug assembly was received and has been tested in the flow laboratory. There was no chattering and the assembly exhibited the proper discharge characteristics. Argonne National Laboratory has been notified that a regular slug assembly will be accepted for irradiation.

A slug assembly includes a housing for a flux meter, heater, and thermocouple; which is mechanically joined to the thermal conductivity slug.

Slug Temperature Measurements (PT-105-311-P)

Uranium slugs with internal thermocouples will be irradiated in cooled process tubes to determine the thermal effects of various types of pile operation. One slug was installed in tube 1469-F on March 7.

Elevated Temperature Irradiation (Proposed ANLM-179 and 180)

Two special requests propose irradiation of reactor construction materials at maximum neutron flux and elevated temperatures in dry process tubes.

A preliminary heat transfer study indicates that a reduction in heat generation, or the removal of heat by gas cooling, is necessary to avoid exceeding: (1) safe internal pressure in the ANL-180 autoclaves, and (2) the maximum temperature limit for pile graphite.

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METALLURGY

Uranium Billet Casting and Rod Fabrication

The March shipment of rolled rods, consisting of three car loads produced from MCW and Hanford billets, exhibits surface quality similar to those of the February shipment. Yield results on the latter shipment have indicated a yield loss of approximately two percent resulting from inferior rod quality. Most of this increase in the number of rejects was due to cracks and deep fissures in the body of the rod. The P Division has agreed to segregate such unsound slugs pending results of tests to establish quality limits and standards for machined slugs.

The depth of the surface striations on experimental swaged and drawn rods was found to vary from 0.001 in. to 0.008 in.; however, the majority of them fell in the 0.003 in. to 0.004 in. range. These defects should not materially effect the canning properties of the metal.

Nineteen rods, cold drawn to final slug size, have been received for study. An attempt will be made to cut these rods into slug lengths and can them without machining the surface. These rods will be processed on Production Test 313-115-M.

Uranium Canning

Further data substantiates previous evidence that the number of caps improperly seating in the cans, non-seats, occurring with the use of a two day old Al-Si bath is only about half those occurring with the first day's use. There is also strong evidence that the number of non-seats increases with increasing silicon concentration up to 11.5 percent silicon. A test to re-evaluate the silicon concentration limits of the canning bath is being prepared.

In a two-week trial period, a bronze bath tong guide lock-out device, designed to insure that complete transformation has been accomplished in every slug, functioned in an entirely satisfactory manner. Construction of similar equipment for all bronze baths is now in progress.

During some of the recent thermal shock tests applied to increase the severity of the autoclave operation, a number of slugs exhibited melted areas on passing through the frost test machine. These frost test rejects were examined and re-frost tested under standard operating conditions with no reappearance of the melted areas. It is believed that the original apparent defectiveness of these slugs was probably due to their having cooled insufficiently before being put in the frost test constant temperature air bath.

In another test, 36 slugs with bad welds were first autoclaved 40 hrs. then subjected to ten thermal shocks from approximately 180°C by submersion in cold water. Following this shock treatment, one slug showed a melted area on the frost test where none had appeared before.

Uranium Metallurgy

Using an experimental set up simulating conditions in the double diffraction technique proposed for radioactive samples, measurements were made of background radiation from an irradiated uranium sample. While it was found that the Bragg

angle of the single crystal was critical in that higher angles provided better shielding between the sample and the counter, it was felt that background was sufficiently low at useable angles to permit use of the double diffraction method. However, the sample had an activity of only 5R at the surface, and plans are under way to repeat the experiment at a later date on a more active sample. Work is also being initiated to check the line intensity obtainable by double diffraction.

Dilatometry

Analysis of the degree of slug transformation versus expansion data using transformation values calculated on a volume basis has been completed. The results show that on present metal the slug dilatometric test is capable of rejecting most slugs which are less than 75 percent transformed and accepting most slugs which are completely transformed. Slugs in the 75 to 99 percent transformed range would be partially accepted and partially rejected. Statistics indicate that, for an expansion limit giving virtually no rejects of completely transformed pieces, 99.9 percent of the accepted slugs would be greater than 75 percent transformed. If the expansion limit were set to reject a few transformed pieces, the lower percent transformation limit of accepted pieces would be correspondingly raised.

Work on modification of the automatic recording dilatometer and adaptation design of the 234-5 dilatometer is continuing.

Plans are being made to purchase a Metals Comparator for degree of transformation studies on bare uranium pieces. KAPL has already shown that the comparator method is feasible for alpha rolled uranium.

Radiometallurgy

Canning data observed on the slug that failed in tube 3188-DR revealed that it was a standard size rolled piece, canned on G line March 10, 1950, from truck lot 5 and had been autoclave tested. This piece has been placed in a container and stored for future examination. Contamination resulting from the separation of the cap, canned slug and process tube continues to limit experimental work in the 111-B Building. Proper facilities for air control in the effected area of the building has been approved and the work by construction forces should start soon.

The bowed slug from tube 0263-F, that had the canning data obliterated, was charged on September 30, 1948. This canning date would indicate that this piece probably was not fully transformed into the beta phase.

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Responsibility for the operation of Metallurgy's analytical lines was turned over to the Analytical Section on March 19, 1951.

As of this date two aluminum-lithium slugs have swollen and ruptured in the H Pile. A detailed report on the failure in 3177-H is now being prepared and the examination of the second failure from tube 3483-H will proceed when the activity of the aluminum has decayed. A study of the failure in tube 3177-H indicates that water gained entrance to the Al-Li alloy and the resulting solid and gaseous corrosion products caused the swelling and final rupture of the aluminum can.

Canned Li-Al slugs, which were subjected to an extended 300 Area autoclave test after first having the outer can pierced, corroded in the region of the slug-can interface. The corrosion product, a white monohydrate of aluminum, which formed at the interface, caused an outward expansion of the can similar to that observed in the Li-Al slug which failed in the pile. This test was performed at the request of the P-10 Production Group.

Considerable time has been spent in a liaison capacity between personnel of Purchasing and the P-10 Development Section of Hanford Works and of the Los Angeles vendor who is new fabricating tritium containers.

Corrosion

Samples taken from an Allegheny-Ludlum Type 347 stainless steel plate, Heat 32251, Lot 2C, which previously failed corrosion tests, were heat treated in several manners to determine whether such treatments would improve the corrosion resistance to boiling 65 percent nitric acid. Huey corrosion tests indicated a significant improvement for two heat treatments investigated.

Data obtained on other heats and/or lots exposed in the as-welded condition to process streams, RAF, RAW, RCU, and ROS, indicate that heat treatment of this material does not appear to be warranted. Corrosion rates obtained were of the order of 0.0002 in./mo. or less.

An investigation of two lots of stainless steel pipe which failed Huey corrosion tests is currently underway. This program is similar to that outlined for the stainless steel plate described above.

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Additional corrosion tests have begun on four lots of Type 347 stainless steel tubing which are to be applied to the Hot Semi-Works project. These tests will be completed next month.

Special Requests

Under the special request program, the following pieces were processed, tested, and/or inspected:

16 papoose slugs.
3 receptacle slugs bearing Special Request specimens.
39 test hole pieces.
39 process tube pieces.

Miscellaneous

The depth of voids under blisters on a number of aluminum cans were measured to determine the extent of the defects. These blisters appear when the cans are heated in the canning operation. The voids ranged in depth from 0.001 in. to slightly less than 0.006 in. Steel wool was used in an attempt to remove some of the blisters; however, reheating caused most of the blisters to reappear even though as much as a 0.002 in. layer was removed from the surface.

During the last two weeks of March, work was resumed on special canning program for the duPont Company. Principal emphasis has been placed on canning 3/4 in. x 8 in. uranium slugs. The tendency of this small diameter material to warp during heating has presented great obstacles to the completion of the program.

The surface of these three-quarter inch diameter rods, fabricated in shaped passes at Allegheny-Ludlum, had a much poorer surface than Hanford rod fabricated at Lockport. There were numerous surface wrinkles and a few fids, some of them 0.010 in. to 0.015 in. deep.

P-10 PROJECT

Extraction Operations

The glass line extraction facilities were employed during the month as follows:

Line 1 - Research and development. Operated by Extraction Group personnel. To be operated by Development Group personnel next month.

Line 2 - Reprocessing air-contaminated product.

Line 3 - Construction revision. To be operated by Extraction Group personnel next month.

Line 4 - Research and development. Operated by Extraction Group personnel.

Line 5 - Research and development. Operated by Development Group personnel. To be revised and operated by Process Development Group personnel next month.

One glass blower exceeded the working limit for internal tritium contamination but did not exceed the maximum permissible concentration.

Effective March 1, 1951, mass spectrometric analyses of product fractions were used to determine purity for accountability and record purposes.

A product shipment was made on March 30, 1951.

The scrubbing tower has been by-passed in the glass line furnace ventilation system. The ambient furnace air is now pumped directly to the stack.

Metal Line Development

Additional tests of the metal separation line and its associated equipment on non-radioactive materials were conducted during March. A five channel mercury level sensing circuit was substituted for the previous single channel, nine circuit unit. This substitution will permit more rapid and accurate evaluation of process conditions during a run. Design of the connections for the stripping line addendum was frozen to allow for necessary fabrication before the line becomes radioactive. Procurement details pertinent to the furnace pots and shipping containers have crystallized with assurance that a sufficient number of each will be available to permit limited production operation in April. Preliminary testing of mechanical appurtenances necessary to slug handling from the 105-B Building, through decanning and into a furnace pot attached to the separation system has indicated the necessity of moderate redesign to assure conveneience and normal radiation control. Consideration has been given to the possibility of on-line monitoring of the process by mass or emission spectroscopy.

The results of eight tests are indicated below:

Product Analysis	Ave. %	Max. %	Min. %
Hydrogen	99.6	100.0	98.7
Helium	0.28	0.59	0.00
Oxygen	0.02	0.12	0.00
Nitrogen	0.12	0.63	0.02
Other Components	0.05	0.11	0.03
Water	0.5	1.0	0.5

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By-Product Analysis	Ave. %	Max. %	Min. %
Hydrogen	2.07	5.74	0.16
Helium	97.6	99.6	94.2
Oxygen	0.03	0.14	0.00
Nitrogen	0.32	2.00	0.02
Other Components	0.01	0.01	0.00
Water	<0.5	0.5 to 1.0	<0.5

The average discrepancy between H_2 charged and H_2 in product is 0.130 %. The average hydrogen in the by-product by the HIPPD method is 0.14 percent.

Inspection of the maxima and minima leads to the conclusion that some values are spurious. In general, operational explanations have been found for these data. Only two discrepancies are serious enough to merit discussion. The high hydrogen analysis in the by-product is not considered to be representative but rather the result of improper mixing prior to sampling. This is borne out by (1) low values (<0.5) by the HIPPD method (2) low values (<0.5) by mass spectrometer when precaution was taken to mix the gas, and (3) high hydrogen mass balances >100 percent when the high analyses were used. The high values for oxygen and nitrogen are attributed to improper outgassing of the sample bulbs and their connecting pipe.

Project Construction Activity

Construction activities continued on projects P-10-C, P-10-D, and P-10-D, Part II.

The Scope of Project C-412, P-10-X, was presented on March 23, 1951, by memorandum; Subject: Design Criteria, F. A. Bowman and J. C. Chatten.

Development Glass Line

Metal pinch-off samples were taken of by-product gases from a high exposure slug and were turned over to the P-11 Reactor Group for He^3 cross-section testing.

A ruptured Al-Li slug from H Area, 370-39, was cut into three pieces; weighed; and the pieces extracted individually. The two Al-Li slugs adjacent to the ruptured slug were decanned, weighed, and extracted to secure yield data for comparison with that obtained from the ruptured slug. No significant difference in yield was obtained indicating that product losses were incurred only where the metal was actually consumed in the formation of corrosion products, said corrosion products being removed in pickling solutions prior to extraction.

A slug from a poison tube in D Area, 79-30, and an H-10 piece, 172-12, were cut up similarly to the ruptured slug and extracted to determine if there were any

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significant gaseous distributional effects in the slugs. The yields did show variation but these variations cannot be considered significant until confirming runs are made.

An extensive testing program of step-wise extractions is proceeding using single slugs. Of particular interest was the extraction of a canned slug in which no alloying of the 2S aluminum can was attempted. The major portion of the product was extracted without piercing the can. Surprisingly, the quantity of outgas obtained from an uncleaned, canned slug was very small. Several cubic centimeters of water was obtained in the outgas but activity indicating HTO or T_2O, was low.

Production Tests

Hydrogen Diffusion through Stainless Steel Furnace Tubes: Further tests have been made to determine hydrogen diffusion rates through stainless steel furnace tubes. A measured amount of hydrogen was added to a heated furnace tube and withdrawn into a calibrated volume after a given time interval. The hydrogen

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pressure in the tube was monitored throughout the cycle. In the tests performed the solubility effect was the same order of magnitude as the diffusion effect. The presence of Al-Li approximately doubles the over-all losses.

An attempt was made to resolve the hydrogen solubility effect by allowing hydrogen to enter a heated furnace tube where it remained in contact with the tube while the tube cooled. At the end of the cooling period, the hydrogen was pumped out and measured. Re-evolution of the dissolved hydrogen was then attempted by heating the tube to 800°C. This test was repeated with a furnace tube containing one lead slug; with a furnace tube containing one lead slug and one Al-Li slug; and with a furnace tube containing only a single Al-Li slug. The tube containing lead alone showed a very low loss and a high recovery as compared to the other three tubes. However, the losses in the tube containing lead and Al-Li were greater than those measured in the tube containing only the Al-Li slug.

Magnesium Gettering

A stainless steel furnace tube has been modified for use with magnesium in the water decomposition studies. Preliminary runs have been made using this furnace tube and a rebuilt vacuum line to determine the extent of leakage and diffusion rates, magnesium vaporization, and general operation of the system. Operation of the furnace at 500°C has shown some vaporization and subsequent condensation of magnesium vapor in the cooler regions of the furnace tube, but no dusting of the magnesium or transfer of dust to the glass vacuum system have been encountered. Unlike uranium, magnesium does not present the problem of tritium holdup on any particles transferred to the cooler portions of the system.

Miscellaneous Activities

Metal ion chambers for product analyses on the metal line have been calibrated with high purity tritium as analyzed by the buoyancy balance. By-product metal ion chambers are also being calibrated in a similar manner.

The revisions of glass line #3, the fourth line to be revised, to incorporate metal pots, bellows, by-pass checks, etc., have been completed and the line is undergoing final acceptance tests.

The calibration of a Kanne chamber is now underway after expenditure of considerable effort to assure a gas-tight system, a necessity in this instance as the Kanne chamber and associated pumps are not located within a hood.

Production assistance type of work is underway in regard to the metal line. At the present time this includes extended data analyses, shipping container outgassing, provisions for on-line sampling, and furnace charging and discharging.

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

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course of their work during the period covered by this report, except as listed below. Such persons further advise that, for the period therein covered by this report, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Inventor	Title
J. V. McMaster H. A. Johnson	Roller-Crimping Aluminum Containers
W. A. Clark	Mercury - Contact Storage Element
	Six Binary - Digit Storage Register

Signed G. E. McCullough
G. E. McCullough
Division Head

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April 10, 1951

SEPARATIONS TECHNOLOGY DIVISION
MONTHLY REPORT
MARCH, 1951

VISITORS AND BUSINESS TRIPS

H. Crandall, of the California Research & Development Company, visited Hanford on March 9 for consultations regarding separations process design and operation.

G. W. Watt, Consultant from the University of Texas, visited this site from March 12-17 for research and development consultations.

B. V. Coplan and R. C. Feber of KAPL visited here for discussions of separations process improvements, Coplan from March 26 through 29 and Feber from March 26 through 28.

C. Groot and B. Weidenbaum visited the Los Alamos Scientific Laboratory for 234-5 consultations, Groot on March 5 and 6 and Weidenbaum from March 5 through7.

R. B. Richards and F. W. Woodfield attended the A.I.Ch.E. Meeting at White Sulpher Springs, W.Va., from March 12 through 14.

ORGANIZATION AND PERSONNEL

Personnel totals are as follows:

	February	March
Administration	2	2
Special Assignment	2	2
Research Section	36	34
Development Section	73	75
Process Section	31	31
	144	144

Research Section: One Chemist was granted a leave of absence and one Tech. Grad. was transferred to the "S" Division.

Development Section: One Chemical Engineer and one Expeditor were terminated. One Steno-Typist B returned from a leave of absence, one Steno-Typist C was transferred from the Stores Division, and one Steno-Typist B and a Draftsman II were added as new hires.

Process Section: One Metallurgical Engineer was terminated and one was transferred to the Pile Technology Division. One Tech. Grad. was transferred from the Technical Services Division and a Technologist C was added as a new hire.

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200 AREAS PLANT ASSISTANCE

Canyon Buildings

The starting solution and accumulated total waste analyses, as determined by radioassays, are now being corrected for the alpha counts of americium and curium beginning with the first run of March, 1951. This correction will lower reported waste losses by 1.5 to 2% at the 420 MWD/ton level, while production capacity and reported yield will be increased by a similar amount. The use of a radioassay of the final Isolation Building solution, AT, for plant material balance purposes was initiated with the same run. It is expected that this will result in more nearly correct material balances, since there have been indications that the factors for converting radio analyses to product weight are in error. It is anticipated that new plutonium isotope correction factors will be available for use on the first run started in April. The use of these revised isotope correction factors should increase production capacity by approximately 2 to 3%.

Runs processed under Production Test 221-B-10 at B Plant have shown no significant change in waste losses or decontamination with process volumes reduced by 30%. The frequency of incompletely dissolved first cycle product solutions was greatly increased, however. Test runs are being made with first cycle volumes reduced by 30% but with sufficient acid used for the first cycle product solution to result in 20% reduction of process volumes through the second cycle and the Concentration Building.

One additional test of air sparging during metal dissolution to remove iodine from metal solution was made at B Plant under Production Test 221-B-9. An iodine removal efficiency of 90% was indicated. An earlier test, under good control, resulted in an efficiency of 40%. Additional tests are planned.

Concentration Buildings

Product solutions containing phosphoric acid were returned to process after use by the P-11 Project. Recovery was accomplished without incident by re-processing the material starting with the lanthanum fluoride by-product precipitation.

Recycling of the metathesis wash effluent following centrifugation appears to have lowered the product hold-up in the metathesis cell at B Plant. Further testing is in progress at both B and T Plants.

Isolation Building

Product returned from the P-11 Project containing bismuth, was processed without incident.

Leaches of the filters used to filter the solutions received from the Concentration Buildings indicated abnormally large accumulations of product; approximately 150%, 80%, and 115% of a standard run were recovered from Cells 2, 3, and 4, respectively. Leaches made approximately two weeks later in Cells 2 and 3 and one week later in Cell 4 recovered 70%, 50%, and 30%, respectively. The nature and cause of the product hold-up have not been determined. Frequent leaches are being made on a routine basis until the situation has been corrected.

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Approximately 24 milligrams of americium were recovered in the supernatant solutions from special americium recovery runs carried out by third-cycle peroxide precipitations of aged product in three sample cans. No difficulties were encountered.

The use of 50% hydrogen peroxide was initiated for a test period of approximately two months.

Purification and Fabrication Building

Production Test 234-1 (Removal of Iodides and Oxalates from Oxalate Supernates) has been discontinued temporarily. A maximum of four supernatant batches can be concentrated in one operation. This maximum is established by the volume of caustic which can be handled in the scrubber system. A separate report is being prepared on this test.

An Aloxite filter which was designed and tested by the Plant Assistance Group was installed in Hood 5 (Purification) during the month. Supernatant solutions were drawn directly from the reactor to the filter to the supernatant hold tank in Hood 5. Product losses in the supernates averages 0.0346 grams per kilogram in supernates which were filtered, compared to 0.060 gram per kilogram for supernates filtered through the filter paper assemblies.

Conversions in Dry Chemistry during the month of March averaged 96.4%.

Production Test 234-4 (Direct Fluorination of Oxalate Precipitates) was completed, data accumulated, and the report started during the month of March. The results of the test have been discussed with the members of the "S" Division with recommendations that the process be adopted as a standard operating procedure for one month, at which time a discussion will be held concerning its continuance.

Hood 10 (Reduction) reductions for the month of March averaged 98.4%. The addition of Chemical 70-58 at the Reduction step was discontinued during March. The lanthanum content of buttons increased when the 70-58 was first added in the Reduction step. This increase was within tolerance but the continued recycling of turnings to the operation augmented this increase in lanthanum content of buttons and, consequently, castings to the point where some castings in March contained as high as 10,000 ppm. lanthanum. The lanthanum content in several buttons made without 70-58 addition in Reduction near the end of March was from 20 to 40 ppm. which is comparable to the button purity experienced prior to the above-mentioned process change.

The average c/q summation for castings produced during the month of February was 0.52.

New dies which have been used during the month of March have produced pieces of the desired dimensions. Some units were made during the month of March on which no hand-cleaning was carried out, and the pieces matched satisfactorily. Most pieces, however, required slight hand-work to remove the ridge produced by the knock-out punch. It is believed that this ridge can be controlled to a depth of a few ten-thousands of an inch, so that hand-cleaning would not be necessary on the plutonium units and that the ridge can then be removed from the coated units. Past experience indicates that any imperfection such as a ridge on the base metal is reproduced quite accurately on the coated surface.

Separations Technology Division [redacted]

REDOX AND METAL WASTE RECOVERY DEVELOPMENT

Technical Manuals

The writing of the Redox Technical Manual was continued. On March 25, the preparation of this manual was about 69% complete. The following five additional chapters were completed during the month, bringing the total number of chapters completed to date (except for reproduction) to fifteen:

XII. Engineering Flow Diagrams

XIV. Solvent-Extraction Columns

XVII. Pumps and Jets

XXII. Shielding

XXIII. Decontamination of Surfaces

Reproduction of some of the completed chapters was initiated. A small amount of effort was expended on the preparation of the Uranium Recovery Technical Manual. On March 25, the preparation of this manual was about 16% complete.

Redox Solvent Extraction Studies

The studies in the Demonstration Unit were devoted exclusively to Redox training of "S" Division personnel during the past month and no new solvent extraction data were obtained. Plans are underway to resume study of the MnO_2 feed scavenging step under improved conditions of centrifugation.

TBP Solvent Extraction Studies

During the report period, 54 Purex IA, IB, and IC pulse column runs were carried out in the 5-in. and 8-in. diameter pulse columns.

The 5-in. diameter IA extraction section (12 ft. "packed" height) operated satisfactorily over a range of 500 to 2400 gal./(hr.)(sq.ft.) with waste losses in all cases below 0.1% and optimum H.T.U. values of approximately 1 ft.

The same 5-in. column operated as a simple IB scrub section at volume velocities of 500 to 2100 gal./(hr.)(sq.ft.) resulted in a minimum waste loss at optimum conditions (1440 gal./(hr.)(sq.ft.)) of 0.007% of IAF feed uranium and a 1.2 ft. H.T.U. This corresponds to an uranium content of the plutonium of about 16%.

Initial poor performance of the 8.5-ft. high, 8-in. IC Column (3 to 10% waste losses, H.T.U.'s 1.6 to 3.0 ft.) has been markedly improved to average losses of 1% or less by Dri-filming the pierced plate cartridge and operating by dispersing the aqueous rather than the organic phase. The Dri-filmed "standard cartridge" (0.125-in. holes, 2-in. plate spacing, 23% open area) was operated over a range from 340 to 740 gal./(hr.)(sq.ft.) with minimum waste losses of less than 0.5% and optimum H.T.U. values of less than 1.1 ft. obtained in the range of 350 to 450 gal./(hr.)(sq.ft.). Since the capacity of this cartridge is limited at 800 gal./(hr.)(sq.ft.), further studies were made using Dri-filmed pierced

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plates with 3/16-in. diameter holes, 23% free area, and a 4-in. plate spacing. This cartridge was operated over a range from 450 to 1500 gal./(hr.)(sq.ft.) with a minimum waste loss of 1.3% at 1200 volume velocity, and an optimum H.T.U. of 1.4 ft.

321 Building Construction and Maintenance

Revisions to the B-2 Centrifuge feed system were completed during the month. These revisions consisted of installation of a self-priming centrifugal pump to replace the former jet and installation of a constant-level head tank and recording rotameter control system to permit accurate metering at low flow rates.

The 8-in. IC pulse column was revised to permit operation with interface at the bottom of the column by relocating the interface dip tubes at the bottom of the column and installing a gauge glass for visual location of the interface at the bottom. The column was coated with Dri-film to prevent the aqueous phase from wetting the column, plates, and spacers.

321 Building Operations

The Demonstration Unit operated uneventfully throughout the month on Redox training runs. No major maintenance was required and operation on the Redox flowsheet was in all respects satisfactory. No attempt was made to simulate MnO_2 scavenging, pending revisions to the B-2 Centrifuge feed system.

The Scale-Up unit operated on a wide variety of runs designed to permit study of the Purex flowsheet in conjunction with TBP training. The columns were operated both singly and in cascade. Most runs were made on the IA-IC cascade although several IB-IC cascade runs and single-column runs were also made.

The first contingent of "S" Division trainees (20 Supervisors, 28 Operators) completed its six-weeks training assignment on March 31. All trainees had rotated twice through each job on both Redox and TBP columns, and, during the last two weeks of the month, operation of the Demonstration Unit on Redox operation was turned over to the trainees almost entirely. Throughout this period, considerable time was devoted to shutting down and starting up the columns to give the trainees experience in this phase of the operation.

Equipment Development

Submerged Pump No. 2 completed 14 days of steady and uneventful operation at 3450 rev./min., circulating simulated Redox dissolver solution containing 7 g./l. of MnO_2 at a discharge rate of 2.0 gal./min. against a 20 lb./sq.in.ga. pressure. The program was designed to test flooded operation (no pressure ports or bearing grooves) of a Stellite No. 6 journal and boron carbide bushing for application to a Hot Semiworks pump.

Peerless 4"-LA, a four-stage deepwell turbine pump with Graphitar No. 2 bushings, completed 73 days of uneventful operation at 1750 rev./min., circulating neutralized and concentrated RAW solution at 82 ± 2° C. at a discharge rate of 45 gal./min. against a 15 ft. head.

At the conclusion of this period, the clearance between the shaft and the bearing increased from 4 mils to about 8 mils for each of the six shaft bearings.

This wear will be studied further in Johnston Pump Co. production units.

Tygon Liner Material, for $Al(NO_3)_3$ solution bulk storage tanks, was tested by immersion in 72% $Al(NO_3)_3 \cdot 9H_2O$ containing 0.3% HNO_3 at 105°F. for 34 days. The physical appearance was satisfactory and the sample showed a weight gain of 0.43%.

Process Chemistry

A study of the properties of neutralized and concentrated RAW, extending the scope of information previously reported in Document HW-18404 for the purpose of correlating pH, boiling point, and freezing point to the degree of concentration, has been partially completed. It has been demonstrated that the pH of the concentrate and the distillate will be within the range 11.5 to 13 after concentration to 40, 50, or 60 per cent of the original neutralized waste volume per flowsheet TBP-HW No. 4.

The assembly of the "Mini" counter-current mixer settler has been delayed due to the unavailability of necessary parts. The design of the batch counter-current extractor has been completed. Shop drawings are being prepared. Fabrication of the other items of special equipment for the 222-S Building is continuing in the 101 Shops.

Hot Semiworks

Excavation for the Hot Process Building, 201 C, was started on March 15 and is approximately 60 per cent complete. Preliminary schedules indicate that the first concrete pour will be made on April 23. This will be the base pad. The Hot Semiworks operating manual is approximately 48% complete.

SEPARATIONS PROCESS RESEARCH

Decontamination of Aged First Cycle Supernatants

A brief survey of the removal of radioactivities from aged first cycle supernatants by a number of scavenging agents has been made. General conclusions which may be drawn from these experiments are as follows:

1. Calcium oxalate is a very efficient agent for the removal of plutonium and cerium and moderately good for the other rare earths and strontium. Heating the solution as well as increasing the pH appears to improve the strontium carrying.

2. Fuller's earth and Attaclay are very efficient carriers for plutonium, strontium and rare earths and fair for cesium, provided the slurry is heated during stirring.

3. Potassium alum is a very efficient scavenging agent for cesium but would be expensive due to its relatively high solubility.

4. Ferric hydroxide shows moderate carrying efficiency for plutonium and cerium but poor for strontium and cesium. Tannic acid is somewhat better than

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iron for plutonium, strontium and cerium but equally poor for cesium.

5. Calcium phosphate is very efficient as a plutonium and cerium carrier, moderate for strontium and poor for cesium, provided the calcium is added at low pH (ca. 0) with subsequent increase in pH to about 12.

6. Ferrous and ferric ferrocyanide, particularly the former, show considerable promise for carrying most of the critical activities present in first cycle supernatants. When the precipitation is carried out at a pH of 6, carrying of plutonium, cerium and cesium is very good and strontium moderate.

In the above statements, very, moderate, fair and poor refer to D.F. values of greater than 100, 10-100, 2-10 and less than two, respectively.

Centrifugation Characteristics of MnO_2

Experiments to determine the centrifugation characteristics of MnO_2 have been Performed in a 5-in. solid bowl centrifuge (no baffle plates) operating at 1730XG. In this apparatus (using gravity feed control) a centrifuge hold-up time of 20 minutes did not produce clear effluent streams; however, effluent streams obtained using a hold-up time of ca. one hour were quite satisfactory. Some difficulty was encountered in control of the low feed rate.

A series of scouting runs has been made in a clinical centrifuge using MnO_2-Filtrol and MnO_2-alumina mixtures to determine the feasibility of improving the settling characteristics of MnO_2. Of the two mixtures, the MnO_2-alumina combination produced the better solution clarities and a substantial improvement over that produced by MnO_2 alone. Settling characteristics (under one G) of MnO_2 in the presence of zirconium phosphate gave good supernatant clarities and an appreciable reduction in the MnO_2 cake volume. The presence of alumina or similar compounds may allow rapid contrifugation of the MnO_2 produced in head-end operations.

Effect of Sulfate on Redox IIA Column Operation

Previous results of experiments performed to study the replacement of ferrous sulfamate in the IBX stream by ferrous ammonium sulfate and sulfamic acid seemed to be erratic and, therefore, obscured final interpretation of the data. In an effort to determine the cause of the erratic data, plutonium distribution coefficients were measured as a function of time. These experiments showed that a very rapid increase in extraction coefficient occurs during the first thirty minutes of contacting. At the end of one hour it appeared as though equilibrium was nearly maintained. Two experiments, one in the presence of ferrous sulfamate and the other in the presence of ferrous ammonium sulfate and sulfamic acid, performed as a function of time, showed no sulfate effect as the data from both experiments were virtually the same. The rapid increase in the value of the extraction coefficients must be due to the oxidation of Pu(IV) to Pu(VI). This conclusion is in disagreement with data obtained in the past by other workers, and further studies, therefore, are being made to establish the reason(s) for this conflict.

Concentration of Redox IIBP Solutions

Current laboratory results on the evaporation of an ANL-IIBP solution (1.14 g Pu/l) spiked with 0.002 M $Al(NO_3)_3$ show that this material can be evaporated by a factor of ca. 300-fold (to ca. 300 g Pu/l). The concentrate must be diluted with water or dilute nitric acid before cooling since solidification takes place upon cooling to room temperature. Experiments are currently being performed to establish a relationship between the plutonium, aluminum and nitric acid concentrations during the evaporation procedure.

Recycle of Plutonium Peroxide Supernatants Solutions to Redox

Tentatively, laboratory experiments show that it is chemically feasible to recycle plutonium peroxide supernatant solutions from the 231 Building to the Redox plant (IIA Column). Synthetic peroxide supernatants, after being subjected to peroxide kill-off with heat, and then diluted 1:10 with IIAFS solution, were contacted with hexone (0.5 M HNO_3). Plutonium distribution coefficients were found to have a value of about 7 to 8. Although plutonium distribution coefficients in the absence of recycle material were somewhat higher (ca. 10), these data would indicate that the heat-killed peroxide supernatants might be returned to Redox for recycle, other considerations permitting.

Redox Coupling Studies - Plutonium Trifluoride

Precipitations of PuF_3 from simulated Redox IIBP solution, carried out with AT material diluted to 40 g Pu/l, 1.25 M HNO_3, ca. 0.002 M Fe^{+++}, and containing 0.08 M Al^{+3}, have yielded the following additional information:

1. Precipitates formed in the presence of aluminum at room temperature with 2 M HF settle slowly and have a relatively low bulk density. This is presumably caused by the presence of the aluminum, since precipitates of LaF_3 formed in the presence of aluminum have shown the same effect; i.e., settle very slowly and have a bulk density two to three times as great as lanthanum fluoride precipitates prepared in the absence of aluminum.

2. A spectrochemical analysis of PuF_3 precipitated at 70°C., washed, and filtered in a sintered glass funnel showed that the aluminum separation was poor (2000 ppm). Whether this quantity of aluminum would be found in plutonium metal produced with aluminum contaminated PuF_3 remains to be investigated.

3. Plutonium (III) fluoride peptizes severly upon washing two or three times with distilled water. Use of a 2 M HF-1 M HNO_3 wash solution minimizes the peptization.

4. Plutonium(III) fluorides washed with 2 M HF-1 M HNO_3 to remove the excess reducing agent (NH_3OH^+) appear to be oxidized to PuF_4 upon heating. The PuF_4 thus formed had a remarkably high bulk density (ca. 1 g/cc) and moderately low solubility (0.5 to 0.7 g Pu/l). Furthermore, the conversion of PuF_3 to PuF_4 by this procedure is accompanied by a decrease in the aluminum contamination (2000 ppm in PuF_3 to 200 ppm in PuF_4). This PuF_4 was dried to essentially constant weight at 125° to 220°C. and subsequent conversion

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at elevated temperatures to the dioxide gave a weight change which suggested that the dried PuF_4 precipitate contained ca. 20% $PuOF_2$.

Redox Coupling Studies - Plutonium(III) Sulfate

Plutonium(III) sulfate may be precipitated by the addition of excess sulfate to a plutonium(III) solution. The solid formed is very crystalline and settles quite rapidly. A few laboratory experiments are being undertaken to investigate the feasibility of using this precipitate for Redox 234-5 coupling purposes. Mode of precipitation, solid purity and hydrofluorination experiments will be studied.

Recovery of Plutonium From 234-5 Slag and Crucible Wastes

A second crucible and slag has been leached with HNO_3 to recover plutonium. Leaching failed again, due to plutonium retention in the solids and filtration difficulties. The material was leached in six fractions resulting in dissolution of all soluble material and each fraction contained sizable quantities of the plutonium.

Solvent extraction of part of the leachings was effected from a solution containing 2.7 M $Ca(NO_3)_2$ and 0.6 M HNO_3 into 30% TBP-AMSCO. Three successive contactings with 1/10 volumes (organic to aqueous) were employed. Extraction coefficients of 37, 33 and 12 were obtained, leaving about 3% of the plutonium unextracted. These figures are poorer than those obtained from 2.7 M $Ca(NO_3)_2$, 1.2 M HNO_3, suggesting that there is a strong HNO_3 dependence.

Conversion of silica in leaching solution to a filterable form by heating in the presence of 5 M HNO_3 and 0.35 M $Al(NO_3)_3$ at 90°C. was demonstrated. After filtering at 80°C. and cooling, these solutions can be extracted with 30% TBP-AMSCO without giving emulsions. Four successive 1/10 volume (organic to aqueous) extractions were performed and coefficients of 36, 35, 27 and 39 were obtained leaving about 1% of the plutonium unextracted.

Stripping of plutonium from the organic TBP solution can be done with hydroxylamine sulfate solution; three successive 1/10 volume contactings (aqueous to organic) removed 99.8% of the activity. This result is considerably better than any attained with hydroxylamine hydrochloride. The distribution coefficients were 0.023, 0.0080 and 0.0054.

P-11 Assistance Work

The feasibility of returning lithium-poisoned plutonium solutions (used in critical mass studies) to the 231 Building for product isolation and purification has been investigated. Using simulated 231 operations, lithium is separated quantitatively from plutonium. The lithium content of the final dissolved plutonium peroxide cake contained only 0.5 parts per million of plutonium metal, whereas the maximum lithium content that could be tolerated in metallic plutonium is of the order of 100 parts per million. The product losses during the simulated 231 operations were all normal.

Extraction By Mixed Alkyl Phosphate Esters

The uranium extraction behavior of diethylisobutyl phosphate (DEBP) and di-n-butylethyl phosphate (DBEP) was compared to that for TBP, because of more

favorable physical properties such as lower viscosity and lower molecular weight found in the mixed esters.

DBEP was synthesized by reacting dibutylchloro phosphate with an excess of anhydrous ethyl alcohol in the presence of pyridine at 15°C. DEBP was prepared similarly from diethylchloro phosphate.

Physical properties of DEBP and DBEP compared with TBP give a d 25/4 of 1.0209, 0.9984 and 0.9730 respectively; a viscosity at 25°C. of 18.9, 25.5 and 33.2 millipoises, respectively; a B.P. at 2-4 mm Hg of 82-87, 95-101 and 127°C., respectively; and a solubility in water at 24°C. of 14, 3.4 and 0.4 g/l, respectively.

The extraction behavior of uranyl nitrate was measured in a 0.5 M solution of these phosphates in carbon tetrachloride. A reasonably constant complexing constant, K, was observed by assuming the same extraction mechanism as found for TBP, where the transferring species is $UO_2(NO_3)_2 \cdot 2$ TBP. In fact the K values for DBEP and DEBP were nearly the same as observed for TBP in carbon tetrachloride. Thus, the uranium capacity of any of those solvents is primarily dependent on their molecular weight since their densities are practically the same. The relative uranium concentration for the same per cent saturation of TBP, DBEP and DEBP becomes 1.8, 2.1 and 2.6, respectively, showing a decidedly increasing volumetric efficiency with a decrease in molecular weight.

Further criteria for a good solvent with respect to column behavior are a low viscosity and a low coefficient of viscosity with increasing uranium concentration. Both of the new solvents have an appreciably lower viscosity than TBP; the increase in viscosity with uranium concentration is nearly the same as for the TBP system.

Stability of TBP at 105°C.

The heterogeneous hydrolysis of TBP to $PO_4^{\equiv}$ in the presence of three and six molar nitric acid was measured at 105°C. (B.P.) at two phase ratios of aqueous to organic. The reaction rate constant in the aqueous phase is 600 times that in the organic phase. However, the solubility of TBP in 3 M HNO_3 at 105°C. is only 0.4 g/l and nitric acid distributes slightly in favor of the organic phase. Both of these properties are such that in an equal volume mixture of aqueous and organic the decomposition of TBP proceeds largely in the organic phase.

The temperature coefficient was calculated from the previously reported rate at 76°C. and the new 105°C. rate and found to be 1.77/10°C. rise in temperature. The calculated ΔE of reaction is 15,500 cal/mole TBP, compared to 11,000 for the more readily hydrolyzed monobutyl phosphoric acid. By extrapolating the rate data to 25°C. the half life of the first order reaction is 180 and 0.3 years for organic and aqueous reactions, respectively. Since the organic phase reaction is of primary importance in the storage of extractant, its stability is very satisfactory.

The rate of decomposition of TBP was found to increase directly with increasing nitric acid concentration.

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An attempt was made to follow the rate of hydrolysis of TBP from a 15 volume per cent TBP in AMSCO 125-90W in contact with boiling 3 M nitric acid. In spite of the low aromatic and olefin content of this diluent, nitration was readily apparent and the nitric acid consumed. After six days the organic phase was 0.9 grams-atoms/liter in bound nitrogen and nearly free of HNO_3. About one-half of the initial nitric acid had disappeared out of the reflux condenser as oxides of nitrogen.

Purex Stripping in the Pulse Column

The behavior of the Purex IC Column was followed in the 1-in. x 65-in. pulse column under various types of perforated plate construction. H.T.U. and flooding velocity were determined in compound plates, simple stainless steel plates, dri-filmed stainless steel plates and all plastic fluorothene plates. Studies were largely with plates of 0.077" diameter holes, 10% open area and spaced one inch, but runs were also made with plates of 0.050 inch holes, 23% open area, spaced one inch and plates with 0.125 inch holes, 23% open area and spaced two inches apart. The feed was 195 g/l UNH and 6.5 g/l HNO_3 dissolved in 30 volume per cent TBP in Shell Spray Base. The feed to tap water extractant ratio was 1 to 1.5.

Phase dispersion and uranium extraction was definitely connected with the wettability of the plates and the choice of continuous phase, as well as pulse frequency and amplitude. The 0.077" diameter hole compound plates gave the best trouble-free operation as well as high flooding velocities, i.e.,1250 gal/sq.ft./hr, both phases. Flooding velocities were nearly halved by the use of simple plates, but the H.T.U. was also nearly halved near the flooding point when the simple plates were wet by the continuous phase.

If the simple plates are wet by the dispersed phase, serious channeling and high H.T.U. values were observed at moderate pumping rates, but as the frequency and/or amplitude are increased, or the flow approaches flooding, the H.T.U. drops markedly apparently due to "Elgin" type dispersion.

The 0.125" holes at 85 cycles and one-half displacement, dri-filmed and with organic continuous gave an H.T.U. of two feed at 500 gal/sq.ft./hr throughput compared to an H.T.U. of 1.1 feet for the identical plate design in an eight inch diameter column operated by the Chemical Development Section. This comparison of the one inch column with the eight inch is probably questionable since the radius ratio of 0.125 inch holes in a one inch column is high and wall effects appear to be serious.

Compound plates of 0.050 and 0.077 inch diameter holes were compared and the flooding velocity found to be 1000 and 1250 gal/sq.ft./hr, respectively, while H.T.U. values at 500 gal/sq.ft./hr were 0.6 and 1.2 feet, respectively.

The results in general point to the great flexibility of the pulse column. For any given height and diameter a great variety of combination of hole size, plate composition, frequency and pulse amplitude and interface location can be obtained which can readily be adjusted to give the desired column capacity. Variations in the physical properties of the system can also be compensated for in a like manner.

Valve-Actuated Pulse Column

The synchronized valve-actuated pulse column has been applied to the stripping of uranyl nitrate from 12 1/2% TBP in AMSCO 125-90W. Column operability and extraction behavior was first run at room temperature, followed by runs at 40 and 60°C.

These experiments were not sufficient in scope to evaluate flooding velocity or H.E.T.S. as a function of plate design or valve timing, but do show the effect of increased temperature on H.E.T.S. at throughputs of 500-700 gal/sq.ft./hr. An average H.E.T.S. of 32 inches at room temperature was reduced to about 22 inches at 40°C. under similar operating conditions. Since a fewer number of stages are needed at the higher temperature for a given waste loss (i.e., lower E_a^o values), the column height needed at 25° is twice that for operation at 40°C.

Preliminary data at 60°C. indicate that the H.E.T.S. is further reduced proportionally and column operability is equally as good.

Purex Decontamination Studies

Studies to determine the effect of Hanford head-end treatment on subsequent decontamination in the Purex Process were continued. Decontamination of treated and untreated feeds through one extraction with 30 volume per cent TBP-AMSCO 125 and three scrubs with 3.0 M HNO_3 was determined. As previously reported, small scale experiments gave over-all beta and gamma decontamination factors of 1.1×10^5 and 1.4×10^4, respectively, for untreated feed as compared to 9×10^5 and 1.3×10^6, respectively, for a feed from which 97 per cent or more of the ruthenium, niobium and zirconium had been removed by head-end treatment. Most of the activity extracted from the treated feed was cerium. Ozonolysis did not affect the E_a^o for ruthenium. In an effort to obtain meaningful results for the behavior of zirconium in these studies, several runs have been made on a somewhat larger scale. Although specific fission product analyses are not yet available for these runs, the following general conclusions may be drawn from the over-all beta and gamma decontamination factors:

1. Over-all beta and gamma decontamination factors were the same whether phase separation was by centrifugation or gravity.

2. The aging of non-treated feeds seems to render some of the activities present more easily scrubbed from the organic, resulting in higher over-all beta and gamma decontamination factors. Whether the feed was stored in glass or stainless steel appears to have little effect on this change in extraction and scrub behavior.

3. Pretreatment of scavenged feed by flow sheet procedures to assure that plutonium is in the (IV) oxidation state has no detrimental effect on over-all beta and gamma decontamination.

Dibutyl phosphate (0.05%) in the extractant had a detrimental effect on decontamination whether or not the feed had been subjected to head-end treatment due to the irreversible extraction of zirconium. Head-end treatment improved the

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over-all gamma decontamination by a factor equal to the zirconium decontamination factor obtained in the treatment.

234-5 PROCESS DEVELOPMENT

Dilute nitric acid, from 0.1 M to 4.0 M, has been tested as a means of dissolving skull material. The green oxide of plutonium was obtained when skulls were treated with boiling dilute nitric acid; the reaction was fastest when the concentration of the acid was 0.5 M. At this concentration, approximately 30% of the plutonium was found to be in solution during the period the skull had been converted completely to oxide. In all cases the green oxides obtained were dissolved within ten minutes in a boiling 8 M HNO_3-0.04 M HF mixture. The oxidation of buttons by the boiling, dilute nitric acid was much slower than the skulls because the buttons do not have the large surface area offered by the skulls.

A program of sampling a series of ten plant runs after second cycle peroxide cake dissolution was carried out to provide a basis of evaluating laboratory scale work on the number of peroxide cycles required to obtain buttons of the required purity. The analytical data indicate that nine elements -- Bi, Ca, Cr, Fe, K, La, Na, P, and Pb -- are present in P-2 cake in amounts significantly higher than in the buttons produced in the plant. From the data available for 234 Building processing through the oxalate precipitation step, it is probable that Bi, La, Ca, and Pb are carried with the oxalate precipitate and are removed in the Reduction step, while Fe, Cr, K, and Na are removed during the oxalate precipitation by staying in the supernatant and wash solutions. The removal of P is believed to occur during hydrofluorination. It would, therefore, appear necessary to determine whether Fe, Cr, K, and Na, present to the extent that they are found in P-2 cake in the Isolation Building, can be adequately removed during the Reduction step. Previous work to evaluate this point was inconclusive so additional work will be done as soon as possible.

A single peroxide cycle on a five-gram scale in the laboratory reduced the La content from 5000 ppm in the starting solution to 20 ppm in the cake, and to 40 ppm when the starting solution was spiked to 0.4 gm/l of iron. If the starting solution is spiked with La to give a concentration of 30 gm/l (3×10^6 ppm based on plutonium), a single peroxide precipitation reduced the La content to 20,000 ppm in the precipitate.

Assistance was given the P-11 Project in the preparation of a plutonium solution containing phosphate. A filter was constructed to remove the MnO_2 formed when potassium permanganate was added to the plutonium solution to oxidize the plutonium to Pu(VI). The solution was filtered for the P-11 Project.

One Reduction on a one-pound basis with uranium tetrafluoride as a stand-in was made in which sulphur was used instead of iodine as the booster. Sufficient sulphur was added to give the same amount of heat evolved as would be obtained if iodine were used. A normal appearing button was obtained with a yield of 98.9%. This compares with yields from 99.1-99.3%, which are usually obtained when iodine is used. The Reduction bomb would probably not require pickling if sulphur were used instead of iodine. It is also likely that the Reduction hood could be maintained much cleaner if a substitute for iodine could be found.

Because of the operating difficulties that have been encountered during the production test for the recycling of the supernatant solution and washes from the oxalate precipitation in the 234 Building, the destruction of the oxalic acid by oxidizing agents other than nitric acid has been considered. The "S" Division prefers not to use permanganate in the glass-lined equipment used to boil down the supernatant solutions. Runs in which hydrogen peroxide was used as the oxidizing agent were made with a synthetic concentrated supernatant solution. After refluxing for one and a half hours, over 96% of the oxalic acid was destroyed when two moles of hydrogen peroxide were added for every mole of oxalic present at the start. The synthetic supernatant solution did not contain any iron, so additional runs will be made in the presence of iron at concentrations usually found in supernatant solutions boiled down to varying degrees.

Three finished core pieces were returned to the production line by the Inspection Group during the month for failure to meet the coating specification. It was necessary to return one assembly to the matching station because of failure to meet dimensional specifications.

Assistance was given in evaluating a new set of Pressing die punches. A Model 111 piece and a 112 piece were coated with a minimum of hand cleaning. The coated pieces were inspected after only a rough polish had been given to them. The gaps between the various matching surfaces were found to be improved over those obtained with previous punches.

Although the integrated alpha count at Hanford on the finished pieces has been consistently very low (actually the majority show less than 100 c/m), the counts on these same pieces at Los Alamos have been consistently higher than at Hanford. Although the situation does not appear to be bothersome at the moment, since the counts at both sites are well within the limit specified, the alpha chamber has been tested rigorously with calibrated alpha sources. It is therefore believed that the Hanford values are reliable within the limits of the counting device.

Autoradiographs were made of approximately half the pieces produced during this interval. The results of these examinations indicated that the coatings were of very good quality. Tripod points were discernible on only one piece. Very small spots where the coating was slightly thin were found on four pieces. Other variation in the coating thickness which was observed was probably caused by work done to match the pieces or to bring the coating thickness to the specified range.

STACK GAS DISPOSAL

A test filter containing a one-half-inch depth of "AA" Fiberglas at a density of 1.2 lbs./cu.ft. was placed in the monitoring equipment located in the 221-B pipe gallery. An aliquot of the Dissolver off-gas stream was drawn through the apparatus during a metal dissolution, charging, and a coating removal. To represent more closely the actual Dissolver cell conditions, provisions were made for heating the gas stream during its passage through the pipe gallery sampling system. A flow of 1 scfm.(50 ft/min) was maintained through the experimental unit throughout the test period. The pressure drop across the

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"AA" Fiberglas at the start of the test was 4.0 inches of water. At the conclusion of the run, the recorded pressure drop was 4.1 inches of water. These values reveal that there was no appreciable deposition of solids. Following the completion of the run, the unit was disassembled and the Fiberglas packing was tested with Nessler's reagent for the presence of ammonium ion. The test was negative.

During the charging operation "grab samples" were taken of the off-gas stream to determine the concentration of oxides of nitrogen. The results have shown that the flushing action of the heated air stream reduces the NO_2 concentration from values as high as 2260 ppm at the beginning of a charging operation to a range of 7 to 30 ppm at the time of caustic addition.

Both phases of the investigation have indicated that the elevated temperature of the Dissolver cell equipment prevents the formation of large quantities of acid condensate and subsequent ammonium nitrate formation. A better degree of waste gas decontamination and an appreciable savings in the fabrication costs of future filters can be achieved by the elimination of the by-pass valves. Consequently, it has been recommended that the by-pass valve on the Fiberglas filter in the 3-5R Cell at B Plant be locked out and the off-gases be directed through the filter during all operations. If there has been no unusual increase in resistance across the filter after three months of operation in this manner, it has been further recommended that the by-pass valves on the three remaining units also be locked out of operation.

A spot check of the I^{131} removal efficiency of the 4-5L Silver Reactor at B Plant was made on March 8. The efficiency of the unit was 99.9%.

INVENTIONS

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

Inventor	
C. G. McCormack and O. F. Hill	The Use of "Coagulants" to Improve the Settling Characteristics and Centrifugability of MnO_2.
P. M. Brown and W. H. Reas	The Use of Plutonium(III) Sulfate as an Isolation Precipitate for Coupling Solvent Extraction Separations to Metal Production.

Separations Technology Division

Inventions

Inventor	
K. M. Harmon	The Preparation of PuF_4 for Metal Reduction by the Oxidation of PuF_3 in Nitric Acid-Hydrofluoric Acid Solutions.
J. F. Facer, W. L. Lyon	The Preparation of a Readily Soluble Powder from Massive Plutonium (HW-20621)
J. F. Facer, W.L. Lyon	The Dissolution of Plutonium from Metal Processing Wastes (HW-20622)

R H Beaton

R. H. Beaton
Separations Technology Division

Date: 4-1-51

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TECHNICAL SERVICES DIVISION

MARCH 1951

VISITORS & BUSINESS TRIPS

B. M. Fry, of the A.E.C. Technical Information Service, Washington, D. C., spent March 1-2 with the 300 and 700 Area Classified Files and the Plant Technical Library.

The Committee of Senior Responsible Reviewers met at Hanford on March 9-10 and discussed local problems regarding classification and declassification of documents.

Dr. John Woodhouse, of the Du Pont Company, spent March 22-23 reviewing the operation of the Classified Files.

Dr. William Beamer, of the Dow Chemical Company, spent March 29-30, reviewing the 300 Area Classified Files index for documents pertinent to the new Dow project at Denver, Colo.

Business trips of Technical Services Division personnel were as follows:

E. W. Rebol spent March 1-2 at the Mallinckrodt Chemical Works, St. Louis, discussing analytical methods and inspecting facilities.

J. W. Hall spent March 1-3 recruiting technical personnel at the Missouri School of Mines and the University of Missouri.

R. B. Socky inspected laboratory and equipment design features at the Argonne National Laboratory on March 5-6, and at KAPL on March 7-9. He spent March 12-14 at the C. T. Main Co., Boston, reviewing the design criteria for the Pile Technology Bldg.

W. N. Carson, H. W. Miller and M. Lewis spent March 5-8 attending the Pittsburgh Conference on Analytical Chemistry. They spent March 9-10 at KAPL discussing recent advances in analytical chemistry relating to Hanford processes. M. Lewis spent March 8 at the Aluminum Research Laboratories in Pittsburgh discussing the behavior of metallic aluminum. H. W. Miller spent March 12-13 at the Argonne National Laboratory discussing recent advances in analytical chemistry techniques.

R. J. Hale and F. B. Quinlan spent March 12-14 at the C. T. Main Co. discussing problems related to the design of the Library & Files and Pile Technology Bldgs. While in the East, F. B. Quinlan spent March 15 reviewing laboratory designs at KAPL.

J. F. Gifford visited the Brookhaven National Laboratory, March 12-14; KAPL, March 15-16; Oak Ridge National Laboratory, March 20-21 and the Mounds Laboratory on March 22-23 where he inspected the latest developments in the fields of remote handling devices and cubicle design.

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M. G. Freidank attended the A.E.C. Joint Conference on Document Control in Chicago on March 15 and 16. The meeting was devoted to problems of inventory and control of classified documents.

T. R. Cartmell spent March 22 and 23 at the Mound Laboratory reviewing electronically operated control devices.

J. S. Stoakes visited the Radiation Laboratory at Berkeley, Calif., on March 22-23 where he discussed contamination control and waste disposal problems.

F. B. Quinlan and R. J. Hale spent March 25-27 with the Leland S. Rosener Co. in San Francisco for design liaison discussions in connection with the Radiochemistry and Radiometallurgy Bldgs.

ORGANIZATION AND PERSONNEL

Personnel totals in the several subdivisions are summarized as follows:

	February 28	March 31
Analytical Service Section	244	244
Analytical Research Section	43	45
Engineering Section	75	78
Information Section	73	71
Statistics Section	18	18
Administrative	3	3
Division Totals	456	459

ANALYTICAL SERVICE

Work Volume Statistics

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

	February		March	
	Samples	Determinations	Samples	Determinations
Process Control - 200	4,414	9,843	4,752	9,678
Process Control - 300	572	1,091	469	1,044
Water Control - 100, 700	895	3,269	767	3,015
Research & Dev. Programs	1,415	2,971	1,791	3,265
Process Reagents	2,232	2,568	2,101	2,425
Essential Materials	206	1,021	192	615
Special Samples	983	10,823	658	6,924
Totals	10,717	31,586	10,730	26,966

The cause for the large drop in the number of special samples (above) submitted throughout the section's laboratories is not known. Many of them required spectrographic analysis, and the number of determinations dropped from about 20 reported elements per sample to 2-3 per sample, thus accounting for a decrease of roughly 2,500 determinations. Some of the change may be

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accounted for by the fact that the cut-off date for the data is the 23rd of the month and, hence, the March data is short about three days of covering a complete month. These two factors would also account in part for the disproportionate changes in the 200 Area control statistics.

100 Areas Water Control

The refrigerant for the cold trap on the high vacuum gas analyzer used in determining gases in Naval Reactor Project (P-13) water samples was changed from a dry ice-trichlorethylene mixture under high vacuum to a liquid nitrogen-alcohol mixture at atmospheric pressure. This change has resulted in a saving of 24 man hours per month analytical time, and has eliminated the handling of the hazardous trichlorethylene and dry ice. Improvements in sampling of the Naval Reactor System water were made by adding capillary ball joint fittings to the water sampling taps and the sample ampoules to insure air-tight fittings and eliminate possible gas traps when collecting samples.

200 Area Control

The sample accountability log book format at the 222-B and -T Laboratories has been revised to include both operational sample data and accountability data in one book. This step eliminates the possibilities of errors or omissions in transposing sample data from the sample log book to the accountability log book. In addition, an estimated savings of approximately 30 man-hours/month will be attained. New binders have been procured and log sheets for the book are being printed.

A sampling error test on the E-4-RC tank containing material returned to the 224-B Building for recycle was started on March 3. Sixteen batches of recycle material, including five relatively pure plutonium solution batches from the P-11 project, were added to the tank which was sampled in triplicate after each addition. The analytical results have been forwarded to the Statistics Group for evaluation.

Two sample cans were processed for americium recovery in the 231 Bldg. on March 8 and 9. Laboratory assay work proceeded without incident.

Occasional high first decontamination cycle waste losses (14(17)-3-WS) have been observed at the 221-B Bldg. during the production test 221-B-10 (bismuth and volume reduction). As a result of an informal request from the Separations Technology Division, Am-Cm assays were performed on two of the samples in the 222-B Laboratory. The results are tabulated below:

Sample	Run No.	Total Alpha c/m/ml	Am-Cm c/m/ml
17-3-WS	B11-D3-F2	1.2×10^4	7.7×10^3
14-3-WS	B11-D3-F23	1.6×10^4	1.1×10^4

The prepared discs were then checked on the alpha energy analyzer, showing the following distribution of activity:

Cm^{242} 70 - 80%

[redacted]

Am^{241}	20 - 30%
Pu^{239}	Trace - 5%

The above results indicate that very good separation of Am-Cm from plutonium was attained on this type of sample using the standard Ceric Oxidation Method, CA-19a, and verified the cause of the apparent high waste losses.

In an effort to expedite the adoption of stainless steel discs for routine control radioassay procedures in the 231 Bldg. Laboratory, spare time was devoted to securing comparative SS and platinum disc data on the P-1, CT-1-R, and AT samples. Approximately 20 such analyses were obtained on each type of sample. These data have been submitted to the Methods Control Group and the Research Section for evaluation.

As part of the overall program to improve plutonium accountability, the material balance for the Separations Process was placed on a total count (TC) basis, starting with Runs B11-03-F1 and T11-03-B1. With this March series of runs, routine reporting of the final product solution (AT) radioassay in terms of c/m/ml at 50.5% geometry was begun. Effective with the April series, the accountability procedure will be revised to the extent that assay results will be corrected for isotopes according to HW-20581, "Revision of Isotope Correction Factor."

Selected Pyrex test tubes without rims were substituted for the Klett tubes which are used in the Fluorimetric Method for the determination of Chemical 70-58. In addition to the advantages reported last month for this method in comparison to the Ferrocyanide Method, it is estimated that a saving of 35 man hours/month of analytical time, based on a 200-run schedule, has been realized.

A request has been received to determine silicon and titanium in the concentrated oxalate supernate (SN-3) samples from the 234-5 process recovery studies. A spectrographic method for titanium and a colorimetric wet chemical method for silicon are now being set up.

300 Area Control and Special Services

It has been noticed for some time that total moisture values in coal, procured from the same mine, do not correlate with the surface moisture; consequently, an investigation of the A.S.T.M. method for moisture analysis in coal is in progress. Several coal samples, with moisture content established, are being spiked with known amounts of water to determine the accuracy of the methods for surface and total moisture.

Several samples of long-stored ammonium sulfite, used as a reductant in the Separations Process in the 231 Bldg., were submitted to the laboratory for sulfite and sulfate analysis. Analytical data indicated that the sulfite was partially oxidized to the sulfate, either by air oxidation or by the presence of a contaminate which was acting as an oxidant. This information was given to the 200 Area Plant Assistance Group investigating the problem of low sulfite content.

The procedure for the determination of total calcium in calcium metal was reviewed and it was found that the temperature during the ignition of the

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oxalate to the oxide could be reduced from 1200°C to 1000°C without affecting the conversion. It was necessary to make this slight change in procedure because the high temperature, 1200°C, was exceeding the capacity of the muffle furnaces and continuously burning out the heating elements. The range of 1000°C is within the safe operating conditions of the muffle furnaces.

As a result of the Uranium Sample Exchange Program between Mallinckrodt Chemical Works and the Hanford Works, it was found that the iron and silicon as reported by Hanford are biased on the high side. In reviewing the analytical methods at an inter-site quality control meeting held at Mallinckrodt Chemical Works, it was discovered that the only difference in methods is that Mallinckrodt uses metal samples and Hanford uses oxide prepared from the metal. There was some belief at the meeting that contamination of Fe and Si are picked up from the refractory liner and heating element in the muffle furnace. The comparison of values obtained from the two types of samples is being investigated here; in addition, a standard uranium oxide sample is being sent out by the New Brunswick Laboratory to all sites for Fe and Si analysis.

