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HANFORD WORKS MONTHLY REPORT

FOR

APRIL 1951

Compiled By

Division Managers

37430

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Classification Cancelled (Change to Declassified with Deletions)
By Authority of RLO-CG-4
WA Snyder 2/12/92
By DG Knowles 2/17/92
PM Eck 2-17-92

May 21, 1951

Classification reviewed for declassification but left unchanged by J. R. Broun
for M. Walker