A sample of mixed acid containing HF, HNO_3, and Pu was submitted by the Chemical Research Section for HNO_3 analysis. The conventional HNO_3 Distillation Method was not feasible since HF interfered; consequently, the HNO_3 was determined by titration with standard ferrous sulfate solution to a brown coloration.

The determination of promethium activity in Separations Process first cycle waste streams has been requested by the Chemical Research Section in connection with a study of the feasibility of cribbing these wastes. In aged wastes, promethium can be determined by a method for total rare earths minus cerium, other rare earths excepting cerium being negligible. However, on current wastes it is necessary to allow the prepared discs to age for approximately three weeks, after which time the 65-hour yttrium daughter of Sr-90 should be decayed to a negligible quantity.

In connection with the slag and crucible leaching studied by the Chemical Research Section for 234-5 Bldg. recovery operations, TBP determinations are necessary on organic streams containing up to 1 gm. Pu/liter. In order to use the infra-red spectrometer for the determination of high concentrations of TBP, Pu must be removed since the instrument is not set up for radioactive work. Consequently, a tentative procedure for preliminary removal of Pu from these samples is being investigated and consists of passing the organic stream through a K_2CO_3 column to absorb the Pu.

A new method of determining TBP in aqueous streams containing low concentrations of TBP is being examined. The method consists of extracting the TBP with three passes of CCl_4 and then evaporating the major part of the CCl_4. The residue is then hydrolyzed with H_2SO_4 at 175-200°C for three minutes. After cooling the mixture is decolorized with nitric acid and ammonium persulfate, following which the HNO_3 is removed. The $PO_4^{\equiv}$ now formed is measured by the conventional colorimetric phosphate method. Percent recoveries using the new method varied by 12% and the old method varied by as much as 30%.

Chemical Development Service Laboratory

Operations in this laboratory continued on a routine basis.

Methods Control Group

The falling drop apparatus was transferred from Bldg. 3706 to Bldg. 222-B for use in Separations Process density determinations, but has not as yet been installed. The use of mixtures of tetrabromoethane, fuel oil, and kerosene as the reference organic liquid was found to be satisfactory throughout the entire range of Sp.Gr. required. The Instrument Division completed the constant temperature controller using a thermistor sensing element and a saturable reactor. This regulator gave a rapid response, had high sensitivity, and was easily adjusted to the temperature desired (25°C).

Weighing and analyzing the total 234 process supernate (SN-1) sample was found to give results a factor of 2.06 higher than the previously used but less precise analysis using a measured aliquot. There is an indication that the heel of the Sn-1 tank contains some solid plutonium oxalate resulting in a build-up of plutonium in the tank; the sampling tube dips almost to the bottom of the tank which may also result in a non-representative sample high in plutonium being sent to the laboratory. It is felt that a sampling test would be very much in order at this point.

A study of the accuracy and precision of the cupferron extraction spectrographic analysis for 19 impurities in plutonium metal was carried out at an impurity level 20 to 100 times the lower limit imposed by sensitivity of method or contamination. A series of eight analyses on each of three samples: a Pu-free standard (prepared by the Research Section), a plutonium metal sample, and the same metal spiked with the standard, was made by personnel of the 234-5 Bldg. laboratory. The ranges for the eight determinations (each on a different film) on the spiked plutonium samples were a factor of five for seven elements and a factor of two or less on the remaining twelve. The average recoveries were 20% for manganese, 33% for chromium, 50% for Ni and Ba, 66% for Cd, and 100% for the remaining twelve elements. These encouraging data were forwarded to the Analytical Research Section for further consideration of the advantages of increasing the sample size in order to work with amounts of impurities well above the sensitivity limits.

A study of the possibility of using specific gravity to determine the concentration of zirconium in the zirconyl nitrate process solution indicated this method would not be feasible.

A statistical study of the presently used method for determination of carbon and hydrogen in uranium metal, based on range of duplicates, indicated the precision of C determination is $\pm$ 55 ppm and of H_2 determination is $\pm$ 7.6 ppm. A similar study on the determination of uranium by the Chromous Sulfate (RUV-2a) Method gave a precision of $\pm$ 0.9% based on reported results.

The following items were noted in the investigation of the fluorimetric determination of uranium. On the Hanford type fluorimeter, if a high level sample or standard is measured and followed within a two-minute period by a low-level standard sample, the reading on the low-level standard will be higher than normal. The cause for this is not known, but a study of this

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effect indicated it was reproducible and the instrument could be standardized on the basis of measuring a high-level standard prior to sample measurements. A study of the glass standards used in the Price fluorimeter indicated the use of a higher level fluorescent glass would be preferable to the presently used low-level glass standard.

All A.S.P. and IDL counting instruments in 222-T, 222-B, 231, and 3706 Bldgs. were in good agreement when tested with the same standard disc. The geometry standard in routine use in the 234 Bldg. was found to have lost a portion of the sample; a new disc was issued and the off-standard condition corrected.

A similar cross check was run on the A.S.V.P. instruments in 3706 and 231 Bldgs. using three standard discs of known activity. In 3706 Bldg. #1 A.S.V.P. instrument measured geometry and tested geometry were in good agreement. No. 2 A.S.V.P. tested goemtry was 1.4% low as compared to the measured geometry, but subsequently the tested geometry came into agreement with the measured geometry. In 231 Bldg. the #1 A.S.V.P. Instrument was in good condition while the #2 A.S.V.P. tested geometry was 0.7% low as compared to the measured geometry. This instrument has been taken out of service pending the installation of a new low geometry attachment.

Various tests have shown a correlation between mica windows, low geometry attachments, and erratic results. Reports from Berkeley (via the Instrument Development Group, Instrument Division) indicated similar experience at that site. On recommendation from Berkeley, a test on metallic coated (aluminized) mica windows is being made. In addition, further modifications in design of the low geometry attachment were recommended. New chambers following the modified design have been ordered.

Two iron standards, used as a stand-in for the chemical titration of plutonium, were issued this month, a sample of each going to the 231 Bldg. and 234 Bldg. laboratories. The only results reported to date are from the 231 Bldg. and show that for 24 analyses an average result of 12.27 g/l was obtained. This is 0.11 g/l lower than the assigned value. A chemist has been assigned to investigate analytical techniques and possible remedial action. It has been determined that the equipment and reagents used are in good order.

Special Hazards Control

Over the past six months the routine shift surveys in the entire 231 Bldg. laboratory area have been gradually decreased in scope. This has been done on a test basis with the trend in contamination of non-regulated items being used as an index of the adequacy of the survey work. Because there was no increase in contamination spread, the routine shift surveys have been eliminated completely, thus saving approximately 80 man hours/month. Similar procedure changes will be evaluated in the other 200 Area laboratories.

The dry waste disposal crib at the 222-T Laboratory apparently became filled or partially caved in during the month, rendering it useless. It was estimated that the life span of this crib was cut from ten to five years because of the increased production rates; it actually lasted only two years, thus giving credence to the possibility of a cave-in. During construction of a

replacement, arrangements have been made with the "S" Division to handle normal dry waste under SWP conditions.

Several high air samples were encountered at the 234-5 Bldg. laboratory in Rooms 134 and 148 during the week of March 12-March 18. Investigation of the hood exhaust dampers in these rooms revealed that two dampers were out of adjustment. The exhaust dampers were reset and the condition thus corrected. However, it was noted that the locking set-screws installed on the shafts of all hood dampers during February of 1950 had worked loose and were not providing the positive check on damper slippage that was intended. A better method to prevent the dampers from slipping, such as spot welding or pinning of the damper gears to the shaft, is now being considered. In the meantime, a routine monthly check of all hood air flow has been initiated.

ANALYTICAL RESEARCH

P-10 Analytical Studies

An automatic recorder has been installed on the mass spectrometer employed for the analysis of gaseous P-10 samples. Spectrum records have thus been obtained for the 309 samples analyzed during the month. The device has been of particular value in that it provides a permanent and complete record of the spectrum although it offers little in the way of time-saving for routine analysis for the normally sought constituents. The visually recorded spectra revealed the unexpected presence of about 2% methane in outgas fractions; this material was not found in gases extracted at higher temperatures.

A study designed to evaluate the reliability of different types of sampling containers yielded the unexpected conclusion that breakseal containers are not superior to ones with stopcock closures. In cooperation with Pile Technology Division personnel, a system has been devised for using metal sampling containers. A pinch-off device is employed to remove successive portions of a long aluminum tube sealed onto the process line, and methods have been selected for attaching the bulb to the analytical manifold and subsequently opening it.

A 50' section of 1/4" O.D. copper tubing has been attached to the mass spectrometer head to allow studies of remote sampling as a preliminary to possible in-line use of the instrument. Retention of gases on the inner surface of the tube appears to be small and low backgrounds are obtained. Further studies indicate that during operation with a steady sample feed, alteration in sample composition will be indicated within five seconds and that a new steady state will be established within two to three minutes.

Analysis of additional samples with the emission spectrometer being tested for conduct of P-10 analyses indicates that higher operating pressures than those initially selected may be necessary; this is in agreement with recent work at the National Bureau of Standards. Experiments designed to eliminate the need for flow of sample under controlled conditions during the period of excitation proved unsuccessful; the attempted procedure involved an initial flushing period during a preliminary discharge and subsequent measurement under static conditions. The sampling line has been modified to reduce its total volume and to provide more sensitive pressure and flow control. A new sample system has been obtained for study in preparation to design of

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a comparable metal system for use with in-line analyses.

Radiochemical Methods - (RDA #TC-1)

Preparation has begun on a series of uranium oxide samples containing fission products. The separate samples will contain fission products having different beta and gamma energies and will be used to coordinate counting techniques at Oak Ridge and Hanford. This program is part of a prearranged attempt to standardize uranium oxide specification analyses for material produced from the Redox and Metal Recovery Processes. Detailed consideration is being given to the expected content of UX_1 and UX_2 in the recovered oxide since the activity of the equilibrium concentration of these elements provides the basis for the specifications. Consideration is also being given to the U^{237} content since it is possible that this constituent may be present in sufficient quantity to influence the beta activity measurements.

Final arrangements have been made for the purchase of mass spectrometers to provide uranium isotopic analysis of uranium oxide to be produced at Hanford. The original instrument specifications could not be met by any producer within the desired time. As a consequence, the instrument specifications were modified in such a way that one producer has given agreement to a shipping date of September 1951.

Six separate plutonium nitrate solutions have been analyzed for Pu^{240} with the recently installed fission counter. The results obtained are in agreement with those calculated in the Pile Physics Section and lend further support to recently accumulated laboratory data indicating that the presently used isotope correction factor for radioassay of plutonium is in error.

A final set of experiments designed to evaluate the applicability of disposable stainless steel discs to routine radioassays has led to a procedure for use of such discs with all intermediate Bismuth Phosphate Process streams. The work showed that the backscattering from these discs is different from that obtained with platinum discs so that a new backscattering correction must be applied.

Spectrochemical Methods - (RDA #TC-2)

A modification of the cupferron-spectrochemical procedure for the determination of impurities in plutonium metal has been introduced into control use. The principal modification is the use of reference standards that have been carried through the entire extraction procedure, thereby tending to counteract errors inherent in the procedure. The development work in testing the modified method has shown that organic matter on the spectrographic electrodes is not a serious source of error and that appreciable discrepancies may result through strong adherence of the impurity metal oxides to the containers in which the samples have been processed and evaporated. It was also found that a thin grease film on the surface of the electrode will decrease the extent of reaction between the metal electrode and acid in the sample. The optics of the spectrograph were revised to produce a more intense spectrum, and optimum operating conditions were established.

Investigations have continued with infrared absorption techniques for the determination of carbon monoxide in the presence of carbon dioxide. This

work is in preparation for and in support of a Pile Technology Division test hole study of the reaction of graphite in a neutron flux involving constant monitoring of gases. Good precision has been obtained with the method although experience has shown that it is difficult to cement windows on the infrared cell in such a manner as to make them gas-tight.

In an effort to develop a more suitable method for the determination of TBP in aqueous phase, a series of experiments was conducted in which column adsorption techniques were used to separate the TBP prior to dissolution of the material in an organic phase for infrared absorption measurement. Other experiments involved direct extraction of TBP with carbon tetrachloride. Both procedures proved to be convenient and to produce satisfactory analyses. Experiments were also carried out to determine aromatics in Metal Recovery Process diluents. Adsorption techniques served to separate the aromatic fraction from the kerosene base. Infrared analysis showed, however, that certain alicyclic constituents of the material followed the aromatic group. As a consequence, the technique is not yet proven to be satisfactory. Additional development work involving the infrared spectrometer included the investigation of methods for the determination of TBP in plutonium-containing solutions and the determination of diethyl isobutyl phosphate. Satisfactory methods appear to have been developed in both cases.

A series of short problems using the Cary Spectrophotometer received attention during the month. These included the determination of chromate, permanganate, manganese dioxide, and Pu(IV) in solutions employed for critical mass studies; the determination of permanganate and manganese dioxide in solutions obtained during Chemical Development Section head-end Redox studies; an investigation of possible improvements in the methods for determination of Pu(VI) and of UNH; and the direct determination of copper in bronze bath.

Miscellaneous

In support of the Pile Technology project to study methods for increased flow of pile water, suitable radiochemical methods for the determination of sodium, silicon, manganese, and copper have been adapted and applied for regular analyses of pile effluent water. The purpose of this work is to establish the normal concentration of these elements in the water during the present period of normal conditions and later during the spring period of high water-activity.

A group of sludge samples obtained during the pushing of slugs has been obtained and will be subjected to chemical analysis in order to determine the nature of the sludge. During a trip, one of the chemists who is interested in this problem consulted with personnel of the Aluminum Research Laboratories. Experimental work was described which showed that higher concentrations of dichromate acted as a corrosion inhibitor for aluminum but that dichromate contents of 100 p.p.m. or less tended to accelerate pitting attack. This information was considered pertinent since 2 p.p.m. dichromate is currently added to pile cooling water.

A series of analyses failed to reveal any unusual constituents in samples obtained from a lithium-aluminum slug that had ruptured in the pile. The aluminum cap and can proved to be within specifications. The lithium-aluminum alloy was of normal purity, and the relatively large quantity of corrosion

product proved to be aluminum hydrate, containing no unexpected impurities.

Design work has been completed on a proposed gas analysis laboratory in Room 59 of the 3706 Bldg., and cost estimates are currently being obtained.

ENGINEERING SERVICES

Mechanical Shops (Bldgs. 101 and 3706)

Work volume statistics for the Mechanical Shops are as follows:

	Customer Division or Program	February No. of Jobs	February Man-Hours	March No. of Jobs	March Man-Hours
Work Done on Jobs Completed	P-10	16	391	19	501
	Pile Tech. (Incl. P-12) (a)	52	830	44	740
	Separations Tech.	18	119	17	196
	Technical Services	35	295	35	513
	Other Divisions	5	80	4	194
	Sub-Total	126	1,715	119	2,144
Work Done on Jobs Not Completed	P-10	4	526	7	248
	Pile Tech. (Incl. P-12)	11	168	12	68
	Separations Tech.	5	63	10	276
	Technical Services	9	159	10	188
	Other Divisions	3	68	2	52
	Sub-Total	32	984	41	832
Total Work Done			2,699		2,976
					Man-Hours To Complete
Work Backlog:					
Jobs Started	P-10	4	868	7	1,484
	Pile Tech. (Incl. P-12)	11	3,941	12	3,989
	Separations Tech.	5	144	10	173
	Technical Services	9	314	10	795
	Other Divisions	3(b)	320	2(b)	134
	Sub-Total	32	5,587	41	6,575
Jobs Not Yet Started	P-10	4	991	5	154
	Pile Tech. (Incl. P-12)	10	462	16	345
	Separations Tech.	9	430	4	148
	Technical Services	22	1,810	15	931
	Other Divisions	3	49	0	0
	Sub-Total	48	3,742	40	1,578
Total Backlog			9,329(c)		8,153(d)

(a) P-12 designates the Exponential Pile Project.
(b) Includes one order that is unestimated as the work is of a routine nature.
(c) Does not include 46 man-hours transferred to Instrument nor 686 man-hours transferred to Maintenance during the month of February.
(d) Does not include 215 man-hours transferred to Instrument, 257 man-hours transferred to Maintenance, nor 16 man-hours transferred to Transportation during the month of March.

Fabrication work on the fifth set of mercury pots for P-10 was completed and the pots were delivered to Bldg. 108-B on schedule. A total of 59 has now been completed. Shop work was completed on the fabrication of a hydrogen tube furnace for P-10 development work. This furnace is used in connection with the tempering of large Kovar pieces. Fabrication and assembly work on metal transfer system for P-10 was completed. Experimental work on the welding of titanium to tungsten was successfully accomplished. This work was part of an experiment to find intermediate welding components for the joining of copper and zirconium. Several small jobs were completed during the month for P-10, including special flanges, fittings for bellows and tools for punching slugs.

A number of specialty items for the P-12 Group were fabricated. Technical Shops personnel are continuing assistance in the erection of the exponential piles. Installation of the actual "W" hole mock-up was completed. Fabrication of special parts and accessories for this test is continuing. A number of variations to the original "L-Z" nozzle being fabricated for use in introducing wiring and small diameter tubing into process tubes have been completed during the month. In order to expedite this fabrication work, a few Shops personnel worked two Saturdays on an overtime basis.

There has been a marked increase in the demand for special apparatus for field work and special tests by the Pile Engineering Section. A number of specialty jobs were completed for this section during the month. A nine-tube mock-up was fabricated and installed in the Pile Engineering Section's mock-up area.

Installation and test work for one of the multicurie cell air hoists for Bldg. 222-S was completed. Modifications and additional assembly work are being continued on the second air hoist. Fabrication and shop development work is continuing on special apparatus and handling devices for Bldg. 222-S. A duplicate cone cart dolly for transporting samples to be processed in Junior Caves was completed.

The molding of neoprene gauntlets to bellows for the Junior Caves was successfully accomplished. Test results indicate a highly satisfactory product, and the molding will result in considerable savings to the project. The outside cost of each such item is $57 as against an approximate cost of $11 in the Technical Shops.

The following new equipment was received and installed in the 101 Shops: One ten-inch South Bend Lathe; a 40 KVA Spot Welder and a 200 amp. Wilson Arc Welder for DC heliarc welding.

A large number of small jobs were completed in the Bldg. 3706 Shop, principally in support of Chemical Research, Analytical and Metallurgy Sections. Design

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and shop work was completed on a new film cassette for use in conjunction with the X-ray equipment. Several multiple stirrers and remote control pipetters were completed for the Chemical Research and Analytical Sections. Work is nearing completion on the assembly of a 10-place mixer settler, explosion-proof type, for use in a gloved box. The majority of the design work in connection with this job was done in the 3706 Shop.

Glass Shop

Work volume statistics for the Glass Shop (exclusive of P-10 service) are as follows:

	February	March
Jobs Completed		
New	56	51
Repairs	14	16
Revisions	14	18
Total	84	85
Job Backlog	10	16

At various times during the month, seven glass blowers were assigned full time to P-10 work at Bldg. 108-B. Three of these men were working shifts on production lines, and the other four were rendering assistance in development work and glass line installation. Installation work on one glass line was completed during the month. In addition, a new I.R.D. line was fabricated and assembled.

It was necessary to remove one glass blower from P-10 production line work temporarily due to his being above the working limit for contamination.

The Glass Shop foreman suggested platinizing glass for use in the removal of product cylinders. Test results have indicated satisfactory use, and it is anticipated that this method will be made a part of the regular operation at 108-B.

The Glass Shop foreman has continued assisting the H. I. Divisions in the development and improvement of the present Vibrating Reed Chambers. The first test model has been delivered to 200-W Area for testing. One glass blower trainee continued on assignment to the H. I. Biology Division in Bldg. 108-F.

Equipment Design

Work volume statistics for the Equipment Design Group, expressed in man-hours, are summarized as follows:

	February		March	
	Engineering	Drafting & Misc.	Engineering	Drafting & Misc.
Pile Technology				
P-10	32	35	16	-
Engineering Section	78	499	124	418
Physics Section	-	-	-	-
Metallurgy Section	218	-	116	14
Separations Technology				
Chemical Research Section	189	105	164	43
Chemical Development Section	105	176	111	40
Technical Services				
Engineering Sect. (Tech. Shops)	28	28	-	-
Analytical Sections	84	64	122	104
Laboratory Equipment Development (RDA #TC-5)	384	387	494	580
Totals	1,118	1,294	1,147	1,199

The following work was done for the various Technical Sections, as indicated:

P-10

A leak attachment fitting for a mass spectrometer was designed and a Dewar flask support was sketched.

Pile Engineering

1. Design and scoping of "W" through hole facilities continued.

2. Various coping studies were made and conferences held in preparation of proposals for test facilities in a 105 Pile building.

3. Numerous drawings were made or revised on such items as a strip heater, the Ball 3-X device, a mock-up of a monorail tube removal system, a bubble tester and various devices for pile experiments.

4. One designer continued all month on direct assignment.

Metallurgy

1. Design and shop assistance continued on the slice-and-dice box, the slug breaker and the metallurgical polisher.

2. Design of an X-ray film holder was completed.

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Chemical Research

1. Scoping and expediting of Junior Cave, gloved box and accessory equipment for use in Bldg. 222-S (the Redox Analytical and Plant Assistance Laboratory) continued. A partial shipment of gloved boxes for this building was received at Bldg. 101.

2. Design of the tall gloved box for column use continued.

3. Various pieces of laboratory equipment were strip coated.

Chemical Development

1. Design of a fifteen-stage batch counter current extractor continued.

2. Shop assistance was given in the construction of a miniature mixer-settler designed at KAPL.

3. Scoping and expediting of laboratory accessories for Bldg. 222-S continued.

Analytical

1. Design and scoping of Junior Caves, gloved boxes and accessories for Bldg. 222-S use continued. The first shipment of commercial gloved boxes was received at Bldg. 101 and installation of equipment was started.

2. The assay gloved box for Bldg. 222-B was nearly completed.

3. A monoxide exhaust blower was set up for use in Bldg. 3706.

4. Drawings were made of various glass apparatus.

Laboratory Equipment Development (RDA #TC-5)

The following work was done under this RDA:

1. Design of multicurie cell equipment continued. Development and testing of several tongs was in progress and shop assistance was given in the fabrication of slave-type manipulators. These tongs and manipulators will be useful for both chemical and metallurgy cells. Tests were carried out on the in-cell remote air hoist installed in the cell mock-up. The modular panel lifting jig was loaned to the construction forces at Bldg. 222-S for use in assembly of the cells.

2. Development of Junior Cave accessories continued, and a recently designed tilting jaw tong was being made in the Technical Shops. A new molded neoprene manipulator gauntlet was developed in collaboration with the shops. This superior gauntlet can be molded in the Technical Shops for much less than the cost of commercial fabrication of the former model.

3. Development of gloved box accessories continued. A new miniature 100-

watt disc drying lamp was devised.

New Laboratory Planning

Redox Analytical and Plant Assistance Laboratory, Proj. C-187-E

Construction work on Bldg. 222-S, the Redox Analytical and Plant Assistance Laboratory in the 200-W Area, is approximately 95% complete. Based on this percentage, completion of this building is now scheduled for May 1951. Originally April 1 had been planned as the occupancy date. The inability of a subcontractor to deliver hoods on schedule is the primary cause for this delay. Other items of construction, particularly the cubicle installation, are proceeding satisfactorily.

The waste disposal facility for this new laboratory is approximately 92% complete.

Radiochemistry Bldg., Proj. C-381

Final plans and specifications for the Radiochemistry Bldg., one of the major buildings in the new Laboratory Area, were received from Leland S. Rosener on March 12. These plans were reviewed by the interested divisions and several important changes suggested. These changes were discussed with representatives of the A-E on March 25-27 and are now being incorporated in the final design. It is expected that the bid assembly will be released early in April. A.E.C. Directive HW-174, Modification No. 2, was received authorizing the construction of this facility, and a total project expenditure of $4,680,000.

Plot Plan & Utilities, Proj. C-394

The design of these facilities was estimated to be 80% complete at month end. An architectural sketch of the south gate Badge House for the Works Laboratory Area has been approved by the operating divisions. This sketch (SK 4-50060) was prepared by the E & C Divisions, on the basis of information furnished by the Contact Engineer.

Final designs for the new parking area to be located outside the South gate are being prepared by the Leland S. Rosener Co. for review.

Radiometallurgy Bldg., Proj. C-385

Preliminary prints for this building in the new laboratory area were received and returned to the L. S. Rosener Co. within the two weeks allowed for checking. The prints were reviewed by representatives of the Technical, Power, Safety, Maintenance and H. I. Divisions and the Contact Engineer. All comments were formally transmitted to the Project Engineer. The Part II Project Proposal covering the construction of this building is in preparation, with E & C re-estimating the construction cost.

Mechanical Development Bldg., Proj. C-406

The Dix Steel Co. (of Spokane) broke ground for the Mechanical Development Bldg. in the Works Laboratory Area, and made good progress on the

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concrete footings for this prefabricated steel structure.

The Part 2 Project Proposal covering Phase II construction of this building was approved by the A & BCommittee and forwarded to the A.E.C. As required to assure completion of this facility in September, A.E.C. consent was obtained by E & C (letter from J. E. Travis to R. E. Davison, dated March 26, 1951) for the negotiation of a lump sum Phase II design and construction subcontract with Dix Steel. Design criteria for the Phase II interior work are being prepared, and negotiations with Dix can start when these criteria have been completed and reviewed by all interested parties.

The P-12 studies now being carried on in Bldg. 101 by the Pile Technology Division will be displaced in September when E & C takes over the 101 Area for Project C-431, and consideration is being given to housing P-12 in the Mechanical Development Bldg. until permanent space in the Pile Technology Bldg. becomes available. Discussions on methods of accomplishing security separation of this work from the main machine shop were in progress at month end.

Pile Technology Bldg., Proj. C-414

Many questions on details of piping, furniture layout, ventilation and electrical arrangements were settled in individual discussions between the Contact Engineer, E & C personnel, and representatives of the Architect Engineer (C. T. Main Co.) during a visit to the A-E offices in Boston.

Plans were in progress at month end which would change the scope of this building project to include excavation of that portion of the basement area previously left unexcavated. This additional space is desired by the Pile Technology Division as a permanent location for exponential pile experiments (P-12) which will have to be conducted in temporary quarters after vacating Bldg. 101 early this Fall.

A request for modification of the A.E.C. Directive covering this building was submitted changing the method by which the Title III A-E services will be performed from lump sum to CPFF. This is necessary to conform with the regulations covering the administration of CPFF contracts, since this A-E has been assigned other CPFF work at Hanford.

Library & Files Bldg., Proj. C-421

Preliminary plans for this building were reviewed with representatives of the Chas. T. Main Co. and were accepted with minor revisions.

A modification of the A.E.C. Directive covering Title III A-E services for this building also was requested for the reasons outlined under Pile Technology Bldg., above.

Building Administration & Services

300 Area Services

Normal Bldg.3706 services continued routinely. Material control, stock-

room and work order activity is summarized as follows:

	February	March
Purchase Requisitions		
Total number processed	46	61
Number requiring special expediting	16	14
Number requiring emergency handling	0	0
Stores Stock Requests Processed	2	0
Store Orders		
Total number processed	877	775
Number requiring emergency pick-ups and deliveries	7	5
Work Orders Processed	39	47

The conversion of Room 25, Bldg. 3706, from telephone service to Technical office space was completed March 23. Chemical Research Section and Analytical Research Section personnel started moving arrangements preparatory to occupancy.

A complete point-of-use inventory of materials and equipment controlled by this group in the 300 Area was completed during March. Transcribing to the standard forms was in progress at month end.

A work order has been issued to Maintenance for summer overhaul of the ventilating units in Bldg. 3706. This work is done routinely to maintain efficiency and prevent major breakdowns. The Health Instrument Divisions' operations group in this building has been requested to check the old filters for any contamination that might have been picked up during the past year. A positive result will be considered sufficient to consider a method of control to determine time and cause for future pick-up. Past years have shown no contamination, but an increasing number of programs involving radiochemistry have introduced a greater potential.

A project proposal covering the design and construction of a Solvent Building to be located just east of Bldg. 321 in the 300 Area was prepared in cooperation with the Separations Technology and Project Engineering Divisions, and was submitted to the A & B Subcommittee on March 26. This proposed new building is designed to include (1) a laboratory for the safe conduct of process studies involving large quantities of flammable solvents, and (2) sufficient solvents storage space to meet the needs of the Technical Divisions in the 300 Area (and the Stores Division, when their Caption 10 Stores are moved from the 700 Area to the 300 Area).

Efforts continued to obtain G. E. and A.E.C. Security Office agreement to the use of a "Limited" status for all buildings within the present 3706-321 Exclusion Area. Answers to specific A.E.C. questions in this connection were forwarded to G. E. Security on March 27.

STATISTICAL & COMPUTING SERVICES

Statistical Services

Further study of the exchange of uranium samples between Hanford and the Mallinckrodt Chemical Works at St. Louis revealed that systematic differences in chemical analysis were not due to sampling. At the request of the General Chemical Laboratory, the precisions of uranium billet egg analyses made at Hanford were calculated (Doc. HW-20481).

The statistical study of the effect of aluminum cans from different vendors on the reactivity of canned uranium slugs was continued.

A mathematical equation was obtained statistically for the Metallurgy Section's use in relating the expansion of exposed alpha rolled uranium slugs to the indices of crystal orientation (Doc. HW-20557). Additional metallurgical data were analyzed from the statistically designed experiment to determine the structural operating limits on the dilatometric testing of canned uranium slugs.

A study of the frequency of autoclave failures by time of day and by canning lines was made for the 300 Area Plant Assistance Group. Statistical controls were reported on P Division operational results from Machining, Pickling, Canning and Autoclave, Test Pile, and Melt Plant.

At the request of the 100 Area Pile Engineering Group, a statistical study was begun of the panellit readings for the H-10 loading to see if the rupture of P-10 lithium-aluminum alloy slugs can be predicted and prevented.

Additional I.B.M. calculations were completed in connection with the statistical fitting of a decay curve to data from the 105-B pile extended shutdown in December 1944.

Based upon relationships obtained to date, calculations have been made of the expected bowing of the 105-D pile at various exposure levels. Results are being discussed with the Pile Engineering Section and the Theoretical Physics Group.

A statistical study made in 1946 of water quality in connection with pile operation is being reviewed as a potential source of help to the Pile Engineering Section in planning the proposed new study of factors pertaining to water quality.

An attempt was made by the Analytical Sections to obtain a linear isotope correction equation by statistical methods (F. W. Albaugh, Doc. HW-20330, and D. F. Shepard, Doc. HW-20581). The data used consisted of (1) the ratio of chemical assay to radioassay of Building 231 final product solution (CA/RA), and (2) the ratio of total plutonium counts to tons of uranium (TPC/TU). Certain discrepancies in these data were observed by the Analytical Sections in that the statistically fitted equation obtained did not represent the majority of the data. It was concluded that the starting isotope composition (TPC/TU) was at fault.

Since there was some difference of opinion as to the cause of the statistical discrepancies observed in this important S. F. accountability correction factor data, the Statistics Group made an extensive study of all data available. To test the hypothesis that the starting isotope correction was at fault, the data were grouped so that each group contained only runs from the same metal solution. In this way any variation due to error in estimation of starting isotope composition could be substantially removed, making it possible to isolate and measure the variations caused by errors in the chemical assay-radioassay ratio. The variation in CA/RA ratio when grouped according to the same starting metal solution was identical with the variation of ungrouped data for T plant runs, and was very nearly identical for B plant runs. This indicated that the discrepancies were due to chemical assay-radioassay ratio data.

A further study of data during an eight week period when the enrichment level of the runs from both T and B plant were relatively stable, revealed a highly significant correlation between the variations in chemical assay-radioassay ratio of B plant and T plant runs. This was further evidence that the chemical assay-radioassay ratio varied significantly from time to time in a way that was unrelated to isotopic composition.

From this statistical study it was concluded that the chemical assay-radioassay ratio has not been sufficiently reliable to provide the data necessary to obtain a precise statistically derived equation. Further statistical studies of this problem are in progress.

Components of error in the sampling and assay of E-4RC samples were estimated from data provided by a special test.

A complete list of range limits recommended for use in 200 Area control laboratories for checking radioassays was forwarded to the Analytical Service Section.

Monthly reports of Hanford-Los Alamos product measurement differences, AT-Specific Gravity relationship differences, and 200 Area control laboratory reruns were issued.

Computing Services

Further computations were made of expected H-10 discharge schedule.

In support of the Exponential Pile Project (P-12), four sets of data were fitted to a three term cosine series, nineteen sets of data were processed for determination of diffusion length, and a short table of cosine values was prepared.

A preliminary investigation of the pile "boiling disease" problem has been made. It appears that this calculation can be done by machine, through an interative process. The steam table and viscosity data will be represented by empirical equations.

A table of constants for rapid computation of xenon in the field was prepared for 200 inhours of flattening for powers of 0 (25) 200 (10 250 (5) 550 MW.

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550 MW.

Graphite calculations are now being run on data from the 105-D pile as well as from 105-H and 105-F.

Routine calculations were made on Aquatic Biology data for the Health Instrument Divisions, and on metal quality data in connection with a statistical study.

Detailed programming was begun on the sheep thyroid count data for the Zoology Group.

A tabulator control panel was wired to print temperature maps on standard forms from cards processed on the I.B.M. punches at 105-H and 105-DR. Other quantities such as tube power can be printed on the map, if desired.

Control panels were developed for progressive digiting on the tabulator to obtain sums, sums of squares, and sums of cross products required in statistical studies. This is a very fast procedure capable of processing 1000 observations on eight variables, using five digits in each variable, in less than five hours.

A new general board was wired to accommodate 10 digit channels. This will allow faster solution of simultaneous equations, greater accuracy on series of alternating signs where the early terms are large, and will allow more freedom in programming problems where the order of magnitude of the function varies.

The backlog of problems continues to increase at a rapid rate.

LIBRARY, FILES AND CENTRAL REPORTING SERVICE

Plant Library

Library work volume and book statistics were as follows:

	February	March
Number of books on order received	184	239
Number of books fully cataloged	178	193
Number of bound periodicals processed but not fully cataloged	4	6
Pamphlets added to the pamphlet file	21	141
Miscellaneous material received, processed and routed (Including maps, photostats, patents, etc.)	81	66
Books and periodicals circulated	3,519	3,197
Unclassified reports processed	92	229
Unclassified reports circulated	284	160
Reference services rendered	1,794	1,805

	Main Library	W-10 Branch	108-F Branch	Total
Number of books	6,970	2,909	285	10,164
Number of bound periodicals	4,188	0	531	4,719

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Work in the Plant Library proceeded on a routine basis, with the number of reference services continuing to climb steadily. A sampling of the questions answered is listed below, indicating wide use of the Library reference resources by all Divisions at Hanford:

Data on pressure drop (of water) through 22 mesh screen placed in a pipe.
Solutions for silver plating which do not use cyanide.
Sag and tension curves for 1-0 and 4-0 copper wire.
Articles on how to determine research costs; when to stop spending money on a project, etc.
Address of the Ingram Co., The Faxfilm Co., etc.
Schematic diagrams for surplus Signal Corps radio set No. SCR-69.
Analog computers of mass spectrograph data for multi-components.
Absorbing capacity and temperature range for best results with Amberlite ion exchanger.
Composition of Duponal N.E. Dry.
Detection and determination of thorium in soil.
Calculation of heat losses in underground pipe.
Comparative costs, regeneration, and effectiveness of various drying agents.
Composition and method of removal of inhibitor from methyl methacrylate monomer.
Basic principles and methods used in ionization detection.
Information on construction of screw conveyors.

An older bibliography on industrial management and problems of supervision was revised to reflect the Library's current book holdings in these fields. Copies of the earlier edition of this bibliography have been distributed routinely to Plant personnel taking the 40-Hour Supervisors Training Course. Consideration is currently being given to Plant-wide distribution of this booklist to supervisors.

H. W. Instructions Letter No. 31, which originally established (1947) a centralized control of Plant reference material through the Plant Library, was revised. Draft copies were circulated to Plant supervision directly affected for review and comment before final issuance. Revision of this Instructions Letter has also necessitated revision of the "Request for Library Procurement" form. The revised form is receiving careful study in order that it may be as useful as possible.

Arrangements have been completed with the Procurement Section of the A.E.C. to excess surplus copies of library periodicals for credit. Inasmuch as lengthy route lists for many technical periodicals make it necessary for the Library to carry added subscriptions, excessing of copies beyond bindery requirements may prove very advantageous.

Classified Files

Work volume statistics for the Classified Files were as follows:

	February	March
Documents routed	9,460	11,843
Documents issued	5,251	6,790
Reference services rendered	4,425	4,360

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SECRET

	February	March
Registered packages prepared for offsite	272	314
Inter-area mail sent via transmittal	28,472	35,571
Holders of classified documents whose files were inventoried:		
(a) Because of normal perpetual inventory procedure	2	1
(b) Because of transfer of work assignment	3	7
(c) Because of termination	1	1
Inventory reductions:		
Copies of documents destroyed	1,780	2,027
Copies of documents downgraded	0	0
Copies of documents declassified	0	0
Classified documents located which were unaccounted for in previous inventory	32	8
Volume of unclassified mail handled by the 300 Area Mail Room	33,892	39,556

The inventory of classified documents is proceeding on schedule. The physical inventory of the E & C Files has now been completed, and the check of the results against the basic file record cards is underway. In the 700 Area Classified Files, the inventory of the subject file is now completed and the inventory of the numerical file is well started. In the 300 Area Classified Files, priority has been given to the inventory of the classified research and development reports. The physical inventory has been completed and the inventory summary is going forward rapidly in order to meet the June deadline established by GM-176.

Considerable time was expended on matters in connection with the revision of the A.E.C. Standard Distribution List (M-3679) planned for April 15, 1951. The Atomic Energy Commission suggested revision of the present "Health and Biology" category into two new categories, one concerned with reports on plant and animal experimentations where interpretations leading to personnel protective measures were not included, and the other concerned with reports on personnel decontamination, personnel protective measures, operating procedures for radioactive areas, and research and development reports relating directly to the development of such procedures. The proposed revision, roughly paralleling the division of responsibility within the H. I. Divisions, was approved for Hanford with minor changes.

A second revision suggested by the A.E.C. involved the elimination of the categories "Technology-Uranium" and "Technology-Uranium Compounds," redefinition of the category "Metallurgy and Ceramics," and the establishment of a new category "Technology-Feed Materials" for reports on the preparation of large scale amounts of uranium and its compounds. In effect, the proposal suggested a division of the reports on uranium technology into those concerned with the derivation of the metal from the ore, and those concerned with its subsequent treatment. This suggested revision was also accepted for Hanford with minor changes.

These changes, plus the revision of the category "Reactors" mentioned in the February report, involved the development of new distribution lists. Hanford

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Works copy requirements for the different categories and for unclassified reports was reviewed and submitted to the Atomic Energy Commission. Wherever possible, copy requirements were lowered in order to reduce classified document accountability problems.

Plant personnel were notified of a special A.E.C. subsidized supplement to the Journal of the American Chemical Society. This issue will be devoted to papers on the synthesis of labeled compounds, and on special techniques of isotope work such as isotope dissolution analysis, paper chromotography, etc. It is hoped that this arrangement will secure publication of a large number of unpublished papers on these subjects originated within the Commission's activities. Hanford originated reports suitable for inclusion were solicited.

In this connection, the A.E.C. Joint Conference on Document Control, held in Chicago on March 15 and 16, decided to expand the requirements of CM-176 to include the inventory of CONFIDENTIAL as well as SECRET research and development reports. Confirmation of this decision, which was anticipated and provided for in the Hanford inventory procedure, is expected shortly from the Atomic Energy Commission. The Chicago meeting also brought out the fact that eight major A.E.C. installations are taking complete inventory of classified documents as is being done at Hanford.

The Senior Responsible Reviewers met at Hanford, March 9 and 10. The Chief Librarian accompanied them on a tour of the outer Areas, and attended the subsequent meeting where local problems of classification and declassification were discussed. This meeting highlighted again the current Hanford practice of applying the same Security controls to both CONFIDENTIAL and SECRET reports. Since this practice is not project wide, a study is being undertaken to develop the volume of CONFIDENTIAL material handled at other installations, and the procedures used to control it.

The fourth edition of CA-1927 (Subject Headings To Be Used For The Indexing of Technical Reports) was received. This edition, which now comprises some 300 pages of detailed subject headings, is presumably the last complete revision of this document. Previous reports have indicated Hanford's contribution to this document. Basically, the new edition incorporates a change from the indirect entry form, previously used for subject headings, to the direct entry form. This change is in line with the most advanced thinking on modern indexing problems. The subject headings are now arranged in a straight alphabetical file, and the numbering system used in previous editions has been abandoned. The looseleaf format used will simplify the problem of future additions, deletions, partial revisions, etc. A plan is presently under consideration for a meeting of abstracters and indexers from the various A.E.C. installations to discuss the application of the new edition to the revision of the classified reports index.

A number of meetings were held throughout the month on various problems on classified document accountability and control. A meeting of personnel from the A.E.C. Security Division, General Electric Security Division, and Classified Files was held regarding an improved procedure for the handling of classified photographs.

[redacted]

B. R. Prentice met with personnel from the E & C Classified Files, the Operations Classified Files, and the Reproduction Section, to firm up the transmittal of classified documents between the Nucleonics Office and the General Engineering Laboratory in Schenectady, and the Files units at Hanford. Plans were completed to treat the Schenectady Office File as a branch of the Hanford Classified Files, with local accountability for all classified documents transmitted there. Accountability for classified documents previously charged directly to Schenectady Office personnel from the various Hanford files will be transferred to the Schenectady Office File. Steps are underway to establish similar centralized control of classified documents issued and received by the General Engineering Laboratory.

During his visit to Hanford, personnel from the A.E.C. Operations Office, A.E.C. Security, and Classified Files met with B. M. Fry, Chief Librarian, Technical Information Service, Washington, D. C., on problems of classified document accountability.

Personnel from Operations and E & C Classified Files, and the Reproduction Section, met with the Hanford Works Sub-Committee of the Nucleonics Records Committee to discuss the inventory of Job 11 classified documents in the possession of the Kellex Corporation in New York. It was agreed that the E & C Classified Files, the Reproduction Section, and the Records Control Division would handle the planned spot-check inventory prior to transfer of accountability for classified documents and blueprints to Hanford as discussed in the February report. It was further agreed that a complete inventory of this material was unnecessary, inasmuch as the accountability was to be re-transferred to Kellex on the basis of the inventory list submitted by Kellex. Thus, any errors appearing in the lists would ultimately become a Kellex responsibility.

A portion of the new Records Center has been screened off for the exclusive use of the Classified Files. It is planned to retire immediately all classified notebooks, and an accumulation (from August 1946) of S series run books presently stored in a vault in the 271-T Bldg. Plans have been made to expedite the program of classified document retirement, supplementing the present active destruction program which is steadily reducing the site document accountability.

Central Reporting Service

Work volume statistics for this Unit were as follows:

	February	March
Ditto masters run	673	510
Mimeograph stencils run	863	620
Ditto copies prepared	24,747	18,587
Mimeograph copies prepared	87,293	53,525
Formal Research and Development Reports issued	10	11
Reports abstracted	357	475

Operations and services proceeded routinely.

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INVENTIONS

All Technical Services Division personnel engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during March 1951. 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
T. W. Hauff, Division Head

TWH:mcs

MEDICAL DIVISIONS

MARCH 1951

General

Personnel Changes

The roll decreased from 288 to 282.

General

An epidemic of influenza which reached a peak during the month has almost ended. It influenced all phases of medical activity. About 15% of the population was involved according to a rough estimate.

Visits

The operating room supervisor attended a 5 day institute on Operating Room Techniques at Santa Monica, California for one week.

Dr. Herman Smith, consultant on the Kadlec Hospital construction program, was here on March 10 and 11.

Miss C. Kinney, University of Washington School of Nursing, visited the division of Public Health.

Industrial

Employee physical examinations increased from 2346 to 2817. Dispensary treatments increased from 7894 to 9161 largely due to a high incidence of influenza among employees.

New equipment for the more scientific testing of hearing and seeing was obtained and will greatly improve these phases of employee physical examinations.

Four major and 14 sub-major injuries were treated as compared to 5 major and 3 sub-majors for the previous month. No major and four sub-major injuries were sustained by G. E. employees.

An S division employee inhaled a very small amount of plutonium and was treated to increase the rate of elimination from the body. The extent of plutonium left in the system can only be estimated with fair degree of accuracy after the lapse of several months.

Cancer was the health topic for the month.

Sickness absenteeism (weekly employees) for March increased by 1.49% to 3.92% while total absenteeism increased by 1.61% to 4.65%. This is the highest monthly rate of sickness absenteeism since the beginning of operations here and was due to the epidemic of influenza. Sickness absenteeism (monthly employees) for February increased by .22% to 1.32%, while total absenteeism increased by .36% to 1.82%. The March data is not available yet.

Kadlec Hospital

The average daily census increased from 102.3 to 112.0 (97.7 adults, 14.3 infants). The census was 86.4 a year ago. This is the highest infant census ever recorded at Kadlec, 90 deliveries being made.

Daily adult census: Maximum 113, Minimum 76.

The high adult census was partially due to the epidemic of influenza.

The adult occupancy rate was 94.9%. The rate for the mixed services (all services except obstetrics) was 100%. The very high occupancy rates for the past several months indicate a need for more adult beds at Kadlec. A modification of the scope of project C-204 A, B is being requested to allow for adding more bed space at Kadlec with whatever funds remain after completion of the project in its present scope. Dr. Herman Smith, our hospital consultant concurs in this recommendation.

Nursing hours per patient day were 2.76 for the mixed service and 3.06 for obstetrics. This is lower than that required for good service and was occasioned by an unexpectedly heavy patient load coupled with a high nurse turnover rate.

MEDICAL DIVISIONS

MARCH 1951

General (Continued)

Public Health

A sudden rise in an upper respiratory type of infection was experienced. From a check of school absenteeism it was estimated that approximately 15% of the population was effected. Blood tests indicated that many of these infections were due to Influenza - Type A prime.

Measles showed a sharp increase. The division arranged for a regional meeting of the Washington State Public Health Association, with about 64 local and out of town people in attendance. This was the first regional meeting of this type to be held in this state and received commendation from the state organization.

Costs (February)

Medical Divisions' operating costs, before assessments to other divisions, were as follows:

	January	February	February Budget
Industrial Medicine (Oper. Div.)	$ 41,401	$ 36,680	$ 40,674
Public Health	11,072	10,352	11,070
Kadlec Hospital (net)	24,204	21,531	21,959
Hospital assessments to other divisions and workmen's compensation	3,056	2,446	3,208
Subtotal - Operations - Medical Divisions	79,733	71,009	76,911
Construction Medical (Industrial & Public Health)	12,085	11,406	13,380
Total Operations and Construction	$ 91,818	$ 82,415	$ 90,291

The net cost of operating the Medical Divisions, before assessments to other divisions was $82,415, a decrease of $9,403 and $7,876 below the budget figure.

The improvement resulted in large part from the (1) lower salary costs due to the shorter month, (2) decrease in transferred charges from other divisions which more than offset (a) lower assessments to other divisions and (b) a small decrease in revenue. The revenue was high because of a higher average hospital census than was anticipated.

MEDICAL DIVISIONS

MARCH 1951

Industrial Medical Division

General

Physical examinations increased from 2346 in February to 2817 in March. Dispensary treatments increased also from 7894 to 9161. Subcontractor employees sustained 4 major injuries and 10 sub-major injuries. General Electric employees sustained 4 sub-major injuries

Dr. Eckles attended Department of Labor hearings during the month and gave medical testimony.

New equipment for testing vision was obtained and training of personnel to perform these tests is underway.

The industrial physicians scientific meeting dealt with a discussion on plant and civilian defense.

The Chemical Hazards Committee met on March 29 and the findings of the survey made on metal cutting operations at the White Bluffs shops were discussed. Continued study is being made on the chemicals to be used in the Redox process.

The Health Activities Committee met on March 21st. The Health Topic on "cancer" was presented. Material on this subject was prepared for distribution to all employees. Work is being done to make the representation on this committee more effective divisionwise.

Absenteeism (weekly employees) due to all causes increased by 1.61% to 4.65%, while absenteeism due to sickness increased 1.49% to 3.92%. Absenteeism (monthly employees) due to all causes increased by .36% to 1.82%, while absenteeism due to sickness increased .22% to 1.32%.

Medical treatment was given to one employee who inhaled plutonium in dry powder form. Estimation of amounts is not yet complete but it is believed that the amount deposited will be under tolerance. Treatment was directed at increased excretion.

The net cost of operations decreased $4543 as compared with the previous month. This was due chiefly to a shorter month, and decreased charges from other divisions,

Industrial Medical Costs:

	Increase or (Decrease) over Previous Month	February	January	February Budget
Administration	$ (961)	$ 7499	$ 8460	$ 8937
Household & Property	(199)	1407	2606	1300
Professional Services	(1254)	23637	24891	26250
Total Direct Expense	(3414)	32543	35957	36487
Accrual for Public Liability Claims	0	150	150	0
Transferred from Other Divisions	(1229)	4684	5913	5130
Less: Revenue	78	697	619	943
Workmen's Compensation	(178)	464	642	700
Net Cost of Operation	(4543)	36216	40759	39974

MEDICAL DIVISIONS

MARCH 1951

Physical Examinations	February	March	Year to date
Operations			
Pre-employment	232	241	761
Rehire	85	53	186
Annual	314	321	1138
Interval	231	336	797
Visitor	1	1	2
A. E. C.	25	20	51
Re-examination and rechecks	88	178	442
Termination	142	205	439
Sub-total	1118	1355	3816
Sub-contractors			
Pre-employment	322	344	1073
Rehire	324	349	1070
Recheck	77	85	268
Termination & Transfer	505	684	1673
Sub-total	1228	1462	4084
Total Physical Examinations	2346	2817	7900
Laboratory Examinations			
Clinical Laboratory			
Government	88	91	209
Pre-employment, termination, transfer	5725	6567	19490
Annual	1617	1681	5898
Recheck (Area)	1216	1693	4147
First Aid	23	19	49
Clinic	2804	3131	9043
Hospital	4820	4888	14121
Public Health	14	20	75
Total	16307	18090	53032
X-Ray			
Government	11	14	28
Pre-employment, termination, transfer	921	1017	3230
Annual	335	112	1101
First Aid	141	170	471
Clinic	250	250	742
Hospital	234	338	806
Public Health	11	6	32
Total	1903	1907	6410
Electrocardiographs			
Industrial	20	25	93
Clinic	6	2	12
Hospital	25	33	94
Total	51	60	199
Allergy			
Skin Tests	1	2	11

MEDICAL DIVISIONS

MARCH 1951

First Aid Treatments	February	March	Year to Date
Operations			
New Occupational Cases	275	230	836
Occupational Case Retreatments	880	711	2664
Non-occupational Treatments	2662	3473	8973
Sub-total	3817	4414	12473
Construction			
New Occupational Cases	644	735	2068
Occupational Case Retreatments	2472	2680	7579
Non-occupational Treatments	945	1305	3058
Sub-total	4061	4720	12705
Facility Operators	16	27	88
Total First Aid Treatments	7894	9161	25266
Major Injuries			
General Electric	0	0	1
Sub-contractors	5	4	14
Total	5	4	15
Sub-major Injuries			
General Electric	1	4	5
Sub-contractors	7	10	30
Total	8	14	35

Absenteeism Report - Weekly Employees

	Male	Female	Total	Percent Absenteeism	Comparison with Previous Month
No. days absent due to all causes	4707	2353	7060	4.65%	1.61% more
No. days absent due to sickness only	3899	2059	5958	3.92%	1.49% more

Avg. days absent due to sickness by each male employee ..... .86 day or 860 days/1,000 employees

Avg. days absent due to sickness by each female employee ..... 1.31 days or 1,310 days/1,000 employees

Avg. days absent due to sickness by all employees ..... .98 day or 980 days/1,000 employees

Comparison of present year-to-date total absenteeism figure with the 1950 figure shows an increase of .85%

Absenteeism (Weekly Employees) by Divisions:

Municipal, Real Estate & General Service	3.96%
Employee & Community Relations	4.11%
Manufacturing	4.43%
Plant Security & Services	4.51%
Purchasing & Stores	4.67%
Medical	4.87%
Engineering & Construction	5.03%
Technical	5.32%
General Accounting	5.41%
Health Instrument	5.64%

MEDICAL DIVISIONS

MARCH 1951

Absenteeism Report - Monthly Employees:

	Male	Female	Total	Percent Absenteeism	Comparison with Previous Month
No. days absent due to all causes.....	683	25	708	1.82%	.36% more
No. days absent due to sickness only.....	493	22	515	1.32%	.22% more

Avg. days absent due to sickness by each male employee..... .26 day or 260 days/1,000 employees
Avg. days absent due to sickness by each female employee..... .39 day or 390 days/1,000 employees
Avg. days absent due to sickness by all employees..... .27 day or 270 days/1,000 employees

Absenteeism (Monthly Employees) by Divisions:

Employee & Community Relations.....	.42%
Municipal, Real Estate & General Services.....	1.08%
Purchasing & Stores.....	1.18%
Design & Construction.....	1.62%
General Administrative.....	1.82%
Manufacturing.....	1.87%
Medical.....	1.88%
Technical.....	2.15%
Plant Security & Services.....	2.31%
Health Instrument.....	2.31%
General Accounting.....	3.40%

Absenteeism Investigation	February	March	Year to date
Total No. calls requested.....	6	17	47
Total No. calls made.....	6	17	47
No. absent due to illness in family.....	0	0	0
No. not at home when call was made.....	0	5	11

MEDICAL DIVISIONS

MARCH 1951

Hospital Division

General

The average daily adult hospital census increased from 90.7 to 97.7, as compared to 76.6 a year ago. This represents an occupancy percentage of 94.9% broken down as follows: Mixed Service (Medical, Surgical, Pediatrics) - 100.0%; Obstetrical Service - 71.5%. The minimum and maximum daily census during the month ranged as follows:

	Minimum	Maximum
Mixed Service.....	61	94
Obstetrical Service.....	7	23
Total Adult.....	76	113

The average daily newborn census increased from 11.6 to 14.3, as compared to 9.8 a year ago.

Nursing hours per patient per day:

Medical, Surgical, Pediatrics.....	2.76
Obstetrical.....	3.06

These nursing hours are lower than we intend to provide and they have resulted primarily from a combination of an unusual increase in census and the lag between requesting additional personnel and actually receiving them for duty.

The ratio of hospital employees to patients (excluding newborn) for the month of February was 1.65. When newborn are included, the ratio is 1.46.

The net expense of the Richland community medical program for February, 1951 was $21,531, as compared to $24,204. for January. Summary is as follows:

Kadlec Hospital net expense $21,531

This is a decrease of approximately $2600 as compared to January. It results from a reduction in salary cost of about $2100. and a reduction in transferred charges from other divisions of approximately $2200. Professional supplies and costs decreased about $1000., but this was offset by a corresponding increase in payments for food and household & property supplies. Cost reductions came about from a shorter working month. These reductions were partially offset by a reduced revenue of about $1100 and a $600 decrease in assessments to other divisions, also from the shorter month.

No charges are made against the clinic because the clinic medical records work has been completed.

Miss Ruth Bridges, R. N., attended an Institute on Operating Room Techniques from March 19 through 24. It was held at St. Joseph's Hospital, Santa Monica, California under the auspices of the Department of Surgery, School of Medicine, University of California.

Mr. M. J. Smith and Mr. O. E. Bakko completed their survey of hospitals in Washington and Oregon. The data obtained are in the process of being summarized.

MEDICAL DIVISIONS

MARCH 1951

Hospital Divison

General (Continued)

Mr. W. T. Pope, Assistant to the Manager, resigned on March 15 to accept a position elsewhere. He was succeeded by Mr. O. E. Bakko who in turn is being assisted by Mr. E. J. Quigley. Mr. Quigley spends part of his time as Supervisor of Industrial Nursing and part of the time as assistant in personnel, maintenance and general hospital administrative work.

Dr. Herman Smith, consultant on the medical program of the Medical Divisions, visited Kadlec Hospital on the weekend of March 10 and 11. He recommended that additional beds be provided with whatever amount of money was determined left over from the present construction program and the total approved appropriation. Necessary action is being taken to follow up this recommendation.

Kadlec Hospital	February	March	Year to date
Average Daily Adult Census	90.7	97.7	91.8
Medical	23.0	31.4	27.2
Surgical	37.9	32.7	33.4
Pediatric	17.6	19.3	18.8
Obstetrical	12.2	14.3	12.4
Average Daily Newborn Census	11.6	14.3	12.4
Maximum Daily Census:			
Mixed Services	94	94	
Obstetrical Service	20	23	
Total Adult Census	109	113	
Minimum Daily Census:			
Mixed Services	58	61	
Obstetrical Service	9	7	
Total Adult Census	67	76	
Admissions: Adults	511	606	1676
Discharges: Adults	515	615	1664
Newborn	64	85	215
Patient Days: Adult	2540	3028	8263
Newborn	326	444	1117
Total	2866	3472	9380
Average Length of Stay: Adults	5.0	5.0	4.9
Newborn	5.2	4.9	5.3
Occupancy Percentage: Adults	88.1	94.9	89.1
Newborn	82.9	102.1	88.6
(Occupancy Percentage based on 103 adult beds and 14 bassinets.)			
Avg. Nursing Hours per Patient Day:			
Medical, Surgical, Pediatrics	3.2	2.76	
Obstetrics	4.57	3.06	
Avg. No. Employees per Patient (excluding newborn)	1.65		
Operations: Major	98	77	264
Minor	76	71	268
E.E.N.T.	76	78	243
Dental	3	3	9

MEDICAL DIVISIONS

MARCH 1951

	February	March	Year to date
Births: Live	63	90	210
Still	1	0	1
Deaths	4	6	15
Hospital Net Death Rate	.20%	.14%	.30%
Net Autopsy Rate	50.0 %	0	33.3 %
Discharged against advice	2	0	4
One-day Cases	100	101	302
Admission Source:			
Richland	74.2 %	75.7 %	75.6 %
North Richland	13.9 %	11.5 %	11.6 %
Other	11.9 %	12.4 %	12.8 %
Admissions by Employment:			
General Electric	73.0 %	71.6 %	72.7 %
Government	2.5 %	1.8 %	2.4 %
Facility	5.1 %	4.6 %	4.4 %
Sub-contractors	14.5 %	16.2 %	14.9 %
Schools	1.4 %	2.3 %	1.8 %
Military	2.5 %	2.1 %	2.6 %
Others	1.0 %	1.3 %	1.2 %
Hospital Outpatients Treated	336	516	1422
Physical Therapy Treatments			
Clinic	181	187	555
Hospital	64	62	254
Industrial: Plant	154	144	440
Personal	26	17	56
Total	425	410	1305
Pharmacy			
No. of Prescriptions Filled	3072	3795	9880
No. of Store Orders Filled	760	751	2229
Patient Meals			
Regulars	3841	4788	12501
Specials	1126	1495	3905
Lights	21	18	40
Softs	1560	1729	5186
Tonsils & Adenoids	190	187	566
Liquids	198	238	633
Surgical Liquids	82	122	265
Total	7018	8577	23096
Cafeteria Meals			
Noon	1240	1354	4019
Night	201	193	671
Total	1441	1547	4690

MEDICAL DIVISIONS

MARCH 1951

Public Health Division

General

A sudden rise in an upper respiratory type of infection was experienced. It was estimated from a check of the school absenteeism that approximately 15% of the population was affected. Several blood samples collected and sent to the virus laboratory were reported as having an increase in titre for Influenza type A prime. From this it can be concluded that many of our infections were due to this virus. Our experience was similar to that of the rest of the state and country. At the present time this outbreak has subsided.

Red measles has also shown a sharp rise with all other communicable diseases remaining at approximately the same level.

Home public health nursing visits increased approximately 15%, reflecting the rise in communicable diseases and morbidity.

The Division arranged for a regional meeting of the Wasington State Public Health Association, with approximately 64 local and out of town people in attendance. The state organization commended us on the success of this venture which was the first of its kind to be held in the state.

A sanitary survey was made of the schools by this department. Results were very satisfactory with but a few minor violations.

Mosquito control operations have consisted essentially of clearing and burning of ditches in the vicinity of the community.

Restaurants in this area were inspected. It was necessary to degrade one restaurant because of insanitary conditions.

There has been a noticeable increase in dog bites this past month. Some dogs were impounded for observation of rabies which is now prevalent in northeastern Washington.

The majority of cases handled by the social service counselors were problems of adolescents or pre-adolescents. Several referrals came from both the junior and the senior high schools. In most incidents work was done directly with the adolescent and with his parents in an attempt to remove causes of symptomatic behavior which was disturbing to school and community. When circumstances did not permit direct work with the families, the teachers and school counselors were advised as to the methods of helping the youngster in the school setting.

Education	February	March	Year to date
Pamphlets distributed	14955	1200	30591
News Releases	0	0	0
Staff Meetings	2	1	4
Classes	1	4	5
Attendance	14	53	67
Lectures & Talks	14	7	27
Attendance	143	123	568
Films shown	12	4	17
Attendance	624	94	793
Community Conferences	51	37	123
Radio Broadcasts	0	0	0

MEDICAL DIVISIONS

MARCH 1951

Immunizations	February	March	Year to date
Diphtheria	1	5	88
Diphtheria Booster	65	4	79
Tetanus	14	6	447
Tetanus Booster	109	102	220
Pertussis	1	2	11
Pertussis Booster	55	2	58
Typhoid	4	0	13
Typhoid Booster	0	0	0
Smallpox	2	1	14
Smallpox Revaccination	2	3	25
Tuberculin Test	7	7	14
Social Service			
Cases carried over	73	84	237
Cases admitted	20	19	52
Cases closed	9	7	36
Remaining case load	84	96	253
Activities:			
Home Visits	18	22	62
Office Interviews	219	233	678
Conferences	89	84	251
Meetings	11	15	45
Sanitation			
Inspections made	130	129	447
Conferences held	22	5	41
Bacteriological Laboratory			
Treated water samples	153	169	522
Milk samples (inc. cream & ice cream)	8	12	28
Other bacteriological tests	261	314	862
Total	422	495	1412
Communicable Diseases			
Chickenpox	83	87	331
Erysipelas	0	0	7
German Measles	10	19	29
Impetigo	2	0	2
Influenza (Upper Respiratory Infection)	1	3090	3091
Measles	0	18	18
Meningitis	0	1	1
Mumps	2	0	2
Salmonellosis	1	1	2
Pinkeye	0	0	3
Ringworm	2	4	6
Roseola	2	1	13
Scabies	0	1	2
Scarlet Fever	12	11	33
Tuberculosis	0	2	3
Whooping Cough	0	1	1
Total	115	3236	3544

MEDICAL DIVISIONS

MARCH 1951

	February	March	Year to date
Total No. Nursing Field Visits.....	839	953	2325
Total No. Nursing Office Visits.....	125	139	407

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HEALTH INSTRUMENT DIVISIONS

MARCH 1951

Summary

There were three informal investigations and one Class I investigation of special hazards incidents.

The control programs of all the divisions showed no result significantly different from the expected pattern, except in the increased release and deposition of I^{131}.

The development division appeared to have proved specifically the production of tritium in the P-13 experiment, beyond the concentrations suggested by the current physical constants. Further investigation of this interesting problem would be outside the responsibilities of the division.

The biology division reported several experiments suggestive of ways in which tritiated water may be introduced into the body, and how it would be utilized by the body. The fish laboratory work tended to confirm the previous interpretation that pile effluent was more toxic as a chemical poison than as a radiological one.

2

[redacted]

From time to time, the reporting base of the film badge program has been changed to try to match revised permissible limits. There is still some uncertainty as to whether the permissible whole body surface exposure to beta radiation will be 0.5 or 1.5 rep per week. The issue is further complicated locally by the practice of using badges for 2 weeks in all except the 300 Area.

No ready means of sorting out the real meaning of the several combinations of exposure in a concise report exists. Those cases of special interest will be pointed out in the text each month.

The following trips were reported:

P.R. McMurray and M.M. Cox - ORNL, Oak Ridge, Tenn. to attend discussion of Chalk River accident.
H.G. Rieck - ANL, Chicago, Ill.
R.C. Thompson- ANL, Chicago, Ill.

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.J. Dorwart	Apparatus for Measuring Absorption of Radioactive Gases.

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Health Instrument Divisions

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OPERATIONAL DIVISION

100 Areas

General Statistics

	February					March					1951 To Date
	B	D	F	H	Total	B	D	F	H	Total	
Special Work Permits	685	1150	743	1120	3698	619	959	635	776	2989	9896
Routine & Spec. Surveys	607	717	572	684	2544	584	637	513	504	2202	6661
Retention Basin	84	211	84	86	465	72	164	82	100	418	1318
Air Monitoring samples	160	262	111	103	103	135	179	125	92	525	1633

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)	415	390	480-520	380-400	505
Average beta dosage-rate (mrep/hr)	1.5	1.9	2.9	1.9	2.3
Average gamma dosage-rate (mr/hr)	3.9	3.6	5.6	4.9	4.6
Average total dosage-rate (mrep/hr)	5.4	5.5	8.5	6.8	6.9
Average integrated dose in 24 hrs. (mrep)	129	132	204	163	166
Maximum integrated dose in 24 hrs. (mrep)	134	166	254	226	206
Maximum integrated dose in 24 hrs. (mrep) 1951	134	166	254	226	206

100-B Area

Pile and Associated Buildings

Radiation conditions were normal.

P10 Operation - 108 Building

Two employees gave urine samples showing greater than 20 μc/liter of tritium oxide; the maximum sample was 37 uc/liter. Activity density of the urine of the employee involved in the Class 2 incident last month fell from 407 uc/liter to 9 uc/liter.

Metallurgical Laboratory - 111 Building

The entire transfer area was contaminated during work on the ruptured slug from process tube DF3188. Decontamination is in process.

Health Instrument Divisions

100-D Area

105-D Pile and Associated Buildings

A beam was discovered coming from the "B" experimental hole as a result of improper replacement of shielding; dosage-rates of 1.5 r/hr and 560 mrem/hr at three feet were reported.

105-DR Pile and Associated Buildings

On two occasions the process tubes were purged with the pile at a reduced power level. The purge water was diverted to the emergency trench. Although the purge material became highly radioactive, no unusual hazards problem resulted.

100-F Area

Pile and Associated Buildings

No unusual condition was reportedduring this period.

Biology Facilities

Exposure-rates up to 1.5 r/hr and 1.5 mrep/hr were encountered in the preparation of I^{131} and P^{32} solutions, respectively. Plants associated with the P^{32} experiment showed surface dosage-rates up to 1 rep/hr. No overexposure to personnel was indicated.

P-11

Twenty-three of the 40 air samples taken were above 10^{-11} µg Pu/cc. The maximum sample was 6.4×10^{-10} µg Pu/cc, taken from a hood ventilating duct during handling of process solution inside the hood.

Two incidents of contamination spread occurred when small quantities of process solution were spilled on the floor. Decontamination efforts were successful.

100-H Area

Pile and Associated Buildings

A ruptured P-10 piece was removed from tube #3483 without incident. The maximum exposure-rate encountered was 15 r/hr during discharge of the tube. No overexposure was reported.

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200 Areas - T and B Plants

General Statistics

	February					March					1951 to Date
	T	231	234-235	B	Total	T	231	234-235	B	Total	
Special Work Permits	355	31	249	320	955	456	35	276	320	1087	3376
Routine & Spec. Surveys	481	390	575	520	1966	533	458	425	514	1930	5808
Air Monitoring Samples	417	565	1247	557	2786	581	627	1327	705	3240	9300
Thyroid Checks	75	-	-	27	102	45	-	-	41	86	278

Canyon Building

In the T Plant, canyon deck contamination resulted when a 14-4 sample was spilled, with exposure rates up to 22 rep/hr including 2 r/hr reported. However, decontamination efforts were successful with no overexposure reported. An apparent faulty seating of the 75 ton crane cab filter permitted the exposure of the occupants for a short time to atmospheres containing 3×10^{-9} μc f.p./cc.

Forty-nine of 177 air samples showed results above 10^{-12} μg Pu/cc, with a maximum of 2.4×10^{-10} μg Pu/cc during crane work in the canyon; 137 samples were above 10^{-10} μc f.p./cc, with the maximum of 7.6×10^{-8} μc f.p./cc.

In the B Plant, 102 of 257 air samples showed results above 10^{-12} μg Pu/cc, with a maximum of 1.7×10^{-9} μg Pu/cc taken during crane work; 93 samples were above 10^{-10} μc f.p./cc with a maximum of 5.4×10^{-8} μc f.p./cc. Extensive canyon decontamination was made resulting in improvement of the canyon condition.

Concentration Buildings

Cell roof vents indicated the following average discharge rates:

Cell Vent	μg Pu/24 hours 224-T	224-B
A	-	30
B	50	45
C	44	-
D	46	45

Waste Areas

In the B Plant, the above ground jet assembly from the 102-BX tank to 103-BX tank being used to by-pass the plugged line showed dosage rates up to 11 r/hr at 2 inches during jetting.

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Health Instrument Divisions

Plant Laundry

Five of the 43 air samples showed positive results, with a maximum of 6×10^{-12} µg Pu/cc obtained while processing Isolation and Purification Building clothing.

General

All thyroid checks were below the warning level.

Isolation Building

One hundred and seven of 627 air samples taken were above 10^{-12} µg Pu/cc; the maximum of 3×10^{-10} µg Pu/cc was obtained on the 903 duct system. Eighty-eight unregulated items and two floor locations were found contaminated. The maximum level of gamma radiation encountered was 120 mr/hr on PR containers.

Purification Building

Air Sample Results

Two hundred and ninety-five of 1327 air samples were above 10^{-12} µg Pu/cc; the maximum sample of 3.7×10^{-8} µg Pu/cc was obtained in the ducts after the Primary Filter.

234 Building - Operating Sections

Gross face, head and hand contamination resulted to an employee who was examining the contents of a waste carton. Postive bio-assay results were obtained in conjunction with this incident; however, further data are necessary before the extent of the body deposition of Pu can be established. This incident was formally investigated as Class I.

235 Building - Operating Section

Contamination spread involving approximately 25 µg of Pu occurred in room 231 when an inadequate hand survey was made upon withdrawal from a ruptured hood glove.

General Building

The plutonium concentration in the discharge air for the 26 inch vacuum exhaust averaged 2.8×10^{-11} µg/cc.

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Health Instrument Divisions

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200 Area Control Laboratories

	T	B	231	234 235
Items contaminated - not regulated	246	110	228	132
Skin contamination - alpha	1	2	6	0
Skin contamination - beta	4	2	-	-
Contaminated floor locations	16	59	16	49

In the T Plant, monitoring assistance was furnished while running 17 process samples. The underground dry waste pit appeared to have filled with waste necessitating the higher level waste to be boxed for disposal to the area burial ground.

In the B Plant, a faulty stirrer caused splashing of active material on the face and face shield of the laboratory assistant. This incident was investigated informally.

In the Isolation Building, several instances of floor contamination occurred as a result of dropped samples and discs. Micrograms of plutonium were spread in an incident when the stopper popped out of a container, apparently due to pressure built up in that container.

In the Purification Building, a plutonium air concentration of 4.1×10^{-10} ug Pu/cc was obtained in room 134 over a 24 hour period as a result of inadequate air flow through the hood caused by the damper slipping.

Particulate contamination in particles per 1000 cubic meters was as follows:

Location		February	March
222-T	Outside	65	28
	Hallway	78	58
	Room 7	320	450
222-B	Outside	110	19
	Hallway	98	55
	Room 7	410	735

300 Area

General Statistics

	February	March	1951 to Date
Special Work Permits	102	149	334
Routine & Spec. Surveys	246	330	836
Air Samples	248	273	659

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Health Instrument Divisions

Metal Fabrication Plant

Forty-one of 101 air samples were above 5×10^{-5} ug U/cc; the maximum of 9.8×10^{-3} ug U/cc was obtained in a freight car while unloading rods.

Test Pile Buildings

Radiation conditions were normal.

Technical Building

Dosage rates on special slugs received to be bubble tested were up to 50 r/hr. Inspection of the slugs indicated they were improperly canned. Testing and inspection were done with a maximum exposure rate of 2000 mr/hr.

Hand Score Summary

There were 38,865 alpha and 42,369 beta scores reported. About 0.08 percent of the alpha and about 0.07 percent of the beta scores were high. No attempted reduction was indicated on one high beta score from the 100-H Area. Where decontamination was attempted, it was successful in all cases reported.

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Health Instrument Divisions

PERSONNEL METERS

Pencils

	100-B	100-D	100-F	100-H	200	200-W Const.* 200-W	300	Total	1951 to Date
						9,911*			
Pencils Read	17,650	16,548	14,817	9,582	23,382	34,061	37,531	163,482	468,318
Single Readings (100 to 280 mr)	23	28	17	13	22	13* 52	39	207	592
Paired Readings (100 to 280 mr)	0	0	0	0	0	0	1	1	6
Single Readings (Over 280 MR)	20	8	18	11	16	22* 27	40	162	697
Paired Readings (over 280 mr)	0	0	0	1	1	0	11	13	16
Lost Readings	3	0	0	0	0	1	0	4	23

Of the fourteen significant pencil readings reported, two were confirmed by badge results but did not constitute an overexposure.

Investigation of lost readings indicated no possibility of an overexposure.

Badges

	100-B	100-D	P-11 101-P 100-F	100-H	200-E	R.R.D. 200-W	200-W	300	Total	1951 to Date
Badges Processed	2,854	2,679	2,635	1,919	3,333	687	3,997	8,226	26,330	74,443
Number Readings (100 to 300 mrep)	18	14	8	16	39	0	99	93	287	1,057
Number Readings (300 to 500 mrep)	1	0	0	0	1	0	1	3	6	96
Number Readings (500 to 1000 mrep)	0	0	2	0	0	0	0	0	2	24
Number Readings (Over 1000 mrep)	0	0	0	0	0	0	0	0	0	4
Lost Readings	1	1	2	1	0	0	2	0	7	28

Of the eight readings reported between 300 - 1000 mrep, only one was above 300 for gamma.

Lost readings were accounted for as follows:

Badge lost in area	3
Lost in processing	2
Light struck	1
Packet lost in area	1
Total	7

Investigation of the above lost readings indicated no possibility of an overexposure.

Health Instrument Divisions

Badge Resume, Construction Areas

	200-W Const.	200-E Const.	Total	1951 To Date
Badges Processed	3,719	2,798	6,517	18,530
Number Readings (100 to 300 mrep)	27	3	30	75
Number Readings (300 to 500 mrep)	11	0	11	21
Number Readings (500 to 1000 mrep)	0	0	0	10
Number Readings (Over 1000 mrep)	0	0	0	1
Lost Readings	0	2*	2	3

*Open window exposed to X-ray in badge bus.

Total badges processed 1951,	Operation	74,443
	Construction	18,530
	Total	92,973

In addition to the badge program, a total of 1,570 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	1951 To Date
Number of pairs issued	34	103	116	103	222	578	1,720
Number of significant readings	0	18	3	3	16	47	71
Number of significant readings (above 50 mrem)	0	0	0	0	0	0	1

Neutron Film

Badges Processed	100-B	100-D	100-F	100-H	200-W	Total	1951 To Date
Personnel	20	105	32	84	56	297	870
Special	2	32	1	0	25	60	112

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Health Instrument Divisions

CONTROL AND DEVELOPMENT DIVISION

CONTROL GROUPS

Site Survey

There was no unusual finding in monitoring for radioactive contamination in drinking water. The activity density of beta emitters in the Columbia River did not differ from the average levels of last month; the maximum activity density measured was 7.7×10^{-6} μc/cc in a sample taken near Hanford; the average of ten samples taken from the river at McNary Dam was 6.5×10^{-7} μc/cc. Sediments filtered from backwash water of the Pasco Water Purification Plant averaged about 2.4×10^{-3} μc/gram of beta emitters; the activity density of the filtrate was about 4.3×10^{-8} μc/cc.

Dosage-rates as measured by detachable ionization chambers returned to normal this month; the number of active particles measured in the atmosphere were also within the expected range this month. These findings tend to confirm the increase noted last month which was believed to be the results of atomic explosions at the Nevada testing grounds. Filterable beta emitters and I^{131} in the atmosphere were comparable with last month's levels. I^{131} on vegetation continued to decrease during the early part of March, but after March 14 or 15 significant increases were observed. Stack monitoring at the 200-West Area indicated that the amount of I^{131} emitted from the 200 West Area stack during the latter part of March increased by a factor of about 10 over the early part of the month, due to a planned reduction in cooling time. This increase was reflected by the increase noted for deposited I^{131} on vegetation towards the end of the month. Increases approaching a factor of 5 were observed on vegetation in the Tri-City Area and by about 10 near the Separations Area. The maximum activity density of I^{131} measured was 2.1×10^{-2} μc/gram at the 200 West Area gate; the maximum in the Tri-City Area was 2.5×10^{-4} μc/gram measured in a sample taken from the Kennewick Highlands. The average in the Tri-City Area was about 1.5×10^{-5} μc/gram. Off-area sampling which included Spokane, Lewiston, and Pendleton, indicated $< 3 \times 10^{-6}$ μc/gram.

Monitoring results for radioactive wastes in the 100, 200 and 300 Area waste systems were within expected levels.

Bioassay

Five hundred and forty-nine urine samples were analyzed for plutonium; eighty-one spiked and blank urine samples were processed as controls. Measurements for plutonium in these urine samples using the present T.T.A. procedure indicated an average of 0.03 dis/min; the average in the forty-one blank samples processed was 0.04 dis/min. The average recovery yield during the month was ninety-one percent. No routine urine sample processed exceeded the detection limit of 0.33 dis/min; but positive results were obtained in urine samples of one employee known by previous history to be a positive case, and from an employee involved in a special hazards incident in the 234-5 Building. An estimation of body deposition based on urinary plutonium measurements in the latter

case is difficult as zirconium is being administered, thus indicating somewhat higher concentrations of plutonium in the urine.

Three samples which exceeded the detection limit last month were resampled; the results indicated < 0.33 dis/min, in all cases. No routine resample was required during March due to erratic or low yields.

A total of three hundred and ten spike and blank samples was processed by the electrodeposition-film method in conjunction with the Methods Group of the Development Division. The results were promising and indicate that this method for low level plutonium analysis in urine will be adopted by the Bioassay group in the near future. Inadequate facilities in the present building may tend to retard the transition period.

Five hundred and seventy-six urine samples were analyzed for fission product isotopes; eighty-six urine samples were processed as controls. No routine samples exceeded the reporting level of 10 counts per minute; of seven special incident samples, four samples indicated 12, 15, 23, and 16 counts per minute, respectively. These individuals were resampled and the analyses are in process.

In evaluating the recovery yields for the present fission product analyses, it was found that Ce^{145} and Sr^{90} are not lost in the discarded supernates of the LaF_3 precipitations used in the plutonium analysis, but a 40% loss in the Y was observed. The present yields for the Ce, Sr, and Y, are 100%, 50%, and 42%, respectively.

One hundred and ninety urine samples were analyzed for uranium. Urine samples are taken after 4 days of exposure on the job (Friday), and then again after 2 days of no exposure (weekend); a summary of the results of analyses of these samples for uranium by the fluorophotometer method follows:

Job Description	END 4TH DAY OF EXPOSURE µg/liter Average	Maximum	END 2ND DAY, NO EXPOSURE µg/liter Average	Maximum	TOTAL NUMBER SAMPLES
Canning	3	7	3	8	45
Machining	10	57	7	4	23
Melt Plant	22	94	12	41	11
Material Handling	2	3	2	4	4
Inspection	5	8	3	14	15
Car unloading	8	30	2	13	56
305 Building	2	3	2	3	11
Clerical	6	10	4	6	4
Random	1	2	--	--	22

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Eight hundred and six urine samples were analyzed for tritium oxide; 421 samples were run as controls, and 233 were processed as reruns to confirm values of original analyses. The table below shows a distribution of the results:

TRITIUM OXIDE IN URINE
μc/liter

Concentration Group	<5	5-10	10-20	20-50	>50
Number of samples	725	34	28	12	7

Analytical-Control Laboratory

Improvement in operation of the low background alpha counters was experienced during the last month. Mica-window counters were somewhat troublesome; an average of 4.5 hours per set per day was lost due to faulty tubes. The PC-2A is now operating satisfactorily on a routine basis; average backgrounds are < 0.05 c/m.

Work continues on the pile area effluent composition. Many of the analyses are now being routinely done to confirm the validity of the observed daily variations in concentration of given isotopes. A detailed preliminary report of the analytical results to date is to be issued. Twenty special analyses were made as a service function to the H.I. Operational Division.

A summary of the samples analyzed and counting room measurements made follows:

Laboratory

Type Sample	No. of Tests March 1951	1951 To Date
Vegetation	1413	4320
Water	1549	5032
Solids	313	954
Fluorophotometer	771	2124
Special Survey Analyses	20	85
Air Sample Analyses	122	486
Total	4188	13001

Counting Room

Type Sample		
Beta measurements (recounts included)	6694	15126
Alpha measurements (recounts included)	2930	10506
Control points (beta and alpha)	2025	6024
Decay curve points	2146	6283
Absorption curve points	297	991
Total	14092	38930

Health Instrument Divisions

Calibrations

Radium calibrations:	Number of Routine Calibrations February	March	1951 To Date
Fixed Instruments			
Gamma	242	327	833
Portable Instruments			
Alpha	248	354	902
Beta	549	697	1,870
Gamma (radium)	1,003	1,310	3,462
X-ray	4	3	7
Neutron	2	3	6
Total	1,806	2,367	6,247
Personnel Meters			
Beta	756	778	2,409
Gamma (radium)	6,658	5,860	22,008
X-ray	5,786	3,023	10,999
Neutron	11	59	90
Total	13,211	9,720	35,506
Grand Total	15,259	12,414	42,586

Synoptic Meteorology

Forecasts	March 1951 Number made	Percent Reliability
Production	93	82.8
24-hour	62	83.6
Special	21	90.5

The average temperature during the month was 40.1 degrees which is the coldest on record for the month of March. The lowest temperature of 22° occurred on the 7th and the 9th, and the highest was 65° on the 25th. There was a total of 4.2 inches of snow which was also a record. This was actually more snow than was observed in March for the five previous years combined. Total precipitation amounted to 0.46 inches. There were numerous days with considerable wind, the maximum gust of 51 mph was observed at the 50-ft. level on the 15th of March.

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DEVELOPMENT GROUPS

Experimental Meteorology

Continued studies of wind profile in strong winds were made. There are indications that some of the anemometers consistently read high while some read too low. It is planned to interchange instruments to determine what correction factors are needed.

A report describing the techniques employed in the trajectory analyses was issued. The analyses have been performed for the month of March also.

Industrial Hygiene

A study of Hersey bag filters made in cooperation with the 300 Area H.T. Operational Division was completed during March. Performance tests were conducted on the two pilot units which operate in series as air cleaners in the process exhaust ventilation system for the Burnout and Furnace rooms. Analyses indicated that particles in the air entering the bag filters had a mass median of 0.6 microns with the Burnout room alone involved, and 1.2 microns with the Burnout and Furnace rooms combined. The standard deviations were 2.3 and 3.3, respectively. The mass median of the first bag filter effluent was found to be slightly less than that for the influent air. The efficiency of a single unit ranged from 90.8% to 98.7%. The overall efficiency with two units in series was 99.7% to 99.99%.

The data which were compiled from the cooperative study with the Bioassay group on certain workers in the 303 Area were analyzed; and it was found that no positive correlation was evident between exposure to contaminated air and urinary excretion of uranium. Two workers were followed for a period of one week with air samples being taken from the breathing zones during the entire week and urine samples were collected at the beginning and end of each shift.

Geology

Ground water contamination levels in the 200 Areas did not change significantly, although there were minor fluctuations. The alpha activity densities in the wells in and around the 300 Area increased slightly during this period. Sampling of the 108-B wells following discharge of activity to the crib revealed no significant activity.

Test of well 241-BX-130 made following the loss of an estimated 90,000 gallons of first cycle waste between tanks 241-BX-102 and 103, revealed radiation levels high enough to jam the counter used. None of the other test wells or water tables in the vicinity had significant activity.

Health Instrument Divisions

Soil Science

The cation exchange capacity of samples from well 219-S-2 was determined with results ranging between 2.5 and 8.0 millequivalents per 100 grams of soil. Measurements on clay suspersions from these samples gave values between 24 and 36 millequivalents per 100 grams. This 5 to 10 fold increase indicates that the clay fraction is responsible for the major part of the exchange capacity of the whole soil.

A rough petrographic study of a sample from well 219-S-2 was made by the USDA personnel at Beltsville, Maryland. They found the following minerals: quartz, feldspar, augite, olivine, mica (mostly biotote), calcite, and numerous accessory minerals in small amounts; opatite, tourmaline, epidote, opaques and aggregates.

Methods Development

The results of the test of the new electrodeposition-nuclear film procedure in the Bioassay laboratory have been encouraging. An exact value for the yield is difficult to quote because of variations in the sizes of samples with the present plating cells and unexplained variations in the response of film to a standard disc, but the yield, as judged by 70 samples, is almost certainly greater than 90%. The standard deviation of the results is about 15%, which is in excess of the theoretical expected from the total number of tracks measured (~ 4%). Twenty-six blank samples processed at the same time averaged 0.04 d/m with a standard deviation of 0.08 d/m. Twenty blank plates exposed to the film averaged only 0.011 d/m with a standard deviation of 0.009 d/m. The response of the film to a standard source exposed for a known length of time indicated an average yield of 48.9% (ratio of the number of tracks to the number of disintegrations) with again a high standard deviation of 15%.

New polystyrene plating cells with a definite plating area are now in use but no results are available. The value of the blank sample appears to have decreased about to the film background on several recent sets of data where separate glassware is used for the blank and spiked sample. An adjustable stop has been placed on the micrometer stage to allow measurement of known lengths of strips on the film without constant reference to the vernier scale. A new holder for exposing the film is being designed to allow precise positioning.

Some work was done on controlling voltages on the hydrogen counter to allow a more precise setting of the sensitivity on the quench circuit. The personnel using this equipment for routine samples were trained, and time was spent assisting with the unit during troublesome periods.

Positive identification of the activity in the P-13 recirculated water as tritium was obtained in cooperation with the Control laboratory. It was shown that the activity follows in the distillation of the water, in the regeneration of calcium hydroxide produced from the water, and that the specific activity of the hydrogen drops by a factor of about five on electrolysis as expected from results on deuterium.

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A manifold was designed and built to allow filling of Geiger tubes with different mixtures. The design of the tubes was patterned after those used by Libby at Argonne. Results on the first filling with alcohol-argon indicated good counting characteristics. This unit is to be used in an attempt to calibrate several samples of tritiated water.

The Tracerlab windowless flow Geiger Counter has given erratic results. A different quench circuit will be tried in an attempt to obtain good operation. The geometry of one of the off-area air monitors was measured and the effect of source area noted.

Tests of the self-scatter of beta particles from thin precipitates have given little evidence of such a phenomenon with Sr^{90}-Y^{90} and lead sulphate. Procedures for the electroplating of lead are being investigated so that uniform sources may be prepared, thus eliminating the effects of uneven spread.

Work was started on investigation of qualitative and quantitative methods of analysis for various radioisotopes. The thorium analysis procedure has resolved into removing difficulties with interfering ions.

A new problem on the dilution of the 107 wastes in the Columbia River was started this month in cooperation with the Site Survey group. Selection and marking of the locations at which traverses are to be made has been carried out. Preliminary soundings to obtain the river contours at these locations have been made and the sampling equipment has been designed and tested. Several traverses have been run near the 100-H Area and velocity measurements made. Difficulty is anticipated in studying 100-B and 100-F Areas because of the lack of docking and gassing facilities for the boat at any location except Hanford.

Physics

Range spectra have been constructed for the Po-B, Po-Be and Ra-Be sources. The first two spectra agree well with those obtained by other investigators, but the Ra-Be spectrum is radically different from that measured by one other worker and resembles instead Po-Be spectrum. Because of this difference, the study was continued for approximately double the number of tracks with substantially the same result.

Some calculations were made to determine the energy dependence of steel walled argon-filled chambers for the Technical Divisions.

A system of using sleaves of various thicknesses of polyethylene, aluminum and copper with a Victoreen 1B85 GM tube was worked out for making energy measurements of low energy gamma radiation in the range from 10 Kev to 100 Kev. This has been particularly useful in determining the energies which are met in the 234-5 process.

[redacted]

Instrument Development

A new filter system for monitoring airborne contamination was developed. It consists of one scaler and chronolog register, two filters, counters and pumps and a newly developed switching system. In operation, air is filtered alternately through each of the probes with an adjustable period of the order of hours, and the filters are monitored alternately for 10 minutes. The system has been fairly successful but is not yet ready for field trial.

The gamma scintillation counter has been turned over to Methods group for testing. A Nuclear Measurements counter was adapted to the scintillation detector, and gave 260 c/m for a 0.009 μc I^{131} source at about 2 cm. Upon evaluation as a river monitor, this counter will be tried as a human thyroid monitor. Meanwhile, a new probe has been designed for more precise thyroid work. The alpha scintillation survey probe continued to operate satisfactorily in 234-5 operations with all complaints being based on the unwieldiness of the probe compared to a poppy probe. With the intention of overcoming part of these, a new probe using a IP21 photomultiplier has been designed and is under construction.

The inhaled tritium absorption monitoring apparatus was completed and adjusted approximately under field conditions. On preliminary setting-up, the over-all system would detect a difference in concentration of tritium between the inhaled and exhaled air of 1/10%, which is not sensitive enough. The complete apparatus is being studied and improved by interested Biology and Instrument Development people. An ion-chamber for monitoring tritium uptake by enzymes was designed and is being constructed.

For Meteorological experimentation, a rough preliminary test of oil fog fluoresence under ultra-violet irradiation was run with encouraging results. If the system can be developed as intended, it will be free from a large part of the error introduced by airborne dust in light absorbing or scattering systems.

Final cleanup of the portable BF_3 counter was completed, and the finished model is now in service. All blueprints, layouts, and photographs, have been completed and revised where necessary. A final report and maintenance manual is being prepared.

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Health Instrument Divisions

BIOLOGY DIVISION

Analyses Group

1. Radioactivity in Carcasses

Analyses of duplicate aliquots of previously analyzed samples confirmed reproducibility of methods to be used.

2. Alpha and Beta Analyses of Organic Material

Development work on the analysis of large organic samples for radioiodine using fusion in Na_2CO_3 followed by silver iodide precipitation and counting was completed. The method has been incorporated into routine use.

Work continued on the development of methods for the determination of trace amounts of Pu and Cm in rat carcasses.

3. Radioelements in Organisms in Pile Effluent

Two large algae samples from the river were analyzed for radioactive constituents. The beta emitters were primarily composed of isotopes of Cu and P with traces of Na, Fe, the rare earths, and As isotopes. Possible trace amounts of Pu ($\sim$ 1 d/m/g) were observed.

4. Physical Processes Affecting Methods for Isotope Use

To determine the efficiency of the vibrating reed electrometers when used for measuring tritium, two samples of tritium gas were divided into aliquots of known volume, temperature, and pressure; the aliquots quantitatively converted to the oxide, diluted, and measured as outlined in HW-17257. An average yield of 60% $\pm$ 4% was obtained, indicating previous work to be valid. Further standardizations will be made.

Preliminary experiments using the Tracerlab windowless flow counter to count liquid samples containing tritium oxide were run with promising results. Fifty samples with activities ranging from 10 μc/liter to 10 mc/liter were counted. A plot of counting rate vs. activity level (as determined by the vibrating reed electrometer) yielded a straight line with a slope showing 0.44 c/m recorded for each μc/liter of the sample. All samples but one fell inside the combined expected counting error and the vibrating reed standardization error.

5. Waste Disposal Methods for Biological Specimens

Inactive.

6. Physical Chemical Methods for Dosimetry due to Deposited Isotopes

Inactive.

[redacted]

Services

Analytical services to other biology groups increased about 15% over last month.

Aquatic Biology Group

1. Effect of Pile Effluent Water on Aquatic Organisms

The chinook salmon monitoring studies were continued without unusual incident. Cumulative mortality among the control fish is nominal at 4.3%. No significant effect has appeared at the 2% concentration of any of the experimental waters. At 5% concentrations, there has been a retardation of growth but only slight increase in mortality. With the exception of the cooled area effluent, mortalities in the 10% concentrations of experimental waters have risen to near 50%. Growth and mortality patterns are essentially the same in comparable dilutions of pile influent and pile effluent water indicating that radioactivity is not a major factor contributing to the effects observed.

2. Biological Chains

The activity density of yearling rainbow trout held in 5% pile effluent is currently about 7 times that of controls. Continued low water temperature with associated anorexia has depressed the activity density of the fish receiving radioactive algae in their diet to about the same level as those on an uncontaminated diet. Very few of the female fish appear to be maturing and it may be necessary to continue this study for another year in order to evaluate the effect of the effluent on spawning.

3. Radiobiological-Ecological Survey of the Columbia River

The river height remained relatively stable during the month permitting sampling for activity density determinations. Established areas for the collection of quantitative samples remained out of reach, however. Algal growth appeared on some of the floating collectors. Preliminary attempts with the boat to dredge bottom strata for biological sampling showed promising results. Equipment was adapted and developed for plankton collecting from the boat.

Activity densities of organisms in the river remained at about the levels observed last month. In the vicinity of Hanford, average figures amounted to 1.7×10^{-2} $\mu c/gm$ in plankton for a new high, and 6.5×10^{-5} $\mu c/gm$ in small fish, a minimum for the season. Bottom algae and invertebrate forms were intermediate. For large fish, a maximum activity density of 4.1×10^{-4} $\mu c/gm$ was found in the bone of a whitefish; the maximum value for flesh amounted to only 3.0×10^{-5} $\mu c/gm$.

4. Control of Algae in 107 Retention Basins

No progress. The brand of anti-fouling paint desired for the test in the 107-B retention basin seems unobtainable. An alternate brand may have to be used.

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Health Instrument Divisions

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Biochemistry Group

1. Relative Biological Effects via Biochemical Systems

A suboptimal culture medium for L. Casei was developed. Satisfactory growth occurs at 30°C, provided the period of incubation is extended to approximately 40 hours. It was found that the growth response in tubes containing 0.16 μg of riboflavin plus 500 μc of tritium oxide is approximately equivalent to the growth response in tubes containing only 0.10 μg of riboflavin and no radioisotope. It was estimated that during the incubation period of 40 hours a total of 29 kilareps was delivered to the medium. Since the growth of L. Casei is directly proportional to the concentration of the riboflavin in the culture tubes, it is evident that only 62% of the expected growth occurred in the presence of the radioisotope.

2. Absorption of Pu from the G.I. Tract

The daily oral administration of plutonium continued. Both the experimental and the control rats appeared to be in good health. The alpha activity on the spiked counting plates prepared daily has remained constant, substantiating the adequate removal of short-lived contaminants of the plutonium.

3. P-10 Biological Hazards Investigations

Ninety days after the last intraperitoneal injection of tritium oxide in mice, no activity was detectable in body water; the biological half-life of the bound tritium remaining in the tissues was of the order of 60 days. Approximately 0.02% of the activity originally injected still remained in the body at this time.

Fifty-three days after the administration of tritium oxide to rats, the body water activity continued to decrease with a half-life of 3.0 to 3.5 days. The biological half-time for bound tritium in fat, muscle, and brain in the rat during the interval between the 32nd and 53rd day following the tritium oxide administration was approximately 30 days. On a dry weight basis, the activity in fat, muscle, skin, and brain was about 3 times as great as in the other tissues being sampled.

The dried carcasses of rats which had been injected with tritium oxide are being hydrolyzed in an attempt to isolate fractions which may contain tritiated compounds.

A preliminary experiment carried out in cooperation with the Physiology group seemed to indicate that the retention of inhaled tritium gas by the rat is less than 0.1% of the administered dose. This confirmed results reported by Los Alamos.

The percutaneous absorption of tritium oxide in 22 rats exposed for one hour

to the vapors of tritium oxide at levels of 150 mc/cc of water has been found to be of the order of 2.4 ± 1.1 μg of water absorbed per cm^2 of skin per minute. These values were obtained by analyzing blood samples immediately following the exposure. When body-water samples were analyzed, the values found were 2.7 ± 1.3 μg of water absorbed per cm^2 of skin per minute. Seven additional rats were exposed for one hour during four consecutive days to the same concentration of tritium oxide vapor. When blood samples were analyzed immediately after each exposure, the average percutaneous absorption was found to be 2.3 ± 1.1 μg of water per cm^2 of skin per minute. When blood samples were taken 18 hours after each exposure and values were corrected to end of exposure levels using a biological half-time of 3.1 days, the absorption values were found to be 4.2 ± 1.2 μg. When body-water was analyzed 18 hours after the last exposure, the absorption was calculated to have reached 5.3 ± 1.2 μg of water per cm^2 of skin per minute. The higher values for percutaneous absorption obtained 18 hours after the end of the exposures are attributed to the fact that during this period of time the tritium oxide which has permeated through the skin has become fully distributed in the body fluids, thus also raising activity levels in the blood. Moreover, since the skin is known to act as a reservoir of water in the body, the portion which has been exposed to the tritium oxide vapor may act as a continuous source or radioisotope even after actual exposures are finished.

The abdominal skin of four young puppies was exposed to the vapors of tritium oxide for one hour at a level of 1.5 curies/cc of water. The average percutaneous absorption found was 2.2 μg of water per cm^2 of skin per minute based on analyses of blood samples immediately following the exposure.

The abdominal skin of 2 adult dogs was exposed to the vapors of tritium oxide at a level of 1.5 curies/cc of water for one hour during 5 consecutive days. By analyzing samples of blood taken immediately after each exposure, the percutaneous absorption was found to be 2.5 μg of water per cm^2 of skin per minute.

Equipment for investigating the percutaneous absorption of tritium gas is now being assembled.

Services

During March, the Biological Services laboratory performed 983 biochemical and 996 hematological determinations. Data accumulated in the past year are being transferred to I.B.M. cards.

In support of the Animal Farm program, 160 blood samples were analyzed for protein-bound iodine as well as for inorganic iodine levels.

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Botany Group

1. Agricultural Field Station

The average activity density of 19 soil samples taken from the treatment plots was 1.9×10^{-5} $\mu c/g$; activities ranged from 1.2×10^{-5} to 3.9×10^{-5} $\mu c/g$.

2. Translocation of Radioelements in Plants

The uptake of Sr from nutrient solution of pH 6.0 by red kidney bean plants was found to be directly proportional to the concentration of Sr in the range of 0.0001 to 100 p.p.m. of Sr. The concentration of Sr within the trifoliate leaves of bean plants grown four days in these nutrient solutions was 50-100 times that of the original nutrient solution.

A phloem injection study showed that the pH of the nutrient solution (root medium) had no significant effect on the translocation of Sr from the injected leaf to other parts of the plant. In contrast, the translocation of Sr was increased in other experiments when the pH was held constant and Ca and Mg were removed separately from the nutrient solution (root medium). It is concluded that Ca and Mg inhibit the translocation of Sr. The inhibitory effect of Mg was less pronounced than that of Ca.

3. P-10 Botanical Investigation

Work on the rate of incorporation of tritium into the water and organic matter of red kidney bean plants exposed to light or darkness and grown in nutrient solution containing tritium oxide showed that the tritium content of these fractions increases very rapidly up to 24 hours after exposure. Data are not yet extensive enough to see whether the uptake was amenable to treatment as a simple mathematical biophysical exercise.

The contents of tritium in the water and organic matter of plants exposed to light were higher than in the same fractions of plants kept in the dark. After 24 hours, the concentrations of tritium in the water and organic matter of plants exposed to light were 70% and 5%, respectively, of that in the nutrient solution. In the corresponding fractions of plants kept in darkness, the concentrations of tritium were 23% and 0.9%, respectively, of that in the nutrient solution.

Chlorella p. were exposed to tritium oxide (in nutrient solution) in the presence of light for 5 and 15 minutes. At the end of these periods, the organic matter of the algae had a total tritium content of 0.1 - 0.5% of the total tritium to which they were exposed. The major portion of the tritiated cellular constituents were soluble in hot alcohol.

Further tests on the chloroplast fraction active in splitting tritiated water in photosynthesis have shown that activity is lost through precipitation with dioxane or by a solution in dreft (0.1% or 1.0%). Thus more evidence is added which points to the presence of protein and chlorophyll in the active component of chloroplasts.

Sodium fumarate and potassium nitrate did not act as hydrogen acceptors for the hydrogenase system of Azotobacter vinelandii. However, when a compound such as methylene blue was introduced into the system, hydrogen was transferred to fumarate and nitrate. It appears that the oxidation potential difference between these compounds and hydrogenase was too large for the reaction to proceed by a single step, but when a compound of intermediate oxidation potential was introduced into the system, the reaction proceeded in two steps.

In one experiment Azotobacter vinelandii converted tritium gas to the oxide at the rate of 1.4 μc/mg protein N/hr. when air containing 50 mc of tritium per liter, at 20°C, was passed through the bacterial suspension at the rate of 1 liter/hr. In another experiment in which a stationary gas was used, approximately 90 mc of gas was converted to the oxide in 20 hours from 0.5 C of tritium in an air volume of approximately 2 liters. At the end of the experiment, approximately 3.5 mc were present in the bacterial cells. Whether the latter activity developed through bacterial metabolism of the formed oxide or the direct incorporation of tritium is debatable, although the former possibility seems more probable.

4. Effects of Radiation on Plant Life

The growth of E. Coli was approximately 30% less than that of controls in 24 hours when the cells were grown in a medium containing approximately 0.2 gm of carrier phosphorous and 1,000 μc of P^{32} per liter of solution.

The uptake of phosphate ions in 2 hours by excised barley roots was significantly less in solutions containing 0.1 mc of P^{32}/liter of solution than the uptake by controls. At 1 mc of P^{32}/liter of solution, the uptake of the ion was approximately 30 times less than that by control roots exposed to 2 μc of P^{32} per liter of solution.

An experiment has been completed on the effect of varying levels of P^{32} on the growth and absorption of ions by bean plants.

Physiology Group

1. Biological Effects of Active Particles

No progress.

2. Bone Metabolism of Radioelements

A successful rib resection was performed on one of the animals previously bled into a compensatory bone marrow hyperplasia. This animal is down to about one-third his normal hemoglobin content and had about one-half his normal number of erythrocytes.

The normal animal whose rib was previously resected has been the recipient of

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two milligrams of Pu^{239}, giving a concentration of about 0.12 μg Pu/g body weight. The material was administered by vein. About 0.3% had been eliminated in the first day's urine.

3. Techniques in Autoradiography

No report.

4. P-10 Hazards Biological Investigation

An instrument designed to measure directly the tritium content of a gaseous mixture before and after administration to an animal has not proven satisfactory. Attempts are being made to modify the apparatus for successful operation.

The effects of forced fluids (1.5 times the 24 hour urine output) on the half-life of tritium in the dog are being investigated on two animals where the half-life under normal conditions is already known. Physiologic saline solution is administered by vein, the tritium content of the urine being assayed daily.

Services

Services included 230 tissue preparations for the Zoology Group on routine slides and preparation of bone for examination of marrow and bony material, and routine autoradiography and photography.

Zoology Group

1. Biological Monitoring

Waterfowl

Monthly census showed a slight decrease in total numbers of waterfowl on the project as the number fluctuated with the arrival and departure of migrants. Approximately one thousand birds were counted, of which 48% were mallards (increase over last month), and 41% were Canada geese. The goose population is nearing stability with the onset of nesting and a total count is difficult to obtain, due to their secretive habits at this time.

No sample was analyzed for activity densities.

Upland Wildlife

Rabbits taken in the vicinity of Hanford and the highway intersection east of 200-E Area exhibited a maximum thyroid activity density of 5.2×10^{-3} μc/g and a minimum of 1.9×10^{-3} μc/g. Maximum activity density was found three miles east of the intersection.

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The waste ditch at 200 North R Area has been resurveyed to indicate the advisability of establishing a permanent monitoring station there. The activity density of the water is 7×10^{-3} μc/liter. Immersed vegetation and the wood of trees growing there have activity densities 1,000 and 100 times higher, respectively, than that of water.

An experiment concerning the uptake and concentration of radioactivity by animal and vegetable tissues boiled in pile effluent water has been completed. The data will be presented in a separate report.

2. Toxicology of I^{131} in Stock Animals

Six of the nine ram lambs previously placed on a feeding regimen containing 480 μc of I^{131}/ram/day have evidenced thyroidal damage as detected by a drop in external counting rate. The Biochemistry group determined the relative quantity of protein-bound iodine, radioactive protein-bound iodine, and radioactive inorganic iodine, in the serum of blood taken from these animals at frequent intervals. Preliminary data reveal promising correlations between ratios of various iodine fractions and external thyroid count.

Two ewe lambs in the 240 μc group expired during this period. Both of these animals exhibited emaciation, lethargy, muscular weakness, and incoordination, difficulty in prehension, a rough wool coat with moderate alopecia. This alopecia included a region up to 3 cm in diameter on the labium maxillare and labium inferius. Necropsy revealed epithelial denudation in the mouth. There was also esophageal and minor gastric involvement. One of the ewe lambs became blind as both eyes developed corneal ulceration. Just prior to expiration, keratorhexis occurred.

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GENERAL ACCOUNTING DIVISION
MONTHLY REPORT

March 1951

GENERAL

Volume of work handled in the Accounts Payable Section during March 1951 exceeded that handled during any month since decentralization of the Accounting Divisions in 1948. In spite of the shortage of personnel, all invoices were paid when due and were promptly audited and forwarded to AEC for final approval. As of March 31, 1951, total vouchers on hand and in process, including those paid and unpaid, numbered 1 513. This represents approximately 58% of the number currently received in one month. Final audit of approximately 20 000 purchase order folders which contain information as to quantities received and amounts paid is being deferred until additional personnel is made available. This audit is necessary before these files can be forwarded to permanent storage.

Revision of budgets for FY 1952 and preparation of budgets for FY 1953 progressed during the month. As budget data was received from division heads and coordinated by the Budget Accounting Section, a close working arrangement was maintained with the AEC Budget Office. As a result, AEC recommendations and questions were considered as the work progressed and preliminary approval was obtained on a considerable amount of completed work.

As a result of the incorporation of Project Engineering with Engineering and Construction Divisions, basis of all assessment studies were thoroughly reviewed and revisions were made where necessary.

Arrangements were made for the segregation of work and selection of employees who are to be transferred to Technical, Engineering and Construction Divisions. Work substantially comprises compiling, analyzing and reporting Technical operating and research and development costs and related budgets. A total of seven employees (3 from Cost, 2 from Budget Accounting and 2 from Accounts Payable) are to be transferred.

Plant Accounting personnel is in process of reviewing depreciation rates of several classes of plant and equipment. Rates were established at the time of the plant appraisal in June 1949, and in many instances it has become apparent that revisions to rates originally established should be made. Plans were nearing completion relative to the assignment of Plant Accounting personnel to the areas where they will be responsible for coordinating work in connection with plant accounting. Continuing physical inventories of certain types of equipment are also to be conducted by these employees.

Internal Auditors started work on two new audit programs in March; namely, Standardization of Inventory Sub-Accounts and Physical Inventory and Booking of Special Materials. The following audits are currently in progress: Timekeeping Procedures, Hospital and Bus Revenue, Receiving and Shipping, State Excise Tax, Physical Inventory Procedures and Study of Termination Clearance Procedure. Audits were completed and reports issued on Review of Proposal to Purchase Marine Insurance Policy and Revenue and Change Funds of School of Nuclear Engineering.

General Accounting Division

Request for reimbursement authorization covering the Emergency Loan Plan for Ill or Laid-Off Pension Participants was transmitted to the Commission on February 28, 1951, and Reimbursement Authorization No. 142 dated March 26, 1951, was issued by the Atomic Energy Commission approving the plan for reimbursement effective February 1, 1951. Hanford Works Instruction Letter No. 166 was issued in March covering the provisions of the plan, which was placed in effect as of February 1, 1951 on a company-wide basis.

Payroll deductions for Red Cross contributions amounted to $5,388.85. Deductions were made in March from salaries of 1 122 weekly paid employees and 603 monthly paid employees. A check covering these collections will be issued to American Red Cross and forwarded to the chairman of the Nucleonics Department Red Cross Drive.

The retroactive portion of the 3% General Salary Increase (minimum 4¢ per hour) applicable to July 2, 1950 rates, effective September 18, 1950 for employees represented by the H.A.M.T.C. and for employees represented by Local 201, Building Trades Service Employees Union, was paid during the month of March. The retroactive payment covered the period September 18, 1950 through February 11, 1951 amounted to $147,894.74 and was paid to 3 332 employees.

There are 135 employees, as of March 31, 1951, who have left the Company to enter the Armed Forces of the United States. Military Duty Allowance equivalent to one month's salary has been paid to 36 weekly paid employees and 2 monthly paid employees totaling $11,481.52 as of March 31, 1951.

The high percentage of absenteeism during March was also reflected in an increase in the number of disability claims processed under the G. E. Insurance Plan. Absences of payroll personnel in March and the high percentage of absenteeism in all divisions, which increased the work load in the Weekly Payroll, made it necessary to reschedule many of the statistical reports and related payroll work in order to complete calculation and distribution of payrolls according to normal schedules.

General Accounting Division

Advances from AEC increased from $5 000 000 as of February 28, 1951 to $6 500 000 as of March 31, 1951. Advances are accounted for as follows:

	March	February
Cash in Bank - Contract Accounts	$5 596 364	$4 470 490
Cash in Bank - Salary Accounts	50 000	50 000
Cash in Transit	428 636	79 510
Advances to Subcontractors	300 000	300 000
Travel Advance Funds	125 000	100 000
Total	$6 500 000	$5 000 000

Hanford Works cash disbursements and cash receipts, excluding advances from Atomic Energy Commission for the month of March 1951 as compared with February 1951 may be summarized as follows:

	March	February
Disbursements		
Material and Freight - GE	$ 2 380 070	$ 2 353 419
Payrolls - GE (Net)	2 530 812	1 972 441
Payments to Subcontractors	4 015 533	3 611 335
Pension Trust Fund - Company Portion	-0-	1 213 300
Payroll Tax	396 907	434 035
General & Administrative Expenses	200 000	200 000
Stock Bonus Plan - Employers Contribution	168 451	-0-
U. S. Savings Bonds	140 325	143 156
Others	409 811	364 775
Total	$10 241 909	$10 292 461
Receipts		
Rents	$ 124 438	$ 114 924
Refunds From Vendors	11 308	2 012
Hospital	51 598	52 515
Income From Special Funds	40 277	-0-
Telephone	18 265	12 795
Miscellaneous Accounts Receivable	21 940	8 574
Bus Fares	9 315	9 199
Scrap Sales	24 236	2 460
AEC Cost-type Contractors	1 212	6 450
Other	10 684	4 023
Total	$ 313 273	$ 212 952
Net Disbursements	$ 9 928 636	$10 079 509

General Accounting Division

STATISTICS

Employees and Payroll	Total	Monthly Payroll	Weekly Payroll
Employees on Payroll at beginning of month	7 990	1 940	6 050
Additions and transfers in	287	18	269
Removals and transfers out	(226)	(24)	(202)
Transfers from Weekly to Monthly Payroll	--	22	(22)
Transfers from Monthly to Weekly Payroll	--	(1)	1
Employees on Payroll at end of month	8 051	1 955	6 096

Number of Employees	March	February
Bargaining group - HAMTC	3 099	3 077
Bargaining group - Building Services	69	69
Other weekly	2 928	2 904
Two platoon firemen	57	59
Executive, administrative and operating	1 295	1 275
Professional	564	562
Other monthly	39	44
Total	8 051	7 990

Number of Employees		
Manufacturing	3 232	3 215 (1)
Engineering and Construction	869	863 (1)
Municipal	230	234
Real Estate and General Services	425	428
Technical	822	815
Health Instrument	434	425
Employee and Community Relations	105	100
Plant Security and Services	1 037	1 005
Purchasing and Stores	373	369
Medical	279	288
General Accounting	189	189
General Administrative	56	59
Total	8 051	7 990

Overtime Payments		
Weekly Paid Employees	$110 418	$ 86 541
Monthly Paid Employees	28 291 (2)	23 882 (3)
Total	$138 709	$110 423

Number of Changes in Salary Rates and Job Classifications		
	1 058	1 251

(1) February statistics recast to reflect the transfer of 197 Project Engineering employees from Manufacturing Divisions to Engineering & Construction Divisions effective March 1, 1951.

(2) Payments cover period from 16th of previous month to 15th of current month, except that in the case of Engineering and Construction Divisions, payments cover period February 1, 1951 to February 28, 1951.

(3) Payments cover period from 16th of previous month to 15th of current month, except that in the case of Engineering and Construction Divisions, payments cover period January 1, 1951 to January 31, 1951.

General Accounting Division

Gross Amount of Payroll	March	February
Manufacturing	$ 1 574 523	$ 1 187 550
Engineering and Construction	389 460	342 527
Municipal, Real Estate and General Services	272 163	228 572
Other	1 305 835	1 082 367
Total	$ 3 541 981 (1)	$ 2 841 016 (2)

Annual Going Rate of Payroll		
Base	$33 746 807	$33 556 227
Overtime	1 588 608	1 382 405
Isolation Pay	1 038 613	1 033 968
Shift Differential	406 441	411 834
Other	47 389	55 817
Total	$36 827 858 (3)	$36 440 251

Average Hourly Base Rates		
Bargaining group - HAMTC	1.947	1.947
Bargaining group - Building Services	1.495	1.494
Other weekly	1.610	1.619
Two platoon firemen (monthly rate ÷ 173.9 hours)	1.883	1.847
Executive, administrative and operating	2.783	2.798
Professional	2.702	2.680
Other monthly	2.150	2.182
Total	2.067	2.013

Average Earnings Rate Per Hour (4)

	March			February (5)		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	$2.115	$2.807	$2.233	$2.120	$2.808	$2.237
Engineering & Construction	1.666	2.881	2.130	1.670	2.878	2.140
Municipal, Real Estate & General Services	1.867	2.373	2.026	1.876	2.367	2.029
Other	1.710	2.681	1.942	1.717	2.677	1.946
Total	$1.893	$2.721	$2.086	$1.898	$2.721	$2.091

% Absenteeism	March	February
Weekly - Men	3.93	2.78
Weekly - Women	5.73	3.89
Total Weekly	4.70	3.06
Monthly	2.74	1.82
Grand Total	4.06	2.76

(1) Includes payments for the five (5) week period ended March 25, 1951 in the case of Weekly Paid employees.

(2) Includes payments for the four (4) week period ended February 18, 1951 in the case of Weekly Paid employees. Salary increases, effective September 18, 1950 of 3% (minimum of 4¢ per hour) on July 2, 1950 rates, were paid on a current basis effective February 12, 1951 to 3,100 employees represented by unions.

(3) Includes new rates after giving effect to General Salary Adjustment as indicated in note (2) above.

(4) Includes shift differential and Isolation Pay. Excludes overtime premiums, commissions, suggestion awards, etc.

(5) February statistics recast to reflect the transfer of 197 Project Engineering employees from Manufacturing Divisions to Engineering and Construction Divisions effective March 1, 1951.

General Accounting Division

Employee Benefit Plans

Pension Plan

	March	February
Number participating at beginning of month	6 530	6 554
New participants and transfers in	54	45
Removals and transfers out	(90)	(69)
Number participating at end of month	6 494	6 530
% of eligible employees participating	95.6%	95.8%

Employees Retired	March	Total to Date
Number	4	160-a)
Aggregate Annual Pensions Including Supplemental Payments	$ 560	$38 044-b)
Amount contributed by employees retired	1 510	25 199

(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.

Insurance Plan (1)

Personal Coverage

	March	February
Number participating at beginning of month	7 715	7 679
New participants and transfers in	199	143
Cancellations	(14)	(15)
Removals and transfers out	(141)	(92)
Number participating at end of month	7 759	7 715
% of eligible employees participating	95.3%	95.7%

Dependent Coverage

Number participating at beginning of month	5 029	5 027
Additions and transfers in	89	65
Cancellations	(6)	(7)
Removals and transfers out	(86)	(56)
Number participating at end of month	5 026	5 029

Claims - Disability Benefits (2)

Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	150	135
Daily Hospital Expense Benefits	127	136
Special Hospital Services	137	147
Surgical Operations Benefits	96	90
Dependent Benefits		
Daily Hospital Expense Benefits	165	268
Special Hospital Services	193	295
Surgical Operations Benefits	122	176
Amount of claims paid by insurance company:		
Employee Benefits	$23 248	$23 295
Dependent Benefits	20 441	26 817
Total	$43 689	$50 112

(1) The new Insurance Plan was made effective on December 1, 1950.

(2) Statistics cover only claims paid and not all claims incurred during the month.

General Accounting Division

Employee Benefit Plans (continued)

Insurance Plan (continued)

Claims - Death Benefits (1)	March	Total to Date
Number	4	61
Amount	$20 985	$314 312

Group Life Insurance

The Group Life Insurance Plan was discontinued November 30, 1950. As of March 31, 1951, 22 employees who are absent with continuous service are still participating in the Group Life Insurance Plan. They were not actively at work on December 1, 1950, and therefore were not eligible to participate in the new Insurance Plan. However, they will become eligible upon their return to work.

Group Disability Insurance

The Group Disability Insurance Plan was discontinued November 30, 1949 for all employees actively at work. However, one employee who has been absent from work since September 15, 1949, is still insured under the Group Disability Insurance Plan.

Group Health Insurance

The Group Health Insurance Plan was made effective December 1, 1949 and was discontinued on November 30, 1950. As of March 31, 1951, 10 employees who are absent with continuous service are still participating in the Group Health Insurance Plan. They were not actively at work on December 1, 1950, and therefore were not eligible to participate in the new Insurance Plan. However, they will become eligible upon their return to work. During March, 83 checks in payment of benefits of $5,182 on 59 Group Health Insurance claims were received from Metropolitan Life Insurance Company.

Vacation Plan

Number of employees granted permission to defer one week of their 1951 vacation to 1952

	March			Total to Date		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	55	8	63	99	30	129
Engineering and Construction	2	1	3	3	1	4
Municipal, Real Estate & General Services	4	1	5	9	1	10
Technical	4	2	6	5	8	13
Plant Security & Services	20	3	23	41	14	55
Purchasing & Stores	2	-0-	2	5	-0-	5
Medical	1	-0-	1	2	-0-	2
General Accounting	4	-0-	4	4	-0-	4
Total	92	15	107	168	54	222

(1) Total to date includes two deaths which resulted from accidental injury. Total to date includes all claims under the old and new Insurance Plans.

General Accounting Division

Employee Benefit Plans (Continued)

U. S. Savings Bonds	Mfg.	Engineering & Construction	Municipal, Real Estate & General Services	Other	Total
Number participating at beginning of month	1 625	246	274	1 349	3 494
New authorizations	17	4	3	22	46
Voluntary cancellations	(33)	(3)	(3)	(39)	(78)
Removals and transfers out	(117)	(6)	(6)	(23)	(152)
Transfers in	13	109	1	1	124
Number participating at end of month	1 505	350	269	1 310	3 434
% Participating					
G.E. Employees Savings and Stock Bonus Plan	40.7%	35.2%	36.5%	35.1%	37.5%
G.E. Savings Plan	12.0%	8.3%	9.5%	8.4%	9.9%
Both Plans	46.6%	40.3%	41.1%	39.8%	42.7%
Bonds issued					
Maturity Value	$ 80 750	$ 15 925	$ 13 400	$ 64 025	$ 174 100
Number	1 667	321	290	1 309	3 587
Refunds issued	41	5	4	54	104
Revisions in authorizations	27	11	7	21	66
Annual going rate of deductions					
G.E. Employees Savings and Stock Bonus Plan	$600 837	$137 438	$104 546	$506 042	$1 348 863
G.E. Savings Plan	213 061	32 028	32 751	138 466	416 306
Total	$813 898	$169 466	$137 297	$644 508	$1 765 169

43%

Annuity Certificates (For duPont Service)

	March	Total to Date
Number issued	-0-	75

Suggestion Awards

Number of awards	44	941
Total amount of awards	$505	$15 300

Employee Sales Plan

	March		
	Major Appliances	Traffic Appliances	Total
Certificates issued	41	215	256
Certificates voided	1	4	5

Salary Checks Deposited

	March		February	
	Weekly	Monthly	Weekly	Monthly
Richland Branch - Seattle First National Bank	698	836	706	843
North Richland Area Office - Seattle First National Bank	13	7	14	6
Richland Branch - National Bank of Commerce	251	189	236	179
Out of state banks (Schenectady staff)	--	3	--	2
Total	962*	1 035	956**	1 030

*Week ended 3-18-51
**Week ended 2-18-51

Special Absence Allowance Requests

	March	February
Number submitted to Pension Board	5	9

Absenteeism (Weekly Paid Employees)

January 1 to March 25	1951	1950
	3.44%	2.63%

212

General Accounting Division

PERSONNEL AND ORGANIZATION

Number of Employees	March	February
On Payroll at beginning of month	188	189
Removals and transfers out	(11)	(6)
Additions and transfers in	12	5
Number at end of month	189	188
Net increase (or decrease) during month	1	(1)
% of terminations and transfers out	5.8%	3.2%
% of absenteeism	5.42%	4.13%

Changes by division in number of Accounting Division employees during March 1951 were as follows:

	Name
General: Increase of one employee	
One transfer from Plant Security and Services	Edna B. Foster
Accounts Payable: No Change	
Cost: Increase of three employees	
Three new hires	A. B. Adeline
	J. W. Nelson
	Dorothy J. Toppin
General Accounts: No Change	
Plant Accounting: Increase of three employees	
Five new hires	H. P. Burr
	Ethel B. Clarke
	D. C. Easton
	E. Heintz
	R. A. Launer
One transfer to Manufacturing Maintenance	Betty C. Ridders
One employee entered Military Service	S. F. Casteel
Weekly Payroll: Decrease of five employees	
Two new hires	Charlene R. Calkins
	Marian B. Hendrickson
One transfer to Purchasing and Stores	Louise M. Blakely
One employee entered Military Service	J. E. Kirkpatrick
One illness removal	Gladys E. Friend
Four terminations	Ruth D. Bender
	Helen L. Milburn
	Betty B. Pesce
	Betty J. Rouse
Monthly Payroll: Decrease of one employee	
One new hire	P. D. Sutton
Two terminations	Helen C. Waligura
	Hazel H. Williams
Special Assignment: No Change	
Budgets: No Change	
Internal Audit: No Change	

Injuries	March	February
Major	-0-	-0-
Sub-major	-0-	-0-
Minor	1	-0-

General Accounting Division

PERSONNEL AND ORGANIZATION (Continued)

Number of Accounting Division employees as of March 31, 1951 were as follows:

	Number of Employees		
	Non-Exempt	Exempt	Total
General	4	6	10
Accounts Payable	15	1	16
Cost	14	1	15
General Accounts	17	1	18
Plant Accounting	27	2	29
Weekly Payroll	60	6	66
Monthly Payroll	17	2	19
Special Assignment	2	-0-	2
Budgets	5	1	6
Internal Audit	3	5	8
Total	164	25	189

Non-exempt employees may be summarized as follows:

	Number as of	
Classification	3-31-51	2-28-51
Accounting A	2	2
Accounting B	3	2
Accounting C	7	7
Accounting D	10	7
Business Graduate	12	13
Clerical Working Leader	9	8
Cost Clerk A	1	-0-
Cost Clerk B	1	-0-
Cost Clerk C	1	1
Cost Clerk D	3	1
Field Clerk C	2	2
General Clerk A	19	19
General Clerk B	37	42
General Clerk C	19	21
General Clerk D	9	9
General Clerk E	1	1
Office Machine Operator A	7	8
Office Machine Operator B	6	6
Office Machine Operator C	1	1
Secretary B	1	1
Steno-Typist A	3	2
Steno-Typist B	6	6
Steno-Typist C	3	3
Steno-Typist D	1	1
Total	164	163

Open employment requests as of March 31, 1951 were as follows:

Accounting B	2
Accounting C	1
Accounting D	1
Business Graduates	17
Cost Clerk C	3
Cost Clerk D	1
General Clerk B	7
General Clerk D	1
Total	33

General Accounting Division

	March	February
Accounts Payable*		
Balance at Beginning of Month	$ 71 794	$ 98 711
Vouchers Entered	1 502 347	2 423 930
Cash Disbursements	1 482 560	2 451 584
Cash Receipts	1 269	737
Balance at end of month	$ 92 850	71 794
Number of Vouchers Entered	2 577	2 036
Number of Checks Issued	1 484	1 223
Number of Freight Bills Paid	375	326
Amount of Freight Bills Paid	$ 6 133	$ 4 153
Number of Purchase Orders Received	1 113	1 229
Value of Purchase Orders Received	$ 451 450	$ 510 814
Cash Disbursements		
Municipal, Real Estate & General Services	$ 288 637	$ 209 775
Engineering & Construction	5 201 137	4 799 656
General	4 153 697	4 567 181
Manufacturing	598 438	715 849
Total	$10 241 909	$10 292 461
Material and Freight	$ 2 380 070	$ 2 353 419
Lump Sum and Unit Price Subcontracts	489 917	508 192
CPFF Subcontracts		
Labor	2 767 076	2 467 687
Others	758 540	635 456
Payrolls (Net)	2 530 812	1 972 441
Payroll Taxes	396 907	434 035
U. S Savings Bonds	140 325	143 156
Income From Special Funds	40 277	-0-
General & Administrative Expenses	200 000	200 000
Stock Bonus Plan - Employers Contribution 1950	168 451	-0-
Pension Trust Fund - Employers Contribution	-0-	1 213 300
All Other	369 534	364 775
Total	$10 241 909	$10 292 461
Cash Receipts		
Municipal, Real Estate & General Services	$ 117 216	98 359
Engineering & Construction	51 009	132 582
General	11 203 333	11 509 844
Manufacturing	21 225	11 443
	$11 392 783	$11 752 228

*General Divisions Only

General Accounting Division

	March	February
Detail of Cash Receipts		
Advances from AEC	$11 079 510	$11 428 657
Rents	124 438	114 924
Hospital	51 598	52 515
Telephone	18 265	12 795
Scrap Sales	24 236	2 460
Bus Fares	9 315	9 199
Miscellaneous Accounts Receivable	21 940	8 574
A.E.C. Cost-type Contractors Accounts Receivable	1 212	6 450
Refunds from Vendors	11 308	2 012
Employee Sales	1 171	831
Educational Program	1 119	1 509
Refund of Advances to Subcontractors (Kellex)	-0-	100 000
Expenditures - Disallowed by A.E.C.	-0-	10 619
Income From Special Funds	40 277	-0-
All Other	8 394	1 683
Total	$11 392 783	$11 752 228
Number of Checks Written		
Municipal, Real Estate & General Services	283	216
Design & Construction	817	649
General	1 484	1 223
Manufacturing	810	654
Total	3 394	2 742
Bank Balances At End of Month		
Chemical Bank & Trust Company - New York		
Contract Account	$ 3 034 783	$ 1 539 648
Seattle First National Bank - Richland		
Contract Account	1 823 656	2 256 467
U. S. Savings Bond Account	186 919	201 912
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
Travel Advance Account	50 925	18 868
Seattle First National Bank - Seattle		
Escrow Account	31 685	31 685
National Bank of Commerce - Richland		
Contract Account - Manufacturing	701 562	584 151
Contract Account - Municipal, Real Estate & General Services	36 363	90 225
Total	$ 5 915 893	$ 4 772 956
Travel Advances and Expense Accounts		
Cash Advance balance at end of month*	$ 41 343	$ 50 313
Cash Advance balance outstanding over one month*	21 126	4 021
Traveling and Living Expenses:		
Paid Employees	38 866	26 215
Billed to Government	34 301	23 976
Balance in Variation account at end of month	21 625 Dr.	17 061 Dr.

*General Divisions only

General Accounting Division

	March	February
Hospital Accounting		
Accounts Receivable		
Balance at Beginning of Month	$ 128 789	$ 128 047
Invoices Issued	73 558	57 991
Refunds	639	1 114
Cash Receipts	51 598 Cr.	52 515 Cr.
Payroll Deductions	5 523 Cr.	5 657 Cr.
Bad Debts Written Off	-0-	175 Cr.
Adjustments	85 Cr.	16 Cr.
Balance at End of Month	$ 145 780	$ 128 789

	March	Total to Date
Scrap Sales		
(a) Number of Sales	15	332
(b) Revenue (Not including Sales Tax)		
Revenue to G.E.	$ 24 236	$ 336 690
Revenue to AEC (Sale of Tract Houses)	600	40 778
Total Revenue	$ 24 836	$ 377 468

General Accounting Division

ACCOUNTS PAYABLE

The number of vouchers booked in March was 2 577 amounting to $1 502 347 as compared to 2 036 in February amounting to $2 423 930. This volume represents the greatest number of vouchers processed through this office in any one month since decentralization of the Accounting Division in 1948 and continues the steady increase in volume evident over the period of the last six months.

The number of checks issued in March was 1 484 as compared with 1 223 in February. This is the greatest number of checks issued by this office in any one month since decentralization of the Accounting Division in 1948. Details for March are as follows:

	March	February
Chemical Bank & Trust Co.	484	459
Seattle-First National Bank	1 000	764
Total	1 484	1 223

A total of 2 540 vouchers were paid in March, averaging 1.70 vouchers per check, the highest average attained to date and compares with an average of 1.66 in February.

On March 31 there were 1 513 vouchers on hand requiring additional supporting data before they could be forwarded to AEC for final audit. Details, compared with February, are as follows:

	March	February
Number on hand - Paid	469	413
Number on hand - Unpaid	1 044	1 024
Total	1 513	1 437

Number of freight bills paid in March was 375 amounting to $6 125 as compared with 326 in February amounting to $4 153.

The General Ledger Accounts Payable balance on March 31 was $92,849.85. Details of this balance by months, compared with February, are as follows:

	March	February
August	$ -0-	$ 3.60 Dr.
October	3.21 Dr.	2,307.75 Dr.
November	35.44 Dr.	111.62 Dr.
December	113.14 Dr.	97.70 Dr.
January	-	10,747.42
February	964.65 Dr.	63,567.23
March	93,966.29	-
Total	$92,849.85	$71,793.98

General Accounting Division

ACCOUNTS PAYABLE (CONTD.)

New purchase orders issued in March applying to General Divisions totaled 1 113 amounting to $451 450 as compared with 1 229 in February amounting to $510 814. The value of material being purchased in March, although lower than in February, still is higher than in any other month prior to February since decentralization of the Accounting Division. The bulk of purchases in March (58%) were for stores inventories accounts, Plant and Equipment items accounted for 18%.

BUDGETARY CONTROL

During the forepart of the month, budget amounts as determined by the fourth quarter budget review were tabulated and submitted to the Cost Section for inclusion on operating reports. Effort during the balance of the month was concentrated on work relating to preparation of the budget for FY 1953 and revision of the budget for FY 1952.

Division heads submitted itemized detail on budgets for Property In Service - Equipment (including Office Furniture and Equipment) for FY 1952 and FY 1953. These schedules were reviewed and summarized by the Budget Accounting Section. This budget was completed and forwarded to AEC for preliminary review.

Budget schedules for FY 1952 and FY 1953 for Construction Projects were also completed and forwarded to AEC for preliminary review.

Tentative schedules of estimated FY 1952 and FY 1953 personnel requirements were completed and forwarded to AEC.

During the latter part of the month working schedules were completed on Cash Working Capital and Inventories and were forwarded to concerned divisions together with letters of instruction.

Considerable time was spent during the month on divisional Operating Cost Budgets. As working schedules were returned by division heads, they were reviewed and analyzed by Budget Accounting personnel and the calculation of monetary amounts was completed by use of payroll and other cost statistics.

During the month, continual personal contact was maintained with all division budget representatives in order to assist them in uniform preparation of data for their FY 1952 and FY 1953 budgets.

At the close of the month, work was progressing satisfactorily on the budget for FY 1953 and revision of the budget for FY 1952 and deadlines which had been previously established are expected to be met.

COST

General Divisions' Operating Reports for the month of February were issued on March 15, 1951. Detailed reports of Research and Development Costs for Technical and Health Instrument Divisions programs were issued on March 20, and the Consolidated Summary of Costs report was issued March 28, 1951.

General Accounting Division

COST (CONTD.)

Cost analyses letters were issued to managers of each General Division showing a summary of February costs and a comparison with budgeted costs. Explanations of significant changes in costs from the previous month were pointed out in the letters.

The bases of all assessment studies were thoroughly reviewed and adjustments made where necessary to reflect the Consolidation of Project Engineering with the Engineering and Construction Divisions.

In order to provide a more accurate segregation of costs as incurred by the various control groups of Health Instrument Divisions, the present cost coding system was enlarged by means of a decimal system whereby costs of these control groups will be accumulated by function or by area in which the service is rendered. The new segregation will provide a much better cost control and will greatly facilitate the preparation of the Health Instrument Divisions' budget. The system to be used and the cost breakdown for the Health Instrument Divisions was evolved after considerable joint effort on the part of the Cost Section and the Health Instrument Divisions.

As a result of the transfer of P-10 Program - Slug Fabrication, to the Manufacturing Divisions, inventories of Aluminum and Z Metal were also transferred from General Divisions books to Manufacturing Divisions books in March.

Charges by the Electrical and Power Divisions for site preparation in connection with the new wing of the 703 Building were reviewed and arrangements were made to segregate these charges at the source for transfer to Plant Accounting in order that they may be reviewed for determination as to whether they are cost items or of a capital nature.

Further effort was expended on the basic discrepancies that arise in preparation of the Consolidated Summary of Costs Report. Considerable detail work was done to determine the various methods of handling similar items by the respective Cost Sections and recommendations were made as to the best method to be used in order to facilitate the preparation of the Consolidated Summary of Costs Report.

In connection with the merger of Engineering and Construction Divisions with the Technical Divisions, personnel of the General Cost Section have been designated to be transferred to the newly formed Technical, Engineering and Construction Divisions to handle the necessary Technical Divisions cost accounting. At the present time these persons are engaged in a concentrated training program encompassing all phases of cost accounting for the Technical Divisions.

Arrangements were made with the Surplus, Salvage and Scrap Section of Purchasing and Stores Divisions to accumulate all the necessary information regarding overtime costs arising from the shipment of lumber on a specific AEC shipping order. Considerable overtime was necessary to complete this shipment on the stipulated date and detailed records were necessary in order to accurately charge AEC for the cost of the service rendered.

General Accounting Division

GENERAL ACCOUNTS

Advances from A.E.C. increased from $5 000 000 as of February 28 to $6 500 000 as of March 31, 1951. The amount advanced as of February 28 may be compared with that of March 31, 1951 as follows:

	March	February
Cash in Bank - Contract Accounts	$5 596 364	$4 470 490
Cash in Transit	428 636	79 510
Cash in Bank - Salary Accounts	50 000	50 000
Travel Advance Funds	125 000	100 000
Advances to Subcontractors	300 000	300 000
Total	$6 500 000	$5 000 000

Due to the continued increase in travel activity, the Travel Advance Funds account was increased $25 000 this month.

In comparing February disbursements of $4 567 181 with those of March in the amount of $4 153 697, a decrease of $413 484 is noted. This decrease is due to the payment in February of the company's contribution to the 1950 Pension Trust Fund in the amount of $1 213 300.

During March, 197 travel expense reports were processed as compared with 110 last month. Traveling employees spent $28 507 and reimbursement was received from the Atomic Energy Commission for $26 716. The balance of $1 791 was charged to the Travel and Living Expense Variation Account.

The Travel and Living Expense Variation Account has been charged with $21 625 (All Divisions), fiscal year to date. A total of $4 564 was charged this month, for which $1 705 was entertainment expenses and $2 859 the difference between expenses incurred by employees and the amount billed the A.E.C.

General Ledger Trial Balances were received from all Accounting Divisions by noon, March 14, 1951. Hanford Works Financial Statements and the Consolidated Financial Statements were completed on March 16, and March 20, 1951, respectively. All accounting reports for February were completed by March 26.

The Financial Statements Group spent considerable time during the month on the development of a revised Application of Funds report.

Memorandum billings were received from Knolls Atomic Power Laboratory covering General Engineering Laboratory Assistance to Hanford in the amount of $140 409, KAPL Assistance to Hanford of $1 978, and Research Laboratory Assistance of $33.

General Accounting Division

INTERNAL AUDITING

During March, 1951, two audits were begun covering (1) Standardization of Inventory Sub-Accounts and (2) Physical Inventory and Booking of Special Materials.

Inventory sub-accounts are being studied for the purpose of establishing a standard list of inventory sub-accounts, comprehensive, yet descriptive enough to be used with all plant inventory accounts in accordance with the provisions of Atomic Energy Commission Bulletin GM-179. At present, the same type of material is being carried under different-named inventory sub-accounts and by different inventory sub-account numbers under the several General Ledger inventory accounts.

In conjunction with the Finance Branch of the Atomic Energy Commission, a study is being made of records and control of platinum and other special materials, with a view of recommending standard procedures and records for use by all divisions using special materials in accordance with the provisions of AEC Bulletin GM-179.

The following audits are in various stages of completion: (1) Timekeeping, (2) Hospital Revenue (3) Bus Revenue, (4) Receiving and Shipping, (5) State Business and Occupational Taxes, (6) Physical Inventory Procedures, (7) Review of Reserve For Miscellaneous Inventory Adjustments, Account 10.30, and (8) Study of Termination Clearances Procedure.

During the month, an auditor assisted Stores Division personnel in effecting changes in control desk activities and in reconciling monthly inventory sub-accounts required by revised procedures.

A follow-up in the field was made of an audit of Memo Employee Sales to appraise the system used by the several divisions in controlling direct-charge materials, supplies, equipment, and articles of protective clothing and to determine the extent and accuracy with which the divisions are maintaining records for control in accordance with the provisions of H.W. Instructions Letter No. 49. Special attention was given to direct-charge items being withdrawn from the Stores Division Memo Employee Sales account.

Audit reports were completed and issued in March covering: (1) Review of Proposal to Purchase Marine Insurance Policy for Hanford Works and (2) Audit of Revenue and Cash Change Fund of School of Nuclear Engineering.

PLANT ACCOUNTING

The review of depreciation rates which were established at the time of the plant appraisal on June 30, 1949 continued during the month of March. This review is being made as rates on certain accounts are obviously too high. New estimated service lives are being established, and it will be recommended that depreciation rates be adjusted accordingly.

General Accounting Division

PLANT ACCOUNTING (CONTD.)

Representatives of this Section reviewed the revised budget for fiscal year 1952 and the budget for fiscal year 1953 with the Project Engineering Division. Expenditures were classified as to investment or expense. No attempt was made to segregate investment costs between the equipment budget and new construction.

As a result of a review of the spare parts account, it was found that equipment valued at approximately $260 000 should be capitalized. A new account, Spare Equipment Held in Storage, was established and arrangements were made for the transfer of capital equipment which has been included in the spare parts account.

Maps which furnish extent, installation date, location, etc., of plant utilities are being revised to record changes resulting from projects completed since June 30, 1949.

Field clerks continued the inventory of certain Plant and Equipment Accounts. Inventories were completed covering all refrigerators, ranges, water heaters, drinking fountains, household and industrial vacuum cleaners located in the manufacturing areas and cafeteria equipment located in the Kadlec Hospital. These items have, in the past, been included in the Community Furnishings and Equipment Account and designated as Community Facilities. As a result of this inventory, corrections to Plant Records are being made. The water heaters, drinking fountains, etc., will be charged to the building in which used as Building Service Equipment and the balance of the equipment will be transferred to the appropriate facility account.

As a result of recent discussions with representatives of the Atomic Energy Commission's Office of Finance regarding plant accounting adjustments resulting from physical inventory, the Atomic Energy Commission issued a letter stating the policy to be followed. This letter stated "Items added or eliminated from Plant Accounts, as the result of physical inventories which are determined to be adjustments of the Plant Appraisal as of June 30, 1949, shall be applied to the Plant Appraisal Adjustment Account; items which cannot be so identified shall be credited to the reserve applicable to the Plant Account to which it applies".

MEDICAL ACCOUNTING

The balance in Accounts Receivable increased $16 991 during the month; from $128 789 in February to $145 780 in March. Sales increased by $15 566 to a new high of $73 557 during the month. Cash payments decreased $917 and payroll deductions decreased $134 from the previous month.

Out-patient invoices numbered 2 549 and amounted to $17 701 as compared to 2 101 invoices amounting to $9 598 in February. This represents an increase of 448 invoices totaling $8 103 of which $5 005 was billed to Waale-Camplan Company during the month for pre-employment physical examinations given to their employees.

General Accounting Division

MEDICAL ACCOUNTING (CONTD.)

In-patient revenue increased $7 463 over February. The adult patient day census increased from 90.7 to a new high of 97.7 in March.

A total of 31 claims in the amount of $2 303 were submitted this month to Fort Lewis for services rendered Military Personnel. Reimbursement on 86 claims in the amount of $3 655 on prior months' billings was received during the month.

Blue Cross claims paid during the month numbered 28 and amounted to $1 995.

Listed below is a summary of activity to date on accounts submitted to Yakima Adjustment Service for collection:

	Number	Amount
Accounts Submitted	169	$29 467
Accounts returned as uncollectible	29	7 017
Collections by Yakima Adjustment Service	47*	2 428
Accounts recalled	6	1 456
Accounts at 3-31-51	107	18 566

*Includes 27 accounts paid in full and 20 accounts partially collected.

Medical Divisions budget for FY 1953 and revision of budget for FY 1952 provides for an over-all increase in net costs of 8.8% in 1952 and 3.9% in 1953.

The Public Health and Industrial Medical portions of the budget remain fairly constant showing a slight increase in costs.

Kadlec Hospital Costs and revenue reflect the major changes in the budget. The increase in budgeted costs is due primarily to the addition of nurses to meet American Hospital Association nursing requirements. It is expected that the nursing staff will remain at a constant level during 1952 and 1953. A recommended upward revision of room rates is expected to go into effect in January 1952. This revision will result in increased revenue of approximately 27% for the last half of FY 1952 and the full year of FY 1953.

During the month the Doctors in the clinic building opened a Clinical Laboratory. It is expected that this will reduce hospital revenue by approximately $1 500 a month.

General Accounting Division

PAYROLLS

During the month of March there were 226 removals from payroll, including 1 leave of absence and 1 transfer to another unit of the Company. There were 287 additions to the payroll including 29 employees re-engaged with continuous service. There were 5 transfers from other units of the Company. The result is a net increase of 61 employees on the payroll.

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Approximately 350 man hours were expended in connection with a special payroll analysis.

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The Salary Record Card used in Monthly Payroll to record personnel and payroll data of each monthly paid employee was revised to provide space for recording information necessary for record purposes in connection with the new salary plans which became effective December 1, 1950. Two cards were designed, one for use under the Executive, Administrative and Operating Plan and the other for use under the Professional Plan. Data has been transcribed to the new Salary Record Cards from the cards used prior to inauguration of the new salary plans. This work was started early this year and was completed during March.

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Request for reimbursement authorization covering the Emergency Loan Plan for Ill or Laid-Off Pension Participants was transmitted to the Commission on February 28, 1951, and Reimbursement Authorization No. 142, dated March 26, 1951 was issued by the Atomic Energy Commission approving the Plan for reimbursement effective February 1, 1951. Hanford Works Instructions Letter No. 166 was issued in March covering the provisions of the Plan which was placed in effect as of February 1, 1951 on a Company-wide basis.

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During the month of March, charts of Employee and Payroll statistics were extended on a current basis for use of management.

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The retroactive portion of the 3% General Salary Increase (minimum 4¢ per hour) applicable to July 2, 1950 rates, effective September 18, 1950 for employees represented by the H.A.M.T.C. and for employees represented by Local 201, Building Trades Service Employees Union, was paid during the month of March. The retroactive payment, covering the period September 18, 1950 through February 11, 1951, amounted to $147,894.74 and was paid to 3,332 employees, including 197 employees not registered on the payroll at the date of payment but who had been on the payroll for a portion of the period September 18, 1950 through February 11, 1951.

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Military Duty Allowance equivalent to one month's salary was paid during March to six weekly paid employees who entered the Armed Forces. The gross payment to these employees amounted to $1,743.22. A total of $11,481.52 has been paid to 36 weekly paid employees and 2 monthly paid employees for Military Duty Allowance as of March 31, 1951.

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There were 135 employees as of March 31, 1951 who had left the Company to enter the Armed Forces of the United States as follows:

	Called to Duty	Volunteered For Duty	Total
Reserve Officers	6	3	9
Enlisted Reserve	32	4	36
National Guard	1	-0-	1
Selective Service	34	55	89
	73	62	135

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Approximately 7,900 Employee Benefit Plans Letters showing status in the principal benefit plans were mailed to employees on March 9, 1951. Approximately 250 inquiries were received from employees concerning the letters.

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Payroll deductions for Red Cross contributions which amounted to $5,388.85 were made in March from salaries of 1,122 weekly paid employees and 603 monthly paid employees. A check for this amount will be issued to American Red Cross and forwarded to the chairman of the Nucleonics Department Red Cross Drive.

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New authorization cards for check-off of Union Dues were received for 12 employee members of 5 unions affiliated with Hanford Atomic Metal Trades Council. Seven members of the International Chemical Workers Union, Local 369 each signed a revised card authorizing deduction of union dues in the amount of $3.00 per month instead of $2.00.

Check-off of union dues is in effect for 862 employee members of 12 unions affiliated with the Hanford Atomic Metal Trades Council, and 19 employee members of the Building Service Employees International Union, Local 201.

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Payrolls Divisions discontinued overtime work during March and returned to a normal 40-hour schedule.

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There were 22 time cards received late in payroll during the month of March, as follows:

Week Ended	Number
3- 4-51	7
3-11-51	3
3-18-51	11
3-25-51	1
Total	22

Late time cards cause considerable extra work in Payroll as it is necessary to calculate the amount of salaries and prepare pay checks separately in such cases. In some cases, special arrangements for distribution of checks must be made so that employees concerned will receive their salary check on the regular payday.

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In addition to regular payroll addressograph work, approximately 112,720 items were addressographed for other divisions in March.

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One garnishment served on the Company had not been dismissed February 28, 1951. One garnishment was served on the Company during March. These two cases were dismissed during March by Court order, one with payment to the Court, and one without payment to the Court. There were no cases pending at March 31, 1951.

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Three salary checks were reported lost during March and two were subsequently located by the employees. There was one lost salary check not reissued as of March 31, 1951.

Approximately 780 employees are authorized to pick up salary checks, U. S. Savings Bonds and Custody Receipts. During March, 28 employees were added to the list of individuals so authorized.

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During the month of March, 1,300 U. S. Savings Bonds having a maturity value of $61,425 were withdrawn from the G. E. Employees Savings and Stock Bonus Plan by 151 participating employees. U. S. Savings Bonds and Custody Receipts having a maturity value of $202,650 covering purchases by employees through payroll deductions in February were delivered to employees on March 30, 1951. There were 739 U. S. Savings Bonds and 2,870 Custody Receipts delivered.

Three Hanford Works employees reported the loss of 3 Custody Receipts and request was made for replacements during the month.

Checks representing income for the years 1949 and 1950 on General Electric common stock credited to their accounts were delivered to 88 participants in the G. E. Employees Savings and Stock Bonus Plan who, during the year 1951, withdrew U. S. Savings Bonds purchased in 1948 or 1949.

G. E. Employees Savings and Stock Bonus Plan statements of accounts, as of December 31, 1950 were delivered to approximately 3,500 employees who were on the payroll at March 30, 1951. Statements of accounts were mailed to approximately 200 employees who were not actively at work. Copy of General Electric Company's annual report for 1950 and a letter from R. J. Cordiner, President, were included with each statement.

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Report of the study and analysis of our payroll practice and procedure being prepared by a representative of I.B.M. has not yet been received.

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Authorizations for deductions from payroll for the purchase of safety shoes were received from 189 employees in March.

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There were 6,327 items deducted from salaries of Weekly Paid Employees in March for rent and telephone charges as follows:

House Rents	3,242
Dormitory Rents	686
Trailer Rents	126
Barracks Rents	43
Telephone Accounts	2,230
Total	6,327

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During March, preferential rates were eliminated in 15 cases where employees were transferred or reclassified. In July 1948, when all weekly paid employees were reclassified, approximately 4,550 employees had preferential rates. As of March 31, 1951, there were approximately 1,100 employees having preferential rates.

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A total of 317 weekly paid employees were scheduled to begin their 1951 vacation in March. Division Managers or their authorized representatives approved deferment of one week of the 1951 vacation to 1952 for 92 weekly paid employees and 15 monthly paid employees. As of March 31, 1951, 168 weekly paid employees and 54 monthly paid employees had deferred one week of the 1951 vacation to 1952.

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Under the G. E. Pension Plan, 64 weekly paid employees became eligible for participation in March. Enrollment cards were received from 38 of these employees and 23 elected not to participate in the Plan. Three of the newly eligible employees have not returned either an enrollment card or a "waiver card".

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The high percentage of absenteeism during March was reflected in an increase in the number of disability claims processed under the G. E. Insurance Plan. Absences of payroll personnel in March and the high percentage of absenteeism in all divisions which increased the work load in the Weekly Payroll made it necessary to reschedule many of the statistical reports and related payroll work in order to complete calculation and distribution of payrolls according to normal schedules.

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During March, 802 disability claims were processed and forwarded to Metropolitan Life Insurance Company. This is the largest number of disability claims submitted to the insurance company in any one month since the G. E. Insurance Plans became effective September 1, 1946. In March, 799 checks totaling $48,871 for 622 claims were received from the insurance company and forwarded to employees or to hospitals and surgeons in accordance with authorizations of the employees.

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The following bank reconciliations were complete at February 28, 1951:

Weekly Salary through #237, week ended March 11, 1951
Weekly Salary Vacation #V-237, week ended March 11, 1951
Bond Account - January
Monthly Payroll #54, February 1951

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PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - MARCH 1951

SUMMARY

There were no major injuries during the month. The major injury frequency rate was further reduced to 0.25 for the year to date.

The Hanford Works of the General Electric Company was declared the winner of the AEC Safety Improvement Contest for Group I in 1950.

There were no industrial fires during March.

Laundry volume decreased slightly in the plant laundry and remained approximately the same in the 700 Area Laundry.

Volume of work demanded of the Clerical Services group continued to increase.

All records have now been transferred from 712-A and 712-B Hutments to the Records Service Center.

Methods and forms control activities resulted in estimated savings of $16,734 of which $14,308 will be on a recurring annual basis.

A joint AEC - GE security educational program was begun this month.

PLANT SECURITY AND SERVICES DIVISIONS
MONTHLY REPORT - MARCH 1951

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	3	3		
Patrol and Security	619	630	11 (a)	
Safety & Fire Protection	145	148	3 (b)	
Office Services (General Services, Clerical Services, Records Control and Office Methods)	246	250	4 (c)	
TOTALS	1,013	1,031	18	

NET INCREASE: 18

(a) - Patrol and Security

26 - New Hires
4 - Returned from Leave of Absence
1 - Transferred from Manufacturing Accounting
2 - Removed from Roll due to Leave of Absence
5 - Transferred to other Divisions
13 - Terminations

(b) - Safety and Fire Protection

6 - New Hires
1 - Transferred from Instrument Division
1 - Transferred to Instrument Division
3 - Terminations

(c) - General Services

11 - New Hires
2 - Returned from Leave of Absence
1 - Removed from Roll due to Leave of Absence
4 - Terminations

Clerical Services

5 - New Hires
5 - Transferred to other Divisions
3 - Removed from Roll due to Leave of Absence
1 - Termination

Plant Security and Services Divisions

SAFETY AND FIRE PROTECTION

Injury Statistics

Days since last major injury	59
Accumulated Exposure Hours since last major injury	2,591,697
Major Injury Frequency Rate (1-1-44 through 3-31-51)	0.78

	February	March	Year to Date	Comparative Period, 1950
Major Injuries	0	0	1	1
Sub-Major Injuries	1	4	5	11
Minor Injuries	260	277	824	948
Exposure Hours	1,215,640	1,376,057	3,927,037	3,658,997
Major Injury F/R	0.00	0.00	0.25	0.27
Major Injury S/R	0.00	0.00	0.08	0.002
Minor Injury F/R	2.13	2.01	2.10	2.59

Sub-Major Injury No. 194

On March 7, in the 100-H Area, a Maintenance employee and two Transportation riggers were in the act of removing a radiation shield from its location when a stand support, fabricated from channel iron, flipped and fell on the left foot of the Maintenance employee resulting in a cominuted fracture, distal phalanx, left great toe. He was not wearing safety shoes at the time of the accident, although he normally did so.

Sub-Major Injury No. 195

On March 9, an employee of the North Richland Realty Section of the Engineering Construction Services Division, reported to First Aid that he sprained his right ankle when he stepped on a rock on March 7. He had carried a small trash can of paper out of a barracks and after setting it down, turned to walk away at which time he claims he stepped on the rock. He turned his ankle, which resulted in a fracture, right tibia.

Sub-Major Injury No. 196

On March 9, an employee of the North Richland Realty Section of the Engineering Construction Services Division sustained a compound fracture of the distal phalanx of the left middle finger when it was caught between the door and jamb of a barracks. A very strong gust of wind slammed the door shut as she was passing through, and she lost control of the door.

Sub-Major Injury No. 197

On March 18, during a routine check of compressed gas cylinders in storage, 100-D Area, a cylinder was tipped over and struck the safety cap of an employee's left shoe, crushing the cap and causing a fracture of the distal phalanx of the left great toe. Employee was a member of the P Division.

Plant Security and Services Divisions

Safety Activities

The Hanford Works of the General Electric Company (Production) was declared the winner of the AEC safety improvement contest, Group 1. A bronze plaque was presented on March 30, 1951 by AEC General Manager Boyer. The speaker's platform and its decoration was completed by the Safety Division.

Two-year safety award pins have been distributed to all eligible employees in the 200-East and Hanford Areas.

An extensive study is being conducted on the use of Carbon Tetrachloride and use of a substitute material seems very likely.

The 100-F Area is conducting a safety quiz on the Who, Why, When and Where of Safety.

The style and design of the Safety Topic of the Month was changed and the new design set up for printing.

A special pamphlet was designed covering Safety of those employees assigned activities "off the plant" such as traveling inspectors and expeditors sent off the plant on Company business. The printing section will have these ready for distribution during the early part of the month.

A survey is in progress to review the safety coverage on all construction safety activities to determine the feasibility of recommending any changes.

A newly prepared and designed employees' Safety Booklet has been completed and turned over to Employee Relations Division for release.

Fire Protection Division Activities

Fire protection surveys were completed on Buildings 11-B, 151-D, 224-B, and 3746.

A fire alarm system demonstration was given to members of the P-10 Group. A fire extinguisher demonstration was given to members of the P Division in the 100-D Area.

The Laundry personnel was given a demonstration of the First Aid fire appliances in their building.

The 300 Area Maintenance Division was given a talk on "Facts and Fire Safety".

A survey of fire extinguishers is in progress in all areas. All vaporizing liquid fire extinguishers are being removed from all plant operating buildings. Where the need exists for an extinguisher for Class B or C fires, the dry compound extinguisher is being installed.

The heat detector fire alarm system in the 2724-W Laundry Building was tested. The test was satisfactory except that the evacuation signal sounds when the master box is reset. This will be corrected by changing the control switch in the supervisory panel.

Plant Security and Services Divisions

Fire Protection Activities (Contin)

A fire evacuation procedure was written for the Laundry.

The locations for fire extinguishers in the new 222-S Laboratory Building are being developed in conjunction with the Technical Division.

A list of questions was prepared for the S Division concerning the handling of the solvent in Redox. The questions were discussed with the manufacturer of the solvent.

The prints and specifications for Radio Chemistry were reviewed and comments submitted.

Preliminary prints for the Radio Metallurgy Building were reviewed and comments submitted.

The specifications for 105-C elevators and several other small jobs were reviewed.

A fire protection review was made of P-10.

There were no industrial fires during the month of March.

OFFICE SERVICES DIVISIONS

General Services

Plant Laundry (Building 2723)

	February	March
Coveralls - Pieces	39,792	36,357
Towels - Pieces	6,677	7,120
Miscellaneous - Pieces	97,219	94,487
Total Pieces	143,688	137,964
Total Dry Weight - Lbs.	207,688	194,938

Richland Laundry (Building 723)

Flatwork - Pounds	60,153	58,331½
Rough Dry - Pounds	18,010½	19,097½
Finished - Pounds	2,132	2,502
Estimated Pieces	105,187	104,709
Total Dry Weight - Lbs.	80,295½	79,931

Plant Security and Services Divisions

Monitoring Section (Plant Laundry)

	February	March
Poppy Check - Pieces	103,247	114,364
Scaler Check - Pieces	147,200	129,593
Total Pieces	250,447	243,957

Clerical Services

Mail Room

	February	March
Pieces of internal mail handled	510,139	596,034
Pieces of postal mail handled	64,863	96,364
Pieces of registered mail handled	923	1,163
Pieces of insured mail handled	277	353
Pieces of special delivery mail handled	289	322
Total mail handled	576,489	694,236
Total amount of postage used	$ 1,623.96	$ 2,368.73
Total teletypes handled	6,622	8,760

Office Equipment Section

	February	March
Office Machines repaired in shop	266	291
Office Machines service calls	453	510
Total Machines Serviced	719	801

Printing Section

	February	March
Multilith orders received	279	368
Multilith orders completed	299	316
Multilith orders on hand	79	131
Stencil and fluid duplicating orders received	945	1,021
Stencil and fluid duplicating orders completed	991	975
Stencil and fluid duplicating orders on hand	16	62

Plant Security and Services Divisions

Stenographic Services Section

	February Hours	March Hours
Dictation and Transcription	33:00	28:45
Machine Transcription	60:00	99:15
Letters	105:15	142:15
Manuals and Procedures	117:00	112:45
Duplicating - Stencils, Ditto	224:00	266:50
Special	753:15	544:55
Meeting Time	:00	2:00
Training	29:30	95:15
Absentee Time	8:00	24:00
Holiday and Vacation	112:00	:00
Unassigned Time	75:00	23:00
Total	1,517:00	1,339:00
Employees loaned to other Divisions	692:45	1,044:30
Total Hours Available	2,209:45	2,383:30

Records Control Division

Quantity of records received, processed and stored:

Electrical Division	2	Standard Storage Cartons
Engineering and Construction Divisions	88	" " "
Employee & Community Relations Divisions	27	" " "
General Accounting Division	61	" " "
Health Instrument - Operational	19	" " "
Instrument Division	7	" " "
Maintenance Division	2	" " "
Manufacturing Accounting Division	4	" " "
Medical Division	20	" " "
Municipal, Real Estate and General Services	8	" " "
Power Division	4	" " "
Purchasing Division	29	" " "
Stores Division	4	" " "
Subcontractors:		
Kellex Corporation	13	" " "
Morrison-Knudsen	1	" " "
Technical Services Division	2	" " "
Technical Separations Division	2	" " "
Transportation Division	7	" " "
Total	300	Standard Storage Cartons

Plant Security and Services Divisions

Records Control (Contin)

Persons provided records service:	449
Records Cartons issued:	408 Standard Cartons
Records reboxed:	200 Standard Cartons
Records destroyed:	81 linear feet of duplicate non-record material.
Filing service provided Purchasing and Stores Division	172 Pieces filed in with records already in storage

Approximately 10,000 boxes of records were moved from 712-A and B Hutments to the Records Service Center. This move required six working days and is complete.

Segregated storage area was provided to Classified Files Section with capacity of 900 boxes of records.

Ten selected offices were spot checked for yellow file survey.

The survey of file material to be microfilmed was completed for Employee and Community Relations Division, Health Instrument Division, Medical Division, Law Division, Engineering and Construction Division, and part of the Technical Divisions.

The Supervisor of the Records Control Division visited the Kellex Corporation, New York City, and the C. T. Main Company, Boston, to inventory sub-contractor records and discuss the matter of transfer of subcontractor records to Richland when the subcontractor records became inactive.

Copies of the Record Flow Schedules were mailed to all Divisions except Employee and Community Relations and Plant Security and Services.

Office Methods Division

	February	March
Printing Orders received	563	438
Printing Orders cancelled	46	36
New numbers assigned	99	121
Forms designed	53	39

As a result of the reorganization program throughout Engineering and Construction Divisions, this office has been called upon to assist in revising their procedures where paper flow is involved.

Many of the reports used by Engineering and Construction which deal with the scheduling of material, equipment, drawings, manpower, etc. range in sizes from 17" x 11" to 19" x 11". In the past, master copies of these reports were prepared on tracing paper and reproduced by the Ozalid process at a cost of 4¢ per square foot. A process has now been developed whereby the master copies of these reports are prepared by using forms printed on standard white paper of sizes proportionate to 11" x 8½". When ready for distribution, they are reduced down to 11" x 8½" by photostat. The photostate negative is then used to expose a sensitized paper plate for reproduction on a small multilith.

Office Methods (Contin)

The cost of this process is 29¢ for the first ten copies and 35¢ per hundred thereafter. Copy requirements on these reports range from 30 to 50 copies. On one report alone, Material and Equipment List, averaging 150 sheets, 37 copies each per week, a savings has been achieved in reproduction cost alone amounting to approximately $13,750 per year. Additional savings are to be realized through less need for filing space and a more convenient size report.

This procedure is being adopted throughout Engineering and Construction as standard policy in reproducing copies of all reports that originate in sizes larger than 11" x 8½" and where copy requirements are greater than can be provided by one typing operation. It is estimated that after all of their larger reports have been converted to this method of reproduction, there will be a potential annual saving of close to $50,000.

Other divisions are now reviewing this reproduction method with considerable interest.

Miscellaneous savings created during March as a result of forms design and forms control have amounted to $2,984.

Total estimated savings were $16,734, of which $14,308 will be on a recurring annual basis.

PATROL AND SECURITY

There were 120 General Electric employees given orientation talks which dealt with plant safety and security rules, also a brief resume of plans and policies of the general Electric Company for its employees.

There were 296 Security meetings held and attended by 4,152 General Electric employees.

A representative of the Security Division showed the film on the subject of Communism at one showing to 25 employees.

A representative of the Security Division showed the film "On Guard" at nine security meetings to 153 employees, and the film "Fitting 'U' Into Security" at five meetings to 95 employees.

The Security films "On Guard" and "Fitting 'U' Into Security", which were made at Hanford Works, were shipped to the Bendix Corporation, Kansas City, Missouri; Knolls Atomic Power Laboratory, Schenectady, and the Kellex Corporation, New York City, for use in their security education programs during the month of April.

A memorandum was issued by the Security Division to all exempt personnel entitled "Completion of Questionnaire Form, American Chemical Society". Instructions for filling out this form according to Atomic Energy Instructions were contained in this letter, dated March 28, 1951.

There were 113 employees of the General Electric Company who received a "Q" orientation talk from a representative of the Security Division during the month of March.

Plant Security and Services Divisions

Patrol and Security (Contin)

Practice evacuations were held as follows:

100-B	2:38 P.M.	3-5-51
100-H	10:10 A.M.	3-8-51
100-D	10:17 A.M.	3-20-51
100-B	1:30 P.M.	3-23-51
100-F	11:05 A.M.	3-27-51

Practice Blackouts were held as follows:

100-D	2:02 A.M.	3-1-51
100-B	10:01 P.M.	3-4-51
100-D	10:02 P.M.	3-4-51
100-F	10:01 P.M.	3-4-51
200-E	10:02 P.M.	3-4-51
200-W	10:02 P.M.	3-4-51
100-F	9:15 P.M.	3-11-51
100-B	8:55 P.M.	3-13-51
100-B	10:35 P.M.	3-16-51
100-D	9:32 P.M.	3-16-51
100-D	3:31 A.M.	3-19-51
200-E	2:15 A.M.	3-19-51
100-H	10:08 P.M.	3-20-51
100-D	9:15 P.M.	3-26-51
100-B	10:05 P.M.	3-27-51
100-D	1:32 A.M.	3-27-51
100-F	9:20 P.M.	3-27-51
100-H	10:20 P.M.	3-31-51

Practice mobilizations were held as follows:

100-B	Plan D	9:26 P.M.	3-19-51
	Plan A	10:18 P.M.	3-24-51
100-D	Plan A	1:35 A.M.	3-1-51
	Plan A	4:50 A.M.	3-4-51
	Plan D	9:37 P.M.	3-19-51
	Plan A	9:37 P.M.	3-20-51
	Plan A	9:50 P.M.	3-31-51
100-F	Plan A	1:35 A.M.	3-1-51
	Plan B	4:51 A.M.	3-4-51
	Plan D	9:38 P.M.	3-20-51
	Plan A	9:44 P.M.	3-26-51
	Plan A	9:49 P.M.	3-31-51

Plant Security and Services Divisions

Practice Mobilizations (Contin)

100-H	Plan A	1:35 A.M.	3-1-51
	Plan B	4:55 A.M.	3-4-51
	Plan A	9:44 P.M.	3-25-51
200-E	Plan A	10:00 A.M.	3-2-51
	Plan A	4:50 A.M.	3-4-51
	Plan A	9:20 A.M.	3-11-51
	Plan A	5:10 A.M.	3-14-51
	Plan A	9:40 A.M.	3-19-51
	Plan D	9:33 A.M.	3-20-51
200-W	Plan A	9:21 A.M.	3-11-51
	Plan A	5:11 A.M.	3-14-51
	Plan A	9:50 P.M.	3-31-51
300	Plan D	5:35 P.M.	3-25-51
	Plan A	5:44 P.M.	3-29-51

The Blackout Procedure for the 200-W Operations Area was revised and issued during the month of March to all personnel concerned.

A joint Atomic Energy Commission - General Electric education program was begun this reporting period with the following material issued:

On March 5, "Be A Badger" posters were posted in the following designated places:

250 posters 16" x 20" in the industrial areas
100 posters 11" x 17" in the work areas

Two hundred copies of a poster entitled "It's Baloney" were posted in the Richland and North Richland commercial facility buildings on March 5.

On March 5, 10,000 copies of a security cartoon letter "I Thought You Knew Him" were distributed among Atomic Energy Commission and General Electric personnel, as well as a limited number of sub-contractor personnel.

On March 12, 7,000 copies of a security cartoon letter entitled "Gossip, Too, is Sabotage" were mailed to the home address of project employees.

Effective March 6, the hot semi-works construction area within the 200-E Operations Area, was established as a "Controlled" area, and construction work was started at that time. This area has been fenced out of the 200-E Area proper.

A project proposal was presented to the Appropriations and Budget Committee on March 7 for an addition to the 200-W Area Main Badge House.

Plant Security and Services Divisions

Patrol and Security (Contin)

Operations Order No. I-240, Revision 4, was issued March 8, which established the procedure for admitting sub-contractor owned vehicles into Operations and Construction Areas. Vehicles of this type must have a properly stenciled "CE" number.

The 303-K Post, 300 Area, was discontinued on the No. 1 and No. 3 shifts. However, the man formerly assigned to this post will now be assigned to the post of Roving Area Patrol as of March 9.

During the period of March 13 through 16, the Charles T. Main, Incorporated, facility in Boston, Massachusetts, was visited by a member of the Security Division for the purpose of surveying security requirements in conjunction with its new contract for performing off-site work.

Instructions were issued March 20 to the Transportation Division to ditch the areas adjacent to the perimeter fence gates to prevent unauthorized vehicles from entering the "controlled" area.

On March 21, a memorandum was issued by the Security Division establishing one part of the 202-S Building as an "exclusion" area beginning April 15, 1951. An additional section will be restricted April 30, 1951.

On March 23, the National Labor Relations Board held a representation election of all Hanford guards including Security Patrol, North Richland and Richland Police Departments. The tabulation was 272 "yes", 243 not in favor of representation by the International Guard Union and 46 eligible voters did not vote.

A magneto telephone was installed on a steam line pole near the southwest corner of the 321 Building, 300 Area, for the convenience of Patrol in calling Headquarters when making checks of this portion of the 300 Area. This installation was made on March 25.

A total of 716 pat searches were made during the month. Escorts handled totalled 343.

The Patrol Division made 34 ambulance runs for the Medical Division during the month.

Patrol Training School Activities

The training courses conducted during the month of March were as follows:

Security	1	Hour
Mobilization Plans for Industrial Areas	1	"
Security Patrol Policy	$\frac{1}{2}$	"
Health	4	"
Pistol	1 $\frac{1}{2}$	Hours
Riot Gun	1 $\frac{1}{2}$	"
Machine Gun	2 $\frac{1}{4}$	"

Plant Security and Services Divisions

Security Field Inspection activities:

Investigations conducted of documents mishandled, etc. and reports written:	15
Personal contacts in regard to missing documents:	130
Physical searches conducted for missing documents:	40
Missing documents located during the month:	51
Persons notified of overdue file combination changes:	103
Combinations of file cabinets changed during the month:	29

Clearances

There were 2,957 badge transactions completed during March 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 MARCH 31, 1951

Name - Organization	Purpose of Visit	Person Contacted	Arival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
MEDICAL DIVISION							
I. Visitors to this Works							
S. T. Cantril Tumor Institute Swedish Hospital Seattle, Washington	Medical consultation	W. D. Norwood P. A. Fuqua	3-22-51	3-23-51	X		
ENGINEERING AND CONSTRUCTION DIVISIONS							
I. Visitors to this Works							
C. W. George General Engineering Laboratory Schenectady, New York	Consultation on 432 Project equipment	G. Thayer	3-12-51	3-17-51	X		200-W 231, 234, 235 234-5 Const.
J. N. Hall General Engineering Laboratory Schenectady, New York	Consultation on 432 Project equipment	G. Thayer	3-12-51	3-17-51	X		200-W 231, 234, 235 234-5 Const.
W. C. Bellows General Engineering Laboratory Schenectady, New York	Consultation on 432 Project equipment	G. Thayer	3-12-51	3-17-51	X		200-W 231, 234, 235 234-5 Const.
R. W. Stanhouse General Engineering Laboratory Schenectady, New York	Consultation on 432 Project equipment	G. Thayer	3-12-51	3-17-51	X		200-W 231, 234, 235 234-5 Const.

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
E. P. Diehl General Engineering Laboratory Schenectady, New York	Installation, consultation and test of 432 Project Equipment	G. Thayer J. E. Kaveckis	2-21-51	3-2-51	X		200-W Const. 234-5 Const. 200-W 231, 234, 235
R. N. Poole General Engineering Laboratory Schenectady, New York	Installation, consultation and test of 432 Project equipment	G. Thayer J. E. Kaveckis	2-21-51	4-13-51	X		234-5 Const. 200-W Const. 200-W 231, 234, 235
A. A. Batza General Engineering Laboratory Schenectady, New York	Inspection, consultation and test of 432 Project equipment	G. Thayer J. E. Kaveckis	3-8-51	Still here	X		200-W Const. 234-5 Const. 200-W 231, 234, 235
K. L. Boring General Engineering Laboratory Schenectady, New York	Inspection, consultation and test of 432 Project Equipment	G. Thayer	3-26-51	8-1-51	X		234-5 Const. 200-W 231, 234, 235, 272-Z
H. P. Kuehni General Engineering Laboratory Schenectady, New York	Engineering consultation on ply loading mechanism	G. H. Syrovy	3-27-51	3-29-51	X		
S. Dunning Sheldon Dunning Company Seattle, Washington	Inspection for test work	E. C. McAndrew	3-7-51	3-7-51	X		200-W Const. 221-U
L. L Ketchan Charles T. Main, Incorporated Boston, Massachusetts	Liaison on subcontract G-363	J. R. Kelley J. R. Conley	3-12-51	3-30-51	X		100-B 105
A. J. Curtis Charles T. Main, Incorporated Boston, Massachusetts	Liaison on subcontract G-363	J. R. Kelley J. R. Conley	3-12-51	3-30-51	X		100-B 105
R. T. Colburn Charles T. Main, Incorporated Boston, Massachusetts	Liaison on subcontract G-363	J. R. Kelly J. R. Conley	3-12-51	3-30-51	X		100-B 105

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
R. K. Patterson Charles T. Main, Incorporated Boston, Massachusetts	Liaison on sub-contract G-363	J. R. Kelly J. R. Conley	3-12-51	3-30-51	X		100-B 105
W. F. Uhl Charles T. Main, Incorporated Boston, Massachusetts	Liaison on sub-contract G-363	J. R. Kelly J. R. Conley R. E. Davison W. H. Clymer	2-26-51	3-20-51	X		
E. L. Mincher General Engineering Laboratory Schenectady, New York	Irradiation testing being performed	H. J. White J. R. Fritz W. A. Martman P. E. Lowe	3-19-51	3-22-51	X		100-D 105 100-F 105 100-H 105 300 3706
II. Visits to other Installations							
F. H. Ames, Jr. to: General Engineering Lab. Schenectady, New York	Consultation on design and installation of 432 Project equipment	D. H Marquis	3-6-51	3-17-51	X		
F. H. Ames, Jr. to: Internat'l Nickel Co. New York, New York	Consultation with vendor	C. L. Howarth H. W. Prine	3-6-51	3-17-51		X	
F. H. Ames, Jr. to: Ajax Company Trenton, New Jersey	Consultation with vendor	A. D. Myor	3-6-51	3-17-51		X	
J. L. Boyd to: Knolls Atomic Power Lab. Schenectady, New York	Design of radiation laboratories	H. H. Zornig	3-15-51	3-17-51	X		
J. L. Boyd to: Argonne National Lab. Chicago, Illinois	Design of radiation laboratories	J. P. Fitzpatrick	3-16-51	3-19-51	X		
J. L. Boyd to: Charles T. Main, Inc. Boston, Massachusetts	Liaison on sub-contract G-363	R. A. Moncrieff	3-9-51	3-20-51		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 Engineering Lab. Schenectady, New York	Discuss strengthening of accountability procedures on Project C-198	D. H. Marquis D. H. Marquis	3-1-51 3-15-51	3-2-51 3-17-51	X X		
C. W. Buchanan to: Knolls Atomic Power Lab. Schenectady, New York	Discuss strengthening of accountability procedures on Project C-198	R. J. Schier R. J. Schier	3-1-51 3-15-51	3-2-51 3-17-51	X X		
C. W. Buchanan to: Kellex Corporation New York, New York	Inventory original tracings on Job 11	H. B. Lytz H. B. Lytz	3-3-51 3-19-51	3-3-51 3-22-51	X X		
R. C. Hollinghead to: Kellex Corporation New York, New York	Design consultation Project C-362	J. S. Atwood	3-9-51	3-11-51	X		
R. C Hollinghead to: Johnston Pump Company Los Angeles, California	Design consultation with equipment vendor	Mr. Brown	2-28-51	3-5-51		X	
R. C. Hollingshead to: Stearns - Rogers Denver, Colorado	Design consultation with equipment vendor	Mr. Rosengrau	2-28-51	3-5-51		X	
E. C. McAndrew, Jr. to: General Engineering Lab. Schenectady, New York	Discuss strengthening of accountability procedures on Project C-198	D. H. Marquis D. H. Marquis	3-1-51 3-15-51	3-2-51 3-17-51	X X		
E. C McAndrew, Jr. to: Knolls Atomic Power Lab. Schenectady, New York	Discuss strengthening of accountability procedures on Project C-198	R. J. Schier R. J. Schier	3-1-51 3-15-51	3-2-51 3-17-51	X X		
E. C. McAndrew, Jr. to: Kellex Corporation New York, New York	Inventory classified documents on Job 11	H. B. Lytz H. B. Lytz	3-3-51 3-19-51	3-3-51 3-22-51	X X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
J. S. Parker to: General Engineering Lab. Schenectady, New York	Consultation on 234-5 equipment	F. E. Crever	3-20-51	3-22-51	X		
J. S. Parker to: Kellex Corporation New York, New York	Consultation on Projects C-362 and C-187-D	G. White, Jr.	3-22-51	3-25-51	X		
O. W. Priebe to: Knolls Atomic Power Lab. Schenectady, New York	Design of radiation laboratories	H. H. Zornig	3-15-51	3-17-51	X		
O. W. Priebe to: Argonne National Lab. Chicago, Illinois	Design of radiation laboratories	J. P. Fitzpatrick	3-16-51	3-17-51	X		
B. O. Shaver to: Barrett & Logan Portland, Oregon	Liaison on sub-contract C-341	J. R. Murtaugh T. E. Taylor	3-12-51	3-14-51		X	
R. R. Henderson to: Barrett & Logan Portland, Oregon	Liaison on sub-contract C-341	J. R. Murtaugh T. E. Taylor	3-12-51	3-14-51		X	
W. C. Royce to: Leland S. Rosener San Francisco, California	Liaison on sub-contract C-304	L.S. Rosener, Jr.	3-27-51	4-1-51		X	
W. J. Dowis to: University SouthernCal. Los Angeles University of Souther California California Institute of Technology	Recruit technical personnel	- -	2-16-51	3-5-51		X	
Anna L. Peck to: General Engineering Lab. Schenectady, New York	Preparation of C-413 design list	D. H. Marquis	2-9-51	3-7-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
G. S. Cochrane to: General Engineering Lab. Schenectady, New York	Liaison work on 432 Project	D. H. Marquis	2-17-51	3-13-51	X		
J. M Fox to: Electric Steel Foundry Portland, Oregon	Examine casting and discuss subsequent manufacture for Project C-361	Mr. Richmond	3-1-51	3-3-51		X	
C. E. Kent to: Electric Steel Foundry Portland, Oregon	Examine casting and discuss subsequent manufacture for Project C-361	Mr. Richmond	3-1-51	3-3-51		X	
R. C. Hollingshead to: Vulcan Copper Supply Cincinnati, Ohio	Design consultation on Project C-362	Mr. Romell	3-7-51	3-13-51		X	
R. C. Hollinghead to: Kellex Corporation New York, New York	Design consultation on Project C-362	Mr. J. S. Atwood	3-7-51	3-13-51	X		
R. C. Hollingshead to: Stearns-Rogers Denver, Colorado	Design consultation on Project C-362	Mr. Rosengran	3-7-51	3-13-51		X	
T. Williams to: Bremerton Navy Yards Bremerton, Washington	Design conferences	R. L. Morrison	3-7-51	3-9-51		X	
H. M. Parker to: Bremerton Navy Yards Bremerton, Washington	Design conferences	R. L. Morrison S. L. Allison	3-7-51	3-8-51	X		
G. C. Gabler to: Fred J. Early Company Portland, Oregon	Opening of bids	- -	3-12-51	3-14-51		X	
G. C. Gabler to: Morrison-Knudsen Boise, Idaho	Opening of bids	- -	3-12-51	3-14-51		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Area
T. Williams to: Crane Company Chicago, Illinois	Connector design review	D. M. Weiss	3-16-51	3-26-51		X	
W. B. Webster to: Oakland, California	Attend Western Metal Congress & Western Metal Exposition	- -	3-17-51	3-25-51		X	
F. W. Braun to: Willamette Iron & Steel Portland, Oregon	Engineering consultation	W. Desch	3-19-51	3-21-51		X	
H. A. White to: Puget Sound Sheet Metal Wks. Seattle, Washington	Engineering consultation	Mr. Dexter	3-26-51	3-30-51		X	
R. C. Hollingshead to: Stearns Rogers Denver, Colorado	Design consultation with equipment vendor	Mr. Rosengran	3-27-51	Still gone		X	
R. C. Hollingshead to: Proportioneers, Inc. Providence, Rhode Island	Design consultation with equipment vendor	Mr. Pickering	3-27-51	Still gone		X	
T. Williams to: Prportioneers, Inc. Providence, Rhode Island	Engineering consultation	Mr. Lowe	3-20-51	Still gone		X	
HEALTH INSTRUMENT DIVISIONS							
I. Visitors to this Works							
P. E. Church University of Washington Seattle, Washington	Meteorological consultation	H. M. Parker M. C. Barad	3-21-51	3-22-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
R. G. Fleagle University of Washington Seattle, Washington	Meteorology consultation	H. M. Parker M. L. Barad	3-21-51	3-22-51	X		
F. I. Badgler University of Washington Seattle, Washington	Meteorology consultation	H. M. Parker	3-21-51	3-22-51	X		
H. A. Campbell Bureau of Explosives A. of A. Rds.	Inspection of equipment	F. G. Tabb	3-19-51	3-19-51		X	
F. E. Stanwood Division of Biology & Medicine Atomic Energy Commission Washington, D. C.	Inspect facilities	H. A. Kornberg	3-20-51	3-20-51	X		
J. R. Somsen Idaho Operations Office Arco, Idaho	Repair of health physics instruments	W. Singlevich	3-11-51	3-16-51	X		300 3706 200-E XXX 200-W 222U
II. Visits to other Installations							
P. R. McMurray to: Oak Ridge National Lab. Oak Ridge, Tennessee	Consultation with Dr. Taylor of Chalk River	J. Robinson	3-.5-51	3-12-51			
M. M. Cox to: Oak Ridge National Lab. Oak Ridge, Tennessee	Consultation with Dr. Taylor of Chalk River	J. Robinson	3-.5-51	3-12-51		X	
W. Singlevich to: Idaho Operations Office Arco, Idaho	Discuss health physics	Dr. Board	3-26-51	3-28-51	X		
H. G. Rieck, Jr. to: Argonne National Lab. Chicago, Illinois	Consultation and inspection concerning general health physics problems	J. E. Rose	3-14-51	3-16-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
R. C. Thompson to: Argonne National Lab. Chicago, Illinois	Discuss biochemical investigations	A. M. Brues	3-29-51	3-31-51	X		
MANAGEMENT							
I. Visitors to this Works							
C. G. Suits General Electric Company Schenectady, New York	Consultation on Hanford assistance	R. E. Davison W. E. Johnson	3-5-51	3-9-51	X		234-5 Const 200-W Const 221-U 224-U 200-E Const
R. J. Schier General Electric Company Schenectady, New York	Review production rates data	W. E. Johnson	3-5-51	3-8-51	X		
MANUFACTURING MANAGEMENT							
I. Visitors to this Works							
J. J. Urban E. I. du Pont de Nemours & Co. Wilmington, Delaware	Inspection of operating lines	C. N. Gross	3-19-51	3-23-51	X 221-U 224-U 234-5	200-W 221-T 231 100-B 108 300 321 Const. 200-W 234, 235	
S. A. McNeight E. I. du Pont de Nemours & Co. Wilmington, Delaware	Inspection of operating lines	C. N. Gross	3-19-51	3-23-51	X	200-W 231 234, 235 300 321	
II. Visits to other Installations							
W. K. MacCready to: Knolls Atomic Power Lab. General Engineering Laboratory Schenectady, New York	Nucleonics Planning Committee Meeting	B. R. Prentice D. H. Marquis	3-14-51	3-15-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
"P" DIVISION							
I. Visitors to this Works							
C. G. Albrecht	Consultation on P-10	E. P. Lee	3-21-51	3-21-51	X		100-B 105
II. Visits to other Installations							
E. W. O'Rorke to: Argonne National Lab. Chicago, Illinois	Inspect Metallurgical Laboratory	F. Foote	3-1-51	3-3-51	X		
W. W. Windsheimer to: University of Chicago Chicago, Illinois	Attend meeting pertaining to Reactor Safeguard Committee	C. R. Russell	3-11-51	3-14-51	X		
W. W. Windsheimer to: Argonne National Lab. Chicago, Illinois	Inspection of facility	F. Foote	3-12-51	3-12-51	X		
R. O. Mehann to: University of Cal., Los Angeles University of South California	Procurement of technical personnel	- -	3-1-51	3-2-51		X	
"S" DIVISION							
I. Visitors to this Works							
S. A. McNeight E. I. du Pont de Nemours & Co. Wilmington, Delaware	Inspection of Redox and TBP	S. D. Smiley R. S. Bell	3-20-51 3-20-51	3-20-51 3-23-51	X X 234,235	202-S 221-U 224-U 277-S	
II. Visits to other Installations							
R. S. Bell to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discussion with Chalk River representatives on Chalk River explosion	J. Robinson	3-7-51	3-9-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
J. J. Courtney to: Mallinckrodt Chemical Wks. St. Louis, Missouri	Study operational procedure, safety maintenance and health hazards to work similar procedure for HW	W. H. Keller	3-26-51	4-6-51	X		
C. B. Foster to: Mallinckrodt Chemical Wks. St. Louis, Missouri	Study operational procedure, safety maintenance and health hazards to work similar procedure for HW	W. H. Keller	3-26-51	4-6-51	X		
S. D. Smiley to: General Engineering Lab. Schenectady, New York	Consultation on RM Line	D. H. Marquis W. H. Milton	3-6-51	3-7-51	X		

PLANT SECURITY AND SERVICES DIVISION

I. Visits to other Installations

R. E. Jaynes to: Charles T. Main, Inc. Boston, Massachusetts	Inspect facility for off-site contract work security-wise	E. A. Barnard	3-13-51	3-16-51	X		
S. B. Badgett to: Charles T. Main, Inc. Boston, Massachusetts	Discuss inventories, record control and document accountability	E. A. Barnard	3-26-51	3-26-51	X		
S. B. Badgett to: Kellex Corporation New York, New York	Discuss inventories, record control and document accountability	G. E. Sage	3-19-51	3-28-51	X		
R. G. Burrus Audio Film Company Portland, Oregon	Prepare security film for Hanford Works	M. Pipes	3-19-51	3-21-51		X	

TRANSPORTATION DIVISION

I. Visitors to this Works

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
H. V. Custer Northern Pacific Railroad Kennewick, Washington	Inspection of furniture received in damaged condition	D. A. Knapp	3-13-51	3-13-51		X	
PURCHASING AND STORES DIVISION							
I. Visitors to this Works							
H. Brockman West Coast Fast Freight Yakima, Washington	Deliver material on order HW 76633-M	H. H. Hart	3-5-51	3-5-51		X	200-E 271-B 200-W 271-T
A. Schuman United Truck Lines Kennewick, Washington	Deliver cylinders	H. H. Hart	3-5-51	3-5-51		X	100-B 105 100-F 105
H. Halverson United Truck Lines Kennewick, Washington	Pick up 300 empty Argonne cylinders	H. H. Hart	3-7-51	3-7-51		X	300 303-J
W. Fruehling United Truck Lines Kennewick, Washington	Deliver material on order AEC 56291	H. H. Hart	3-12-51	3-12-51		X	200-W 234
A. Fruehling United Truck Lines Kennewick, Washington	Deliver material on order AEC 56291	H. H. Hart	3-12-51	3-12-51			200-W 234
E. Winkelman Richland Transfer Company Richland, Washington	Deliver material on order AEC 56055-M	H. H. Hart	3-13-51	3-13-51		X	200-W 284
W. E. Wiegand Lee & Estes Kennewick, Washington	Deliver material on order HW 74219-M	H. H. Hart	3-15-51	3-15-51		X	300 303-J

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
H. Woody Lee & Estes Kennewick, Washington	Deliver material on order HW 77715-M	H. H. Hart	3-16-51	3-16-51		X	100-F 105
C. Shannon Lee & Estes Kennewick, Washington	Deliver material on order HW 77715-M	H. H. Hart	3-19-51	3-19-51		X	100-D 105
W. E. Weigand Lee & Estes Kennewick, Washington	Deliver material on order HW 77715-M	H. H. Hart	3-23-51	3-23-51		X	100-F 105
A. Schuman United Truck Lines Kennewick, Washington	Deliver material on order by AEC	H. H. Hart	3-27-51	3-27-51		X	300 303-J
C. Freauff Lee & Estes Kennewick, Washington	Deliver material on order HW 77179-G	H. H. Hart	3-27-51	3-27-51		X	300 303-J
C. Freauff Lee & Estes Kennewick, Washington	Deliver material on order HW 74219-M	H. H. Hart	3-27-51	3-27-51		X	101 Bldg
L. Wilson Lee & Estes Kennewick, Washington	Deliver material on order HW 77715-M	H. H. Hart	3-28-51	3-28-51		X	100-B 105
J. Tallent United Truck Lines Kennewick, Washington	Deliver material on order HW 78752-M	H. H. Hart	3-28-51	3-28-51		X	200-E XXX
W. Freuhling United Truck Lines Kennewick, Washington	Deliver material on order HW 77179-G	H. H. Hart	3-28-51	3-28-51		X	300 303-J

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
G. Hixon Inland Motor Freight Pasco, Washington	Deliver material on order HW 75274-M	H. H. Hart	3-29-51	3-29-51		X	100-D 190
S. Gil Inland Motor Freight Pasco, Washington	Deliver material on order HW 75274-M	H. H. Hart	3-29-51	3-29-51		X	100-D 190
G. Hixon Inland Motor Freight Pasco, Washington	Deliver material on order HW 75274-M	H. H. Hart	3-30-51	3-30-51		X	100-D 189
A. F. Gebhartt Consolidated Engineering Co. Pasadena, California	Service mass sprectrometer for Technical Divisions	G. J. Hayward	3-29-51	3-30-51	X		100-B 108-B
II. Visits to other Installations							
R. V. Lawson to: Pacific Car & Foundry Seattle, Washington	Expedite shipment and supply dispute on HWC-9036-AJ	O. F. Bienz	3-26-51	3-26-51		X	
J. C. Hamilton to: Pacific Car & Foundry Seattle, Washington	Expedite shipment and supply dispute on HWC-9036-AJ	O. F. Bienz	3-26-51	3-26-51		X	
J. C. Hamilton to: Masonite Corporation Chicago, Illinois	Purchase critical material	R. T. Miller	3-27-51	3-27-51		X	
J. C. Hamilton to: Warehouse Pittsburgh, Pennsylvania	Inspection	Mr. Howorka, GE Inspector	3-30-51	3-31-51		X	
J. C. Hamilton to: A. O. Smith, Company Milwaukee, Wisconsin	Inspection	T. K. Andrews	4-2-51	4-2-51		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
R. T. Cooke to: Masonite Corporation Chicago, Illinois	Purchase critical material	R. T. Miller	3-26-51	4-1-51		X	
C. P. Lawson to: Southwest Welding Alhambra, California	Expedite material from vendor	R. S. Edens	3-13-51	3-15-51		X	
C. P. Lawson to: Standard Steel Los Angeles, California	Expedite material from vendor	K. G. Thies	3-16-51	3-16-51		X	
C. P. Lawson to: Southwest Welding Alhambra, California	Expedte material from vendor	R. S. Edens	3-17-51	3-20-51		X	
TECHNICAL DIVISIONS							
I. Visitors to this Works							
L. Squires E. I. du Pont de Nemours & Co. Wilmington, Delaware	P-10 consultation and technical discussions	A. B. Greninger O. H. Greager W. K. Woods	3-21-51	3-22-51	X	P-11 200-W 234, 235 234-5 Const. 277-S 221-U 300 303,305, 3706, 321 100-H 105	
W. C. Kay E. I. du Pont de Nemours & Co. Wilmington, Delaware	P-10 consultation and technical discussions	A. B. Greninger O. H. Greager W. K. Woods	3-21-51	3-22-51	X	P-11 200-W 234, 235 234-5 Const. 277-S 221-U 300 303, 305 3706, 321 100-H 105	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
B. V. Coplan Knolls Atomic Power Laboratory Schenectady, New York	Discuss separations processes in research and development	R. H. Beaton O. F. Hill R. B. Richards	3-26-51	3-29-51	X		300 3706, 321 200-W 221-T 221-U 277-S
R. C. Feber Knolls Atomic Power Laboratory Schenectady, New York	Discuss separations process	R. B. Richards O. F. Hill	3-26-51	3-28-51	X		300 3706, 321 200-W 221-T 221-U 277-S
G. W. Watt University of Texas Austin, Texas	Research and development consultation	R. H. Beaton	3-12-51	3-16-51	X		300 3706, 321 200-W 221-T, 231,234,235 221-U 224-U 200-E 221-B 100-B 105,108
H. Crandall California Research & Development Company Downey, California	Separations process design and operation	R. H. Beaton	3-9-51	3-9-51	X		
R. D. McCrosky E. I. du Pont de Nemours & Co. Wilmington, Delaware	Following canning of special pieces	E. A. Smith	3-15-51	3-30-51	X		300 3706
F. A. Damewood E. I. du Pont de Nemours & Co. Wilmington, Delaware	Following canning of special pieces	E. A. Smith	3-15-51	3-30-51	X		300 3706
J. A. Ayres Knolls Atomic Power Laboratory Schenectady, New York	Confer on separations chemistry problems	G. E. McCullough	3-1-51	3-2-51	X		300 3706 101 100-B 105 100-D 105 100-H 105

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
H. Hurwitz Knolls Atomic Power Laboratory Schenectady, New York	Discuss KAPL assistance to Hanford	P. F. Gast W. J. Ozeroff	3-1-51	3-3-51	X		300 3706 101 100-H 105 100-B 105, 108
J. Moyer Knolls Atomic Power Laboratory Schenectady, New York	P-10 consultation	A. R. Matheson W. M. Harty	3-1-51	3-5-51	X		300 3706 100-B 108
J. G. Morgan Nuclear Energy for the Propulsion of Aircraft Division Oak Ridge National Laboratory Oak Ridge, Tennessee	Consultation and work on aluminum in-pile creep apparatus at D	R. E. Githens J. B. Lambert	3-2-51	3-10-51	X		300 3706 101 100-D 105 100-H 105
H. E. Robertson Nuclear Energy for the Propulsion of Aircraft Division Oak Ridge National Laboratory Oak Ridge, Tennessee	Consultation and work on aluminum in-pile creep apparatus at D	R. E. Githens J. B. Lambert	3-2-51	3-10-51	X		300 3706 101 100-D 105 100-H 105
L. A. Welsch Knolls Atomic Power Laboratory Schenectady, New York	Interview	G. E. McCullough	3-8-51	3-9-51	X		100-B 105 300 3706 101 100-H 105
D. L. Watrous General Engineering Laboratory Schenectady, New York	Assist on apparatus failure on P-10	H. F. Zuhr	3-19-51	3-26-51	X		100-B 108 300 3706
H. W. Pickett General Electric X-ray Corp. Milwaukee, Wisconsin	Consultation on X-ray work	J. H. Bach	3-28-51	3-30-51	X		300 3706
H. W. Bousman General Engineering Laboratory Schenectady, New York	P-10 consultation	H. F. Zuhr	3-22-51	3-30-51	X		100-B 105 108

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
R. A. Hansen International Business Machines Richland, Washington	Service IBM machines	P. M. Thompson	3-5-51 3-8-51 3-13-51 3-20-51 3-23-51 3-27-51	3-5-51 3-8-51 3-13-51 3-20-51 3-23-51 3-27-51		X X X X X X	101 101 101 101 101 101
C. G. Kruse International Business Machines Richland, Washington	Service IBM machines	P. M. Thompson	3-31-51	3-31-51		X	101
N. E. Norby International Business Machines Richland, Washington	Service IBM machines	P. M. Thompson	3-31-51	3-31-51		X	101
B. M. Fry Atomic Energy Commission Washington, D. C.	Inspect library and files operation	C. G. Stevenson	2-28-51	3-2-51		X	300 3706
W. Beamer Dow Chemical Company	Gather information for Denver Project	C. G. Stevenson	3-29-51	3-30-51	X		300 3706
J. Woodhouse E. I. du Pont de Nemours & Co. Wilmington, Delaware	Discuss library and files operation	C. G. Stevenson	3-22-51	3-23-51		X	300 3706
C. A. Hanson Knolls Atomic Power Laboratory Schenectady, New York	Engineering technical consultation	D. W Pearce	3-6-51	3-9-51	X		300 3706 321 100-B 105 100-D 105 100-F 105 100-H 105 200 W 234
C. A. Mannal Knolls Atomic Power Laboratory Schenectady, New York	Assistance to Hanford Program	A. B. Greninger W. M. Harty	3-19-51	3-24-51	X		300 3706 100-B 108

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
A. F. Gebhartt Consolidated Engineering Co. Pasadena, California	Service mass spectrometer	H. A. Paulson	3-28-51	3-30-51	X		
W. H. Crow Los Alamos Scientific Lab. Los Alamos, New Mexico	Discuss problems for proposed graduate scientific program at LA	D. W. McLonogan	3-24-51	3-27-51	X		
II. Visits to other Installations							
C. W. Botsford to: Argonne National Lab. Chicago, Illinois	Consultation on graphite problems	J. M. West	3-12-51	3-13-51	X		
C. W. Botsford to: University of Chicago Chicago, Illinois	Reactor Safeguard Committee Meeting	C. R. Russell	3-13-51	3-13-51	X		
L. P. Bupp to: Westinghouse Atomic Power Lab. Pittsburgh, Pennsylvania	Radiation damage meeting	W. A. Johnson	3-6-51	3-7-51	X		
W. N. Carson, Jr. to: Knolls Atomic Power Lab. Schenectady, New York	Discuss recent advances in analytical chemistry relating to Hanford processes	J. F. Flagg	3-8-51	3-9-51	X		
T. R. Cartnell to: Mound Laboratory Dayton, Ohio	Inspection of laboratory and equipment design	F. Belcher	3-22-51	3-23-51	X		
R. S. Dalrymple to: Battelle Memorial Inst. Columbus, Ohio	Anodizing of aluminum cans	H. A. Nelson	3-19-51	3-20-51	X		
N, Endow to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	J. Marsden	3-12-51	3-17-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
M. G. Freidank to: Argonne National Lab. Chicago, Illinois	Discuss mutual Classified files problems	H.D. Young	3-13-51	3-18-51	X		
M. G. Freidank to: Kellex Corporation New York, New York	Inventory sub-con-contractor reports	H. B. Lytz	3-19-51	3-24-51	X		
J. F. Gifford to: Brookhaven Nat'l Lab. Upton, L.I., New York	Inspection of laboratory and equipment design	L. G. Stang, Jr.	3-12-51	3-14-51	X		
J. F. Gifford to: Knolls Atomic Power Lab. Schenectady, New York	Inspection of laboratory and equipment design	H. H. Zornig	3-15-51	3-16-51	X		
J. F. Gifford to: Oak Ridge National Lab. Oak Ridge, Tennessee	Inspection of laboratory and equipment design	F. Steahly W. K. Eister	3-20-51	3-21-51	X		
J. F. Gifford to: Mound Laboratory Dayton, Ohio	Inspection of laboratory and equipment design	F. Belcher	3-22-51	3-23-51	X		
C. Groot to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Consultations on 234-5 recovery process	R. D. Baker	3-4-51	3-6-51	X		
R. J. Hale to: Argonne National Lab. Chicago, Illinois	Inspection of laboratory and equipment design	J. P. Fitzpatrick	3-16-51	3-19-51	X		
W. T. Kattner to: Argonne National Lab. Chicago, Illinois	Discuss canning operation	L. Kollman R. Noland	3-1-51	3-2-51	X		
C. E. Lacy to: Battelle Memorial Inst. Columbus, Ohio	Consultation on Battelle's program for Hanford	H. R. Nelson	3-5-51	3-5-51	X		

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Name - Organization	Purpose of Visit	Person contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Restricted Data Areas
C. E. Lacy to: Westinghouse Atomic Power Pittsburgh, Pennsylvania Lab.	Attend irradiation damage meeting	W. A. Johnson	3-6-51	3-7-51	X		
C. E. Lacy to: Knolls Atomic Power Lab. Schenectady, New York	Metallurgical consultation on Hanford assistance work	J. P. Howe A. U. Seybolt	3-8-51	3-9-51	X		
C. E. Lacy to: Atomic Energy Commission New York, New York	Consultation on metal fabrication	H.F. Reichard	3-8-51	3-8-51	X		
M. Lewis to: Knolls Atomic Power Lab. Schenectady, New York	Discuss recent advances in analytical chemistry relating to Hanford processes	J. F. Flagg	3-9-51	3-10-51	X		
L. M. Loeb to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on a KAPL engineering experiment	K. A. Kesselring	3-24-51	3-31-51	X		
L. A. McClaine to: Westinghouse Atomic Power Pittsburgh, Pennsylvania Lab.	Radiation damage meeting	W. A. Johnson	3-6-51	3-7-51	X		
A. R. Matheson to: Los Alamos Scientific Lab. Los Alamos, New Mexico	P-10 consultation	E. S. Robinson	3-12-51	3-13-51	X		
H. W. Miller to: Knolls Atomic Power Lab. Schenectady, New York	Discuss recent advances in analytical chemistry relating to Hanford processes	J. F. Flagg	3-9-51	3-10-51	X		
H. W. Miller to: Argonne National Lab. Chicago, Illinois	Discuss recent advances in analytical chemical techniques	W. M. Manning	3-12-51	3-13-51	X		
E. B. Montgomery to: Argonne National Lab., Chicago	Consultation regarding test pile design	J. M. West	3-1-51	3-3-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
W. J. Ozeroff to: Westinghouse Atomic Power Pittsburgh, Pennsylvania Lab.	Radiation damage meeting	W. A. Johnson	3-6-51	3-7-51	X		
F. B. Quinlan to: Knolls Atomic Power Lab. Schenectady, New York	Inspection of laboratory and equipment design	H. H. Zornig	3-15-51	3-15-51	X		
R. B. Socky to: Argonne National Lab. Chicago, Illinois	Inspection of laboratory and equipment design	J. P. Fitzpatrick	3-5-51	3-6-51	X		
R. B. Socky to: Knolls Atomic Power Lab. Schenectady, New York	Inspection of laboratory and equipment design	W. R. Kanno	3-7-51	3-9-51	X		
J. S. Stokes to: Radiation Laboratory Berkeley, California	Inspect and discuss decontamination and waste disposal equipment and methods	N. B. Gordon	3-22-51	3-23-51	X		
E. P. Warekois to: Westinghouse Atomic Power Pittsburgh, Pennsylvania Lab.	Radiation damage meeting	W. A. Johnson	3-6-51	3-7-51	X		
B. Weidenbaum to: Los Alamos Scientific Lab. Los Alamos, New Mexico	234-5 consultations	M. F. Roy	3-4-51	3-10-51	X		
R. B. Zeno to: Westinghouse Atomic Power Pittsburgh, Pennsylvania Lab.	Radiation damage meeting	W. A. Johnson	3-6-51	3-7-51	X		
M. G. Freidenk to: Stevens Hotel Chicago, Illinois	Attend AEC joint conference on document control	- -	3-15-51	3-16-51		X	
R. B. Socky to: Charles T. Main, Inc. Boston, Massachusetts	Design liaison on Pile Technology Building	C. C. Starrot [redacted]	3-12-51	3-14-51		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
F. B. Quinlan to: Charles T. Main, Inc. Boston, Massachusetts	Design liaison on Pile Technology Building	C. C. Starret	3-12-51	3-14-51		X	
R. J. Hale to: Charles T. Main, Inc. Boston, Massachusetts	Design liaison on Library and Files Building	C. C. Starret	3-12-51	3-14-51		X	
R. J. Hale to: Leland S. Rosener, Co. San Francisco, California	Design liaison on Radio-chemistry Building	L. S. Rosener, Jr.	3-25-51	3-27-51		X	
E. W. Rebol to: Mallinckrodt Chemical Wks. St. Louis, Missouri	Conference on analytical methods and inspection of facilities	A. Q. Butler	3-1-51	3-2-51	X		
M. Lewis to: Aluminum Research Lab. New Kensington, Pennsylvania	Discuss behavior of metallic aluminum	R. Brown	3-8-51	3-8-51		X	
W. T. Kattner to: Mallinckrodt Chemical Works St. Louis, Missouri	Attend meeting on quality and specifications of metal and inspect plant	W.H. Koller	3-1-51	3-1-51	X		

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PURCHASING AND STORES DIVISIONS

SUMMARY

MARCH, 1951

Personnel of the Purchasing and Stores Divisions showed a net increase of five as indicated by the tabulation below:

	Total Personnel as of 2-28-51	Total Personnel as of 3-31-51	Net Change
Exempt	72	82	+10
Non-Exempt	295	290	- 5
	367	372	+5

The work load in the Purchasing Division increased substantially during the month.

3,900 purchase requisitions were received and assigned as compared with 2,848 in the previous month.

The dollar value of orders placed during the month amounted to $2,794,475.18 as compared to last month's $2,397,876.82.

Alterations to purchase orders as a result of design changes and material substitutions increased 35% during the month. It was necessary to requisition additional personnel to handle this increased work load.

Claims from vendors totaling $150,000 as a result of design changes were received. At month end, a thorough review and analysis of these claims was underway.

The initial requisitions for Project C-431 were received and orders negotiated for all of the masonite and reinforcing steel requirements and a portion of the structural steel requirements.

Because of limited funds approved for Project C-431, the Purchasing Division arranged to submit a daily report of commitments to respective Technical, Engineering and Construction Divisions' Managers.

An order originally placed by the University of California for 300 vacuum tanks was taken over by the General Electric Company for the P-10 Program.

Contracts were awarded for our requirements of oxygen and acetylene gas.

Escalation clauses in coal contracts were invoked by the suppliers due to increased wages effective February 1, 1951. As a result, the Continental Coal Company contract was cancelled and price increases allowed to the Bair-Collins Company and the Kemmerer Coal Company.

The inspection work load continued to be very heavy on fabricated equipment for the Redox and TBP Programs.

PURCHASING AND STORES DIVISIONS
SUMMARY

It was necessary to place additional bulk orders for stainless steel for Projects C-361 and C-362 due to failure of the Kellex Corporation to make complete take-offs at the time the initial orders were placed.

The work load with respect to priorities and allocations increased substantially. Several of the more critical materials are now under allocation which necessitates keeping detailed records in accordance with NPA Regulations.

3,383 purchase requisitions were processed through screening with the result that 2,545 items were supplied from project inventories thus obviating the necessity of expenditure of new funds by purchasing from outside sources.

86 items of stainless steel not immediately available on the open market were supplied to our fabricators from project inventories to expedite delivery of critical vessels.

Maintenance materials and supplies valued at $262,451.15 were disbursed from operations inventories.

Materials and equipment valued at $215,891.79 were disbursed to construction forces from inventories of Construction Materials Held for Possible Future Use. In addition, materials valued at $31,177.60 were disbursed for use in operations and materials valued at $72,770.62 were declared excess from this same account.

Material and equipment valued at $80,085.14 were withdrawn from excess inventories for use on the project. Of this amount, $75,962.46 was for construction.

5,054,512 board feet of excess lumber was shipped from the project at the direction of the Commission.

Decision was reached by the Commission that they would handle the contracts for construction of the new Central Warehouse Facilities and at month end they were negotiating an architect-engineering contract covering functional study and final design.

30 representatives of the government and private business were escorted through our warehouses and scrap yards for the purpose of negotiating sales of scrap and transfer of surplus property.

Scrap sale revenue for the month was $24,564.93.

The work load in the Traffic Division continued to increase due largely to increasing movement of construction materials to the project.

The Union Pacific Railroad changed their time of delivery to the project thereby providing an additional 24 hours free time for loading and unloading cars.

The Interstate Commerce Commission, on March 14, granted the railroads a freight rate increase of 4% within Eastern Territory, 2% within Southern and Western Territory, and 2% interterritorially among the three territories which resulted in a maximum increase on coal of 6 cents per ton, effective April 4, 1951.

As a result of rate reductions obtained from carriers, a total savings of freight rate charges for the month amounting to $16,145.28 was effected.

PURCHASING AND STORES DIVISIONS

STAFF SECTION

MARCH, 1951

GENERAL

Office furniture and equipment requirements for FY 1952 and FY 1953 were submitted to the Office Services Division. Additional requirements were composed almost exclusively of furniture and equipment needed by the Purchasing Division due to its increased procurement activity.

Personnel liquidation details for the FY 1952 and FY 1953 operating cost budget were submitted to the General Accounting Division with a schedule of average number of employees and estimated average work week. Estimates of telephone and telegraph expense and travel expense were made to assist the General Accounting Division in compiling other Within Division Costs for the Purchasing Division.

A review and audit of Purchasing Division records of bulk stainless steel held in the Pittsburgh, Pennsylvania, warehouse was completed March 31, 1951.

Memo Employee Sales procedure was reviewed and methods for a more economical operation are being developed.

Physical inventory, audit, and reconciliation of Captions 903-2, 5, 7, 906 and 912 have been completed.

PERSONNEL

	As of 2-28-51			As of 3-31-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Cost, Budget Control	1	-	1	1	-	1	0	0	0
Methods - Procedures, Inventory and Audit	2	13	15	2	11	13	0	-2	-2
TOTALS	3	13	16	3	11	14	0	-2	-2

SAFETY AND SECURITY

Safety and Security meetings scheduled - 1
Number attending ---------- 11

PURCHASING AND STORES DIVISIONS

PURCHASING DIVISION

MARCH, 1951

The number of purchase requisitions processed by the division increased considerably during the month of March. 3,900 purchase requisitions were received and assigned as compared with 2,848 in February. Orders and alterations placed totaled 2,793 as compared with 2,277 the previous month. Requisitions on hand at the end of the month totaled 1,119 compared to 1,096 on February 28.

The dollar value of orders and alterations placed during March amounted to $2,794,475.18 of which $1,114,764.93 was for new construction materials. Of the 577 new construction purchase orders placed during the month, 60 were for Projects C-187-D and E, 172 for Project C-362, 15 for Project C-361 and 27 for Projects C-431-A and B. The balance of the construction purchase orders were placed for construction MS Stores material and miscellaneous TE&C Projects.

Alterations to purchase orders increased 35% due largely to design changes and material substitutions requested and authorized by the Engineering and Construction Divisions. It was necessary to requisition additional personnel to handle this increased work load.

Vendors' claims for additional money as a result of design changes, material substitutions, etc., totaled $150,000. A thorough review and analysis of these claims is underway in order to determine whether or not they are in order.

The initial group of purchase requisitions for material and equipment for Project C-431 were received from the TE&C Divisions. Orders were negotiated for all of the masonite and reinforcing steel and a portion of the structural steel.

Because of the limited funds appropriated for Projects C-431-A and B, the Purchasing Division agreed to submit a daily report of commitments to the respective TE&C Managers.

An order which had been placed by the University of California for 300 vacuum tanks to be used in the P-10 Program was replaced by a General Electric Company purchase order. This finalized negotiations which have been in process since November 1950.

Delivery of special extra-length rubber gloves used in 234-5 operations was temporarily stopped by the failure of the porcelain molds used in producing the gloves. The porcelain molds which were the property of Los Alamos are being replaced with a permanent type aluminum mold purchased by General Electric Company. These molds will be made available to Los Alamos for the procurement of their rubber gloves. In the meantime, an order was placed for gloves with an alternate supplier and an adequate supply of gloves will be maintained.

PURCHASING AND STORES DIVISIONS

PURCHASING DIVISION

Contracts were awarded to Industrial Air Products Company and National Cylinder Gas Company for our yearly requirements of oxygen and acetylene respectively.

Escalation clauses in contracts with Continental Coal Company and the Bair-Collins Company were invoked by these companies following an increase in wages to the United Mine Workers of America on February 1, 1951. The price increase requested by Continental Coal Company was $0.42 per ton f.o.b. the mine -- this was refused and the remainder of the contract cancelled. The Bair-Collins Company requested an escalation of $0.23 per ton f.o.b. the mine. Inasmuch as this is the only coal that can be delivered to the plant via the CMSTP&P Railway, this escalation was granted. Coal for the remainder of the contract period will be furnished by the Bair-Collins Company for delivery to Hanford via the CMSTP&P and the Kemmerer Coal Company for delivery to Richland, Washington via the UP Railroad.

The inspection work load was heavy during the month as a result of fabricators completing vessels and equipment for C-187-D. The relaxation on tolerances has permitted acceptance of vessels which formerly were rejected and held for rework. Two extra engineers will be employed and assigned to work in the inspection office. These additional engineers are needed to handle the review of vendor claims and outgoing specifications and to prepare instructions for field inspectors.

Three field expediters were employed and assigned geographical areas in which to operate. One additional field expediter will report for work in April.

Expediting issued its first status report on open General Electric Company orders on Project C-187-D and E. This report will be issued twice a month as well as open order status reports on Projects C-361, C-362, C-431-A, and C-431-B.

Six additional bulk stainless steel orders were placed during the month of March for Projects C-361 and C-362.

Final shipping instructions have been issued on 95% of the fabrication orders on which the General Electric Company is to furnish the stainless steel. The balance of shipping instructions are held pending changes in material requirements due to design modifications.

A breakdown of bulk stainless steel orders indicating the steel ordered for equipment fabrication and the steel ordered for field use was completed. Shipping instructions have been issued to the Pittsburgh warehouse to ship field allocated steel to Hanford.

PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION

Trends during the month have been toward the development of the National Production Authority Controlled Materials Plan which is still in the offing for July 1, 1951. Developments along this line include the requirement of NPA allocations for purchases of tungsten and molybdenum. Allocations are now required for the procurement of ferrocolumbium, ferrotantalum and ferrocolumbium-tantalum by the producers of columbium bearing stainless steels.

End use certification is now required for procurement of columbium bearing stainless steels.

Priority rating DO-43 was extended during the month to three vendors in reply to their requests for priority assistance. Standard Steel Company was authorized to apply DO-43 to procurement of plant additions up to $15,000.00, Charles T. Main Co. $5,000 and Eastern Industries $6,454.94.

PERSONNEL

	As of 2-28-51			As of 3-31-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	1	1	2	1	2	3		+1	+1
Purchasing	14	24	38	15	27	42	+1	+3	+4
Expediting	10	11	21	14	13	27	+4	+2	+6
Inspection	24	5*	29*	30	7*	37*	+6	+2	+8
Clerical	1	24	25	0	24	24	-1		-1
Priorities	1	4	5	1	4	5			
TOTALS	51	69	120*	61	77*	138*	+10	+8	+18

* The above figures do not include 6 rotational trainees assigned to Inspection.

SAFETY AND SECURITY

Safety and Security Meetings Schedule	1
Number of employees attending	95
Minor Injuries	1

PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION

STATISTICS	G	D	TOTAL
Requisitions on hand 3-1-51 (includes 111 assigned to Gov't.)	832	264	1096
Requisitions assigned during March	3010	890	3900
Requisitions placed during March	2980	797	3777
Requisitions on hand 3-30-51 (includes 67 assigned to Gov't.)	772	347	1119

		NUMBER	VALUE
HW Orders Placed		1817	$1,149,811.21
HW Alterations Placed		228	35,046.28 Cr.
	Total	2045	$1,114,764.93
HWC Orders Placed		577	$1,623,956.27
HWC Alterations Placed		171	55,753.98
	Total	748	$1,679,710.25
AEC Orders Placed		157	$ 101,101.99
DC Orders Placed		68	52,848.21

	OR	ORC	TOTAL
Gov't Transfers	1	1	1

	NUMBER
Return Orders Issued	120

Dollar Value of Orders to date to which Priority Rating was applied:

	1st Quarter 1951	2nd Quarter 1951	3rd Quarter 1951	4th Quarter 1951
DO-40	$ 1,832,836.90	$ 1,071,635.40	$ 206,006.81	$ 143,341.08
DO-41*	8,775,919.69			

* Includes Contract Section, TT&C Divisions

OPEN ORDERS

HW Orders	1888
HWC Orders	1199
Government	106

Number of New Orders requiring inspection during month	76
Number of Orders requiring inspection completed during month	55
Number of Orders outstanding requiring inspection at months end	495
Number of HW Orders expedited (routine)	900
Number of HW Orders expedited (Special Requests)	430
Number of HWC Orders expedited	1000

* Includes 91 Sub-vendor orders.

PURCHASING AND STORES DIVISIONS
STORES DIVISION
MARCH, 1951

GENERAL

3383 purchase requisitions were processed through screening and 2545 items were furnished from plant sources. 86 items of stainless steel not immediately available on the open market were furnished to fabricators from plant inventories.

Maintenance material and supplies disbursed from active inventories were valued at $262,451.15.

Receipts of incoming shipments during the month reached an all time high, as 5779 receiving reports were issued.

Material and equipment valued at $215,891.79 involving 22 captions in the 10.20 Account (Construction Held Materials) were disbursed to construction forces during the month. In addition to the foregoing, materials valued at $31,177.60 were withdrawn for use by operations' forces, and materials valued at $72,770.62 were declared excess.

Material and equipment valued at $80,085.14 were withdrawn from Account 10.10 (Excess) and returned for use on the Project. Of this amount, construction forces' withdrawals were valued at $75,962.46.

At month end, inventories of materials and supplies in the custody of various operating divisions were being received. In some instances, the inventory lists were incomplete due to the omission of the division's thirty day requirement or insufficient nomenclature for proper identification. Such lists were forthwith returned to those divisions.

A total of 5,054,512 FBM of lumber was shipped from the Project during the month as directed by the Commission. This shipment required the use of 82 rail cars and 163 semi-trailers. In addition to the foregoing, 20 shipping documents valued at $90,778.52 for excess materials were processed and shipped.

During the month, the Commission proposed that they enter into lump sum contracts for architect engineering services and for construction of the proposed Central Stores Warehouse (Project Proposal C-390-R-2). At month end, the Commission was negotiating a contract for functional study and final design with the firm of Moffatt, Nichol & Taylor, Engineers, Portland, Oregon.

30 representatives of government and private businesses were escorted through our warehouses and scrap yards for the purpose of negotiating the sale of scrap and the transfer of excess property. Scrap sale revenue for the month was $24,564.93.

PURCHASING AND STORES DIVISIONS
STORES DIVISION

PERSONNEL

	As of 2-28-51			As of 3-31-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	4		4	4		4			
Construction Mat'l Sect.	2	34	36	2	31	33		-3	-3
Operations Mat'l Sect.	4	112	116	4	107	111		-5	-5
Surplus, Salvage & Scrap Materials Section	4	51	55	4	48	52		-3	-3
TOTALS	14	197	211	14	186	200		-11	-11

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	9
Number of Employees Attending	182
Minor Injuries	3

STATISTICS

Construction Materials Section

Items in Stores Stock	43,778
Items Added to Stock	324
Items Completely Liquidated From Stock	697
Store Orders Posted (Items)	3,676
Number of Requisitions Screened - A.J.	654
Number of Items Screened - G. E.	5,194
Number of Items Furnished from Stock	844
Value of Disbursements	$247,069.39*
Inventory Valuation at Month End - Materials	7,204,736.94
Value of Materials Shipped	13,615.90
Value of Materials Received	19,022.92
Value of Materials Declared Excess	72,770.62

*Includes $215,891.79 disbursed to Construction & CPFF Subcontractors

Operations Materials Section

Number of Items Added to Stores Stock	709
Number of Items Deleted from Stores Stock	24
Items in Stores Stock at Month End	46,903
Store Orders Posted	20,760
Number of Requisitions Screened This Month - G.E.	2,729
Number of Items Furnished from Plant Sources This Month	1,701
Inventory Valuation at Month End (903-All Captions, 906 & 912)	$1,339,041.17
Inventory Valuation at Month End (Spare Parts)	1,648,455.43
Inventory Valuation at Month End (Special Materials)	3,161,218.54
Total Value Inventory Accounts	6,148,715.14
Value of Disbursements, not including Cash Sale Items	262,451.15
Value of Cash Sales	973.87
Value of Sales, Payroll Deduction	1,828.67

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PURCHASING AND STORES DIVISIONS
STORES DIVISION

STATISTICS (Continued)

Value of Materials Declared Excess			267.76
Value of Materials Returned to Stores Stock for Credit			13,807.52
*Includes $32,810.71 disbursed to Construction and CPFF Subcontractors			
Surplus, Salvage & Scrap Materials Section			
Balance of Account 10.10 as of 2-28-51			$6,341,972.59
Receipts 2-28-51 to 3-30-51			
Lumber	64.68		
Automotive Equipment	12,314.24		
Office Furniture	1,235.95		
Material and Supplies	70,323.55		
Miscellaneous Equipment	4,528.31		
Machine Tools and Equipment	2,258.29		
Household Furniture	53.50		90.778.52
Adjustments - Classes and Current Market Prices			5,417.24
			6,438,168.35
Disbursements 2-28-51 to 3-30-51			
On Project			
Lumber	8,614.33		
Automotive Equipment	12,207.33		
Machine Tools & Equipment	850.15		
Office Furniture	1,343.33		
Material and Supplies	50,500.62		
Miscellaneous Equipment	6,569.35	80,085.14*	
Transfer to 10.20 Account		79.19	
Stores Material Transfers		53.50	
Off Project			
Lumber	137.16		
Automotive Equipment	544,142.08		
Office Furniture	3,496.02		
Material and Supplies	16,185.08		
Miscellaneous Equipment	27,858.95	591,818.29	672,036.12
Balance of Account 10.10 as of 3-30-51			$5,766,132.23
*Includes Disbursements to Construction $75,962.46			
Total Receipts to Date			34,768,427.16
Total Disbursements to Date			29,002,294.93
Scrap and Salvage Disbursed			
Scrap Sales Completed		12	
Scrap Sales in Process		1	
Scrap Sales Revenue for month of March			$24,564.93
Total Scrap Sales Revenue to Date			35,390.64

PURCHASING AND STORES DIVISIONS
STORES DIVISION

STATISTICS (Continued)

WAREHOUSING, RECEIVING, DISBURSING & SHIPPING SECTIONS

Construction Materials Section	
Store Orders Filled	5,396
Number of Items Received	324
Items Filled for Shipping	1,015
Items Excessed	87
Operations Materials Section	
Receiving Reports Issued	5,779
Emergency Store Orders Filled	1
Shipments Processed (Containers & Materials)	326
Shipments Received	5,380
Store Orders Registered	24,241
Surplus, Salvage & Scrap Materials Section	
Store Orders Filled	634
Truckloads of Material Shipped	184
Carloads of Material Shipped	106

D&C CONSTRUCTION STORES

Account 10.16 as of March 31, 1951

Account No.		Balance 2-28-51	Purchases	Disbursements	Balance 3-31-51
10.16-101	Cement	65.10	52.26	57.86	59.50
10.16-102	Sand, Blasting Sand, Gravel	-0-	18.25	18.25	-0-
10.16-103	Plaster, etc.	18.60	20.22	19.41	19.41
10.16-104	Lumber	9,721.55	18,801.42	20,950.55	7,572.41
10.16-105	Reinforced Steel	5,883.64	-0-	814.59	5,069.05
10.16-106	Misc. Stores	16,238.76	3,852.36	5,638.26	14,452.86
10.16-107	Plumbing	46,519.03	7,541.43	7,922.08	46,138.38
10.16-108	Electrical	27,284.44	28,319.21	7,378.48	48,225.17
10.16-109	Vitrified Clay Pipe	35.49	181.02	-0-	216.51
10.16-110	Paint, Glass	1,981.09	1,011.11	1,303.37	1,688.83
10.16-111	Welding Rod	1,031.33	1,279.35	601.50	1,709.18
10.16-112	Structural Steel	23,290.70	2,338.83	2,894.27	22,735.26
10.16-113	Concrete & Masonry Sup.	23.58	175.08	248.50	Cr. 49.84
10.16-115	Roofing Supplies	Cr. 96.70	463.39	155.29	211.40
10.16-116	Transformers	Cr.222.21	1,209.87	194.10	793.56
10.16-118	Automotive	21,354.14	14,247.15	7,124.97	28,476.32
10.16-133	Small Tool Repair Parts	303.05	97.91	25.62	740.34
10.16-134	Clothing	1,061.96	4,159.89	8,977.34	Cr.3,755.49
TOTAL		$154,853.55	$83,768.75	$64,324.45	$174,302.85

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
MARCH, 1951

GENERAL

The work load of the Traffic Division showed an increase over the previous month.

The Union Pacific Railroad on March 5 changed their time of delivery to the project and will arrive at North Richland Yards shortly after 7:00 A.M. This change will provide an additional 24 hours of free time for unloading and loading cars.

Effective March 21 the Railway Express Agency increased the Air Express rates up to 20 percent, based on weight and distance, and the minimum charge from $1.50 to $2.50 per shipment.

Due to the high loss ratio which the Home Insurance Company have experienced on the coverage of household goods moving to and from the project, they proposed amendments to the policy to reduce their liability and greatly increase their rates. Our non-compliance to the amendments would compel them to retire from the policy.

After considerable negotiations, it was agreed to continue the present coverage with reasonable increased rates, and endorsements have been received accomplishing this agreement which will become effective April 1, 1951.

The Interstate Commerce Commission on March 14 issued its report and granted the railroads an emergency general freight rate increase of 4 percent within Eastern Territory, 2 percent within Southern and Western Territories, and 2 percent interterritorially among the three territories, with a maximum increase on coal of 6 cents per ton. The increased rates will become effective on April 4, 1951.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of March amounting to $16,145.28. This makes a total savings from September 1, 1946 to date of $1,487,741.74.

PERSONNEL

	Total Personnel as of 2-28-51	Total Personnel as of 3-31-51	Net Change
Exempt	2	2	0
Non-Exempt	8	9	+1
	10	11	+1

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	1
Meetings Held	1
Minor Injuries	0

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PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
MARCH, 1951

STATISTICS

Savings Report

1. Rate reductions obtained from the Carriers:

Commodity	Origin	Savings for March	Savings 9-1-46 thru Feb. 1951	Total Savings 9-1-46 to date
Coal	Kemmerer, Wyo.	$ 4,510.56		
Coal	Roundup, Mont.	6,065.56		
Lime	Evans, Wash.	400.18		
Phosphoric Acid	Newark, Cal.	1,124.32		
Phosphoric Acid	South Gate, Cal.	956.64		
Caustic Soda	Tacoma, Wash.	402.79		
Caustic Soda	Willbridge, Ore.	1,597.28		
Soda Ash	Trona, Cal.	606.00		
Railway Express	Various	481.95		
		$16,145.28	$1,471,596.46	$1,487,741.74
2. Freight Bill Audit		3,134.20	58,802.52	61,936.72
3. Loss and Damage and Over-Charge Claims		967.10	103,692.54	104,659.64
4. Ticket Refund Claims		798.19	12,509.62	13,307.81
5. Household Goods Claims		35.97	14,462.86	14,498.83
		$21,080.74	1,661,064.00	$1,682,144.74

Work Volume Report

Reservations Made	Rail	160
	Air	137
	Hotel	122
Expense Accounts Checked		268

Household Goods & Automobiles	Movements Arranged Inbound	13
	Movements Arranged Outbound	5
	Insurance Riders Issued	11
	Insurance Bills Approved	9
	Furniture Repaid Orders	3
	Requests for Claim Billing	12
	Claims Filed	2
	Claims Collected - Number	4
	Claims Collected - Amount	$35.97
Ticket Refund Claims	Filed	44
	Collected - Number	27
	Collected - Amount	$798.19

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
MARCH, 1951

STATISTICS (CONTINUED)

Freight Claims	Filed	13
	Collected - Number	14
	Collected - Amount	$967.10
	Over and Shorts Processed	16
	Damage Reports Processed	15
Freight Bill Audit Savings		$3,134.20
Freight Shipments Traced		113
Quotations	Freight Rates	252
	Routes	351
Bills Approved	Air Freight	5
	Air Express	30
	Boat	1
	Carloading	269
	Express	156
	Rail	547
	Truck	410
Return Orders Processed		25
Carload Shipments	Inbound - GE - AEC	522
	Others	103
	Outbound - GE - AEC	120
	Others	20

Report of Carloads Received

General Electric Company	MILW	N.Y.	U.P.	TOTAL
Acid, Nitric and Sulphuric		1		1
Aluminum Sulphate		1		1
Ammonium Silico Fluoride	1			1
Caustic Potash	1			1
Caves, Junior		1		1
Liquid Chlorine	2	2		4
Coal	108		283	391
Drums, Steel	1			1
Ferric Sulphate	5	1		6
Hydrofluoric Acid	1	1		2
Infusorial Earth		1		1
Iron Ore			1	1
Iron Plumbing Goods		1		1
Laboratory Tables		2		2
Hydrated Lime	1	4	1	6
Nitrate of Soda		2		2
Nitric Acid		9	12	21
Phosphoric Acid	1	1	3	5

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
MARCH, 1951

STATISTICS (CONTINUED)

Report of Carloads Received (Continued)

General Electric Company (Continued)	MILW	N.P.	U.P.	TOTAL
Pipe	5		1	6
Salt	1			1
Caustic Soda	3	5	7	15
Ferrous Ammonium Sulphate		1		1
Soda Ash	1	2	1	4
Steel Plates	1			1
Steel Plates and Beams		1		1
Steel Bars and Angles		1		1
Steel Doors and Frames	2			2
Sulphuric Acid	1			1
Tanks, Steel	3		1	4
Steel Tubing			1	1
Weed Killing Compound		1		1
Express	3			3
Merchandise	1	4	2	7
TOTAL	142	42	313	497

A. E. C.				
Automobiles			1	1
Cabinets, Steel	1			1
Chemicals	6			6
Lumber	12			12
Plywood	2	1		3
Merchandise		1	1	2
TOTAL	21	2	2	25

Atkinson & Jones Construction Company				
Asphalt	2			2
Cement	1	26		27
Insulation	1			1
Lockers			1	1
Mineral wool	1			1
Pipe Conduit	1			1
Pipe	3	1		4
Sand	1			1
Silica Sand		3		3
Steel Plates and Pipe	2	1		3
Steel Bars	4			4
Structural Steel		1		1
Steel Tanks			1	1
Track Bumpers		1		1
Tubing, Copper	1			1
Merchandise	8			8
TOTAL	25	33	2	60

E. F. Hauserman Company				
Partitions			1	1
TOTAL			1	1

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
MARCH, 1951

STATISTICS (CONTINUED)

Report of Carloads Received (Continued)

	MILW	N.P.	U.P.	TOTAL
Haigan & Wolff, Incorporated				
Plaster			1	1
TOTAL			1	1
West Coast Heating & Plumbing Company				
Pipe		1		1
TOTAL		1		1
Roof Service, Incorporated				
Asbestos Siding		1		1
TOTAL		1		1
Electric Smith Company				
Pipe		1		1
TOTAL		1		1
TOTAL - SUBCONTRACTORS	40	47	16	103
TOTAL ENTIRE PROJECT	203	91	331	625

EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

SUMMARY - MARCH, 1951

The number of applicants interviewed decreased from 1,934 in February to 1,671 in March. Of these applicants, 712 were individuals who applied for employment with the General Electric Company for the first time. In addition, 821 new applicants submitted applications through the mail. Open, nonexempt, nontechnical requisitions increased from 548 at the beginning of the month to 621 at month end. Total plant roll increased from 8,027 to 8,080. Turnover rate increased from 1.73% in February to 2.38% in March. During March, 70 new requests for transfers to other type of work were received by the Employment Office, and 63 transfers were effected. During March the Employment Office again remained open on Saturdays, with the result of 375 applicants being interviewed on those days, of which 206 were new applicants. Of these, 79 were placed in process and 30 others are under consideration. During March advertisements were placed in 17 Pacific Northwest newspapers on 15 different dates, and spot radio announcements were given over 14 local radio stations five times weekly. Field recruitment was conducted in Portland, Oregon, for draftsmen and designers, and for cost and accounting clerks on March 19, 20 and 21. There were 255 applicants interviewed, of which 20 were made offers and 36 are being given active consideration. Lower Columbia Junior College, Longview, Washington, was visited on March 22, 1951, and 5 laboratory assistant candidates were interviewed. Offers were made to 2 and the others are being considered.

During March, four employee deaths occurred and four employees retired. Two hundred and five visits were made to employees confined at Kadlec Hospital, and 67 salary checks were delivered to employees either confined at the hospital or at home. The plant Red Cross Drive was completed on March 16, with employees at Hanford Works contributing 114.8% of the $ 13,650 quota established by the County Chairman. During the month, 54 letters were written to employees relative to the new ruling of the Pension Board concerning the survivorship options. At the end of March, there were 737 employees registered under the Selective Service Act and 653 military reservists on the rolls. Since August 1, 1950, 117 employees have terminated to enter military service. At month end, participation in the Pension Plan was 95.5%, the Insurance Plan 95.3%, and the Employee Savings and Stock Bonus Plan 37.5%.

A total of 23 supervisors attended the 40-Hour Training Program during March. PMS Groups 13, 14, 15 and 16 met during March. The 8-Hour Nonexempt Training Program was held on March 9, 1951, with eleven "S" Division employees in attendance. During the months of February and March, a total of 228 meetings, or 76 complete series of conferences, on "How Our Business System Operates" was made available at Hanford Works. A total of 785 people, or 41.3%, participated in the three-session program. A schedule will be prepared for presentation of HOBSO to nonexempt employees in April. During March, orientation was given to 4 re-engaged, 5 transferred, and 216 new employees. Re-engaged and transferred employees indicated 100% participating in the GE Insurance Plan, and 89.8% of new employees

signed to participate. A net of 16 copies of the Supervisor's Handbook on Employee Relations were distributed during March. Thirty-two Handbooks were turned in and re-issued. Section 1.7 was revised and distributed to Handbook holders during the month of March. Twenty-four copies of the book, MEN AND VOLTS were sold. "Let's Talk It Over" discussions were held at the time of Annual Ratings with exempt members of the Training Staff

A total of 90 news releases were written and distributed during March, 63 of which were sent to the "local list", and 27 were sent to the "daily list". During the month of February, 360 column inches were printed of news concerning Hanford Works in newspapers throughout the Northwest.

An instruction letter defining the responsibility for the release of information at Hanford Works was distributed.

A magazine article about the Health Instrument Division, with photographs, was sent to the MONOGRAM, and will appear in an early issue.

A survey was conducted during the month to determine whether or not Richland businessmen and ministers and educators would like to receive a "Community News Letter," to be put out by Community Relations. Of the 30 per cent returns from the survey, the majority indicated that they would desire to receive the newsletter, which will be produced and distributed regularly in the near future.

The News Bureau Supervisor, Editor of the Works News, and the Community Relations Supervisor addressed journalism students at Columbia High School on the subject "Journalism's Part in Employee and Public Relations." An invitation was extended for students to visit the Community and Public Relations Division, in the near future, and put out a section of the Works News.

During the month a meeting was held with presidents of the local Kiwanis, Rotary, and Lions Clubs to outline a suggested procedure for presenting HOBSO to Richland residents.

Civil defense information was released to residents through local newspapers, radio stations, and the Works News.

Five speeches were delivered during the month by G-E employees. Twenty-one hand prints and 11 glass slides were prepared for two of the speeches.

Arrangements were completed during the month for the Employee and Community Relations Divisions Manager's presentation of HOBSO before three groups in Portland.

Employee and Community Relations
Summary

In an NLRB conducted election on March 23, 1951, the Richland and North Richland Police and Plant Security Guards voted in favor of representation by by the International Guards Union in collective ba gaining matters. The NLRB gave notice on March 7 that proposed union shop election had been postponed. A hearing was scheduled in the case of the Village Firemen for April 4. The HAMTC-GE Contract was not reopened.

On March 22, the Davis Panel requested further negotiations at the local level on the isolation pay issue. Negotiations with Painters concluded March 14, granting ten cents an hour effective December 9, 1950, and seven cents an hour effective May 1, 1951. A new premium of fifteen cents an hour was agreed upon for work on Swinging Scaffold or Boatswains Chair. It is reported that the Teamsters will hold representation and union authorization elections in the near future. Puget Sound Sheet Metal (Seattle), Atkinson-Jones vendor, is faced with the possibility of a strike on April 2. They are to furnish and erect 19 tanks. This office is prepared to assist in the event an actual work stoppage occurs.

Compiled data of the Northwest Survey was completed and sent to Printing. Also completed was the special Paci ic Coast Design and Drafting Wage Rate Survey. A case was prepared for presentation to Wage Stabilization Board for increased rates for Designers and Draftsmen, the classification of Chlorinator Serviceman, and a plan for granting merit increases to Designers. The survey of non-unit clerical jobs in the Medical Division was completed.

EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

MARCH, 1951

ORGANIZATION AND PERSONNEL

Employment and Employee Services

Effective March 2, 1951, a General Clerk "D" was engaged and assigned to the Investigation and Files Group to replace a General Clerk "D" who transferred to Health Instrument Biology Division on March 9, 1951.

Effective March 9, 1951, a Messenger was engaged and assigned to the Investigation and Files Group.

Effective March 12, 1951, a General Clerk "D" was engaged and assigned to the Investigation and Files Group.

Effective March 26, 1951, an Employment Interviewer and Investigator "B" was engaged and assigned to the Procurement Group.

Training and Program Development

Effective March 23, 1951, a Field Clerk "A" was engaged to replace an employee who had been promoted to Training Instructor.

Community and Public Relations

Effective March 19, 1951, one Steno-Typist "C" was upgraded to General Clerk "C".

Union Relations

Effective March 12, 1951, a Steno-Typist "D" was transferred to Maintenance.

On March 12, 1951, a Steno-Typist "D" was engaged to replace the one who was transferred.

Number of Employees on Payroll	March, 1951
Beginning of month	101
End of month	105
Net Increase	4

Employee and Community Relations
Summary

Public Functions booked three G.E. films and 4 University of Washington films for a local group.

Arrangements were made for use of the AEC Security darkroom on a temporary basis by one employee of the Photo House until more space is made available. The congestion in the Photo House darkroom was thus relieved sufficiently to allow handling of the increased volume of requests for services being received from Hanford Works Divisions.

Black and white photographs, 16 mm color motion pictures and 35 mm color slides were made of the AEC Safety Award Ceremony.

One hundred three general photo assignments were completed during the month, involving the production of a total of 7,298 prints.

Services by Special Programs to Union Relations included a letter to all H.W. patrolmen and Richland policemen concerning the representation election; and the Works News column, "Union Relations News," which appeared twice.

A 12-page booklet, "Let's Get Acquainted," was produced for distribution to hospital patients by Kadlec Hospital.

A public relations outline to accompany the current construction and improvement program at Kadlec Hospital was drawn up and put into effect. It includes meal tray cards, inserts for the new patients' booklet, a four-color hospital floor plan for the lobby showing the improvements being made, and a newspaper photo of the "ground breaking ceremonies."

Publicity carried in the Works News included: Red Cross Drive, metering of electricity in Richland, the need for rooms in homes of employees to house new employees, civil defense activities, employee benefit plans, suggestion system, and the need for certain classifications of employees at Hanford Works.

Four women's pages appeared in the Hanford Works News during the month. They featured the YWCA Supper Club, recipes, Spring fashion forecast, and spring housecleaning.

The women's activities feature writer supplied a feature story with pictures for the Works News on the new North Richland teen-age center. This writer also completed a double page feature for an April issue of the Works News on the new Records Service Center in the 700 Area.

Employee and Community Relations Divisions

ACTIVITIES

Employment and Employee Services

Employment:

	February, 1951	March, 1951
Applicants interviewed	1,934	1,671

712 of the above applicants interviewed during March were individuals who applied for employment with the Company for the first time. In addition, 821 new applications were received through the mail.

Open requisitions	February, 1951	March, 1951
Exempt	4	4
Nonexempt	548	621

Of the 548 open, nonexempt, nontechnical requisitions at the beginning of the month, 440 were covered by interim commitments. Of the 621 open, nonexempt, nontechnical requisitions at month end, 481 were covered by interim commitments During March, 190 new requisitions were received requesting the employment of 310 nonexempt employees.

	February, 1951	March, 1951
Employees added to the rolls	215	245
Employees removed from the rolls	138	192
Net Gain or Loss	+ 77	+ 53

Of the 192 employees removed from the rolls, none were removed due to lack of work

Turnover:	February, 1951		March, 1951	
	Male	Female	Male	Female
Excluding employees laid off for lack of work	1.83%	2.56%	1.96%	4.03%

Over-all Turnover:	February, 1951	March, 1951
Excluding employees laid off for lack of work	1.73%	2.38%

During March, 63 employees terminated voluntarily to accept other employment, 23 terminated to leave this vicinity, and 13 terminated to enter military service.

Employee and Community Relations Divisions

At the end of March, there were 51 employees in lack of work status, divided into the following categories:

	February, 1951	March, 1951
Nonbargaining unit employees	20	17
Bargaining unit employees	44	34

Transfer Data

Accummulative total of requests for transfer received since 1-1-51	167
No. of requests for transfer received during March	70
No. interviewed in March, including promotional transfers	78
Transfers effected in March, including promotional transfers	63
Trans effected to date since 1-1-51 including promotional transfers	132
Transfer requests active at month end	77
Trans. effected in March, for employees given lay off notices	0
Trans. effected since 1-1-51, for employees given lay off notices	0
No. of stenographers transferred out of Steno. Pool in March	3

During March, 10 people whose continuity of service was broken while in an inactive status were so informed by letter.

During March, the Procurement Group continued the recruitment program through advertising for instrument mechanics, designers and draftsmen, production operators, laboratory assistants, nurses, stenographers, cost and accounting clerks, power operators, comptometer and I.B.M. operators, and vendor inspectors. These advertisements were placed in 17 Pacific Northwest newspapers on March 8, 9, 10, 14, 15, 16, 17, 21, 22, 23, 24, 28, 29, 30, and 31. Spot radio announcements were given five times weekly over 14 local radio stations. As the result of the combined newspaper and radio advertising, 519 replies were received during the month of March.

Also during the month of March, employees were asked to recommend possible candidates for employment to the Procurement Group through articles placed in the Works News. As a result of these articles, 66 replies were received, recommending 88 people.

On March 19, 20 and 21, two representatives of the Employment Group and two representatives of the Plant Engineering Division, visited the Portland, Oregon, Employment Security Office on a field recruitment trip, primarily to recruit designers and draftsmen, and cost and accounting clerks. On these dates 255 applicants were interviewed, of which 20 were made offers and 36 offers are pending.

On March 22, 1951, a representative contacted the Lower Columbia Junior College at Longview, Washington, and interviewed 5 potential laboratory assistants. Of this number, 2 are in process and the others are under consideration.

Employee and Community Relations Divisions

The Employment Office remained open on the five Saturdays in March to assist the recruitment program. On these Saturdays, 375 applicants were interviewed, of which 206 were new applicants. As a result of these interviews, 79 applicants were placed in process and 30 are under active consideration.

A representative of the Employment Office spoke at a meeting of the Commercial Club of Columbia High School, on the subject of "What is Expected of High School Graduates in Industry". This group consisted of juniors and seniors who are majoring in commercial subjects. In addition the General Electric Employee Benefit Plans, descriptions of types of jobs and rates, and our system of promotion were discussed.

Employment Statistics:

	2-28-1951	3-31-1951
Number of employees on rolls		
Exempt		
Male	1,894	1,906
Female	55	54
	1,949	1,960
Nonexempt		
Male	4,509	4,525
Female	1,569	1,595
	6,078	6,120
TOTAL	8,027	8,080

ADDITIONS TO THE ROLLS

	Exempt	Nonexempt	Total
New Hires	14	201	215
Re-engaged	0	3	3
Reactivations	3	19	22
Transfers (from other plants)	3	2	5
Actual additions	20	225	245
Payroll exchanges	22[a]	7[b]	29
GROSS ADDITIONS	42	232	274

TERMINATIONS FROM THE ROLLS

Actual Terminations	22	132	154
Removals from the rolls (deactivations)	2	36	38
Payroll Exchanges	7[c]	22[d]	29
GROSS TERMINATIONS	31	190	221

Employee and Community Relations Divisions

GENERAL

	2-1951	3-1951
Applicants interviewed	1,934	1,671
Photographs taken	302	371
Fingerprint impressions (taken in duplicate)	485	554

ABSENTEEISM STATISTICS
(Weekly Salary Rolls)[e]

Male	2.84%	4.26%
Female	4.03	6.39
Total plant average	3.14	4.55

INVESTIGATION STATISTICS

Cases received during the month	534	816
Cases closed	244	237
Cases found satisfactory for employment	523	767
Cases found unsatisfactory for employment	21	19
Cases closed before investigations completed	28	16
Special investigations conducted	11	23

a Transferred from Weekly Payroll
b Transferred from Monthly Payroll
c Transferred to Weekly Payroll
d Transferred to Monthly Payroll
e Statistics furnished by Weekly Payroll Division

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	205
Salary checks delivered to employees in hospital	52
Salary checks delivered to employees confined at home	15

The Red Cross Drive was completed during March, with the result of Hanford Works employees contributing 114.8% of the $ 13,650 quota established for Hanford Works by the County Chairman. The Employee Services Group was responsible for assisting the Plant Chairman in all phases of this campaign.

A representative of the Yakima Social Security Office visited the Employee Services Group twice during March in order to obtain information to complete payment to beneficiaries of deceased employees.

Five publications of Employee Benefits Information were prepared for release in the Works News during March.

Employee and Community Relations Division

As of the end of March, participation in Company Benefit Plans was as follows:

Pension Plan	95.5%
Life and Health Insurance	95.3
Employee Savings and Stock Bonus Plan	37.5

Four employee deaths occurred during March, namely:

Randolph H. Long, Real Estate Housing Division;
Ruth J. Davison, Technical Services Division;
DeHart Bergen, Jr., "S" Division; and
Floyd Stech*, Maintenance Division.

*This employee's continuity of service had been broken on June 10, 1949, but his coverage under the Life Insurance Plan continued under the disability clause of this Plan.

In the past month, 33 letters were written to members of deceased employee's families and interested parties concerning payment of moneys due them from the Company, as well as answering other questions received from them.

During March, a representative of this Group contacted the Walla Walla General Hospital, St. Mary's Hospital and the Veterans' Administration Hospital in Walla Walla to discuss the benefits for employees under the new insurance plan, as well as to leave forms for use by employees who may be hospitalized at those hospitals.

Four employees retired during March, namely:

Laura Gowing, Purchasing Division (Optional);
Merel E. Smith, Plant Security & Services Division (Optional);
William J. LaVelle, Municipal Divisions (Optional); and
John W. Doude, Power Division.

During March, 29 letters were written to retired employees giving them information of a general nature which affects them. In addition, 54 letters were written to employees relative to the new ruling of the Pension Board on survivorship options.

Military Reserve and Selective Service:

The statistics with respect to employees registered under the Selective Service Act are as follows:

Employees registered under the Act	737
Employees registered who are veterans	458
Employees registered who are nonveterans	279
Employees classified as 1-A	126
Deferments requested to date	98
Deferments granted	49
Deferments denied and appealed at State levels	6
Deferments denied and appealed at National level	6
Deferments requested, employees later reclassified	14
Deferments pending	23

Employee and Community Relations Divisions

Statistics with respect to employees who are members of the military reserve are as follows:

Number of reservists on roll	653
Number who have returned to active duty to date	47
Number who returned to active duty in March	8
Deferments requested to date	51
Deferments granted	50
Deferments pending	1

Military terminations since 8-1-1950 are as follows:

Reservists recalled	47
Selective Service	68
Female employees enlisted	2
TOTAL	117

Employee and Community Relations Divisions

TRAINING AND PROGRAM DEVELOPMENT

The Supervisors' 40-Hour Training Program was held during the week of March 12-16. A total of 23 members of supervisory-management were enrolled by five major divisions. Luncheon was held at noon on Friday of the program week, at which time the members of the group, together with five members of senior management of Hanford Works, met together for an informal luncheon. A survey questionnaire completed by participating members of the group indicated that this program had been of definite assistance to them as supervisors.

PMS Groups 13, 14, 15, and 16, met during the month of March. The supervisors enrolled in these four groups are regularly scheduled to work on shifts, therefore, each group meets on Friday and Monday mornings while on days. Approximately 15 supervisors have been enrolled in each group, making a total of approximately 60 supervisors attending PMS in these sessions. To date, approximately 240 supervisors have completed PMS at Hanford Works.

On March 9, a special meeting was held at the request of "S" Division to present the 8-Hour Non-exempt Training Program to eleven operators in the 200-W Area. An anonymous survey questionnaire completed by the members participating in this program indicate that the discussion of the many subjects throughout this 8-Hour Program is proving a successful method of disseminating information and discussion of policy problems to achieve better attitude and higher morale.

During the months of February and March, a total of 228 meetings, or 76 complete series of conferences on "HOW OUR BUSINESS SYSTEM OPERATES" were made available at Hanford Works. All members of exempt personnel throughout the Works were invited to participate in these meetings. A total of 785 persons, or 41.3%, actually participated in the three-session program. A survey was conducted by the Training Staff members to determine the reason for such low attendance. Results of the survey indicate that the major reasons for lack of attendance were due to: (1) supervisors waiting to be scheduled to attend meetings, (2) lack of interest of upper levels of supervision in the program, or their not encouraging others to attend, and (3) supervisors feeling that they couldn't spare this much time away from the job. An additional survey was conducted regarding presentation of HOBSO to non-exempt employees with results indicating that the program should be presented, but that three sessions could not be justified in timing for non-exempt personnel. The greatest number of persons surveyed indicated that the program should be presented in one (1½ hour) session. A special presentation was made with a test group on this basis on March 27. Approximately 35 non-exempt employees were present, at which time the appreciation version was presented, and approximately twenty minutes taken for discussion, making a total of approximately 1½ hours for the meeting. A schedule will be prepared for presentation of HOBSO to non-exempt employees beginning in April.

During the month of March, Orientation was given to four re-engaged, five transferred, and 216 new employees; a total of 225. Re-engaged and transferred employees indicated 100% participation in the G-E Insurance Plan, and 89.8% of the new employees elected to participate

TRAINING AND PROGRAM DEVELOPMENT

in the Plan. At present, the booklet, "You and General Electric At Hanford Works" is being re-printed, and will be distributed to those new employees now joining the organization when copies are available. The stock of this booklet was depleted in February.

In response to letters of inquiry to Superintendents and Division Heads, a net of 16 copies of the Supervisor's Handbook on Employee Relations were distributed. There were 32 Handbooks turned in and re-issued - during the month of March. Each of the Handbooks were brought up-to-date in revisions and accuracy of content. Of the total of 1,500 copies of Handbooks originally prepared for distribution to supervisors at Hanford Works, 1474 have been issued to date. A revised Section 1.7 of the Supervisor's Handbook was distributed in March to all Handbook holders. Additional revisions will be prepared and distributed to keep the Handbook current.

A new employee, David V. Smith, reported on roll March 22, 1951, as Field Clerk "A" of Training and Program Development. Mr. Smith replaces Mr. Adair who was promoted to Training Instructor.

Twenty-four copies of the book, MEN AND VOLTS, were sold during March. The cash for this sale was turned in to the G-E Cashier, and a receipt is maintained in Training Division files.

W. W. Chamberlain of the Training Staff is continuing to present EFFECTIVE PRESENTATION at the G-E School of Nuclear Engineering.

Let's Talk It Over discussions were held at the time of reviewing annual ratings with exempt members of the Training Staff during March.

Employee and Community Relations Divisions

Community and Public Relations Division

PUBLIC INFORMATION - News Bureau

Interviews

R. Lucas, editor of both Yakima papers, interviewed G. R. Prout before his speech to the Yakima Rotary Club. The News Bureau and Public Functions supervisors accompanied Mr. Prout on the trip to Yakima. Glen C. Lee, editor of Tri-City HERALD spoke to the Yakima Rotary Club earlier this year.

Meetings

News Bureau Supervisor talked to two journalism classes at Columbia High School about the "Need for Journalism in Public Relations Work."

Requests

Several booklets and copies of releases concerning operation of the Community were given to the AEC at their request for forwarding to the State Real Estate Board.

The following requests for information were received from the Tri-City HERALD or Columbia Basin NEWS and releases were made: costs per square foot of Carmichael and Spalding schools; the finding of mastadon bones in White Bluffs; the possibility of a 4 per cent wage increase; the need for rabies shots; and the charge that GE prevented a union shop election.

Special Projects

An instruction letter defining the responsibility for the release of information at Hanford Works was distributed.

A magazine article about the Health Instrument Division, with photographs, was sent to the MONOGRAM. It will appear in an early issue.

Special emphasis was given to a series of stories and photographs about the installation of meters, establishment of the Hanford Works Laboratory, civil defense, and a concert by the Minnesingers.

Coverage

A total of 90 releases were written and distributed during March. Of these, 63 were sent to the "local list" which includes: Columbia Basin NEWS, Tri-City HERALD, Lind LEADER, Yakima Morning HERALD, Walla Walla UNION-BULLETIN, Works NEWS, Spokane CHRONICLE and radio stations KPKW, KWIE, KALE, KREW and KIT. The rest were sent to approximately 75 daily newspapers and wire services throughout the Northwest. Following is a sampling of news subjects during the month.

Construction - Fourteen news stories were distributed that concerned invitations to bid, bid openings and award of contracts for construction work in the plants and the community.

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Employee and Community Relations Divisions

Recreation - Twenty-eight news stories, radio spot announcements and photographs which publicized G.E.'s recreation program were released.

Utilities - Ten releases concerned installation of electric meters, power outages, and the fencing of the irrigation ditch.

Housing - Residents were urged to rent rooms in their homes. The procedure for applying to move to the houses now under construction was explained.

Fire and Safety - Releases pointed out the procedures for burning trash, the danger of cleaning with gasoline and the presentation of the AEC's 1950 Safety Trophy to G.E.

Hanford Works Laboratory - A news story and a 3000 word feature story were distributed concerning the seven-building laboratory to be built here.

Medical - Residents were warned of an increasing number of measle cases. Another release urged residents to have dogs innoculated for rabies.

Personnel - A luncheon for employees with 25 years or more of service was publicized. A story was released on the number of employees from the entire Company and from Hanford Works who have entered the armed forces.

Speakers - Publicity was released concerning four out-of-town speeches by Hanford Works personnel.

Employee Benefit Plans - It was pointed out that taxpayers were saved almost $100,000 last year by employees of Hanford Works through the Suggestion System.

Union Activities - Three releases were made concerning statements by a CIO representative.

Organization Changes - Nine stories were released concerning organization changes.

Space Report - See last page of this report.

PUBLIC INFORMATION - Community Relations

A survey to determine interest in receiving a Community NEWSLETTER, regularly, was conducted among Richland ministers, educators, and businessmen. A letter to these community leaders suggested that subjects such as the facts involved in rumors about Company activities; information about the Hanford Works employment situation; and information about employee programs and activities might be discussed in the NEWSLETTER. Leaders were invited to use an enclosed, self-addressed postal card to indicate their interest in a NEWSLETTER and their preferences as to subjects that might be discussed. Over 30 per cent of the ministers, educators, and businessmen surveyed returned the postal cards. The vast majority said they would appreciate receiving a NEWSLETTER, regularly. It is planned to produce and distribute a NEWSLETTER in the near future.

Employee and Community Relations Divisions

The Encyclopedia Americana was furnished information about North Richland for inclusion in the next edition of the publication. The editor requested the information furnished.

A letter requesting the taking of a public opinion survey in Richland was written to the AEC for the signature of the Employee and Community Relations Divisions Manager. The letter, which proposes a survey among G-E employees and tri-city residents, is currently being edited by the Manager of the Community and Public Relations Division.

Local high school journalism students were addressed on the subject, "Journalism's Part in Employee and Public Relations." The News Bureau Supervisor, Works NEWS Editor, and Community Relations Supervisor spoke to the students. The talks were well received, and the journalism instructor was profuse in her thanks to the speakers. An invitation was extended for students to visit the Community and Public Relations Division, in the near future, and put out a section of the Works NEWS.

The G.E. Supervisors' Association membership drive was publicized by the Community Relations Supervisor. Pictures and news stories were published in local papers and the Works NEWS. Two letters about the organization and its membership drive were written and sent to each G-E supervisor.

The monthly safety meeting of the Employee and Community Relations Divisions was planned and conducted by the Community Relations Supervisor.

A suggested procedure for presenting HOBSO to adult, Richland residents was outlined and discussed at an evening meeting with presidents of the local Kiwanis, Lions, and Rotary Clubs, the three sponsoring organizations in Richland. A "HOBSO Action Committee" composed of members of the sponsoring groups has been appointed.

Civil Defense information was released to residents through local newspapers, radio stations, and the Works NEWS. The arrival of Richland's air raid sirens was publicized, as were the activities of the Civil Defense Technical Defense Group.

Recommendations relative to the Public Administration Services' report were reviewed and suggestions for improvement offered, at the request of the Manager, Municipal, Real Estate and General Services Divisions.

PUBLIC INFORMATION - Public Functions

Papers and Speakers

Jim Figenshau demonstrated and explained "Remote Control Tools Used in Atomic Energy" before the Masonic "Grotto" in Yakima, Washington.

C. A. Bennett spoke on "The Application of Several Tests for Randomness to Chemical Problems" in Boston, Mass.

C. E. McCullough delivered his lecture on "Concentration of Radioactive Legend by Evaporation" to Washington State College and University of Idaho AICE in Moscow.

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Employee and Community Relations Divisions

G. P. Tracy spoke to the ACS in Boston on "Safety in the Laboratory."

W. E. Johnson's talk, "Design Engineering - A Job Description for the Guidance of Engineering Students," was sent to Schenectady for review.

The General Manager spoke before members of the Yakima Rotary Club on "The Hanford Project."

Arrangements were completed for the Divisions Manager's presentation of HOBSO before the members of the Baker Convention, the East Side Commercial Club, and Sales Managers Association--all three appearances to be made in Portland.

Films

Three G.E. films and four University of Washington films were booked by a local group.

Radio

Employment spot announcements were written and placed for broadcast with 14 radio stations located in Washington, Idaho and Oregon. A total of 280 sixty-second spots were requisitioned.

Five one-minute interview-type spot announcements were developed for the Campfire Girls leadership recruiting campaign and birthday celebration. These announcements were tape recorded in one of the local radio station studios and broadcast locally.

A ten-minute radio show was produced for the Campfire Girls.

One sixty-second spot announcement was written for the Civil Defense Authority and placed for broadcast over all local stations.

A professionally produced health series was audited by this group with the Public Health Officer.

Three sixty-second spot announcements, advertising the Minnesinger Concert, were produced for the News Bureau.

Arrangements were made with KWIE for the live broadcast of the presentation by AEC General Manager, N. W. Boyer, of AEC's 1950 Safety Trophy plaques to Kellex Corporation, the local AEC office, and General Electric Company's operations personnel at Hanford Works. Public address, tape recording, photographic and incidental services also were furnished for the outdoor presentation ceremonies.

Program Development

The newly appointed Assistant General Manager was presented to the members of the Supervisors Association at their regular meeting this month.

Employee and Community Relations Divisions

Photo House

Use of the AEC Security darkroom on a temporary basis until additional space is made available was begun this month. One employee was assigned to this borrowed darkroom, thus partially relieving the congestion present in the Photo House darkroom.

"The King of Kings," a three-hour 16 mm motion picture, was projected by the Photo House Supervisor in Columbia High School Auditorium as a community service.

Black and white photographs, 16 mm color motion pictures and 35 mm color slides were made of the AEC Safety Award Ceremony.

Photographs were made to illustrate the conditions under which Richland firemen live during duty hours.

Twenty-one hand prints and 11 glass slides were prepared for the presentations of Dr. D. W. Pearce and G. P. Tracy in Boston.

Photographs of details involved in an automobile accident were photographed for the Police Department.

Unusual process conditions were photographed for the Manufacturing Control Division and the desired results accomplished for them.

Black and white slides were made at the request of the General Manager and Assistant to the General Manager on Technical and Educational Matters.

Forty-two special 8" x 10" prints were prepared for the Transportation Division to be used in a yearly Monograph report booklet being prepared by them.

One hundred three general assignments were completed during the month, involving the production of a total of 7,298 prints.

Artwork completed during the month: cover and pages of "You and G.E. at Hanford Works" and illustrations; the May issue of the Richland Telephone Directory--front cover; outside back cover of a safety booklet; inside back page of a fire pamphlet and page 2 of a security publication; a hospital card and a patients' booklet insert; safety booklet dummy was redesigned; illustrations for the Monthly Health Bulletin; civil defense poster.

EMPLOYEE INFORMATION - Special Programs

Classified ads were placed in 12 daily newspapers in the Northwest each week in March announcing that the Employment Office would be open on Saturday. Nine different classifications were advertised for. A total of 451 written inquiries were received during the month, and 375 job applicants were interviewed on the five Saturdays as a result of the newspaper and radio advertising. A special ad in the two Portland papers netted 255 inquiries.

Employee and Community Relations Divisions

The attendance award plan got rolling as purchase requisitions for 2400 pins--plus an additional 1000 inserts--and 500 certificates were issued.

Services furnished by Special Programs to Union Relations included a letter to all H.W. Patrolmen and Richland policemen concerning their representation election, and preparation of the Works NEWS column, "Union Relations News," which appeared twice.

Civil Defense car cards and posters were produced.

"Let's Get Acquainted," a 12-page, two-color booklet for hospital patients was produced for Kadlec Hospital.

A public relations outline to accompany the current construction and improvement at Kadlec Hospital was drawn up and put into effect. It includes patients' meal tray cards, inserts for the new patients' booklet, a four-color hospital floor plan for the lobby showing the improvements, and a newspaper photo of the "ground breaking ceremonies."

Services given the Health Activities Committee included the preparation of the health bulletin for May, with the accompanying discussion leaders' guide, and the preparation of a story synopsis and picture outline of a Medical Divisions' sound-film strip.

Stories were prepared and released for Public Health concerning the Washington State Public Health regional meeting in Richland, the presence of rabies in the state, and the sudden increase of red measles in Richland.

EMPLOYEE INFORMATION-- Works NEWS

Special services performed during the month by the Works NEWS, and programs and activities which were publicized within the plant and community are as follows:

Red Cross Drive received intensive promotion in each issue for the month. Material used to publicize the Drive included lead stories, an editorial, an editorial cartoon, a full page mat, pictures, and a full page feature.

A full-page feature was devoted to the voluntary action by employees in the Purchasing and Stores Divisions and the Maintenance Division in donating blood and working at the Blood center.

A special editorial was written for publication over the signatures of the AEC and G.E. Managers, pointing out the valuable work being performed by the Red Cross.

Community information of interest to employees was published which concerned opportunity to move into new homes being constructed, announcement of metering of electricity, and the need for rooms in homes of employees to house new employees.

Employee and Community Relations Divisions

Special Service was performed for housewives by the inclusion of a certificate of registration which is required by sales representatives to sell in Richland homes. It was published following inquiries made at the Works NEWS office as to whether such certificates were necessary.

Civil Defense activities within the plant and community were publicized. Special emphasis was given to an announcement of tests being made in the Areas of defense plans. Follow up stories were published concerning the results obtained. Arrival of sirens for the community was announced.

Benefit plans information was included on the Pension Plan explaining the Survivorship Option, and that emergency loans can be granted to active members in the Plan. Publicity was given to distribution of personal reports for each employee advising them of their status in each plan.

Suggestion System report of activities during the past year for the Company and the Nucleonics Department were included. One out of four suggestions being adopted at Hanford Works was pointed out to be comparable to average in all industry. Promotion messages were published.

Employment needs were published regularly. A form for employee recruiting was designed for repeated publication at the request of the Employment Division.

Safety news, in addition to the regular "Lifeline" column included a banner headline, lead story of award given by the AEC to operations personnel of G.E. for their improvement in the reduction of disabling injuries during 1950 over the previous year.

Special features during the month of interest to, or about employees, included North Richland Club for teen-agers, Red Cross Blood Program, and employees who make their own furniture.

Special services included a talk by the editor before two journalism classes in the Columbia High School in which all phases of the Works NEWS operation were explained. Arrangements have been made to have some members of the class work a day in the Works NEWS office.

At the request of the Red Cross a news article was included telling how First Aid certificates may be renewed for people whose cards have expired.

One ten and one twelve page paper were published during the month.

Two new columns were introduced in the Works NEWS during the month: "To Your Health," and "Union Relations News," both written by Special Programs.

EMPLOYEE INFORMATION -- Women's Activities

Four women's pages appeared in the Hanford Works NEWS during the month of March, 1951. On March 2, the Y.W.C.A. Supper Club was featured. This organization has been created for women who work, and who are under 35

years of age. "Dinner in a Dish," with photographs and recipes from the National Cotton Council was featured on March 9. "Spring Fashion Forecast" with line cuts of fashions firsts was the feature on the women's page on March 16. An article on spring cleaning, including Consumer's Institute hurry-up meals for busy cleaning days, appeared on March 30.

Twenty-five stories were written for the Parks and Recreation Division concerning activities at Columbia Playfield and the Community House. Included was promotion on the kite tournament, the square dance contest, and the Minnesingers concert. This promotion publicity included photo captions, and radio spots.

A special feature was written for the Works NEWS on the new North Richland teen-age center. Pictures of the opening of the center were included with the story. A Works NEWS-only story was written promoting the Women's Amateur Basketball Association tournament on March 9. "Hector is a Climber," another special feature, was written to publicize the play equipment at Barth Playlot. Work was completed on a double page feature concerning the New Records Service Center in the 700 Area for publication in April.

The "What's Doing," column included information on the Allied Arts Association exhibit, the A.A.U.W. art exhibit, the Dormitory Club, the kite tournament and the Y.W.C.A. Supper Club.

Employee and Community Relations Divisions

Hanford Works Photo House

DIVISIONS	2" x 2"	2" x 4"	5" x 7"	8" x 10"	Color Slide 35mm	16mm B & W color	Portrait	Hand Prints	Negatives	2" x 2" glass slides	3¼" x4" glass slides
ENGIN. & CONSTRUCTION											
Project Engineering				21					6		
North Richland Rec.			50	16					4		
EMPLOYEE & COMMUNITY RELATIONS											
Employee Relations	5335	542							371		
Community Relations			36	70					27		
News Bureau		19	122	133					80.		
Special Programs			40	11					43		
Works NEWS		13	105	20			30		72		
Public Functions			21	32	40	100'			6	19	
HEALTH INSTRUMENT				126							
MANUFACTURING DIVS.											
Reproduction			16								
Transportation			14	56					10		
Maintenance				12					12		
Instrument				10					6		
Blue Print			12								
MEDICAL DIVISIONS											
Public Health			18					67			
MUNICIPAL, REAL ESTATE & GENERAL SERVICES											
Public Safety			20	43							
Parks & Recreation			4						2		
Police			32	46							
Safety & Fire				10					11		
STAFF ORGANIZATION											
Rotational Training		25					25		5		
TECHNICAL DIVISIONS											
Pile Technology				18					2		11
MISCELLANEOUS											
A.E.C. Safety				28							
Civil Defense				14							7
TOTAL	5335	599	499	666	40	100'	55	67	657	19	18

	January	February	March
Total Prints	6,758	7,698	7,298
Total Negatives	538	817	694
Total Assignments	108	136	103

NEWSPAPER SPACE REPORT
February, 1951
As compiled from Nucleonics Department News Bureau Clipping Files

SUBJECT	NEWSPAPERS	DATE	COLUMN INCHES	PHOTOS
R. T. Cooke appointment	Columbia Basin NEWS	Feb. 28	3	1
Fire Prevention	Walla Walla UNION-BULLETIN	Feb. 18	3	2
Low Bidder for Lighting System	Tri-City HERALD	Feb. 2	2	
	Columbia Basin NEWS	Feb. 3	2	
	Corvallis GAZETTE	Feb. 5	2	
Water-Tank Erected at Riverland	Tri-City HERALD	Feb. 7	2½	
	Columbia Basin NEWS	Feb. 7	2	
	Walla Walla Union-Bulletin	Feb. 7	4	
	Portland Daily J. of Commerce	Feb. 10	4	
Substation Bids Opened	Spokesman REVIEW	Feb. 18	1	
	Spokane CHRONICLE	Feb. 16	1	
Painting Bids Invited	Portland Daily J. of Commerce	Feb. 7	3	
	Tri-City HERALD	Feb. 27	2	
	Walla Walla BULLETIN	Feb. 28	2	
Hot SemiWorks Bids	Columbia Basin NEWS	Feb. 16	4½	
	Olympic TRIBUNE	Feb. 16	1½	
	Walla Walla Union-BULLETIN	Feb. 15	2	
	Yakima HERALD	Feb. 16	1	
	Seattle Daily J. of Commerce	Feb. 17	5	
	Portland Daily J. of Commerce	Feb. 17	4	
Electrical Substation	Portland Daily J. of Commerce	Feb. 16	5	
	Walla Walla Union-BULLETIN	Feb. 16	1	

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Feature on New Library	Columbia Basin NEWS	Feb. 1		3
Shelter Belt Work Planned	Columbia Basin NEWS	Feb. 14	4	
	Walla Walla Union-BULLETIN	Feb. 16	5	
	Spokesman REVIEW	Feb. 16	4	
Bus Fare Increase	Tri-City HERALD	Feb. 7	2	
Rail Strike Hits Hanford	Everett, Wn.	Feb. 7	3	
	Tri-City HERALD	Feb. 8	3	
	Columbia Basin NEWS	Feb. 7	3	
Power Outages	Columbia Basin NEWS and Tri-City HERALD	Feb. 16-28	11	
Richland Water Freezes	Walla Walla BULLETIN	Feb. 2	4	
Recreation Stories	Tri-City HERALD	Feb. 5-28	20	3
	Columbia Basin NEWS			
Civil Defense	Columbia Basin NEWS	Feb. 2	6	
	Columbia Basin NEWS	Feb. 3	8	
	Spokesman REVIEW	Feb. 3	8	
	Walla Walla BULLETIN	Feb. 3	11½	
	Walla Walla BULLETIN	Feb. 4	11	
	Portland OREGONIAN	Feb. 6	4	
	Tri-City HERALD	Feb. 7	2½	
	Columbia Basin NEWS	Feb. 8	4	
	Yakima Republic	Feb. 8	3	
	Prosser BULLETIN	Feb. 8	4	
Union Activities	Spokesman REVIEW	Feb. 22	5½	

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Presentation of Coffin Award	Spokesman REVIEW	Feb. 18	5½	1
GE Stockholders Dividend	Tri-City HERALD	Feb. 27	1½	
McCune's Speech to Soldiers	Tri-City HERALD	Feb. 7	8½	
	Walla Walla BULLETIN	Feb. 8	5	
	Columbia Basin NEWS	Feb. 8	5	
Promotion of McCune	Columbia Basin NEWS	Feb. 8	2	
	Walla Walla BULLETIN	Feb. 8-10	9	1
	Bremerton Sun	Feb. 8	1½	
	Oregon JOURNAL	Feb. 8	1½	
	Yakima Republic	Feb. 8	1½	
	Yakima HERALD	Feb. 8	1½	
	Spokane CHRONICLE	Feb. 8	2	1
	Walla Walla BULLETIN	Feb. 11	1	1
	Corvallis, Oregon TIMES	Feb. 12	1	
Davison Appointed CD Leader	Columbia Basin NEWS	Feb. 10	4½	
	Walla Walla BULLETIN	Feb. 17	7½	
	Seattle TIMES	Feb. 28	7	
	Tri-City HERALD	Feb. 16	4½	
	Yakima HERALD	Feb. 18	2	
	Tri-City Herald	Feb. 26	21	2
Hanford Works Employment	Columbia Basin NEWS	Feb. 2	2	
	Walla Walla BULLETIN	Feb. 2	4	
	Columbia Basin NEWS	Feb. 7	4	
	Tri-City HERALD	Feb. 7	7	
	Walla Walla BULLETIN	Feb. 7	2	
	Columbia Basin NEWS	Feb. 16	5	
	Spokane CHRONICLE	Feb. 16	2	
	Walla Walla BULLETIN	Feb. 16	3½	
	Tri-City HERALD	Feb. 16	2½	
	Tri-City HERALD	Feb. 21	6	
	Columbia Basin NEWS	Feb. 21	2	

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Health Record	Columbia Basin NEWS	Feb. 2	8	
	Walla Walla BULLETIN	Feb. 4	6	
	Spokesman REVIEW	Feb. 5	4	
	Columbia Basin NEWS	Feb. 5	15	1
Safety	Columbia Basin NEWS	Feb. 16	4	
	Walla Walla BULLETIN	Feb. 17	3	
	Tri-City HERALD	Feb. 20	3	
	Walla Walla BULLETIN	Feb. 21	2	
TOTAL			360 col.in.	16

Employee and Community Relations Divisions

Union Relations & Wage Rates Division

Union Relations - Operations Personnel:

The National Labor Relations Board conducted an election on March 23, 1951, to determine whether Richland and North Richland Police and Plant Security Guards should be represented in collective bargaining matters by the International Guards Union of America. The results of the election are as follows:

Eligible voters	561
Votes for	272
Votes against	243

It was significant that the number of non-voters, 46, was sufficient to control the outcome since the union was successful by only 29 votes. At month-end, the Company had not received appropriate notice of certification from the NLRB confirming the Guards Union as the bargaining agent.

The Company received notice from the NLRB on March 7 that the proposed union shop election, requested by the HAMTC, had been indefinitely postponed. This action was prompted by the NLRB's having received a petition for recognition from the CIO. An examiner spent some time during the month verifying the signatures on this petition but at this writing, the Company has received no official word that the petition was a valid document.

The NLRB also advised the Company that they desired a hearing in the case of Village Firemen seeking to be represented by the HAMTC. This hearing will be conducted on April 4, 1951.

Neither the Company nor the HAMTC served notice of their desire to revise or modify their Agreement prior to the established deadline date of March 16. However, the Council did notify the Company on February 12 of its desire to open the Contract for wage discussions. No meeting dates have been set.

The Company was successful in resolving a problem involving the Painters' Local, that posed serious complications. The Painters had gone on record as refusing to consider job assignments during any hours except the regular day shift. The Company has two situations where it is necessary that some maintenance painting be accomplished on a swing shift schedule. The Council had been asked to concur in this shift arrangement but their initial action was one of refusal. After two meetings, the Company was able to convince the HAMTC that any maintenance craft might be required to work during swing or graveyard shifts but that it was our intent to keep such shift work at a minimum. It was also pointed out that production at this plant should not be handicapped by the refusal of maintenance forces to perform certain essential work during hours that production is shut down. It was indicated that if maintenance crafts were to categorically refuse to accept job assignments outside of the day shift, the Company might be forced to subcontract such work with the result that a layoff of plant personnel might become imminent. After due consideration, the Painters' Union acquiesced to the temporary swing shift schedule.

Employee and Community Relations Divisions

Grievance Statistics:

Fourteen grievances were received during the month, bringing the total received this year to 31.

Grievances were sent in this month from the following divisions:

Medical	1
Mfg. Design	1
Mfg. Power	3
Mfg. "S" Division	1
Mfg. "P" Division	2
Mfg. Transportation	1
Security and Services	1
General Maintenance	1
Public Works	2
Housing & Real Estate Maint.	1
Total	14

Employee grievance reports received were regarding the following subjects:

Discrimination	1
Hours of Work	3
Overtime Rates	3
Seniority	2
Information to Council	1
Wage Rates	2
Miscellaneous	2
Total	14

The status of grievances received in 1951 as compared to those received during the same period in 1950 is as follows:

	1951	1950
Received in March	14	25
Received through March	31	65
Settled satisfactorily, Step I in Mar.	8	10
Pending Step II through March	21*	38
Settled at Step II, through March	6	17
At arbitration	3	--

*Includes grievances received in 1950.

Six per cent of the total grievances received this year have been submitted by employees outside the bargaining unit.

There were no grievance meetings held during the month.

Employee and Community Relations Divisions

Union Relations - Subcontractor Personnel:

Regarding isolation pay, the Davis Panel requested on March 22, 1951, that the parties attempt to settle the matter by further negotiations at the local level. The Panel further requested a joint report of progress on negotiations by April 6, 1951. Negotiations have been tentatively scheduled in Portland on April 5, and 6.

The dispute between Atkinson-Jones and the Operating Engineers regarding two working rules is considered by Atkinson-Jones to be settled on the basis of their letter to the Operating Engineers outlining company policy. This dispute was originally scheduled to be heard by the Davis Panel; however, at a meeting in New York prior to the Panel hearing, it was decided the matter could be settled at the local level.

Negotiations with the Painters were concluded on March 14, A tentative agreement was reached granting ten cents an hour effective December 9, 1950, and seven cents an hour effective May 1, 1951 (slight variation in specialty classifications). A new premium of fifteen cents an hour was agreed upon for work on swinging scaffold or boatswain chair.

Representatives of Atkinson-Jones and General Electric had a conference in Seattle with Wage and Hour authorities on March 7, 1951; at that time arrangements were established whereby we were assured prompt decisions on past and future problems. Many questions remained unanswered and Atkinson-Jones, for the Contractors' Negotiating Committee, agreed to draft a letter incorporating those questions and setting forth all increases granted recently with the request that the Board render an opinion as to their validity under Wage Stabilization Board regulations.

Manual workers' (Atkinson-Jones) voluntary quits remained unusually high for the month of March. Below is the average quits per week per 1,000 employed:

	Av. 8-1-50 to 2-1-51	Av. Wk. Ending 3-9-51	Av. Wk. Ending 3-16-51	Av.Wk. Ending 3-23-51	Av.Wk. Ending 3-30-51
All crafts	6.5	15.2	11.9	15.9	17.5
Ironworkers	8.5	34.7	14.5	39.7	18.5
Sheet Metal Workers	10.0	5.1	25.6	15.8	26.7
Plumbers and Steamfitters	6.3	20.9	14.3	25.8	16.4

On September 11, 1950, Atkinson-Jones (on advice of counsel) refused to comply with the NLRB order relative to the Hewes' case. The NLRB, by letter on March 13, 1951, to the Ninth Circuit Court of Appeals, has set machinery in motion to enforce compliance.

It has been reported that the Teamsters will hold representation and union authorization elections in the near future.

Employee and Community Relations Divisions

Requests for Reimbursement Authorizations handled during the month:

1. Asbestos Workers - Wages (G.E. has withheld recommendation for approval at this time)
2. Carpenters - Wages
3. Ironworkers - Wages
4. Roofers - Premium Pay for Pitch or Other Irritable Bituminous Material

Reimbursement Authorizations received during the month:

1. Carpenters - Wages
2. Ironworkers - Wages

Work Stoppages - Actual or Threatened:

The Plumbers' refusal to handle material for Early Company on the basis of (1) pipe fabricated by men paid less than prevailing on the Project, and (2) fittings fabricated by non-union shop, continued in March. Upon request of Monterey (Early piping subcontractor) the Local Joint Board heard this matter on March 2. Their decision was that the refusal was correct, the men were not to handle the pipe.

Nozzles fabricated by the U.S. Pipe and Supply were declared "hot" by the Plumbers' Business Agent on March 7. This refusal to handle was based on the allegation that fabrication was performed by men paid wages less than those prevailing here on the Project. On March 7, Early Company compromised the matter with the U.A., and on March 8, the Business Agent released the fittings, pipe and nozzles. Terms of the compromise were:

(a) "...on any future items under U.A. jurisdiction that can be fabricated on the job and at our option we elect to have fabricated elsewhere, we will send a U.A. member at Union travel pay, wages and expenses, to supervise fabrication."

(b) "We will not fabricate in our Oakland or Torrance Shop any material for this job unless we use Pasco U.A. local men."

(c) "In the event we contract for any additional tank farm work in Hanford....above shall apply."

On March 28, Plumbers walked off the Early job because of certain work being assigned to the Boilermakers. They returned to work on March 30, the Boilermakers continuing the work.

On March 9, 1951, Steamfitters employed by Hanley & Company refused to handle hood bases, etc. Reasons advanced: (1) hoods were fabricated in Portland at wages less than those prevailing on the Project, and (2) fabricated by Machinists rather than Fitters. The Joint Board heard this matter on March 16 and decided: (1) the Fitters would install hood bases, and (2) in the future, the piping on such units will have to be done on the Project.

Employee and Community Relations Divisions

Bay Company (mechanical subcontractor of Hoffman Company) is anticipating difficulty with the Plumbers Union over certain stainless steel pipe currently being fabricated by Western Pipe and Engineering, San Francisco, on a General Electric Purchase Order. In a call to this office on March 19, the Plumber's Business Agent objected to "G.E. policy" of utilizing vendors on the basis of: (1) violation of Davis-Bacon, (2) violation of the terms of the Washington State Agreement, and (3) violation of jurisdiction between Building Trades and Metal Trades Unions. The attitude of the local office of the U.A. regarding installation of piping, etc. fabricated elsewhere, is of such magnitude and potential seriousness that this office is making every effort to bring about a satisfactory solution as expeditiously as possible.

On March 5, 1951, eleven Operating Engineers employed by Atkinson-Jones Minor Construction on the 241-U tank farm refused to comply with an order to remain in the area during working periods. A work stoppage resulted, and the Operators were terminated by the contractor. Through their Business Agent, these men listed conditions as necessary for a return to work: (1) the order be rescinded, (2) payment for lost time as a result of the dispute, and (3) the crew not be split up. A resumption of work was accomplished on March 8 by the transfer of Operators from other jobs to the tank farm. Originally, Atkinson-Jones held that they had exercised a management prerogative in discharging these men and refused to rescind the order or make payment for time not worked. But on March 13, it was agreed that the eleven men involved would be put back to work and Atkinson-Jones further agreed to handle the claims of the eleven men under the Disputes Article of the contract. (This office has insisted to Atkinson-Jones that the matter is not subject to the Disputes Article).

During March, the Cement Finishers Union refused to furnish men on Atkinson-Jones' requisition. Reason set forth by the Union for this action was Atkinson-Jones' refusal to recognize January 1 as the effective date for their increase from $2.20 to $2.40 an hour. Atkinson-Jones has been dilatory in handling this matter, and is being pressed by General Electric to conclude it.

A comparable situation occurred with the Ironworkers Union. They refused to furnish men until agreed-to increases were actually placed into effect. Atkinson-Jones has been dilatory in handling this matter, and is being pressed by General Electric to conclude it.

Atkinson-Jones has been informed by the Puget Sound Sheet Metal Works, Seattle, that there is strong possibility of a strike developing in the Metal Trade industries beginning April 2. Two crafts, Boilermakers and Welders, who very probably will be involved, are employed in this shop. This Atkinson-Jones' vendor is to furnish material and erect 19 tanks. This office is prepared to assist in the event an actual work stoppage occurs.

A threatened strike with the Roofers on March 1 was sucessfully avoided by Atkinson-Jones. Reason for the Union's action was because they were failing to receive a higher rate while applying hot pitch roofing material. Atkinson-Jones conducted a survey regarding this higher rate, and a Request for Reimbursement Authorization for $2.50 an hour while handling pitch or other irritable bituminous material was received from Atkinson-Jones on March 22 and forwarded to the Commission March 26, 1951, with this office's recommendation for approval thereof.

Employee and Community Relations Divisions

Wage Rates:

The annual Northwest Area Wage Rate Survey was completed. The report illustrating the results of this survey is being printed as of this date for distribution to the participating firms in approximately one week.

A special survey to obtain rates paid Designers and Draftsmen throughout the Pacific Coast area was completed during this month. The survey included thirty-six established architectural engineering firms. This report indicated that General Electric Company rates are out of line with area rates. As a result of this study, steps are being taken to obtain approval of the Wage Stabilization Board to increase the rates of Design and Draftsman classifications. The relief is being sought under General Wage Regulation #6 as a "rare and unusual case."

In this connection, a visit was made to Seattle offices of the Wage Hour and Public Contract Division, Department of Labor, to confer with officials regarding wage stabilization problems. A certification was obtained from the Department of Employment Security that a serious manpower shortage exists in this area and that the General Electric Company should have rate relief for Draftsmen and Designers.

As a supplemental effort to alleviate the rate difficulties in these classifications, a request for a ruling by the Wage Stabilization Board as to the existence of a plan on January 25, 1951, for granting merit increases to Designers.

In cooperation with the Technical Personnel Office, classifications and rates were established for a new program involving the employment of college juniors during the summer months. Under the program, these students would be hired for the summer months at the starting rate of either Laboratory Assistant "A" or Engineering Assistant "B", depending upon their assignment.

A request for approval of a new classification, Chlorinator Serviceman, was prepared for submission to the Wage Stabilization Board. This proposed classification has the concurrence of the HAMTC and is designed to properly classify the men servicing chlorinating equipment.

Revised job description manuals reflecting the 3% horizontal increase of September 18, 1950, for all unit personnel were issued during the month.

The study of all non-unit clerical jobs in the Medical Division has been completed. In a few instances where personnel changes were under immediate consideration, recommendations were acted upon. Other recommended reclassifications will be acted upon shortly.

Negotiations with representatives of the HAMTC regarding Instrument Specialist work was conducted periodically during the month. Write-ups of all work performed by craftsmen in the Instrument Division were submitted by foremen and reviewed by HAMTC representatives, Wage Rate and Instrument Division supervision.

Information was assembled concerning patrol personnel for use in checking the Richland and North Richland Police and Plant Security Patrolmen in connection with the election conducted by the National Labor Relations Board on March 23.

Employee and Community Relations Divisions

Insurance, Workmen's Compensation and Suggestion System :

Suggestion System

	February, 1951	March, 1951	Total Since 7-15-47
Suggestions Received	124	168	6415
Investigation Reports Completed	160	103	
Awards granted by Suggestion Committee	45	22	
Cash Awards	$ 410.00	$ 220.00	
Estimated Savings	2,043.08	1,854.12	

The largest single award made during the month of March was to an employee in the Electrical Division for his suggestion concerning a grease gun filled with Aquadag to be used in the installation of the electric heater elements on Hood 19 furnaces. The proposed method saves on labor and is an improvement in the workmanship of the job.

Life Insurance

Code information which is known only to Home Office Life Underwriters Association has been furnished 58 insurance companies and investigation agencies during the month of March, 1951. 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	February, 1951	March, 1951	Total Since 9-1-46
Claims reported to the Department of Labor and Industries	57	135	4215
Claims reported to Travelers Insurance Co.	7	5 *	490

* Of the above claims reported during March to the Travelers Insurance Company, all were property damage claims.

MUNICIPAL, REAL ESTATE AND GENERAL SERVICES
ACCOUNTING DIVISION

MONTHLY REPORT FOR MARCH, 1951

ORGANIZATION

Employees - Beginning of month	32	Exempt	5	Male	10
Transfers In		Non-Exempt	27	Female	22
Transfers Out	1		32		32
New Hires	1				
Terminations	—				
Total end of month	32				

RENTS

House Leases Processed	March	February
Total active leases beginning of month	5,722	5,715
New leases	85	74
Cancellations	118	67
Total active house leases end of month	5,689	5,722
Modifications	15	16
Dormitory		
Total occupancy beginning of month	1,020	988
New assignments	161	123
Removals	136	91
Total occupancy end of month	1,045	1,020
Rental Revenue was as follows:		
Equipment	$ 18.80	$ 18.80
Houses		
Basic Rent	196,605.90	198,292.79
Electricity	48,300.20	48,554.66
Water	7,986.16	8,039.70
Steam	1,861.08	1,780.80
Dormitory	14,113.05	13,967.86
Facility		
Basic Rent	26,392.56	29,636.55
Electricity	3,433.92	3,433.92
Water	490.00	490.00
Steam	7,053.15	6,724.69
Utilities - Electrical	1,808.28	1,837.73
	$308,063.10	$312,777.50

TELEPHONE

Number of work orders processed	327	169
Number of working telephones	5,028	5,068
Revenue including services	$ 18,447.32	$ 18,559.02

MUNICIPAL, REAL ESTATE AND GENERAL
SERVICES DIVISIONS
SUMMARY-MARCH, 1951

ORGANIZATION AND PERSONNEL

Number of employees on roll:		Beg. of Month	End of Month
Administration		12	13
Accounting		32	32
Engineering & Contracts		34	34
Municipal Divisions	(Total 226)		
Public Works		104	97
Parks & Recreation		33	32
Police (Richland)		41	40
Fire (Richland)		54	54
Public Safety		3	3
Real Estate Divisions	(Total 217)		
Housing & Real Estate Maintenance		203	204
Commercial & Other Property		12	13
General Services Divisions	(Total 129)		
Steam & General Maintenance		79	77
Patrol (North Richland)		19	20
Fire (North Richland)		34	32
		660	651

There was a decrease of nine employees in the Divisions during the month of March, 1951.

GENERAL

The Richland Investment Company building commenced operation on March 30, 1951, with the following businesses as sub-lessees; McKay's Variety Store, The Wren House, Wiley's Shoe Repair Store and an optometry office operated by Dr. Charles A. McCartney.

Total Housing applications pending - 508.

HARoot/jak
4/11/51

Municipal, Real Estate and General
Services Accounting Division

MISCELLANEOUS

	March	February
Invoices prepared during month	304	346
Revenue derived from invoices	$ 6,115.26	$ 6,344.67

GENERAL

Sixty-one collection letters were written resulting in the collection of fifty-nine delinquent accounts were collected.

Yakima Adjustment Service

Previously submitted 47 accounts	$ 732.65
Submitted in March	-0-
Collected by Yakima Adjustment Service	58.68
Collected by General Electric Company	87.84
Balance Agency Accounts	$ 586.13

Fifty-four of the seventy-three active telephone accounts delinquent thirty days or more as of February 28, 1951, were paid during the month,

ACCOUNTS PAYABLE

Statistics	March	February
Accounts payable vouchers	372	272
Freight Bills processed	27	22
Purchase orders received	126	92
Net amount of purchase orders	$ 33,211.17	$ 20,937.78
Receiving Reports received	157	116
Total net amount disbursed	288,637.22	209,775.10
Number of checks issued	270	210

A summary of Active Subcontracts is shown below:

Subcontractor	Subcon. Number	Amount Awarded	Paid This Month	Total Paid	Amount Retained
Newland Cafeteria	-----	170.30	11.80	170.30	-0-
Richland Maintenance Co.	-----	167,898.18	7,189.58	167,898.18	-0-
West Coast Painters Co	G-219	63,037.91	4,291.64	63,037.91	-0-
Associated Engineers	G-305	126,133.65	22,434.16	136,017.76	7,158.83
Grant, Algot C.	G-318	26,956.59	-0-	23,100.54	615.00
Packard Pipe & Pump Co.	G-326	12,336.00	3,807.00	5,976.22	664.03
C&E Construction Co.	G-328	173,575.45	-0-	165,644.44	8,678.77
F. O. Repine Co.	G-329	29,263.00	-0-	3,950.50	438.95
Pasco Electric Co.	G-331	7,035.70	351.79	7,035.70	-0-
Erwen, Edmund P.	G-334	16,000.00	-0-	-0-	-0-
Baldwin-Dunham Co.	G-343	652,080.00	185,285.14	350,157.72	32,604.00
Roof Service, Inc.	G-350	59,879.00	3,848.49	3,848.49	427.61
Commercial Paint. & Dec. Co.	G-353	19,600.00	-0-	-0-	-0-
Patton & Hill	G-360	8,100.00	-0-	-0-	-0-
		1,362,065.78	227,219.60	926,837.76	50,587.19

Municipal, Real Estate and General
Services Accounting Division

COST

Reports

The February Operating Report was issued March 19. 1951. The Comptroller Appropriation Report and Supplemental Report were issued on March 15, 1951. The February Utilities Report was issued March 27, 1951. The Construction Budget Status Report was issued March 16, 1951.

Budget

Meetings were held with Division Managers, AEC Office of the Budget and the AEC Office of Community Management concerning each detailed Divisional Budget. This method of approaching the budget, approving as it is compiled has been very beneficial to Budget preparation.

Service Orders

	QUANTITY (A)		LABOR COSTS		MATERIAL COSTS		TOTAL COSTS	
Code	Feb.	Mar.	Feb.	Mar.	Feb.	Mar.	Feb.	Mar.
1	1,375	1,272	$2,616.95	$2,489.05	$2,101.69	$2,360.01	$ 4,718.64	$ 4,849.06
2	2,922	2,665	3,374.30	3,056.42	4,571.02	4,545.10	7,945.32	7,601.52
3	533	409	1,180.79	724.10	1,182.41	946.31	2,363.20	1,670.41
4	4	5	3.32	4.50	-0-	-0-	3.32	4.50
5	274	278	735.21	630.21	1,554.45	1,081.93	2,289.66	1,712.14
6	358	330	901.95	1,179.50	325.92	548.52	1,227.87	1,728.02
9	15	5	73.85	31.85	50.62	11.84	124.47	43.69
	5,481	4,964	$8,886.37	$8,115.63	$9,786.11	$9,493.71	$18,672.48	$17,609.34
Difference (B)	-517			- 770.74		- 292.40		-1,063.14
Average Cost (C)			1.62	1.63	1.79	1.91	3.41	3.54

(A) Quantity covers the number of Service Charges made since each Service Order often includes several charges.
(B) Over (+) or Under (-) Previous month.
(C) Average material cost increased even though the actual Service Order count was lower than previous month.

1 Plumbing
2 Electrical
3 Heat & Vent.
4 Glazing
5 Lock & Key
6 Carpentry
9 Sheetmetal

Work Orders

	January	February	March	Net Change
Active Routine	285	288	286	- 2
Active Normal	2,920	2,974	2,610	- 364
	3,205	3,262	2,896	- 366
W. O. Received	1,440	1,578	1,289	
W. O. Completed	1,548	1,521	1,655	
	- 108	+ 57	- 366	

GENERAL LEDGER

	No.	Debit	Credit
Second Class Invoices Received	78	$486,895.05	$228,827.85
Second Class Invoices Issued	97	245,614.97	95,998.76

ENGINEERING AND CONTRACTS DIVISION
MONTHLY REPORT
MARCH 1951

ORGANIZATION AND PERSONNEL

Number of employees on payroll	Exempt	Non-Exempt	Total
February 28, 1951	18	16	34
March 31, 1951	20	14	34

ENGINEERING SECTION

Report on extended engineering service requests:		Completed during March
ESR-97-CH	Electrical and structural inspections	5
ESR-98-CH	Alteration inspections	2
ESR-118-CH	Approve alteration permits	4
ESR-159-CH	Survey work to check tenant drainage	1

The following engineering service requests were completed and closed out:

ESR No.	Title and Remarks
402-PW	Wright Avenue from Thompson to Duportail: Closed out 3-26-51.
453-CF	Recreation Hall Alterations
474-PR	Heating System -- 1125 Warehouse
476-CF	Heating -- Seattle First National Bank
477-RM	Relocation of Access Panels in U and V Houses
486-RM	Relocation of Partition in Housing Office
490-RM	Ranch House Roofs
508-RM	Prefab Rehabilitation -- Part II
520-RC	Study Veterinary Site: Closed out 3-30-51.
533-MU	Grade for Sewer Line, Men's Dorms: Closed out 3-9-51.
535-MM	Surface Treatment -- Goethals Drive between Gillespie & Knight: Closed out 3-26-51.

Progress report on ESRs that will become projects:

ESR No.	Title and Remarks
112-CH	Study Sagging Floors in M, Q, R, and S Houses: Temporarily deferred for other work. 75% complete.
262-CA	Water and Sewer to Assembly of God Church: This has been combined with Chief Joseph School fire protection; however, since these projects are from two different budget items, it was decided to separate the projects. Manager's approval is being prepared by Public Works.
303-CH	Study Excessive Settlement of Precut Houses -- Floors: Temporarily deferred for other work. 40% complete.
314-CH	Rewiring Tract House L-901: Information requested from Housing Division 3-26-51. 40% complete.

Engineering and Contracts Division (continued)

ESR No.	Title and Remarks
341-SS	Roads and Walks -- 700 Area: Project proposal and cost estimate prepared.
458-SS	Floors, Foundations, Load Factors in 700 Area Buildings: Work progressing. 25% complete.
468-SS	Lighting Study -- 703 Building: 90% complete. Project proposal, cost estimate, and results of survey have been prepared.
479-PW	Fire Protection for Chief Joseph School: Approved by Manager, Municipal, Real Estate and General Services Divisions; also by the A & B Committee. It has been submitted to the AEC for approval.
484-SS	Sprinkler and Fire Alarm System -- 703 Building: 98% complete. Recommendation report being reproduced and assembled.
492-MF	New Central Fire Station -- Engineering and Design: Decision to continue this work to be made by A. J. Delong.
500-RM	Exterior House Painting -- Divisions II, III and Ranch Houses: Deferred for other work.
506-RM	Vent Covers, U and V Houses: Deferred for other work.
509-MS	Fire Prevention Protection Survey, Dormitories M-9 thru M-11: 50% complete. Work progressing.
524-SS	Addition to 721 Building: Work progressing. 5% complete.
525-SS	Remove Building 720 and 720 Hutment: Work progressing. 25% complete.
526-SS	Floor Covering for All Permanent Buildings in 700 Area: Scheduled for 6-20-51.
527-SS	Permanent Lighting -- 700 Area Permanent Buildings: Preliminary investigation started. 1% complete.
531-RC	Heating Depot Cafe -- Bus Depot: Study scheduled for completion 5-3-51.
538-SS	Remodeling 712-A Building: 75% complete. Project proposal submitted 3-19-51. Plans and specifications completed.
543-RC	Removal of Pre-School Nursery Building: Scheduled for completion 4-12-51.

Private Construction Progress Report (Plans were reviewed and regular field inspections were made in compliance with building permit requirements.)

Catholic Church Site: Awaiting information.

Reorganized LDS Church: 75% complete. Work progressing slowly.

Northwest United Protestant Church: 95% complete. Work progressing slowly.

Westside United Protestant Church: 30% complete. Work progressing slowly.

Assembly of God Church: 7% complete. Work progressing slowly.

First Baptist Church: 2% complete. Construction temporarily stopped.

Episcopal Church: Awaiting information.

Redeemer Lutheran Church: 90% complete. Work progressing.

Christian Science Society: Awaiting information.

Richland Laundry and Cleaners Addition: 99% complete. Final inspection to be made.

Addition to Masonic Temple: 90% complete. Work progressing.

Outdoor Roller Rink: 21% complete. Construction started again 3-26-51.

Free Methodist Church: Awaiting information.

Richland Lutheran Church Front Addition: Comments transmitted to A. J. Delong 1-3-51.

Richland Investment Company Building: 95% complete. Work progressing.

Recreation Hall: 100% complete. Final inspection held 3-20-51.

Desert Inn (Improvement Fund): Plans are being reviewed.

Status of "C" Type Projects (Over $20,000) is as follows:

C-232 Pt. 2 — Contractor has resumed work on area: patching, spot seeding and routine watering. The area near the school on the southeast side was damaged by a water line break on the fire loop. This area will be reconditioned by project forces. (Carmichael Junior High School)

C-282-R — Grass Seeding - Columbia Playfield: Contractor has resumed work on area and will proceed with lawn seeding. Contract time may necessarily have to be extended if cool weather continuos and retards growth of grass stand. Site grading in this area complete with exception of small section around the pump house, which will be done when the fence around the pump house is changed.

C-351 — <u>Irrigation of Public Grounds:</u>

A. Frankfort Playground: Irrigation system is complete with the exception of lowering heads.

B. Riverside Park: Irrigation system is complete and is being operated. Contractor's work complete except balancing and adjusting system.

C. Marcus Whitman Grade School: Irrigation system complete except for balancing and adjustment of system and lowering of heads.

C-356 Recreational Facilities and Equipment for Schools and Public Grounds:

A. Restroom - Memorial Park: Construction started 3-23-51. 5% complete.

B. Recreation Equipment (Prefabricated): Installation 90% complete.

C. Recreation Equipment (Field Construction): 75% complete.

C-363 Rehabilitation of Prefabs: Construction 75% complete. Revised cost estimate prepared for 633 prefabs.

C-382 Well 1100-D, Duke Well Field: Work by subcontractor has not been resumed since it was requested that same be suspended on 2-8-51 due to change in size of pump equipment to be installed. The large 2000 gpm pump and motor which are furnished by the contractor were received during this period. The construction of the recharge basin for this project was completed. The work was performed by the General Electric Construction Division. Work will be resumed by the subcontractor as soon as negotiations can be completed by the Contract Section with the subcontractor on the adjustment of price increase for installation of larger equipment. A directive modification requesting extension of time has been prepared.

C-387 Interior Painting of 16 Dormitories: Work started 3-1-51; approximately 14% complete. Modification of directive requested to extend time.

C-400 Re-roofing, Siding, Painting — 700 Area Buildings: Work started 3-21-51. 5% complete.

C-408 Additional Erosion Control and Shelterbelt Planting: Work at sewage disposal plant 80% complete. Plans and specifications on shelterbelt are in the hands of the Contract Section, ready for processing and letting of bids. Tapping of mains and clearing site of temporary construction will be started during the month of April.

C-425 Park Development Program: Site plan for Richland Public Library is complete with estimated quantities. Irrigation plan approximately 20% complete. Site development plan for Columbia Playfield has been started. Negotiations are under way for the work at Chief Joseph Junior High School. Preliminary planting studies have been completed on Richland Public Library, Spalding Playground, Marcus Whitman Playground, Frankfort Playground, and Roberdeau Playground. Project proposals and cost estimates have been prepared.

C-426 Additions and Alterations to Existing Streets and Additional Sidewalk, Curb and Gutter Construction, Richland, FY 1951.

A. Van Giesen: Design completed with exception of few elevations to be ironed out. Plans have been approved by the Municipal Divisions.

B. Wright Avenue: Design work completed with exception of checking and approvals.

C. Symons Street: Topog and cross sections plotted.

D. George Washington Way (South): Field work under progress; plans and profile completed. Cross sections 70% plotted. Balance of work being processed.

E. Swift Boulevard: Topog and cross sections plotted.

F. George Washington Way (North): Field notes being processed.

G. Chief Joseph Junior High School: Topog plotted.

C-436 Rehabilitation of 380 Prefabs: Foundation replacements and water service alterations started. Letter requesting transfer of funds written and request for directive modification prepared. Cost estimates prepared.

C-437 Rehabilitation of 328 Prefabs: Cost estimates prepared.

The status of "S" projects ($5,000 to $20,000) is as follows:

S-255-B <u>Grass Seeding</u>

A. Frankfort Playground: Reseeding will be necessary in a large portion of the area.

B. Marcus Whitman: Site grading 95% complete. Lawn seeding will be done the first ten days in April.

S-299 Radio Communication System for Fire Department: Contract sent to Motorola for approval.

S-321 Steam Pits to Dormitories: Plans being revised.

S-333 Air Conditioning in Dormitories: 100% complete. Construction completion notice issued 3-19-51.

S-350 Improvement of Lighting in 705 Building: Material scheduled for delivery 4-5-51.

S-362 Water Service Alteration to Prefabs: 100% complete. Construction completion notice to be issued. Letter requesting transfer of funds prepared.

S-379 Interior Painting of Prefabs: Specifications complete. List of bid items to be issued 3-30-51.

S-405-B Additional Erosion Control: 254 new trees were planted during the month bringing the total to 1060. With the advance of growing weather, it is probable that this work will be curtailed before the end of April.

Engineering and Contracts Division (continued)

S-415 Hospital Soft Water System: Bids were opened 3-7-51. It was determined after opening of bids that adequate funds were not appropriated for construction of the project. The awarding of this contract is being held up pending approval of additional funds.

S-443 Repair of Docks and Outside Stairs -- 700 Area Buildings: Project proposal and cost estimate prepared.

S-450 New Fencing -- Riverside Park: Preparing plans and specifications.

S-469 Site Preparation -- 703 Building: Project proposal prepared and submitted to B. R. Hennigar.

The status of "L" projects ($2,000 to $5,000) is as follows:

L-017 Renovation of Tract House NN-1040: Field Release #1 issued 3-22-51.

L-307 8" Water Line, Guthrie-Williams: Bids opened 3-7-51. It was determined after opening of bids that adequate funds were not appropriated for construction. The awarding of this contract is being held up pending approval of additional funds.

L-330 Heating "T" Type Houses: Rough draft of specifications transmitted to M. T. Binns 3-23-51.

L-483 Fire Damage Repair -- 1313 Potter: Field Release #1 issued 1-31-51. Plans and specifications complete.

L-512 Humphreys Street 8" Water Main -- Wright to Winslow: This project has been completed and final inspection reports submitted.

The status of "K" projects (under $2,000) is as follows:

K-535 Surface Treatment -- Goethals Drive: Field Release #1 issued 3-12-51.

Review of plans and specifications for AEC and other divisions is as follows:

ESR-501-AEC Jason Lee Elementary School: 95% complete. Some contract work to be done. Staked building line and elevation.

ESR-541-EC New Bio-Assay Laboratory Construction Drawings: Plans reviewed 3-30-51.

CONTRACT SECTION

C-356 Fence and Backstop, Columbia Playfield: Specifications revised. Bid opening scheduled approximately 5-10-51.

C-356-R Columbia Playfield Lighting System: Notice to proceed given Witzig Electric Company 3-27-51.

C-357 Additional Capacity -- Sewage Lift Station: Partial shipment of material scheduled for arrival 4-9-51.

C-363
C-436 Rehabilitation of Prefabs: Work has progressed to approximately 80% of completion. Modification to include 380 units approved by AEC 3-23-51 and subcontractor is preparing schedule.

Water service alteration approved 3-16-51, HW Directive No. 228, Modification #1, and is being added to Associated Engineers' contract.

C-372 Exterior Painting of Houses: Contract suspended until 4-19-51.

C-382 Well 1100-D, Duke Well Field: Negotiating with subcontractor for lump sum price adjustment.

C-407 Bathtub, Tileboard, and Linoleum Installation -- Conventional Type Houses: Bid opening postponed until 4-6-51.

S-244 Fencing -- Wright to Van Giesen: Specifications revised. Bid opening will be held approximately 5-10-51.

S-321 Steam Pits to Dormitories: Request for bids delayed pending review for adequacy of funds.

S-366 Exterior Painting Hospital, Medical-Dental Building, Municipal Building: Contract and request for award transmitted to AEC and recommended for award to Collins & Babcock, Prosser, Washington.

S-379 Interior Painting Approximately 675 Prefabs: Contract services requested 4-4-51. Bid opening scheduled for 4-24-51.

S-450 Fencing Riverside Park: Field Release #1 dated 2-23-51 received. Awaiting plans and specifications to request contract services.

S-477 Service Access Panels "U" and "V" Type Houses: Field release received 3-9-51. Awaiting plans and specifications to request contract services.

S-485 Exterior Painting -- 243 Houses: Bids are to be opened 4-17-51.

K-430 Exterior Painting -- Two Churches. Contract and request for award sent to AEC and recommended for award to Collins & Babcock, Prosser, Washington.

L-312 Humphries 8" Water Main — Wright to Van Giesen: Field release dated 1-26-51 received. Contract of Associated Engineers being modified to include this work.

L-330 Heating Equipment in "T" Type Houses: Field release dated 1-26-51 received. Awaiting plans and specifications to request contract services.

L-353 Resurface Tennis Courts: Field release dated 3-19-51 received. Awaiting plans and specifications to request contract services.

L-404 Fencing Barth Playlot: Specifications revised. Bid opening will be held approximately 5-10-51.

During the month of March, six subcontractors were engaged in work in Richland and payments to subcontractors during the month totaled approximately $220,018.22.

MUNICIPAL DIVISIONS

SUMMARY

MARCH, 1951

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
Fire	53	1	53	1
Parks & Recreation	13	20	13	19
Police	16	25	16	24
Public Works	19	85	16	81
Public Safety	2	1	2	1
	103	132	100	126

Since the establishment of the Municipal Divisions in September, 1950, at which time 280 assigned employees were working in the Municipal Divisions, a gradual concentration of improving operating efficiency has taken place until at the present time there are 226 employees. This has been accomplished even though there have been additional responsibilities added to the operation, such as the Library, which now employs seven people, and there are three employees on a full-time basis loaned to the Civil Defense Organization, which was reorganized in February.

The present number of employees will constitute our permanent force unless further reductions can be satisfactorily accomplished. Seasonal grounds maintenance work and twice a week waste collection will tend to increase the number of personnel employed during the summer months.

PUBLIC WORKS DIVISION
MONTHLY REPORT
MARCH 31, 1951

ORGANIZATION AND PERSONNEL

		Preceding Month
Number of Employees on Roll:		
Beginning of Month	104	103
New Hires	1	2
Transfers In	8	1
Terminations	3	1
Transfers Out	13	1
End of Month	97	104

SANITATION

Collection and disposal of garbage and trash was performed according to schedule throughout March. This section has been relieved of the responsibility of picking up discarded paper and other litter in the commercial, real estate, and park properties in the down-town and up-town areas, and has reduced its force by one employee through elimination of this duty.

Total weight of waste material collected during March was 889.8 tons, as compared to 841 tons collected in February.

Plans have been completed for re-scheduling of residential collections to a twice-weekly basis on May 1st, and these plans permit equalization of the time interval between collections on all routes.

EROSION CONTROL

A total of 254 new street trees were set this month, and 302 replacement trees were planted for the Real Estate Division. Burning of weeds along the drainage ditches and well percolation basin was started and is still in process when weather conditions allow. This work is part of the Mosquito Control Program and is at the cost of the Public Health Division. Spraying of American Elm street trees was also started this month and continues when wind conditions permit. This conservation program is at the cost of Real Estate Divisions.

Municipal - Public Works

ROADS AND STREETS

Average daytime temperatures are now conducive to efficient working of cold-patch bituminous compounds, and crews have started a concentrated program on patching of potholes in street pavements.

Removal of excess stone chips from streets that had a seal-coat application in 1950 is now in process and will be completed in April.

Replacement of 10 street markers and 101 traffic control signs was completed during March.

The major part of materials required for the pedestrian-actuated traffic signal at the Recreation Hall cross-walk has been delivered, but installation is awaiting receipt of the push-button box and switches.

Clearance distances under all traffic signals have been checked, and those signals that were lower than accepted standards have been raised to allow a minimum clearance of 14'-6".

Routine maintenance of streets, sidewalks, and storm and surface drainage systems, and street sweeping, continued according to schedules.

DOMESTIC WATER

Normal operations continued during March, and average daily water consumption was 5.39 million gallons per day. This daily consumption is .45 million gallons higher than February averages, and is an anticipated seasonal increase.

Well 1100-8 was overhauled and returned to service, and Wells 3000-A and E were overhauled and re-installed. However, a test run on the 3000-E Well resulted in extremely excessive heating of the rotor of the 2300 V. motor. The entire motor has been removed and sent to the 200-E area motor shop for tests and possible repair.

Water was run into the 3000 Area Well Field percolation basin on 3-22-51, and a raise of 10 feet in the water table has been effected by 3-28-51.

The Richland well field re-charge basin has been cleaned and scraped for more efficient percolation, and this work was performed in such a manner that the basin will also provide a boating and fishing area for children after the water has been run in and the resulting lake stocked with fish.

DOMESTIC WATER (CONTINUED)

The old hog-wire fence along the west side of Wellsian Way has been removed and it will be replaced by a string of posts which will provide a line of demarcation between the road and the lake area.

Water mains have been tapped and isolation valves installed at several locations to provide water service to new mains installed by a sub-contractor on the Fourth Housing Addition Project.

Domestic Water System

	Well Production Million Gallons	Avg. Daily Production	Total Consumption Million Gallons	Avg. Daily Consumption
Richland	23.4100	3.3442	32.5548	4.6507
North Richland	17.4640	2.4949	9.0117	1.2874
Columbia Field	5.7846	0.8264		
300 Area			5.6421	0.8060
Totals	46.6586	6.6655	47.2086	6.7441

SEWERAGE SYSTEM

Routine operation of the Treatment Plants was continued during March. The sludge pump has been packed with rawhide in an attempt to eliminate considerable gland maintenance that has been required on this pump. The control point of the wet well high level alarm has been lowered to allow operators a longer time interval in which to investigate and correct a failure at this point.

The wet well at the Sewage Lift Station which receives sewage from the Swift Boulevard trunk line has been altered to lower the back-up level in this line. This was done to promote a better flow in this trunk line and to eliminate development of septic sewage.

A program for control of root growth in sewer lines through use of copper-sulphate, (which is flushed into the lines from residence toilets), was started this month, and treatment was completed at 450 locations in Division I.

Approximately 170' of sewer main and 2 man-holes were installed west of Dormitory M-6. This new line and the man-holes replace an old line that was torn out by a sub-contractor working on the Fourth Housing Addition.

SEWERAGE SYSTEM (CONTINUED)

Sewerage

	Total Sewage Flow Million Gallons	Average Daily Flow Million G. P. D.	Average Rate Flow Gals. Per Min.
Plant No. 1	6.460	0.922	641
Plant No. 2	11.852	1.693	1.176
Totals	18.312	2.615	1,817

IRRIGATION SYSTEM

Water was turned into the canals to the "Penstock" and to North Richland on 3-22-51, and will be brought into Richland on 4-4-51.

A 10' Cyclone fence was installed from the toe of the hill southeast of Carmichael School to the effluent end of the irrigation canal culvert just south of the school, and thence along the west bank of the open canal to a point south of the Masonic Hall. The posts for this fence had been set some time ago, and completion was accomplished through a work order to the Minor Construction Division. Further protection on the west side of this same canal was provided by installation of a 5' hog-wire temporary fence from the cyclone fence termination to a point about 100' south of Sanford Street extended.

All pumps and motors in the Irrigation Pumphouses have been serviced and are ready for operation. Testing of the distribution grids will begin as soon as water reaches the pumps, and each system will be placed in service when repairs to lines and risers have been completed. It is anticipated that all pumphouses and grids will be operating by the first part of May.

MONTHLY REPORT
PARKS AND RECREATION DIVISION
March, 1951

ORGANIZATION AND PERSONNEL

	March	February
Beginning of month	33	34
New Hires	1	5
Terminations	1	5
Transfers - IN	2	0
OUT	3	1
	32	33

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of March 31, 1951:

Administration	6
Principals & Supervisors	15
Clerical	24
Teachers	244
Health Audiometer	1
Building Custodians	39
Cooks	40
Nursery School & Extended Day Care	11
Bus Drivers	2
Farm Manager	1
	383

CLUBS AND ORGANIZATIONS

As of February 28, 1951, organizations' personnel, exclusive of those included in the Real Estate-Commercial Facilities Division report, include:

Youth Council - Chest	1
Boy Scouts	1
Camp Fire Girls	2
Hi-Spot Club	2
Girl Scouts	2
Justice of the Peace	1
Y.W.C.A.	2
	11

The Parks and Recreation Board held its monthly meeting on Thursday, March 8, 1951, in the reception room of Building W-20. The Board recommended that the Y.W.C.A., as an agency of the Community Chest and co-sponsor of programs with the Parks and Recreation Division, should receive free use of the Community House for activities. The proposed traffic courtesy notice as prepared by the Parks and Recreation Division was approved. In order to observe the Community House programs and due to spring vacation it was decided to hold the April meeting on March 28, 1951, in the conference room of the Community House. At this meeting the Wellsian Way Lake boating regulations were approved.

Parks and Recreation Division

On March 16, 17, and 18, the Women's Tri-State Amateur Basketball Tournament was held in the gyms at the Columbia High School. The team from Whitworth College of Spokane, Washington was the winner of the Tournament.

The United Churches of Richland held a Sunrise Easter Service in the Bomber Bowl on March 25, 1951. The Parks and Recreation Division arranged for the loan of 200 folding chairs and an amplification system to be used in the Easter Service.

On Friday, March 30, 1951, Safety Awards were presented by Mr. Marion W. Boyer, General Manager for the Atomic Energy Commission to the A.E.C., General Electric Company, and the Keller Corporation for honors earned among national Atomic Energy Commission contractors in five safety records. The awards were made on the Plaza north of the Post Office Building with the Park Maintenance group providing the temporary platform.

On Saturday, March 30, 1951, the Richland Little League members began the installation of cyclone fencing on the Jefferson Playground area. The Parks and Recreation Division arranged for the loan of a government truck equipped with post hole digger for use in erecting the fence.

The number and types of organizations presently served by the Parks and Recreation Division include:

Business and Professional Clubs		20
Churches & Church organizations		27
Civic organizations		5
Fraternal organizations		24
Music & Art associations		8
Recreation and Hobby groups		44
School & Parent Teachers assoc.		13
Social Clubs and organizations		11
Veteran & Military organizations		12
Welfare		6
Youth	Boy Scouts	20
	Camp Fire Girls	36
	Girl Scouts	49
	Miscellaneous	10
Miscellaneous		9
		294

RECREATION

Final arrangements were made for the Minnesingers' Spring Concert to be held April 6, 1951, at the Carmichael Junior High School.

The annual Kite Contest, sponsored by the Parks and Recreation Division, was held at Columbia Playfield at 2:00 PM, Saturday, March 10. Award certificates

were presented first, second and third place winners in the following events:

1. Furtherest Flyer - bow kites
2. Furtherest Flyer - box kites
3. Kite Antics (any style)
4. Prettiest Kite
5. Smallest Kite.

Kite making instructions were given at the Community House Saturday, March 3, at 9:00 AM.

The annual Easter Egg Hunt was held at Riverside Park on March 25, at 2:00 PM. Boys and girls were divided into two age groups; 3 - 5, and 5 - 6. Twenty-two of the 1,080 eggs were numbered and received prizes. Numbers 1 - 12 received large, fancy decorated chocolate eggs and numbers 13 - 22 received 10 tickets each for free rides at the local Amusement Park.

Eggs were provided by the Richland Villagers, Inc. Both Camp Fire Girls and Bluebirds participated in dyeing eggs. Boy Scout Troop #147 patroled the grounds and gave valuable assistance.

The Community House Supervisor surveyed Community Houses in Seattle on March 19.

The Recreation Clerk (female) at Community House was transferred to the Technical Division on March 26, 1951. A temporary replacement from the Real Estate Division will serve in this capacity until a permanent female worker is employed. It is felt that this should be accomplished by April 16, 1951.

A youth square dance contest ended square dancing until next fall. The activity was held at Lewis and Clark Grade School March 31, for both elementary and junior high school. Award certificates were given to both groups in the Virginia Reel, Waltz, Mixer, Best Set, Varsouvienne, and Shottische.

Attendance figures for the Month of March were as follows:

Community House	Boys	Girls	Total	Sub-total
Games Room (27 days)	3041	744	3785	
Marionettes (5 days)	28	11	39	
Juvenile Art (5 days)	9	19	28	
Open Craft (4 days)	45	10	55	
Fly Tying (4 days)	77	3	80	
Photography (2 days)	49	11	60	
Dramatics (5 days)	25	24	49	
	3274	822	4096	4096

Servicemen's Center	Men - 645	Women - 262	907

Columbia Playfield

	Participants	Spectators	
Kite Contest	82	150	232

Parks and Recreation

Spalding Program	Total Attendance			Sub-total
Badminton (3 sessions)	94			
Co-Recreation (3 sessions)	56			
Mens Recreation (3 sessions)	78			
Womens Recreation (3 sessions)	23			
Fencing (4 sessions)	28			
	279			279
Columbia High School	**Boys**	**Girls**	**Total**	
Minnesingers	370	-	370	
Jr. Archery Instruction	175	15	190	
	545	15	560	560
Riverside Park				
Egg Hunt - 400 Spectators	300	300	1,000	1,000

Lewis & Clark School - Square Dancing

	Adult Spectators			
3/3/51	16	48	70 Elementary	
	11	27	39 Jr. High	
3/10/51	15	53	76 Elementary	
	9	28	37 Jr. High	
3/17/51	11	48	51 Elementary	
	5	27	27 Jr. High	
3/24/51	10	23	42 Elementary	
	6	18	23 Jr. High	
3/31/51	70	90	140 Elementary & Jr. High	
	153	362	505	1,020

Other scheduled bookings at Community House for the Month of March show the following useage:

Bookings Made	Attendance	
23	3,881	3,881
	GRAND RECREATION TOTAL	11,975

PARK MAINTENANCE

All work assigned to the Parks Maintenance Division on Projects S-255-B and C-351, regrading and seeding Marcus Whitman and Frankfort Playground areas, was completed during March.

Cleaning of the dining room at the Community House was completed by the Maintenance Division in March. Repainting has been scheduled for July, 1951.

Parks and Recreation Division

The fertilizing and re-seeding of Townsend Court Playground area has been completed.

During the month 13,350 pounds of commercial fertilizer was dispensed on the seeded areas of the Parks and Playgrounds.

Irrigation hoses and sprinklers were distributed throughout the Park and Playground areas in preparation for the 1951 irrigation season.

Routine Maintenance of the Parks and Recreation Division baseball and softball diamonds commenced during the month.

Six Work Orders were issued during the month.

Proposed Work	Percentage Completed
1. SITE DEVELOPMENT	
a. Columbia Playfield (Project L-255)	90%
b. Marcus Whitman Playground (Project S-255-B)	90%
2. IRRIGATION INSTALLATION	
a. Riverside Park (Project C-351)	98%
b. Columbia Playfield (Project C-351)	90%
c. Carmichael Playground Project C-376)	95%
d. Marcus Whitman Playground (Project C-351)	90%
e. Frankfort Playground (Project C-351)	98%
3. GRASS SEEDING	
a. Carmichale Playground (Project 332)	99%
b. Frankfort Playground (Project 255-B)	90%
4. PARKING LOT	
a. Columbia Playfield (Project 255-D)	92%
5. PLAYGROUND EQUIPMENT	
a. Equipment Installed (Project 356-R)	20%
6. LAYOUT PLANS - Total 31 - 10 COMPLETE	
a. Riverside Park	15%

PUBLIC LIBRARY

An exhibit of Northwest Painters was held by the A.A.U.W. in the North Hall of the Library Building from March 1, to March 12. Several hundred visitors viewed the exhibit.

The Atomic Energy exhibit which is to be on display for the opening of the Library, has been installed.

Parks and Recreation Division

Approximately two-thirds of the adult books received have been processed and one-third of the childrens books on hand have also been processed and are on the shelves in order.

One steno-typist terminated during the month.

The Library Building has been released to General Electric Company with the exception of the attic lighting and walk.

The regular monthly meeting of the Library Board was held on Wednesday, March 7.

MAJOR ACTIVITIES DURING THE MONTH

March 16-17-18	Women's Basketball Tournament	Columbia High Sch.
25	United Churches of Richland, Sunrise Service	Bomber Bowl
25	Parks & Recreation Easter Egg Hunt	Riverside Park
26	Safety Award Presentation	Plaza

MUNICIPAL DIVISIONS

RICHLAND FIRE

March 1951

ORGANIZATION AND PERSONNEL	Present Month	Previous Month
Number of Employees on Roll		
Beginning of the Month	54	55
New Hires	0	0
Terminations	- 1	0
Transfers In	0	0
Transfers Out	0	- 1
Return From Leave of Absence	1	0
	54	54

FIRE PROTECTION			
Response To Alarms		15	18
Fire Loss (Estimated)	Hanford Works	$1,181.00	$39.34
	Personal	265.00	0.00
	Total	$1,446.00	$39.34
Investigation of Minor Fires and Incidents		18	9
Safety Meetings		8	8
Security Meetings		4	4
Outside Drills		40	47
Inside Drills		48	48
Fire Alarm Boxes Tested		184	184

Grass truck dispatched March 1st and 28th to stand by for controlled burning

Grass truck dispatched March 2nd to fill tank at Sewage Disposal Plant.

On March 4th one fireman checked an overheated furnace at 1205 Swift.

Two adults and sixteen children from Drop-A-Tot Nursery conducted on a tour of Fire Station No. 1.

Captain gave fire prevention talk on March 5th to Red Cross class for ten Public Health nurses.

On March 16th Lieutenant ran pump test at 1131 Garage on Plant fire truck.

On March 21st two men dispatched with grass truck to flush spilled weedkiller solution from Warehouse 6 loading ramp.

Boy Scout examined for Firemanship merit badge on March 28th.

Brownie Troop 8 and three adult leaders conducted on a tour of Fire Station No. 1 on March 28th.

Assistant Fire Chief and Lieutenant checked heat indicator at Kadlec Hospital on March 30th.

Six officer attended HOBSO sessions.

FIRE PREVENTION

Fire Inspections:

700 Area Buildings	44
1100 Area Buildings	47
Real Estate Buildings	52
Municipal Buildings	10
AEC Airport Buildings	6
Public Schools	11
Miscellaneous Inspection	23
Total	193

Fire Extinguishers:

Inspected	403
Refilled	11
Installed	3
Relocated	8

Fire Hose Standpipes:

Inspected	21

Sprinkler Systems:

Inspected	11

Inspection Reports Submitted:

Real Estate	32
700 Area	6
AEC Airport	1
Municipal	6
Schools	9

Meetings and Demonstrations:

Conducted fire extinguisher demonstration for 14 Real Estate Maintenance employees.

Assistant Fire Marshal attended Traffic Safety Committee meeting.

Fire Marshal attended 700 Area Civil Defense meeting in an advisory capacity.

Miscellaneous Activities:

By use of adapters, National Standard thread fire hose installed throughout Recreation Hall and Community House.

All buildings equipped with fire hose standpipes and sprinkler systems inspected to obtain data on size of water lines serving this equipment. Information reported to Accounting Division for cost study.

Special report submitted on two commercial facilities in which manager temporarily refused to correct hazards.

Rules drafted permitting residents to burn yard trash and after approval, submitted copy to News Bureau for publication.

Arranged with Community and Public Relations Division to provide certain photo's of Richland's 1950 Fire Prevention Week campaign requested for publication in "Tested Activities" manual by Federation of Mutual Fire Insurance Companies.

Quarterly inspection of all Richland public schools revealed unusually good conditions.

Immediate corrections obtained on serious fire hazards encountered in old kitchen of Recreation Hall.

Installation of Cellotex for ceilings and walls of 712-A Building, contrary to A.E.C. standards, reported to Plant Safety Division.

Recommendations submitted for removal or repair of combustible insulation hanging loose under Recreation Hall and other buildings.

Blueprints for renovation of 703 Building alarm system and for installation of fire department connections on sprinkler systems reviewed by Fire Marshal.

Recommendations made to Kadlec Hospital administrator for use of alternate exits for emergency evacuation. This was necessary because of main exits blocked by present construction work.

Automatic exhaust fan recommended for removing explosive fumes from central ditto room in 703 Building.

At request of the bank manager, surveyed National Bank of Commerce for fire extinguisher requirements.

Advised installation of standpipe fire hose in Church of Christ at Swift and Thayer.

MUNICIPAL DIVISIONS

RICHLAND POLICE DEPARTMENT

MARCH, 1951

ORGANIZATION AND PERSONNEL

Number of Employees on Roll:	Preceding Month	This Month
Beginning of Month	44	41
New Hires	1	1
Terminations	0	1
Transfers in	0	0
Transfers out	4	1
End of Month	41	40

GENERAL

Beginning Monday, March 5, a representative of the Washington State Patrol will be in Richland on Mondays and Tuesdays from 1 to 9 P. M. to renew and issue drivers licenses. In the past this service has been available only on Mondays.

On March 19 the responsibility for the money escort service for the Works cashier was transferred to the Plant Security and Services Division.

On March 26 a group of Cub Scouts was taken on a tour of the Police Station.

During the month, the "Patrol" neon sign on the 770 Building was changed to read "Police." This is in accord with the change in departmental title.

Organization of the Police Athletic League is progressing rapidly. Election of officers was held, and the following were elected: President - J. S. Johnson, Vice President - J. C. Glover, Secretary - A. L. Reil, Treasurer - R. L. Jones, Manager - A. F. Novotny. Coaches from each shift were also appointed. A Committee has been appointed to draft By-Laws and a Constitution for the P. A. L. Uniforms were purchased and were received the latter part of the month. Try outs for the team will be held next month.

During the month, a temporary post was established near the Coordinate Club to regulate the traffic approaching the Bailey Bridge at shift change time.

During the month, 264 traffic violation reports were received. These consisted mainly of illegal parking and speeding. A total of 110 other reports were received. These consisted mainly of larceny, investigation and malicious mischief cases.

During the month, a total of 225 letters were received, compared to 192 last month. These consisted of 211 inquiries on arrests and 14 requests for assistance.

During the month, 23 prisoners were processed through the Richland Jail. Eleven of these were from North Richland.

Richland Police Department - Continued

During the month, 29 gun registrations were recorded.

During the month, 87 bicycle registrations were recorded.

TRAFFIC

The Traffic Section recorded 25 reportable accidents for Richland for the month of March. This amount shows an increase of nine over the preceding month and an increase of 12 for the same month last year. No traffic accident fatalities occurred within the community limits, however, there were two major injuries and three minor injuries as a result of traffic accidents. Two of the injuries, one minor and one major, were pedestrians which were struck by automobiles. One minor injury was a child struck by a car while riding a bicycle. During the preceding month, only three minor injuries were caused and for the same month last year, only two minor injuries occurred.

Causes of the 25 above accidents were: negligent driving - 7, failure to yield right of way - 8, following too closely - 5, improper backing - 4, improper passing - 1.

Total property damage was $3,544.65. Property damage caused by traffic accidents decreased from an average of $231 per accident for last month to an average of $141 per accident this month.

A traffic safety lecture was given to the Realty Division on March 3 at Dorm W-20 by Ptm. D. F. Metz. A similar lecture was given to the Weekly and Monthly Payroll Division groups on March 30.

Meetings with the School Boy Patrol were conducted by Ptm. D. F. Metz at three of the Richland grade schools at which time new patrol caps and belts were issued to a number of the patrol boys. Frequent checks of the School Boy Patrol's operation were made during the month. Also, frequent checks were made of the traffic condition around the Columbia High School throughout the month.

A survey was made of all the crosswalks around the public schools and in the downtown area, and an order was placed to have some 80 crosswalks repainted. Also, the stop lines were to be repainted at Williams Boulevard and Goethals Drive.

The traffic lights were re-synchronized on both George Washington Way and Goethals Drive to give a continuous flow of traffic with a speed of 20 M. P. H. on a green light in both directions north and south. The same synchronization was done on Lee Boulevard and Knight Street to give a continuous flow of traffic on a green light to expedite faster movement of traffic emptying onto George Washington Way and Goethals Drive. The retiming of the light has given very satisfactory results.

Traffic signs were placed along the south end of the 762 Building parking lot to set up a one hour parallel parking zone This also serves as an off-street drive for persons to pick up or discharge passengers. The two hour parking zone within the lot was removed. Also, the two hour parking signs were removed from the parking lots both on the north and south side of the Safeway Grocery Store.

The "No Parking - Loading Zone" signs on the south side of the Downtown Thrifty Drug Store were also removed.

Some 47 other traffic signs were repaired and replaced throughout the city. Thirty seven street marker signs were found in bad repair and are on order to be replaced.

Four new stop signs were placed along Wright Avenue where new streets are being cut through. Two new pedestrian signs were placed on each side of the crosswalk on George Washington Way between Williams Boulevard and Symons Street.

A barricade of steel posts was placed along Thayer Drive just south of Long Avenue to prevent traffic from pulling upon Thayer Drive over the steep grade to the rear of the Columbia High School.

TRAINING

Subjects covered in the lieutenant's training classes for the month were as follows:

Department Operations
Observation Tactics
Police Patrolling

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. Men	Per Cent
Expert	2	50%
Sharpshooter	1	25%
Marksman	1	25%

A total of four men reported to the Range for training.

ACTIVITIES AND SERVICES

	January	February	March
Doors & windows found open	39	27	92
Children lost or found	12	6	19
Ambulance runs assisted	29	30	31
Ambulance driver provided	2	2	4
Dogs, cats reported lost or found	9	9	22
Dog, cat, loose stock complaints	25	15	25
Persons injured by dogs	5	11	20
Bank escorts & details	40	19	12
Fires investigated	26	20	19
Miscellaneous escorts	19	21	16
Complaints investigated	35	48	44
Deaths reported	2	1	0
Articles lost or found	31	39	30
Records inquiries	319	280	312
Law enforcement agencies assisted	14	6	16
Private individuals assisted	10	16	10
Plant divisions assisted	24	14	20
Emergency messages delivered	58	67	31
Totals	699	631	723

MONTHLY REPORT
RICHLAND POLICE DEPARTMENT
MARCH, 1951

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 Asslt.	0	0	0	0
5. Burglary--Brk. & Ent.	5	1	1	0
6. Larceny--Over $50.00	2	0	0	0
Larceny--Under $50.00	15	0	5	3
Bike Theft	20	0	0	20
7. Auto Theft	2	1	0	1
TOTAL PART I CASES	44	2	6	24
PART II				
8. Other Assaults	1	0	1	0
9. Forgery & Counterfeit.	0	0	0	0
10. Embezzlement & Fraud	0	0	0	0
11. Stolen Prop:Buy:Rec:Poss.	0	0	0	0
12. Weapons:Carry:Poss:	0	0	0	0
13. Prostitution	0	0	0	0
14. Sex Offense	2	0	2	0
15. Off. Ag.Fam. & Child	1	0	1	0
16. Narcotics--Drug Laws	0	0	0	0
17. Liquor Laws	0	0	0	0
18. Drunkenness	3	0	2	1
19. Disorderly Conduct	6	0	3	3
20. Vagrancy	0	0	0	0
21. Gambling	0	0	0	0
22. Driving While Intox.	2	0	2	0
23. Violation Rd. & Dr. Laws:				
Speeding	18	0	18	0
Stop Sign	5	0	5	0
Reckless Driving	3	0	3	0
Right of Way	5	0	5	0
Negligent Driving	19	0	19	0
Defective Equipment	3	0	3	0
24. Parking	242	0	175	67
25. All Other Traffic	26	0	26	0
26. All Other Offenses:				
Public Nuisance	3	0	3	0
Dest. of Pers. Prop.	3	0	1	2
Dest. of Govt. Prop.	1	0	0	0
Malicious Mischief	12	0	1	4
Vandalism	9	0	3	2
Illeg. Use of Firearms	1	0	1	0
Investigation	4	0	0	4
Dog Poisoning	1	0	0	0
Prowlers	5	0	0	4
27. Suspicion	7	0	0	7
TOTAL PART II CASES	282	0	274	93

(Cont. on Page Two)

OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
PART III				
28. Missing Persons	7	0	0	7
Lost Persons	13	0	0	13
Lost Animals	8	0	0	8
Lost Property	7	0	0	7
29. Found Persons	3	0	0	3
Found Animals	5	0	0	5
Found Property	19	0	0	19
TOTAL PART III CASES	62	0	0	62
PART IV				
30. Fatal Mot.Veh.Traf.Acc.	0			
31. Pers.Inj.Mot.Veh.Traf.Acc.	4			
32. Prop.Dam.Mot.Veh.Acc.	21			
33. Other Traffic Acc.	0			
34. Public Accidents				
35. Home Accidents	No Accurate Record Kept.			
36. Occupational Accidents				
37. Firearms Accidents	0			
38. Dog Bites	13	0	0	13
39. Suicides	0	0	0	0
40. Suicide Attempts	0	0	0	0
41. Sudden Death & Bodies Fd.	0	0	0	0
42. Sick Cared For	4	0	0	4
43. Mental Cases	0	0	0	0
TOTAL PART IV CASES	42	0	0	17
COMPOSITE TOTALS PARTS I,II,III,IV CASES	430	2	280	196

*Cases listed under "Cleared Other" are those cleared by various means other than arrest, such as: orders from prosecutor, juvenile probation officer or other situations in which a mutual agreement is obtained. They are definitely "cleared" cases and differ from the arrest column only in that there were no arrests.

Property Reported Stolen During Month..$9,113.87 ($500.00 bikes)
Property Recovered During Month.....$800.00 ($500.00 bikes)

SEE PAGE THREE FOR JUVENILES INVOLVED.

RICHLAND POLICE DEPARTMENT
PAGE THREE MARCH, 1951 MONTHLY REPORT JUVENILES INVOLVED

OFFENSES	NO.	JUVENILES	SEX	AGES 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
Breaking & Entering	1	1	M															1		1
			F																	
Petit Larceny	2	7	M								1	1	1				2		2	7
			F																	
Disorderly Conduct	3	10	M								2	1	1				2		3	9
			F														1			1
Illegal Use of Firearms	1	1	M													1				1
			F																	
Vandalism	3	6	M				1			1			1	1		1	1			6
			F																	
Investigation	2	6	M									1		1			2	2		6
			F																	
TOTALS.....	12	31					1			1	3	3	3	2		2	8	3	5	31

Number of offenses known to police per 25,000 inhabitants in cities of 25,000 persons:

	Wash. Oregon & Calif. Six Months (Jan-June 1950)	One Month Average	Richland (Jan-June 1950)	Richland Feb. 1951	Richland March 1951
Murder	.49	.08	0	0	0
Robbery	14.3	2.3	0	0	0
Agg. Asslt.	10.3	1.7	4	0	0
Burglary	90.6	15.1	12	3	4
Larceny	269.6	44.9	223	21	17
Auto Theft	37.3	6.2	4	1	1
Bike Theft			85	27	20

Number of offenses known to police per 25,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

	State of Washington Six Months (Jan-June 1950)	One Month Average	Richland (Jan-June 1950)	Richland Feb. 1951	Richland March 1951
Murder	.53	.08	0	0	0
Robbery	10.9	1.8	0	0	0
Agg. Asslt.	2.7	.4	4	0	0
Burglary	80.3	13.3	12	3	4
Larceny	236.1	39.3	223	21	17
Auto Theft	30.9	5.1	4	1	1
Bike Theft			85	27	20

The portion of offenses committed by persons under the age of 25 yrs. is shown:

	National Average (Jan-June 1950) (Percentage of Cases)	Wash. Oregon, Cal. (Jan-June 1950) (Actual Cases)	Richland (Jan-June 1950)	Richland Feb. 1951	Richland March 1951
Robbery	55.4	7.9	0	0	0
Burglary	63.0	57.0	2	1	1
Larceny	46.7	125.9	57	5	2
Auto Theft	68.7	25.6	0	0	0

Note: Statistics of juvenile offenses throughout the United States were taken from the Uniform Crime Report published by the Federal Bureau of Investigation, which states: "It should be remembered that the number of arrests recorded is doubtless incomplete in the lower group because of the practice of some jurisdictions not to fingerprint youthful offenders."

RICHLAND POLICE DEPARTMENT
RICHLAND JUSTICE COURT CASES
MARCH 1951

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.	11	2	2	3		4						5	$ 7.50	$ 7.50	$
Def. Equip	3	1	1	1								2			
Drunken Dr.	2	2								2				105.00	
F.T.S.A.I.	2	1	1									1		12.50	
F.T.Y.R.C.W.	5	3	1	1										47.50	
Foll. to closely	1		1										7.50		
Ill. Parking	175	40	104	1			30						360.50	140.00	80.50
Lic. Plates	11	5	4	1		1					1	6		20.00	15.00
Negligent Dr.	23	13	5	1	1	3				5	4		117.50	227.50	90.00
Reckless Dr.	3			3											
Speeding	20	10	9				1				2		132.50	77.50	20.00
Stop Sign	5	1	4										22.50	7.50	
No Registration	2	1		1								2			
Disorderly Cond.	3			3											
Petit Larceny	2			2											
Public Intox.	3	3									1			52.50	
Public Nuis.	3	2	1										17.50	30.00	
Third Deg. Asslt.	1	1												50.00	50.00
TOTALS:	275	85	133	17	1	8	31			7	8	16	$665.50	$777.50	$255.50

NOTE: Three Reckless Driving cases amended to Negligent Driving.

POLICE DIVISION - TRAFFIC CONTROL STATISTICS
March, 1951

MOTOR VEHICLE ACCIDENTS:

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	Feb.	March	Feb.	March	Feb.	March	Feb.	March
Richland	16	25	0	0	0	2	2	3

ACCIDENT CAUSES:

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Causes	
	Feb.	March	Feb.	March	Feb.	March	Feb.	March
Richland	9	7	2	8	0	0	5	10

PLANT WARNING TRAFFIC TICKETS ISSUED:

	Speeding		"Stop" Sign		Parking		Imp. License		Def. Equipment		Other Violations		Totals	
	Feb.	March	Feb.	March	Feb.	Mar.	Feb.	March	Feb.	March	Feb.	March	Feb.	March
Richland	0	0	0	0	55	67	0	0	2	0	0	0	57	67

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	
	Feb.	Mar.	Feb.	March	Feb.	March	Feb.	March	Feb.	March	Feb.	Mar.	Feb.	March	Feb.	Mar.	Feb.	Mar.
Richland	26	17	13	7	0	2	5	5	0	5	16	16	27	175	23	28	110	255

TRAFFIC VOLUME: No Traffic Count was taken during Month of March, 1951.

NOTE: Traffic Control Statistics show ORIGINAL CHARGES ONLY.

250

MUNICIPAL DIVISIONS

PUBLIC SAFETY DIVISION

March 1951

ORGANIZATION AND PERSONNEL

Number of employees on roll:		Preceding month
Beginning of month	3	3
New hires	0	0
Terminations	0	0
Transfers	0	0
End of month	3	3

STATISTICAL AND GENERAL

The National Safety theme for the month of March, "Motor Manners", has been extensively publicized with various newspaper articles, giving a coverage of 192 column inches.

Four very interesting radio interviews involving the current theme were tape recorded and broadcast by members of organizations represented in the Richland Safety Council. These safety interviews were entitled "Discourtesy Can Mean Disaster", "Courtesy Can Save Your Life", "Accidents Are Highway Robbery" and "Danger At the Cross Street". Several spot announcements were sent to the three local radio stations pertaining to the safety theme of the month.

This office sent notices of traffic safety films available at this office to fifty local clubs and organizations, which has resulted in a larger audience for these safety films. This month's films, which had an attendance of 1247 were:

Screw Drivers and Screw Jays
The Safe Driver With Care
Heedless Hurry-Endless Worry
Hell Wouldn't Have Him
In The Driver's Seat
Wanton Murder
Uncle Jim Tells 'Em
Fatal Seconds
Live and Let Live
When You Know
A Closed Book

One outstanding traffic safety film, "A Closed Book", has been purchased by this office for the use of organizations and all interested groups.

A Traffic Safety Flyer, sponsored by the Police Department, Richland Safety Council and the Public Safety Division was mailed to every home in the village, urging drivers to use their "Motor Manners" and drive safely.

Richland's entries in the National Inventory of Traffic Safety and the A.A.A's. Pedestrian Safety Contest were completed and sent in for judging.

The Traffic Control Committee met March 27. Several recommendations were made for traffic improvements and studies are now being made on these projects.

Two 24 sheet posters, which tie in with the schools' April Safety Program, will be posted today, bearing the imprint "Sponsored by the Student-Parent Council."

This office is assisting the Parent-Student Council in coordinating plans for the April "Child Pedestrian and Bicycle Safety campaign. A number of the "Man-to-man" and "Dad-to-daughter" Good Driving Agreements have been ordered, under sponsorship of the Central P.T.A., for use during the child safety campaign.

REAL ESTATE DIVISIONS

SUMMARY

MARCH

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
Commercial & Other Property Divisions	7	5	7	6
Housing & Real Estate Maintenance Division	22	181	23	181
	29	186	30	187

Net increase of employees for the month of March 2

GENERAL

The Richland Investment Company building commenced operation on March 30, 1951, with the following businesses as sub-lessees; McKay's Variety Store, The Wren House, Wiley's Shoe Repair Store and an optometry office operated by Dr. Charles A. McCartney.

Dormitory W-17 was opened for Men employees on March 12, 1951.

MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS

HOUSING AND REAL ESTATE MAINTENANCE DIVISION

March, 1951

ORGANIZATION AND PERSONNEL

Number of employees on payroll		March
Beginning of month	22 exempt employees	
	181 non-exempt employees	
	203	203
End of month	23 exempt employees	
	181 non-exempt employees	
	204	204

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	2197	261	8	376	828	1151	55	38	4914
Commercial Facilities	91	8	2	29	72	65	5	5	277
Community Activities	9	-	-	1	6	3	-	1	20
Medical Facilities	5	14		2		1			22
Post Office	7			1	3	10		3	24
A. E. C. and Other Government	96	29		15	36	20	4	4	204
School District	43	-	-	5	12	49	1	-	110
Kellex Corporation	7	5		5	7	2	1		27
Atkinson-Jones	9	14		4	11	4	2		44
Newberry Neon	3	1	-	1	-	-	1		6
Vernita Orchards								4	4
J. G. Turnbull					1	1			2
Fred J. Early					1				1
V. S. Jenkins					1				1
Hanley Company				2	1		1		4
Total Houses Occupied	2467	332	10	441	979	1306	70	55	5660
Houses Assigned - Leases written	7	-	-	-	1	5	1	-	14
Houses Assigned - Leases not written	17			4	8	12	3		44
Houses available for assignment	9	1		5	12	19		1	47
Total Houses	2500	333	10	450	1000	1342	74	56	5765

Housing and Real Estate Maintenance Division

Housing Turnover During Month	Begin Month	Moved In	Moved Out	Month End	Difference	
Conventional Type	2475	47	55	2467	Minus	8
Block Type	329	6	3	332	Plus	3
"T" Type	10	-	-	10		-
Precut Type	439	15	13	441	Plus	2
Ranch Type	992	18	31	979	Minus	13
Prefab Type	1318	36	48	1306	Minus	12
Apartments	74	1	5	70	Minus	4
Tract	55	1	1	55		--
Total	5692	124	156	5660	Minus	32

DORMITORY STATISTICS

Dormitories:

			Occupants	Vacancies	Total Beds
Men	Occupied	14	*616	---	616
Men	Unoccupied				
Women	Occupied	12	**447	34	481
Women	Unoccupied	1			

Women's Dormitories occupied by:

G. E. Office	2
Education	1
Apartments	1
	31

* This includes 50 beds in W-17. This dormitory was opened for Men employees on March 12, 1951.

** This includes space of 4 beds in W-9 used for supply rooms and dormitory offices.

There are 35 men employees waiting for dormitory rooms in Richland.

GENERAL

Houses Allocated to new tenants	51
Exchanged Houses	53
Moves (Within the Village	28
Turnovers	2
Total Leases Signed	124
Terminations	53
Total Cancellations	156
Applications Pending	508

Allocation Section Statistics	
Voluntary Terminations	53
R. O. F.	--
Discharge	1
Transfers	11
Retirement	--
Houses Assigned "As Is"	10
Move Off Project	29
Houses sent to renovation	80

TENANT RELATIONS

Processing of Service Orders, Work Orders , and Service Charges.

	Orders Incomplete As of Feb. 28, 1951	Orders Issued Feb. 28 to March 31	Total Orders Incomplete As Of March 31, 1951
Service Orders	191	2258	220
Work Orders	3790	831	3233
Service Charges	21	231	18

Principal Work Order Load

	Incomplete as of February 28, 1951	Incomplete as of March 31, 1951
Laundry Tub Replacement	142	152
Bathroom Renovation (Tub-	344	341(206 Sub-Contract)
Lino-Tile)	25	14
Tileboard Only (Bathroom)	271	304
Kitchen Cabinet Linoleum	72	106
Kitchen Floor Linoleum		

WORK ORDERS COMPLETED DURING THE MONTH OF MARCH

84 Bathtubs were installed
137 Linoleum repair jobs were completed.
5 Blacktop sidewalks were replaced.
16 Steps were repaired with blacktop
15 Hot water heaters were replaced
1 Parking compound graded and filled with gravel
14 Touch up paint jobs (interior) were completed.
30 Loads of tumble weeds were picked up and disposed of.
24 Loads of top soil were delivered.

Alteration Permits Issued during the Month of March totaled 100 compared to 70 in February.

Arbor	1	Automatic washers	21
Garden Wall	1	Fences	34
Clothes poles	6	Basement partition	1
Driveway	4	Electrical wiring	3
Reverse range & refrigerator	1	Patio	3
Oil burner conversion	1	Refinish floors	1
Coal stoker	2	Air conditioner	2
Move kitchen cupboards	1	Remove broom closet	2
Front porch	2	Paint exterior of house	1
Clothes dryer	2	Basement excavation	3
Back door	2	Remove cabinets	1
Change hot air register	1	Irrigation riser in yard	1
Trellis	1	Tool shed	2

TENANT RELATIONS

1644 Inspections were made during the Month of March as compared to 1409 made during February.

Alteration Permits	10	Bathtubs	111
Cupboards	19	Drainage	4
Driving on Grass	3	Floor Boards	15
Grass Seed	20	House Siding	1
Jack and Shim	17	Leaking Basements	6
Linoleum	269	Lot Lines	60
Paint	122	Porch & Steps	18
Screen Doors	24	Shades	31
Shower Stalls	39	Sidewalks	47
Sinks	14	Tileboard	107
Toilet Seats	7	Top Soil	40
New Tenants(Show house)	62	Cancellation of Lease	124
Renovation	132	Walls	9
Windows	40	Miscellaneous	293

MAINTENANCE(HOUSING AND REAL ESTATE) FOR MONTH OF MARCH

HEAVY MAINTENANCE STATISTICS

Man-Hour Backlog Non-Routine		Man-Hour Backlog Routine	Craft	Non-Exempt Manpower	Crew Days
17,205		--	Carpenters, Upholsterers Trainees and Drivers	57	39
		36	Millwright	4	1
3,609		--	Painters,Hlpr and Driver	21	22
5,730			Plumbers, Fitters Helper	14	52
876			Servicement and Truck Drivers	10	11
1,453			Sheetmetal and Trainee	4	46
28,873	Sub-Total	36		110	

RENOVATION STATISTICS

			Carpenters	1	
			Painters	14	
			Truck Drivers	1	
3,312	Sub-Total		Janitresses	3	22
				19	

MAINTENANCE (HOUSING AND REAL ESTATE) FOR MONTH OF MARCH(continued)

SERVICE ORDER STATISTICS

Man-Hour Backlog Non-Routine	Man-Hour Backlog Routine	Craft	Non-Exempt Manpower	Crew Days
32,185	36			
		Carpenters	2	
		Electricians	6	
		Locksmith	1	
		Plumbers	4	
270 Sub-Total			13	3
		HELPERS-TRAINEES-ETC.		
		Painter Trainee	2	
		Plumber Helper	2	
		Sheetmetal Trainee	1	
		Carpenter Trainee	3	
		Carpenter Helper	1	
32,455 Sub-Total	36		143	196

MAINTENANCE TRANSPORTATION FACILITIES

HEAVY MAINTENANCE

Truck Type	Number in Possession	Craft	Requistioned for Replacement
1½ Ton Flatbed	10	Carpenters	
3/4 Ton Power Wagon	1	"	
½ Ton Pickup	7	"	
Cushman Scooter	1	"	
2½ Ton Dump Trucks	2	Labor	
1½ Ton Flatbed(Hyd.Lift)	1	Labor	
½ Ton Pickups	2	Labor	
1½ Ton Flatbed (Chain Hoist)	1	Millwrights	
½ Ton Pickups	2	Millwrights	1 Walk-In Type
3/4 Walk-In	1	Millwrights	
½ Ton Top Panels	1	Painters	
1½ Ton Flatbed(Chain Hoist)	1	Painters	
½ Ton Pickup	1	Painters	
½ Ton Pickups	5	Plumbers	
3/4 Ton Pickups	4	Plumbers	
½ Ton Panel	1	Sheetmetal	
Sub-Total	40		

MAINTENANCE TRANSPORTATION FACILITIES (continued

RENOVATIONS

29	Passenger Bus	1	Painters		
	Chev. Carryall	1	Painters and Janitresses		
½	Ton Pickup	2	Carpenters		
	Sub-Total	4			

SERVICE ORDER

½	Ton Pickups (Service Body)	3	Electricians	3	3/4 Ton Pickups (Service Body)
½	Ton Pickup	1	Electricians		
½	Ton Pickups	2	Carpenters		
½	Ton Pickup	1	Locksmith		
½	Ton Pickup (Service Body)	3	Plumbers	3	3/4 Ton Pickups (Service Body)
	Sub-Total	10		6	
	Grand Total	54		7	

6.

MAINTENANCE NARRATIVE FOR MARCH, 1951

The following is a summary of general items completed during the month of March along with miscellaneous comments.

All repairs, which were the responsibility of Housing and Real Estate Maintenance, to the 633 prefabs, Project C-3630, have been completed.

Interior repairs have been completed to the 10 dormitories in preparation for contract painters.

Fifty prefabs have been leveled and rotted posts have been replaced. This work was done on an individual order basis and not part of the rehabilitation program.

Carpenters repairs have been completed on a total number of 87 bath tubs and 137 linoleum floor replacements. 107 linoleum table top replacements, 120 bathroom tileboard installations, 20 screen doors were repaired, 28 roofs were repaired, 1 daveno was recovered, 11 KC chairs were recovered, 1 KV chair was recovered, 10 KV chairs were repaired, 7 A & J houses were jacked and shimmed, 102 sinks were sealed with chempoint, and 9 precuts were jacked and shimmed.

Carpenters prepared Klopfenstein's leaking basement for manufacturers installation of water-proof paint. This work was done on a work order and will be recorded as a sample installation.

A total number of 45 houses were renovated during the month of March, 1951, of which 35 were permanent type houses and 10 were prefabs. This work included carpentry, complete paint jobs, linoleum work, sheetmetal, plumbing and electrical and the cleaning of stoves, floors, sinks, and etc.

A total of 2,258 service orders were completed by the service order crew during the month of March. Approximately 93% of these orders were for Housing, 4% for the Dorms, 1 % for Commercial Facilities and the remainder for various other divisions.

The following is a status report of service orders:

On hand at beginning of month	191
Service orders received during month	2258
Service orders completed during month	2229
On hand at end of month	220

Arrangements have been made with the General Services Division to transfer a glazier to the Housing and Real Estate Maintenance Section effective April 2, 1951.

There were 39 conventional houses painted on the interior painting cycle during the month of March along with necessary carpenter repairs for these units.

Fourteen A & J kitchens were enameled, 68 bathrooms were enameled in part or in entirety, 14 miscellaneous paint jobs were completed. There were 11 renovation paint jobs completed by painting roofs.

Eighty-one shower installations were fabricated and installed in prefabs. A general repair and lubrication on equipment and furnaces continued.

A total of 84 bath tubs were installed by the plumbing crew, 15 hot water heaters, 7 yard drains, 1 septic tank drain field, a total of 7 sewer lines were cleaned and repaired, installed 81 shower valves in prefabs, completed 86 bathroom faucet repairs, completed 164 linoleum repairs such as replacing kitchen sink and faucets.

Where linoleum men were working in bathrooms, the toilets were taken up and re-installed, completed 16 miscellaneous plumbing repair work orders, completed three and one-half dorms - overhauling steam system, completed 37 miscellaneous steam work orders.

Inspection of the Commercial Facilities was made one day per week for steam leaks. Inspection of dorms and apartments were made one day a week for checking steam leaks and hot water tanks.

Routine, daily, weekly, and semi-monthly work by the labor section. Coal was delivered to 12 vacant houses, trash was picked up at vacant houses (80), picked up and disposed of waste oil from the six service stations semi-monthly. Hauled ashes from the 784 Building once per week, pumped the settling basins at 784 and 784-A Buildings each week. Pumped three grease traps at the Mart each week, cleaned grease traps at Thrifty Drugs, Bus Depot, and Village Pharmacy each week.

The following is a summary of non-routine work by the labor section:

Piles of tumble weeds picked up (30), raised sod and backfilled for new walks (16). Sixteen sets of black top steps were replaced. Five black top walks were repaired or excavated and backfilled at 3 yard drains. Excavated and backfilled four oil tanks, excavated and backfilled four sewers, excavated and backfilled three water systems. Delivered top soil on 24 work orders, five trees were removed on work orders, widened and repaired the parking space around the 722 Hangar, repaired and re-seeded lawns torn up by sub-contractors at 703, 705, 707, and 709 Comstock. Picked up and disposed of excess dirt, and cleaned up rubbish in cemetary as needed. Excavated and backfilled septic tank and drain field at Tract House K-744. Hauled surplus equipment from the Recreation Hall dining room and kitchen to salvage. This crew has approximately 1500 man hours of backlog work for the installation of black top walks and replacement.

M. S. WAREHOUSE SUMMARY FOR February 23, 1951 through March 23, 1951

TOTAL INV. $108,926.11

INVENTORY ITEMS AMOUNT $65,899.21

RECEIVED IN INVENTORY	CODE	AMOUNT
ON STORE ORDERS		$ 408.03
ON PURCHASE ORDERS		1,415.46
FROM HOUSING	61-20	1.47
FROM DORMS	64-20	22.50
FROM HOUSING FURNITURE	61-20	646.86
FROM DORMS FURNITURE	64-20	12.55

TOTAL RECEIPTS $2,506.87

INVENTORY DISBURSED		
MISCELLANEOUS CHARGES		444.88
FREE ISSUE	61-20	910.24
CASH ITEMS	61-20	90.65
DORM SUPPLIES	64-20	522.60
DORM LINENS	64-20	1,863.24
DORM SHADES & REFLECTOR	64-20	26.68
DORM FURNITURE	64-20	3,963.45
WHSE SUPPLIES	63-20	40.18

TOTAL DISBURSED $7,861.92

INVENTORY ITEMS BALANCE $60,544.16

PLANT ITEMS AMOUNT $43,026.90

	CODE	AMOUNT
RECEIVED		1,467.53
DISBURSED		2,121.67

PLANT ITEMS BALANCE $42,372.76

GRAND TOTAL INVENTORY $102,916.92

	PIECES
DORM FURNITURE EXCHANGE	175
RANGES EXCHANGED	7
REFRIGERATORS EXCHANGED	7
PRE FAB HEATERS EX.	16
SENT TO MAINTENANCE	43
RECEIVED FROM MAINTENANCE	27

9

DORMITORY REPORT FOR February 23, through March 23, 1951

129	MINOR REPAIRS TO FUSES, PLUMBING, ETC.
35	WORK ORDERS STEAM, GLASS, EQUIPMENT, ETC.
65	PIECES OF FURNITURE REPAIRED
60	HOUSEKEEPING CONTACTS
486	LIGHT GLOBES REPLACED
56	ROOMS VACATED

LINENS LAUNDERED

8,103	SHEETS
4,182	PILLOW CASES
137	BED SPREADS
33	BED PADS
247	SHOWER CURTAINS

REMARKS

The inside painting program has been started this month. The lobbies of women's dormitories have been re-finished this month.

COMMERCIAL AND OTHER PROPERTY DIVISION

MARCH, 1951

DIVISIONAL PERSONNEL:

Number of Employees on Payroll:	March
Beginning of month	12
End of month	13
Net increase	1

COMMERCIAL AND NONCOMMERCIAL PERSONNEL:

Number of Employees on Payrolls:

	Commercial	Noncommercial	Total
February	1,089	81	1,170
March	1,085	87	1,172
Net increase			2

SUMMARY OF ROUTINE ITEMS PROCESSED:

Work Orders	37	4	41
Back Charges	1	0	1
Service Orders	18	2	20

CONTRACTS AND NEGOTIATIONS:

A. Commercial:

1. Assignment of Agreement:

Clyde E. Ganzel assigned his Operating Agreement to Messrs. Leo Azure and Dwight C. Hendricks, a copartnership, who will continue operation of the barber shop.

2. Letters of Authorization:

(a) Vance Properties, Inc. was authorized to install air conditioning equipment in the central section and south wing of the Desert Inn.

(b) The Richland Investment Company was authorized to sublet space, approximately 600 square feet of floor area, in its new building to Charles A. McCartney for the operation of an optometry office.

(c) The Richland Investment Company was authorized to sublet space, approximately 800 square feet of floor area, to Mesdames Wren Ellison and Maxine F. McCartney for the operation of a maternity wear shop.

(d) Mr. L. C. Foisy was authorized to sublet space in the Recreation Center building to Elwood Hamilton for the operation of a barber shop.

B. Noncommercial:

1. Letters of Authorization:

(a) Northwest United Protestant Church was authorized to lease an additional plot of land, described as Parcel #2, adjacent to Parcel #1, to provide for off-street parking.

(b) Church of Jesus Christ of Latter Day Saints was authorized to construct an additional building on its leased premises for use as a welfare storehouse.

SUMMARY OF OCCUPANCY AND EXPANSION STATUS:

A. Commercial:	February	March
1. Number of Government-owned buildings	37	37
(a) Number of businesses operated by prime lessees	41	41
(b) Number of businesses operated by sublessees	13	13
(c) Total businesses operating in Government-owned buildings	54	54
2. Number of privately-owned buildings	39	40
(a) Number of businesses operated by prime lessees	37	37
(b) Number of businesses operated by sublessees	26	30
(c) Total businesses operating in privately-owned buildings	63	67
3. Total number of businesses in operation	117	121
4. Doctors and dentists in private practice, leasing space in Government-owned buildings	21	21
5. Privately-owned buildings under construction	2	1

B. Noncommercial:	February	March
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	6	6
(c) Sites tentatively allocated or leases in process of negotiation	8	8
Total	19	19
3. Pasture Land Assignments	39	39

GENERAL:

A. Commercial:

1. Richland Investment Company:

(a) McKay's Variety Store commenced operation under the management of Mr. Harold Kinney.

(b) The Wren House commenced operation of a maternity wear shop under the management of Mesdames Wren Ellison and Maxine F. McCartney.

(c) Wiley's Shoe Repair Store commenced operation under the management of Mr. Wiley Dickson.

(c) Dr. Charles A. McCartney commenced operation of an optometry shop.

2. Hanson Enterprises, Inc.: - Radio Station KALE moved its business office from the Spencer-Kirkpatrick building to a subleased por- of the Young World Shop.

3. Letters of Inquiry: - Letters were written to business applicants, whose names are on file in this office, for the purpose of establishing current expressions of interest in constructing privately-owned buildings in Richland.

B. Noncommercial:

Property Inventories: - Final inventories of the Government-owned fixtures and equipment located in the following-named facilities were taken as a preliminary to the sale of all, or any portion desired, of such property to the respective facilities:

All Saints' Episcopal Church
Richland Riders Club
Association of U. S. Employees, Inc.
Sacajawea Rifle and Pistol Club
Redeemer Lutheran Church
Richland Lutheran Church
U. S. Veterans Administration
American Red Cross

COMMERCIAL PROSPECTS:

A number of applicants, the majority of whom 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:

Bowling Alley
Food Store
Fuel Oil Distributorship
Self-Service Station
Service Station
Roller Skating Rink

GENERAL SERVICES DIVISIONS
MONTHLY REPORT
MARCH, 1951

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	4	15	19	5	15	20
North Richland Fire Division	34		34	32		32
Maintenance & Operation Division	9	70	79	9	68	77
TOTAL	47	85	132	46	83	129

Personnel Changes During Month:	Exempt	Non-Exempt
Transfer to Electrical Division	1	
Transfer to Instrument Division	1	
Transfer to Municipal Divisions		1
Transfer from Municipal Divisions	1	
Transfer from Plant Security & Services	1	
Terminations	1	2
New Hire		1

STEAM AND GENERAL MAINTENANCE DIVISION

General Maintenance:

Requisitions are now open for 1 Electrician Journeyman, 1 Carpenter Trainee, replacement for Painter Journeyman, 5 Servicemen, for summer lawn work, and 1 Serviceman, replacement.

Treated timbers for 761 and 762 Buildings arrived on March 16. Installation of treated timbers and louvers is about 75% complete. Repair of exit steps on 703 Building is 50% complete.

Five Hauserman partitions were installed and one relocated in 703 Building.

Excess work consisted of preparing for shipment 6 cars of equipment, 8 cars of lumber, 81 trucks of lumber and approximately 40 crates of miscellaneous items.

The electrical group rebuilt 11 ranges, overhauled 8 irrigation pump motors and changed out 3 fractional H.P. motors, installed 10 fluorescent fixtures, relocated 12 bathroom switches, and completed 68 trouble calls.

Interior painting in 700 Area is progressing ahead of schedule.

Sign Shop processed Monthly Health Bulletins, approximately 25 name plates, 10 large Scotch-Lite signs for Security, 4 20" x 24" signs for "One Way Traffic", several miscellaneous signs for 300 Area, Real Estate Divisions and the Hospital. Lettered and numbered bins in 712 Building, numbered doors in 760 Building. Made call board with twelve names for Engineering and Contract Division, and made one 4' x 8' blackboard for A.E.C.

One hundred and twenty-one sections of shelving were moved from 712-B to 712 Building. Thirty-three sections were completely dismantled and banded for storage.

General Maintenance Cont'd.

Five fire hose boxes in 700 Area are 85% complete. 700 Area cooler overhaul work is 40% complete.

Clean-up of attics of 700 Area buildings is 80% complete.

Condensate meters were installed at High School Paint Shop and Nursery.

Routine work consisted of general clean-up of 700 Area grounds; general maintenance of 700 Area Steam System; general maintenance of 700 Area plumbing; steam and other repairs at Hospital and Public Health Building; repair and inspection of main steam lines: and maintenance of boilers and equipment at 784, 784-A and 1131 Buildings.

Power Operation:

Three boilers were in service until March 19, when decreased steam requirements permitted a two-boiler operation, which was continued for the remainder of the month.

On March 5, all shift operations changed from overlapping shift to non-overlapping shift. Greater employee and supervisory satisfaction is resulting from this change.

Car-mover was placed in operation and is performing satisfactorily. One Coal Handler was up-graded to Miscellaneous Power Operator and transferred to Municipal Public Works Division.

Steam operations at 1131 Area were normal for the month, with decreasing requirements as a result of warmer weather.

Steam generated - 28,495.2 M. lbs.: steam leaving plant - 24,249.1 M. lbs; steam delivered - 22,619.7 M. lbs.; coal consumed - 2,191.97 net tons; water softened 3,563,900 gallons.

NORTH RICHLAND FIRE DIVISION

Alarm No.	Response to Alarms	Cause for Alarms	Received By Box	Received By Phone
25	7th & "C"	False Alarm	1	
26	Hospital, 5th and "M"	Accidental Alarm	1	
27	"F" between 2nd and 3rd	Overheated washing machine	1	
28	Berlen Road, ½ mile of Gun Club	Uncontrolled burning		1
29	Car in front of Post Office	Smokers' carelessness		1
30	Trailer at 1021 "I"	Overheated oil stove	1	
31	North of Hospital, off 6th	Smokers' carelessness		1
32	Near Food Lines, Inc.	Smokers' carelessness		1

Date	Investigations	Personal Loss
3-5-51	Barracks 214-B, Rm. 2?, probable smoker's carelessness.	$ 5.21
3-6-51	Barracks 414-C, fan was turned off in utility room, causing excessive heat from radiator which set off sprinkler head.	
3-6-51	Bremerton house at 918 "C". Left burner of stove on and coffee pot overheated.	
3-8-51	Barracks 236-A, Rm. 8, smoker's carelessness.	17.00

North Richland Fire Division Cont'd.

Date	Investigations	Personal Loss
3-11-51	Northeast of Trailer Camp along river, apparently from controlled burning.	
3-19-51	Barracks 246-B, Rm. 15, smoker's carelessness.	$22.61
3-22-51	Bremerton house at 330 "C". Improperly operated oil stove.	
	Total Personal Loss	$44.82

Miscellaneous Activities:

Four Safety and Security meetings were held during month.

Twenty-four inside drills and five outside drills were conducted.

Seventy-four fire alarm boxes were tested.

Twelve First Aid classes were held.

Bomb shelter at John Ball School was inspected.

Red Cross film shown to Fire Division employees.

Tanker sent out as stand-by at irrigation ditch, between Stevens Drive and "W" Avenue for controlled burning on March 7.

Tanker stand-by, on March 8, at 1st and "Q", and stand-by at Steam Plant on March 20.

Installed master box card holders on Engines 2908, 2609, 2549 and 2513.

New telephone was installed in fire station (N-4441).

Repaired 2½-gallon foam bracket on truck 2513.

Emergency water system was inspected.

A group of Cub Scouts visited Fire Station.

Seven men reported to hospital for annual physical examinations.

Emergency Fire connection on six-inch water main at Steam Plant was inspected.

NORTH RICHLAND PATROL DIVISION

General:

Sixteen inquiries regarding formerly employed personnel were answered. These inquiries came from the U. S. Navy, U. S. Army, Civil Service Commission and E. I. du Pont de Nemours Company.

Thirteen traffic violations were received during the month. Four of these were stop sign violations, one for speeding, three for no operator's license, four for illegal parking violations and one illegal passing violation.

North Richland Patrol Division Cont'd.

A survey was made of the North Richland Area for foreign license plates. On all cars bearing foreign plates a card was placed on the windshield, which stated the laws of Washington relative to being gainfully employed in the state and driving a car bearing foreign plates.

A total of 117 traffic warning tickets were issued by North Richland Patrol during the month. These traffic violations consisted mainly of illegal parking.

There were five automobile accidents in the North Richland Area.

All facilities, warehouses, buildings and the John Ball School were checked daily on the number 1 and 3 shifts and on all shifts on Sundays and Holidays.

Ten monthly hours and 30 weekly hours were spent on the bank money escort from Pasco.

All fire, safety and traffic hazards observed by North Richland Patrol were reported to the proper authorities.

On Thursday's at 7:00 p.m. an appearance officer, assigned to Judge E. W. Brown's court, appeared against persons cited to court by North Richland Patrol.

Twelve persons were incarcerated in the Richland jail during the month. Five for public intoxication, three for public nuisance, one for vagrancy, one for drunken driving and two for theft of automobile.

Ten employees attended police school on "In Service Training" in Pasco.

A Cub Scout Troop from the John Ball School was conducted on a tour of Patrol Headquarters. Some of the Patrol duties were explained.

A staff meeting was held on March 23.

Patrol acted as escort for 5 wide and high loads coming to and from the Richland barricade.

On March 6 the U. S. Army acquired the hospital in North Richland, with the exception of the First Aid wing.

On four occasions patrolmen assisted ambulance drivers.

Five firearms were registered with the Arsenal Office. These firearms belong to persons living in North Richland.

Seventy-eight "Courtesy Cards"were issued during the month. These cards were placed on vehicles that were in violation of the parking regulations.

All traffic control points were covered during the hours of heaviest traffic.

North Richland population is as follows: Bremerton Houses - 637; Trailer Camp - 3,126; Men's Barracks - 1,287; Women's Barracks - 45; Total Population - 5,095. There are 1117 occupied trailer lots and 186 occupied Bremerton Houses. There was a population increase of 55 persons during the month.

There are five fixed posts and five reposts in the North Richland Area.

North Richland Patrol Division Cont'd.

Unusual Incident Reports

Public Intoxication	5
Public Nuisance	3
Family Disturbance	1
Automobile Theft	1
Misplaced or Stolen Billfold	1
Negligent Driving	1
Reckless Driving	1
Negligent Driving and no Operator's Permit	1
Theft of Ring	1
Drunken Driving	1
Vagrancy	1
Petit Larceny	1
Automobile Accident (1 Private Car)	3
Automobile Accident (2 Private Cars)	1
Failure to Stop and Identify	1
Juvenile Psychopathic Case	1
Unregistered Rifle	1
Removal of Sidewalk and Decking	1
Theft of Jacket (Unfounded)	1

Special Services Performed

Emergency Messages Delivered	42
Emergency Long Distance Telephone Calls	97
Western Union and Pacific Telegrams	10
Fires (Sig. 12)	5
False Fire Alarms	2
Unusual conditions reported to Maintenance	13
Escorts to First Aid	3
Bicycles Reported Missing	3
Bicycles Found	2
Bicycles Returned to Owner	2
Children Lost	1
Children Returned to Parents	1
Children Bitten by Dog	1
Man Bitten by Dog	1
Personnel Locked out of Rooms	10
Automobiles Impounded At North Richland Patrol Hdqrs.	3
Dogs Lost	1
Dogs Impounded	1
Complaints on Dogs in Trailer Camp	9
Billfolds Turned In To Patrol	1
Suspicious Persons Investigated	2

Complaints

Grand Larceny	1
Petit Larceny	3
Miscellaneous	2
Cases Cleared	7
Cases Unfounded	1

NORTH RICHLAND PATROL
COURT CASES
MARCH, 1951

VIOLATION	NO. OF CASES	NO. OF CONV.	NO. OF FORF.	CASES CONT'D.	CASES PEND.	CASES DISM.	WARR. ISS.	SENT. JAIL	SENT. SUSP.	LIC. REV.	TOTAL FINES	TOTAL SUSP.	TOTAL BAIL FORF.
Neg. Driving	4	2	2								$ 35.00		$ 55.00
No Oper. Lic.	3	1	1	1							17.50	$7.50	7.50
Failure to Observe Stop Sign	3	1	1	1			1				10.00		5.00
Failure to Stop and Identify	2		2										30.00
Speeding	2	1	1								22.50		12.50
Imp. Parking	4	3	1								10.50		3.50
Failure to Yield Right of Way	1			1									
Passing in No-Passing Zone	1	1									7.50		
Pub. Intox.	5	3	2								47.50		25.00
Pub. Nuisance	3	2	1								40.00		17.50
Petit Larceny	1	1						1	1				
Auto Theft	2					2							
Vagrancy	1	1						1	1				
Totals	32	16	11	3		2	1	2	2		$190.50	$7.50	$156.00

UNCLASSIFIED

ENGINEERING AND CONSTRUCTION DIVISIONS

I. ORGANIZATION AND PERSONNEL

Employees on Payroll

	Beginning	March End	Net Change
	669	893*	+224
Employees on Loan from			
Instrument Division	7	9	
Purchasing & Stores	1	1	
Schenectady	4	4	
	12	14	
Total E&C Divisions	681	907	

* Includes 215 Personnel transferred to Engineering and Construction by consolidation of Project Engineering and Design and Construction Divisions.

II. INVENTIONS AND DISCOVERIES

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

NONE

[redacted]

ACCOUNTING DIVISION

I. SUMMARY

Considerable time has been spent in compiling a set of construction cost codes which will be uniform and standard for all Divisions and subcontractors of the Engineering and Construction Divisions. It is expected these codes will be in effect by May 1, 1951.

Due to the increased volume of work load in the construction cost section, it was decided to adopt machine posting. Five Burroughs Bookkeeping machines have been ordered and it is expected that three of these machines will be installed and ready for use about April 20, 1951.

II. STATISTICAL AND GENERAL

Total cash disbursed during the month of March was $5,201,136 compared with $4,799,656 disbursed during February.

Accounts Payable Distribution Summary follows:

	March
General Electric Purchases	$ 1,484,775
Reimbursement - Atkinson-Jones CPFF Subcontract - Construction	3,198,580
Reimbursement - Atkinson-Jones CPFF Subcontract - Service	238,791
Reimbursement - Other CPFF Subcontracts (Architect Engineers)	447,381
Partial Payments to Lump Sum Subcontracts	214,614
Travel (General Electric)	5,020
Miscellaneous	121,720
Total Credited to Accounts Payable	$ 5,710,881

Subcontractors Payroll Statistics:

	March
Average number of employees reported by CPFF Subcontractors (Including Service Contract)	5451
CPFF Construction Subcontractors Payrolls	$ 2,106,349
CPFF Service Contract Payrolls	234,807
Architect Engineer Payrolls	367,809
Total CPFF Payrolls	$ 2,708,965
Average per week (4 week period excluding Architect Engineers)	$ 585,289
Average Weekly Earnings	$ 107.37

During the month a refund of $7,282 was received from the E. I. du Pont de Nemours and Company to cover excess of reimbursement for work under Subcontract G-174.

Subcontract G-157 with C. C. Moore and Co. was financially completed.

An audit is currently being made to determine the amount of property charged to Project C-300, which should be capitalized. Proper account adjustments will be made to reflect capitalization of those assets.

III. PERSONNEL

Employees on payroll:

	MARCH	
Beginning	End	Net Change
73	73	0

[redacted]

CONTRACT DIVISION

I. SUMMARY

Subcontract G-343, Baldwin-Dunham Company - Modification #1 approved by the Commission 3-23-51 added 380 Prefabs to existing contract.

Addendum No. 1 to Invitation to Bid on B-111 eliminated additional Waste Storage Facilities for 241-BZ (200E).

Modification prepared on restatement of CPFF Subcontract G-133 - Atkinson-Jones.

Negotiations with the Kellex Corporation have been successfully completed covering design of a portion of the 100 C Facilities. Contract document has been executed by all parties.

II. STATISTICAL AND GENERAL

Eleven contract items showing an increase of $2,375,194.67 were completed in March.

Twelve other contract items were disposed of which did not involve money.

III. PERSONNEL

Employees on payroll:

	MARCH	
Beginning	End	Net Change
31	30*	-1

* Includes one employee on loan to another Division.

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MINOR CONSTRUCTION DIVISION

I. SUMMARY

Effective March 22 there is established the Minor Construction Division of the Engineering and Construction Divisions, comprising the previously designated Construction Division of the Engineering and Construction Divisions. Mr. J. M. Heffner is appointed Manager; Vice Mr. V. D. Nixon.

New work assignments, (1) fabricate, assemble for test and install process hood and equipment - 234-5 Building, (2) temporary construction electrical supply for H. I. Building, Project C-257, (3) site survey for Project C-431, (4) layout work for Mechanical Development Building - Project C-406, (5) electrical installation 241-TX, 115 tank, Project C-362, (6) layout service for Project C-204-B, (7) install 13.8 KV line and T. C. Substation, construct temporary railroad spur, construction of concrete monuments, Project 241-TY, Project C-418, (8) replace rotted wood posts - 380 prefabs, (9) repair box sills on 6 prefabs, (10) temporary electrical for laboratory center - Project C-381, (11) temporary fence at Aquatic Biology Laboratory, Project C-364, (12) provide water service and drainage facilities - Pile Technology Division.

II. STATISTICAL AND GENERAL

Project C-362 - Waste Metal Recovery Facilities (TDP), Phases 1 and 2, 241-U, 241-TX, 241-C and 241-BY

All concrete pits and trenches have been completed on 101 cascade. Core drilling for heel pit hole is in progress on second cascade. Excavation for pits and trenches on third cascade 75% complete. Excavation in progress on 241-BY and C. Tank farm 241-U tie-in completed.

Project C-198 - 234-5 Building Program

Miscellaneous work items, partitions, service piping, etc. are being performed.

Project C-416 - Minor Construction Division Fabricating Shops

Work on shop buildings and remodeling is approximately 80% complete. Equipment installation to start as soon as equipment is available.

Project C-418 - Tank Farm 241-TY

Work starting on temporary fence, water line and layout and surveying.

Richland Civil Defense Authority

Work on Defense Control Center is progressing. Seven fences along canal at Carmichael school complete, fences at pumping station and domestic water well pumphouse started.

RDA-E&C-No. 1

Work on charging machine and various other tests and installations now in progress.

Alterations to 712-A Hutment - 700 Area
Work progressing and completion expected March 31, with the exception of pipe and plumbing work. Consideration is being given to letting a lump sum contract for the pipe and plumbing portion of the job.

Electrical Line Crews
Line crews have been performing work as requested by Project Engineering, on transformer bank for C-423, line installations for the Army at 200 East, 200-West, P-11, White Bluffs and 300 Area.

Safety
Safety inspections were made in all areas. Contacts with foremen regarding men reporting injuries were made. Safety and fire equipment located where necessary.

Minor injuries	37
Lost Time Injuries	0
Accidents (automotive)	1
Fires	0

Office Engineering
Warehouse addition and storage yard now completed; materials, small tools and equipment parts now being centrally located.

III. PERSONNEL

	MARCH		
	Beginning	End	Net Change
General Electric	32	33	+1
Sub & Subcontractors			
Non-Manual	43	48	+5
Manual	503	588	+85
	546	636	+90

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ENGINEERING AND CONSTRUCTION SERVICES DIVISION

I. SUMMARY

Some shifting of Supervisory Personnel continued this month. One supervisor resigned.

The work load in all Sections continues to be heavy, considerable Saturday and some night work being necessary to keep up with requirements. The new multigraph machine is proving out as an excellent reproducer for many documents and forms. Costs in some cases have been reduced 60%. Considerable better quality work is being turned out than was formerly by the Ozalid and mimeograph and ditto processes.

Closer accountability has been effected between this plant and the Kellex Corporation's New York office for job records and the Schenectady office of General Electric Company for mailing procedures of shipping design information by C. W. Buchanan at their offices.

The recruitment of drafting personnel and establishment of a training program for beginning draftsmen has been coordinated by D. A. Conley.

II. STATISTICAL AND GENERAL

North Richland Camp
Population*

Trailers	3,123	
Barracks	1,326	
Houses	635	
Total	5,084	Net Increase 118

*Note: This does not include U. S. Army personnel.

General
Construction Work at the John Ball School and the hospital has been completed.

Work has started to provide switches below each series circuit station covering the operation of street lights.

February 27, 1951 at 8:45 A.M. an explosion of coal dust or gas occurred in the Number 3 silo at the Steam Plant. There were no injuries but considerable damage resulted. Partial repairs have been effected.

The water meter at the Pump Station has been recalibrated and adjustments made to usage reports.

Maintenance
General and seasonal maintenance work and vacating of buildings for Army use are now being carried on.

[redacted]

Steam Generating Plant

Steam generated, M lbs.	53,529.00
Oil consumed, gallons	11,238.00
Coal consumed, tons	3,720.89
Boiler efficiency, average %	75.69
Steam cost, per M lbs.	$ .774

Water consumption for the month was 47,805,600 or an average daily consumption of 1,593,520 gallons.

Commercial Facilities

There were sixteen commercial facilities operating in North Richland.

Recommendations for changes to terms and conditions of license agreements affecting seven operators have been developed.

Community Activities

The recreation program for the summer season is getting underway. Some additional equipment has been ordered. Voluntary leadership is being sought as the School District will be financially unable to provide this service.

Supervisors are attending a district National Recreation Association Conference in Moscow, Idaho.

There were eighty-eight religious and seventy-six social meetings conducted during the month.

Office Services

Due to the consolidation of Technical and Project Engineering Divisions with E&C, additional surveys are being made to locate office space in the 3000 Area for the additional people required in Accounting, Lump Sum Subcontractors, etc.

Security

Statistical information

During the month, 392 meetings were held at which Security topics were discussed. These meetings were attended by 11,300 employees. Three Security Bulletins were issued.

Major construction equipment

Total equipment assigned to A&J and E&C	2002
Total shop equipment assigned to A&J and G.E.	760

Safety

Construction Injuries	Contractors
Major Injuries	3
Sub-Major Injuries	8
Minor Injuries	535

Civil Defense

The Civil Defense program activities have increased. Evacuation plans in the areas, erection and distribution of equipment and instructions are underway. School building evacuation drills are being conducted. Certain mobile equipment has been located for use. Locations for caches
8 of medical supplies, nurses' aids, emergency water supply and trans-

portatio are being studied.

Drafting Section
Drafting Production:

New Drawings	339
Miscellaneous	37
Drawing Revisions	245
Drawings efficiency index, man-days/drawing	4.5

Estimating and Standards Section
Estimating:

Estimates scheduled	20
Estimates completed	10
Estimates to be completed	10
Total estimated value	$30,000,000

Unit Costs:
Studies continued on Project C-187-D and C-362
Studies continued on G.E. Construction
Unitization of North Richland Camp and Construction Area

Reproduction Section
Production Group Activity:

Originals Handled	20,939
Prints Produced	213,711
Square Feet of Paper	647,222
Average Square Feet Per Employee	38,072

Personnel, Records and History Section
Security Clearances Processed:

Requests for Area Badges, Cancellations, Access Authorizations and Material and Package Passes	301

E&C Payroll Additions, Terminations and Transfers:

Additions	27
Terminations	31
Transfers within E&C Divisions	8
Transfers out of E&C Divisions	9

Secret and Confidential Documents Processed:

Documents Issued, Routed or Destroyed	3391

Procedures Issued:

E&C Instructions Issued	22

Status of Histories:

Histories Issued	5
Ready for Issued	23
Others in Process	99

[redacted]

Office Services:

Number of Teletypes Sent	447
Number of Teletypes Received	591
Number of Copies of Ditto Reproduced	106,340
Number of Copies of Stencils Reproduced	50,478
Number of Pieces of Incoming Mail	246,981
Number of Pieces of Registered and Insured Mail (Outgoing)	91
Amount of Postage Used	$1,045.93
Number of Store Orders Written (Stationery)	268
Number of Special Messenger Deliveries	273

Project Cost and Progress Analysis Section
Forecasts, charts, analyses and reports were developed and issued to show status of E&C Projects.

Miscellaneous:
Coordinated preparation of 1951, 52, 53 Budget force figures for Engineering Services.

Mr. H. F. Scott devoted some 75% of his time to Civilian Defense Work.

III. PERSONNEL

Number of employees on payroll:

Beginning	March End	Net Change
305	301	-4

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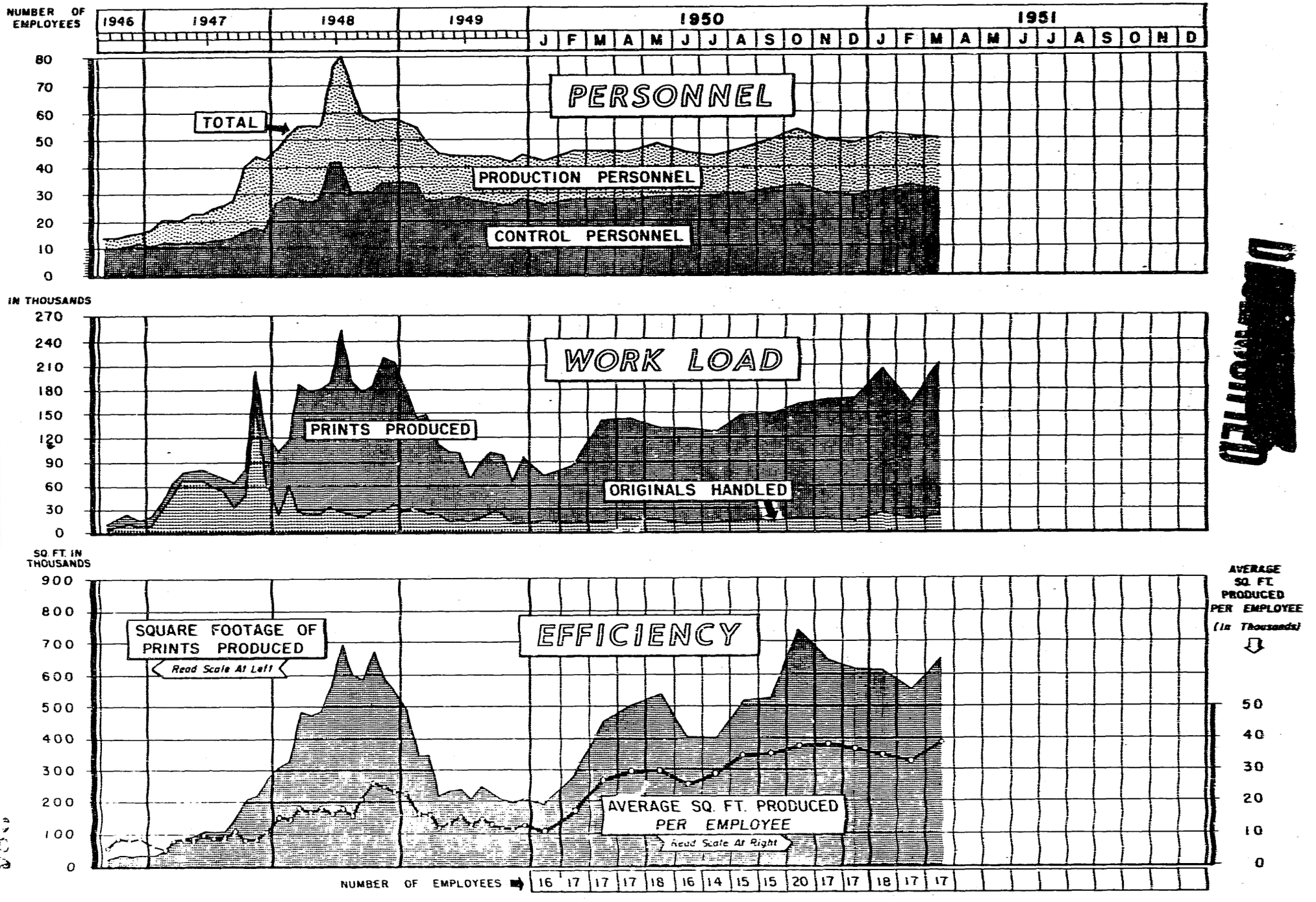
ENGINEERING & CONSTRUCTION SERVICES DIVISION

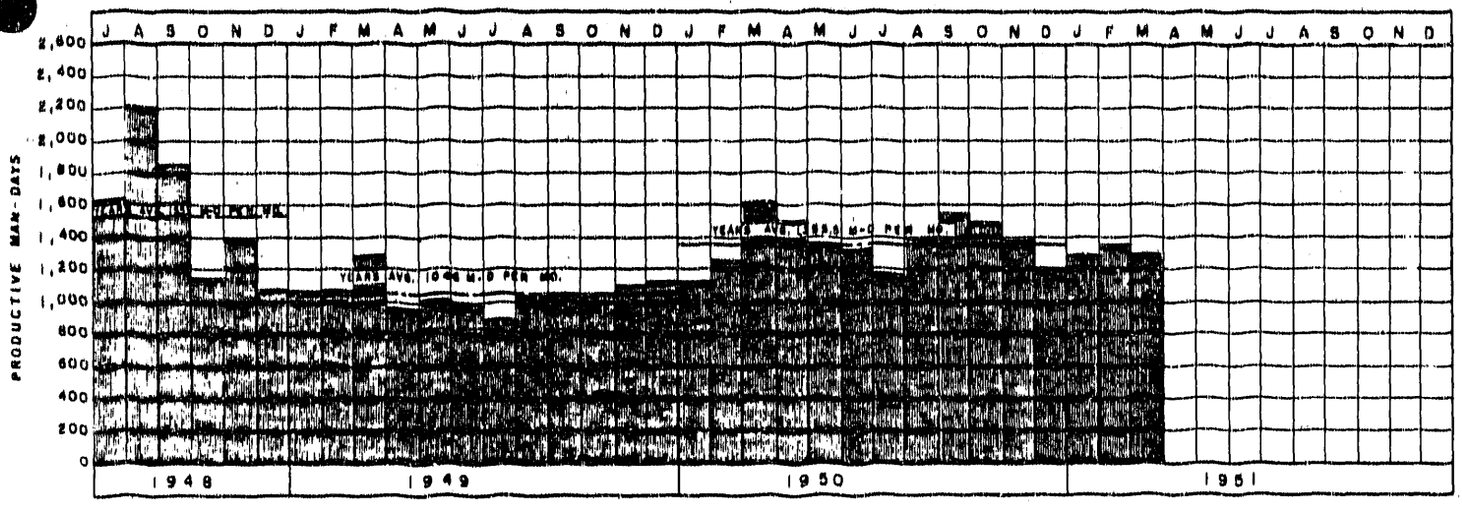
REPRODUCTION SECTION STATISTICS



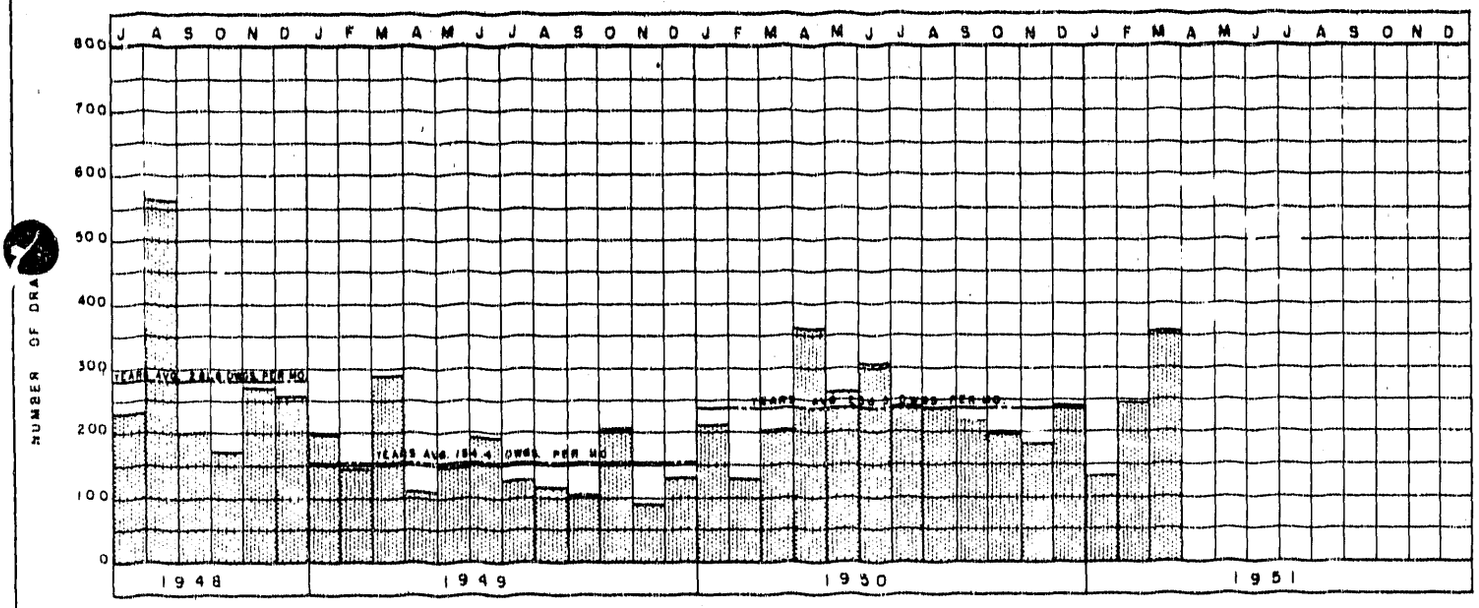
[redacted]

ENGINEERING & CONSTRUCTION SERVICES DIVISION [redacted]

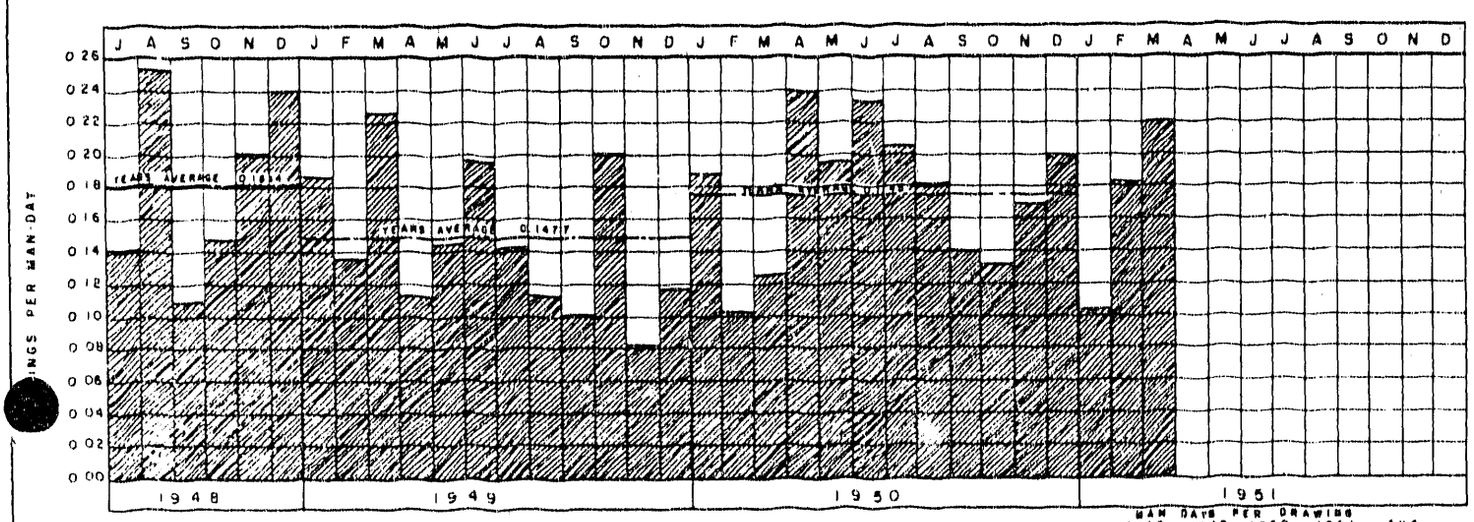
Drafting Section



MAN POWER



DRAWINGS PRODUCED



	MAN DAYS PER DRAWING 1948	1949	1950	1951	AVG
BATES	4.46	6.42	6.33		5.83
DEUSNER	5.04	7.74	4.99		5.73
NICHOLS	5.46	8.91	4.11		6.23
WILLIAMSON	6.33	5.96	5.70		6.00
DR ROOM	5.51	6.77	5.73		6.00

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PRINCIPAL ENGINEERS

I. SUMMARY

The activities of the Principal Engineers consisted of reviewing and commenting on drawings, design documents, specifications, preparation of special report and recommendations on utilities, such as steam, water and electrical.

Investigation of the effects of new project electrical loads on utility systems.

Consulting services on technical matters.

Carried on Recruitment program of Technical Engineers.

II. STATISTICAL AND GENERAL

Special Reports
Electrical and Mechanical Engineers of the 1951 Graduating Class of the University of California at Berkely were interviewed. Recommendations for employment of certain men were made.

Welding and corrosion tests of strategic metals conducted in San Francisco in latter part of March.

The qualities of Motor Control Centers of several manufacturers, to determine policy in writing future specifications.

Standards Committee work was done on setting up more complete standards for plant electrical receptacles.

Consulting and Advisory Services
C-361, UO_3 Plant (Metal Sweetening and Conversion Facilities)
Continued work on casting problem at Esco Foundry, Portland.

C-362, Waste Metal Recovery (TDP)
Field welding problems of transport line.

C-394, Plot Plan and Utilities
Merits, efficiency and economy of turbine driven emergency electric generator versus diesel generator. Draft of design specifications.

C-414, Pile Technology Building
Adapting of a 2300 volt, 150 H.P. motor for use on a 480 volt system by reconnection of windings.

C-431, New Pile, 100 C Plant
Blast resistance factor in design of structures. Electrical power system for new pumping units. 105 ventilation system design specifications. Recommendations on certain stainless applications.

[redacted]

General Items
Standards committee "Design Guide for Stainless Steels".
Revisions to H.W. Specifications for Welder Qualification Tests and the Piping Code.
Miscellaneous problems - Substitute materials effect on NPA Regulations, etc., Air filter efficiencies, application possibilities of "Ball Valve Company" rotary valve equipment.

Review and Comments
187-D, Redox Production Plant
Vessel fabrication and specifications.

C-385, Radiometallurgy Building
Preliminary plans and specifications.

C-394, Plot Plan and Utilities
Design criteria.

C-431, New Reactor 100-C Plant
Design criteria for 105 Building Electrical systems

General Items
Civil Defense Program, proposed electrical circuits for control of alarm horns.
3084 Coal Silo, explosion of coal.
Army invitations to bid on contract work for steam services, based on 1950-51 winter conditions, electrical drawings and specifications covering certain buildings.
Technical paper written by employee, for release with respect to any classified material contained therein.

III. PERSONNEL

Employees on payroll

Beginning	March End	Net Change
3	3	0

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POWER AND MECHANICAL DIVISION

I. SUMMARY

Members of the Design Engineering group spent 75% of their time in engineering assistance on projects for other divisions.

Notice to proceed on a design contract for the new production facility, C-431-A, was effective March 5th, retroactive to January 25, 1951.

II. STATISTICAL AND GENERAL

C-199, Expansion of 300 Area Sanitary Sewer Disposal System: Little progress has been made on design engineering the past month because of high priority assigned to other work.

C-204-B, Additions and Alterations to Kadlec Hospital & Medical Arts Bldg.: The construction contractor, Malarkey & Moore, started work early in the month and are making slow progress due in part to a temporary difficulty in manning the job adequately.

C-257, Health Instrument Control Laboratory: Work by the Sound Construction & Engineering Company progressed satisfactorily during the month. Foundations, pier footings, and general concrete work is approximately 15% complete. Excavation and back-filling is approximately 75% complete. Over all, project is approximately 3% complete.

C-295, Enlarging 251 Substation: Formal notice to proceed with the construction of this project was issued on March 27 to Montgomery Electric Co. of Seattle. The subcontract number is G-359, which schedules construction completion for November 26, 1951.

C-353, Richland Water Study: The revised study report was submitted on March 14 by the architect-engineer, Alvord, Burdick & Howson. Copies have been transmitted for comment to the Atomic Energy Commission and the Municipal Division. Further work will await their recommendations.

C-364, Aquatic Biology Laboratory: Revised plans and specifications on this project were submitted by the architect-engineer, Barrett & Logan, on March 20. After review, these have been transmitted to the Contract Division so that the project may be advertised for lump sum construction bids. Approval was granted by the Atomic Energy Commission under the date of April 2 to limit competition to four construction contractors in an attempt to meet the very short time allowed for construction. This was later modified to permit bidding from any interested parties. It is expected that bids will be opened on April 19th.

C-381, Radiochemistry Building: Final plans and specifications prepared by Leland S. Rosener were received on March 7. These have been carefully checked, minor corrections have been made, and are being prepared for transmittal to the Contract Division.

C-385, Radiometallurgy Building: Design by Leland S. Rosener is approximately 66% complete. Design of four items of special high-radiation level equipment is 84% complete.

C-394, Plot Plan & Utilities - HW Laboratory: Preliminary drawings on all design work under contract to Leland S. Rosener were received on March 31. Design work is estimated to be 84% complete.

C-406, Mechanical Development Building: Directive HW-204, Modification 2, was issued on April 2 authorizing funds for the construction of Phase II of this project. Under date of March 16, the Commission also authorized the negotiation of a lump sum subcontract with Dix Steel Building Company for the design and construction of Phase II.

C-414, Pile Technology Building: Plans and specifications are about 60% complete and were reviewed by G.E. engineers at the Boston office of Chas. T. Main, Inc., during the month. Design of certain mechanical features is somewhat behind schedule, but is expected to be approximately on schedule by the end of April.

C-421, Library & Files Building: Plans and specifications being prepared by Chas. T. Main, Inc., are now 74% complete and are on schedule.

C-431-A, 100-C Production Facility: Notice to proceed on the design of this project was issued to Chas. T. Main, Inc., on March 5, retroactive to January 25, 1951, the subcontract number being G-363. During the period from March 12 to April 4, four representatives of the architect-engineer were in Richland assisting in the preparation of scope material and design criteria. Requisitions to the value of approximately $2,500,000 have been turned over to Purchasing Division, which have thus far resulted in two firm purchase orders totaling $320,000. Directive HW-222, Modification 2, dated March 21, 1951, authorized the construction of this project, but did not provide funds for construction. Negotiations leading to a CPFF construction subcontract are in process with Atkinson-Jones Company.

C-433, 384 Steam Plant Addition: Directive HW-229, dated March 28, was issued by the Commission allocating funds for the design and construction of additions to the 384 Steam Plant and 382 Water Plant. Bid invitations will be issued early in April.

III. PERSONNEL

Employees on payroll:

Beginning	March End	Net Change
57	59	+2

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PROJECT ENGINEERING DIVISION

I. SUMMARY

Work was progressing during March on 74 active projects and 18 informal requests representing $23,400,876 worth of project work. In addition, this division provides a considerable volume of assistance and consulting services to the Operating Divisions in connection with maintenance and minor construction jobs of less than project proportions.

Plans for the Civil Defense Program are progressing. Air raid sirens have been received and a project proposal submitted to the A and B Committee for the air raid warning system. Designs are in preparation for air raid shelters and cost of various alternate proposals being studied.

Larger jobs now in progress include the P-10 Program, the Waste Evaporators, and the Hot Semi-Works, with this division responsible for all phases from design, through administration of field work or contract stages, down to and including cost records for each job.

The Industrial Engineering Study Group is presently concerned mainly with streamlining operational cycles for Manufacturing Divisions, though their assistance is available to all divisions on the plant when need arises.

No inventions or discoveries were reported during March.

No major or submajor and but one minor injury was reported up to 3-27-51.

II. STATISTICAL AND GENERAL

The following is a brief summary of important project items as listed by areas:

100 AREAS

C-172 - Dismantling of Equipment - Demineralizing & Deaerating Plants

100 D & F tanks have been removed, and the special hoisting equipment moved to 100-B, where two tanks have already been lowered.

Arrangements have been made by Morrison-Knudsen Company for repair of damage to 185-F, 189-F and 190-F Buildings which was caused by the deaerator tank that fell.

C-399 - P-10-D Program

Project proposal Part II has been submitted for approval, with design phases now essentially complete, though substitution of alternate materials has become necessary in fabrication work in order to permit completion of extraction and handling facilities in April.

Field work is progressing with CPFF Service Subcontractor forces.

C-410 - In-Pile Controlled Atmosphere - Experimental Facilities

Plant forces began installation of equipment March 15, 1951. Shop Fabrication work is nearing completion.

C-411 - P-10-X J Slug Handling Facilities

Virtually all design aspects have been completed utilizing 105-H basin for storage and 105-H transfer area crane for cask handling. Present planning includes a firm order for four casks with material being held available in storage for two more if needed. Detailed study of cask heat transfer rates is now in progress.

C-412 - P-10-X Extraction Facilities

A scope description has been completed covering all phases of the installation at 108-B in detail with the exception of the metallurgical facility. The latter is covered in general terms only since details must remain somewhat flexible due to the specialized nature of this item. Basically this laboratory consists of "glove boxes" for handling small "hot" items and a shielded "cave" arrangement to be used for cutting sections from processed furnace charges.

Detailed design is in progress with the product storage building designs scheduled to be completed during April.

Advanced ordering of material is proceeding rapidly.

A letter project is being submitted to the Atomic Energy Commission requesting approval for construction and also increasing the amount of approved funds from $615,000 to $800,000.

M-831 - 107-B,D,F,H & DR Basins Permanent Repairs (ER-1149)
M-824 - Emergency Repair 107 DR & F Basins

Investigation of various brands of expansion joint compounds (putty, thiokol or latex type) which would be suitable for water temperatures up to 200°F revealed that none would meet all of the rather rigid requirements. Investigation has now been turned toward a flat and flexible membrane type of expansion joint.

Some leaks have been repaired in 107-D basin, but remaining work has been delayed pending final decision on material to be used.

M-832 - Ball Type Third Safety System

H.I. tests revealed that the balls contained in the fluted step-plug had an insignificant effect on shielding. Design with dump gates at the bottom of the flutes was therefore dropped in favor of a gate above the top of the pile which has the added advantage of permitting an operational test check without dumping the balls in the hole. Such an arrangement will make the mechanism more accessable for inspection and maintenance.

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M-832 - Ball Type Third Safety System (Cont'd.)

Study sketches have been prepared for three alternate types of dumping action, and a comparative analysis has been prepared on these designs.

Improved ball flow and shielding properties are indicated for the fluted step-plug on which preliminary design has well advanced.

Tentative designs have been prepared for bottom plugs and auxiliary equipment.

200 AREAS

C-349 - Hot Semi-Works

Review of status of General Electric furnished materials indicates that the contractor's schedule will be met. Major excavation is essentially completed and a temporary substation has been provided for the contractor's use.

C-337 and C-378 - Dissolver Off Gas Filter and Silver Nitrate Reactor

The fourth unit has been installed and authorization has been received for the fabrication of the fifth unit. Material is being ordered for the fifth unit.

C-369 - Evaporation Facilities, 200 West Area

Outside of a few minor changes, the design for 200 West Area is complete.

Field construction is rapidly progressing, with outside work completed except for walks and grading. Facilities are scheduled to be ready for use May 1, 1951.

C-423 - Evaporation Facilities, 200 East Area

The project proposal is being reviewed by the Atomic Energy Commission.

Designs follow closely the unit now being installed in 200 West.

ER 2533 - Waste Disposal Facilities for Building 234-5

The project proposal being routed for approval of the A and B Committee.

ER 2547 - Coating Unit for Hood 26, Building 235

The project proposal has been routed for A and B Committee approval.

[redacted]

300 AREA

C-380 - Increased Ventilation 313-314 Buildings

Efficiency and particle size tests have been completed on the Hersey bag type filters adjacent to 314 Building, and an analysis and evaluation report is in preparation.

Equipment rearrangement plans for 313 Building Chip Recovery Area are progressing. Lowering the initial sorting table to floor level has eliminated one manual lifting operation and improved operator efficiency.

C-377 - Instrument Maintenance & Development Building

Construction contract is practically complete, but is being delayed because of certain electrical items and ventilation controls. The extension of time to April 1, requested by the contractor, may not be sufficient to complete the building.

GENERAL PLANT

C-390 & M-770 - Central Stores Warehouse

There has been no change in the status of this project, which is now awaiting authorization by the Atomic Energy Commission. A scale model of the warehouse has been completed and is now on display. The local Atomic Energy Commission Office will make all arrangements for the detailed design by an architect-engineer.

C-284-R & M-811 - Consolidation of Transportation Facilities

Final action on approval of design funds by the A and B Committee was withheld thirty days pending further investigation and estimates of individual shop units in lieu of a combined shop. Preliminary design of this new arrangement is complete and a high spot estimate will be available for discussion at the next meeting.

ER A-630 - Solvents Building - 300 Area

The Solvents Storage and Studies Building will now be combined into a single structure of approximately 2,000 square feet, including 400 square feet for the Stores Division Caption 10 solvents, and 144 square feet for sample preparation room. Preliminary sketch and estimate has been completed and a project proposal will be submitted to the March A and B Committee meeting.

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ELECTRICAL

C-404 - Primary Electrical Power Lines for Hanford Works Laboratory Area

Design for this project is essentially complete, and material ordering has been started. It is anticipated that one of the feeders will be run underground through the central part of the 300 Area. Construction power has been provided by temporary line extension.

C-380 - Electricity Metering - Village of Richland

Design work for this project is complete, and subcontract preparation is now underway.

C-419 - Induction Heating - Building 3732

Project proposal has been approved and specifications for the induction equipment have been forwarded to Purchasing. Design is complete.

C-432 - Air Raid Warning System, Richland - N. Richland

Warning equipment is now on the plant. Design of control system, etc. is in progress. Towers will be installed by lump sum contract and will include placement of siren and fencing.

ER E-453 - Intercommunication System, Building 234-5

This proposal provides for installation of a 100 line dial exchange for local service within the building, utilizing exchange equipment available on the plant. Since this work was not of informal request proportions it will be accomplished by work order.

ER E-454 - Extension of 300 Area Underground Electrical Power Distribution System

Project proposal is essentially complete. Design is progressing satisfactorily.

ER E-456 - Additional Equipment Richland Telephone Exchange

The project proposal has been rewritten to include a more detailed description of and reason for proposed work. No design work is anticipated.

INDUSTRIAL ENGINEERING

P-10 Studies

A special pick-up tong which could differentiate between P-10 and uranium slugs was developed for use in P-10 discharges from the pile, but during March, reduction of production requirements and relaxation of certain technical specifications have made it possible to effect the P-10 dis-

[redacted]

P-10 Studies (Cont'd.)

charge within the normal maintenance outage time. Work has therefore been discontinued on evaluation of the tongs in view of the more relaxed pressure at the pick-up operation.

234-5 Building Studies

Efforts were concentrated on establishing rate balances and material flows for the R. G. Line. Through-put efficiency, route of recycles and total output of each unit in Part II have been computed from production records. Integration of these results with Part I data is in progress.

Information regarding Hood 8 furnace outage time is being developed from historical records to determine major causes of maintenance outage as well as extent of down-time due to other causes.

300 Area Studies

The slug canning operation preliminary analysis has indicated the feasibility of at least partial mechanization. Efforts will be directed, in April, towards development of a demonstration unit covering the first phase of mechanization which includes cap preheating and its final assembly with the can and slug.

Mechanical control of certain aspects of the canned slug welding operation appears practical. The first element of a demonstration unit is to be fabricated and tested in April. This element will cause the electric arc to trace a predetermined and reproducible weld pattern on the cap.

The machining studies to increase capacity on the roller turner lathes continued primarily to obtain data on tool life.

700 Area Group Vehicle Study

A study of vehicle usage pattern is being made in order to determine the optimum possible usage efficiency pattern. A questionnaire is in preparation in connection with the survey.

III. PERSONNEL

Employees on payroll:

MARCH		
Beginning	End	Net Change
*220	**215	-5

*Includes 19 Industrial Engineering on loan from Manufacturing Divisions.
**Includes 17 Industrial Engineering on loan from Manufacturing Divisions.

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REACTOR DIVISION

I. SUMMARY

Effective March 22, Mr. V. D. Nixon is appointed Manager, Reactor Division; Vice P. E. Lowe, who has accepted other duties with the Manufacturing Division.

The Research and Developement Program D&C #1 has been transferred to the Technical Division. The Reactor Division will continue to do engineering design only for developement work. Most of the Test Projects were discontinued this month so that the Test Engineers could be assigned to C-431 (B).

C-431 (B)
The Kellox Corporation started design March 5 and initiated two studies. (1) provide Zone 2 earthquake resistance, (2) probable consequences of designing for 1000 lb./sq. ft. blast resistance. This latter study is to include an estimate of cost and schedule delay.

The letter project proposal requesting additional funds was submitted to the commission this month.

II. STATISTICAL AND GENERAL

All of the design criteria except instrumentation has been transmitted to the Architect-Engineer. When this has been reviewed a new schedule is to be submitted by the Architect-Engineer.

Two Scope matters are yet to be resolved; they are "coring" and water annul dimensions.

Material requisitions having a value of approximately $3,000,000 have been issued.

Requirements for Subcontractor purchased bulk material items are being surveyed.

Material and drafting schedules are being prepared.

A preliminary construction schedule for the fabrication of "B" Blocks has been developed.

Process Tube Heat Transfer
Throughout most of the month the Heat Transfer Tests were discontinued in favor of higher priority work for the C-431-B project. The tests were resumed March 28. Several tests are being performed in conjunction with the Technical Divisions. Some tests were made on the short length section. The section used will be put into the film build up system and will be tested again periodically. A graphical method for calculating boiling curves has been developed.

[redacted]

Materials Developement
The aluminum creep test has been completed with neglible secondary creep after 9800 hours. The zirconium creep rate for the past month was nil. A satisfactory system of regulating temperatures has been worked out on the high-temperature corrosion tests. Rolls are being fabricated for the production of ribbed sheet zirconium.

Shielding
All of the material has been requisitioned for the front, rear and side biological shield. The front, rear and side thermal blocks have been requisitioned.

Moderator
As a result of work done for the "G" reactor, the "C" moderator will incorporate design features which will maintain graphite temperatures at values which will minimize distortion. As a result, the growth will be materially less than on "H" reactor with an anticipated longer pile life.

Building and Facilities
A significant number of improvements have been incorporated in the building criteria on a "no delay" basis. A primary objective of our efforts has been to reduce the construction cost of the 105-C facility. As an example, a saving of $920,000 will be realized by eliminating the gas wing and incorporating the equipment in 115-B. The process lift station (1608) will also be incorporated in 105-C. All major items of building equipment have been requisitioned.

Continuous Charging
The complete discharging machine and the prototype charging machine are being installed on the test stand in 189-D. These machines will be tested using a full length process tube and nozzle to simulate pile operating conditions. This test has been delayed because of the diversion of the test manpower to requisition writing. The General Engineering Laboratory has agreed to undertake the Developement of a device which will automatically center the discharging machine on the discharge nozzle. All of the facilities required for continuous charging and discharging will be incorporated in the 105-C elevators and building.

Gas System
All major equipment items have been requisitioned for 105-C.

Ball Third Safety System
The ball removal duct arrangement which will be incorporated in the foundation of 105-C was tested successfully in the Reactor Division Test Laboratory, 189-D.

Heating and Ventilating
All major equipment items have been requisitioned.

Horizontal Rods
The design and detailed drawings of the rod seal have been completed and three (3) assemblies ordered for tests. The design layout of the round tip has been completed.

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Vertical Rods

The design layouts of the various components are underway. Three (3) preliminary drop tests were made at the White Bluffs Test Tower. The design and operation of the pneumatic decelerator appeared to be satisfactory.

Pile Enrichment

A study was completed of various methods of using enriched materials in the new 105-C facility to compensate for the loss of reactivity due to the enlarged water annulus. The results are summarized in report HDC-2085.

Charging and Discharging Elevators

Specifications and associated drawings were completed and reviewed with the Elevator Manufacturer. Procurement negotiations were completed and the contract was approved by the General Electric Company and the A.E.C., and it is being reviewed by the Haughton Elevator Company.

III. PERSONNEL

Mr. R. V. Andrews joined the design staff. Mr. M. J. Rutherford was transferred from the Separations Divisions.

Employees on payroll (excluding rotational engineers)

Beginning	March End	Net Change
43	47	+4

[redacted]

SEPARATIONS DIVISION

I. SUMMARY

Installation of equipment for Redox Production Facilities was delayed due to the incomplete status of cell finishing. Major equipment deliveries by fabricators did not meet expectations as only 14 pieces of the 30 scheduled were delivered in March. Construction reached 68.6% at months end.

All RMA material shipments for Project C-198, 234-5 Building Program have been received with the exception of a few relatively minor items.

Design for phases I and IV of Project C-362, Waste Metal Recovery Facilities, has been essentially completed by the Kellex Corporation. Scope for all phases is 100% complete as is detailed design for phases I, III and V. All detailed design is 85% complete.

II. STATISTICAL AND GENERAL

A. Project C-187-D - Redox Production Plant

Power and Mechanical Division design work on Redox outside facilities and Separations Division design work on the 241-S Tank Farm has been completed.

Design of equipment such as jumpers, dunnages, etc. necessary for the installation of the silver reactor has been completed. The field issue of these drawings has been held pending the development of firm information regarding delivery dates on the engineered items. It appears that a decision can be reached by mid-April as to whether the caustic scrubber units or the silver reactor units will be installed initially in the dissolver cells.

Major Equipment Status:

Received or shipped as of March 23 -	48 (62%)
Scheduled for March 23-31	4 (5%)
Scheduled for April	20 (25%)
Scheduled for May	6 (8%)
Major Equipment Total	78

The construction subcontractor has reported that substitutions and utilization of corrosion failed material where practical have essentially overcome the shortages caused by delayed deliveries and corrosion test failures.

Approximately 97.5% of the concrete to be poured in the 202-S Building was placed by March 23. Pouring of concrete in the silo region of the building has progressed to the silo roof level at the north end of the building and in the remainder of the silo to the Operating Gallery floor level.

Cell finishing operations are nearing completion. The stainless steel liners are essentially completed.

The hot pipe tunnel work is nearing completion. As of March 23, 88% of the piping was installed. It is expected that 100% completion will be attained by April 9.

The scheduled completion for the end of March is 79.9%, while actual is 68.6%. Comparable scheduled and actual figures for the end of February were 69.6% and 59.4% respectively. The slight deterioration of the actual progress with respect to scheduled progress results from the fact that the canyon and cells have not been completed sufficiently to allow the installation of process equipment which has passed through the Mock-up Building. During the coming month these installations should be started.

The construction subcontractor has been requested to inaugurate study of, and point completion towards, the completion of the 202-S Building by separate "cell units". It is believed that the first "cell unit" may be turned over to Operations in late May or early June.

B. Project C-187-E - Redox Analytical and Plant Assistance Laboratory
Construction of the Laboratory is 95% complete, Waste Disposal System is 91% complete and the over-all project 94% complete. It now appears that the order for hoods will not be completed until May 21, with delivery at the rate of twenty per week starting April 9. With such a schedule some of the laboratories can be ready for occupancy by May 1, but complete occupancy cannot be given until about June 1. Balancing of the ventilation system cannot start until all of the hoods are installed and will take approximately one month or by July 1.

Laboratory furniture was received in damaged condition and with manufacturing defects. This has delayed the installation of this equipment.

C. Project C-198 - 234-5 Facility
Progress for the month:

	Percent Complete		
	Basic Design	Overall Design	Construction
Richland	92	84	73
Schenectady	—	—	95.9

Construction work on C-198 has slowed down. Contributing factors are delays in equipment deliveries, insufficient design information from Schenectady, contract delays to the closely related Project C-413, and general labor unrest. Prospects for immediate improvement are good and target date completion is still reasonable.

Acceptance Test Procedures for Tasks II, III, and XII were approved and have been issued to the field. A rough draft of Operability Test - Task VIII, Hood 24, was prepared and transmitted to Schenectady for comments. Test procedures for use in the field as well as reports on Schenectady equipment tests are scheduled to be completed and transmitted to Richland by April 6, 1951.

The lack of equipment and acceptance test procedures are delaying factors already effecting the scheduled completion of the project. Estimated construction completion is only 73% compared to 84% scheduled.

D. Project C-361 - Metal Conversion

Progress for the month, exclusive of "segregation"

Scope..... 100%
Detailed Plans..... 99½%
Construction..... 15%

Modification #5 of Directive HW-158 authorizing an additional $150,000 for "segregation" has been received. Progress statistics for subsequent periods will be based upon the project as revised.

Requisitions have been issued on all design-procured items. Current information indicates deliveries of the fabricated vessels may be three months later than the required dates. Of five fabrication orders, all G. E. supplied material has been shipped for one order.

E. Project C-362 - Waste Metal Recovery Facilities

Progress for the month:

Phase:	I	II	III	IV	V	VI	Total
% Scope	100	100	100	100	100	100	100
% Design	100	62	100	92	100	83	85
% Construction	24.4	1.5	56.7	4.8	100	.9	12.1

Last month the total percentage of construction was reported as 12.7%. At that time the reporting was on a different weighting of the phases than is currently used. The former basis was on effort or manhours, whereas that which is now being used is on a labor and materials basis. Converting the current total value of 12.1% to the previous basis for comparison gives the figure of 15.7%.

During this month the corrosion failures, which have been reported, have dropped off to a negligible quantity, therefore, if this present trend continues, there will be virtually no adverse effect on the vendor fabricated items other than those which were involved in failures in the months of January and February.

F. Project C-413 - Expansion of 234-5 Facilities

Progress for the month:

	Percent Complete		
	Basic Design	Overall Design	Construction
Richland	17	10	2
Schenectady	--	--	28.8

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Delivery prospects for critical procurement items have improved on this project and design work is progressing as scheduled. Design changes and revisions have been kept to a minimum so far. It appears at the moment, however, that we may be required to convert all RM equipment for fabrication of a different size product prior to RMA start-up. The full effect of such a change at this time is not known but delays would follow.

The construction contract for Project C-413 has not yet been signed. The continued delays in obtaining this document have had a delaying effect on work in the field. (Some of the most urgent items are being released to the field for construction on the Letter Modification.)

G. Project C-418 - Additional Waste Storage Facilities - 241-TY

Due to changes in production forecasts, the Manufacturing Division requested on March 27, that Project C-417, Additional Waste Storage Facilities, 200 East Area (241-BZ), be cancelled.

The opening of bids for the 200 W Area (241-TY) Tank Farm is scheduled for April 4.

III. PERSONNEL

Employees on payroll

Beginning	March End	Net Change
110*	106**	-4

* Includes four GEL, one Pile Technology and two Technical Graduates on loan to Separations Division.

** Includes four GEL and five Technical Graduates on loan to Separations Division.

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PROJECT & RELATIED PERSONNEL MARCH 1951

	2-28-51		3-30-51	
GOVERNMENT EMPLOYEES				
Civilian Personnel-Atomic Energy Comm.	344		346	
Civilian Personnel- G. A. O.	7		7	
Total		351		353
RICHLAND VILLAGE PERSONNEL				
Comm.Facilities (Inc. No. Richland)	1089		1085	
Govn. Agency, Churches, Clubs, etc.	81		87	
Schools	388		383	
Organizations	11		11	
Total		1569		1566
CONSTRUCTION SUB-CONTRACTORS				
Atkinson & Jones	3933		3981	
Newberry Neon	415		423	
Urban, Smyth, Warren Co.	330		367	
Hanley & Co.	679		705	
Kellex Corp.	395		295	
No. Elect. Mfg. Co.	2		2	
J. Gordon Turnbull	4		4	
Edmond P. Erwin	14		19	
J. P. Head	8		6	
Royal Co. Inc.	35		25	
Fred J. Early, Jr.	47		102	
Steel Const. Co. & Gilmore Fab. Inc.	70		32	
V. S. Jenkins	21		22	
Empire Electric Co.	6		5	
Morrion & Krudsen Co. Inc.	60		62	
Associated Engrs. Inc.	9		6	
Johnson Service	2		2	
Monterey Co. Plumbing co.	21		24	
Thorgaard Plumbing & Heating Co.	2		2	
L. E. Baldwin & Frank Dunham Co.	85		78	
Virgil L. Anderson	3		0	
Hauserman	26		15	
X-Ray Products	14		1	
American Pipe & Const.	6		0	
Judd Co. Inc.	4		5	
Chicago Bridge & Iron	11		13	
Valley Roofing Co.	6		5	
A. J. Patton & Cecil C. Hill	0		2	
Cement Gun Const. Co.	5		3	
Malarkey & Moore	0		11	
Wms. Glass Co.	2		0	
Dix Steel Bldg. Co.	0		8	
Montgomery Electric Co.	3		3	
Commercial Painting & Dec. Co.	0		8	
Sound Const. & Engr. Co.	18		20	
Star Sheet Metal Works	1		0	
Montgomery Elevator	0		4	
J. G. Shotwell	0		9	
Custodis Const. Co.	0		4	
Martin Fireproofing Co.	0		11	
Lewis & Queen	0		3	
J. C Whitacre Decorating Co.	0		10	
West Coast Heating & Plumbing Co.	0		1	

Continued Page # 2

CONST. SUB-CONTRACTORS CONT.	2-28-51	3-30-51
Electric Smith Inc.	0	1
Roof Service Inc.	0	3
L. H. Hoffman	0	13
Stier, Shelton & Shick	0	5
Leland S. Rosener	26	33
Alvord, Burdick & Howson	0	1
Barrett & Logan	0	3
Charles T. Main	23	76
Twin City Const. Co.	0	2
Total	6286	6435
General Electric Total	8027	8080
GRAND TOTAL	16,233	16,434

END

DATE
FILMED
5/8/92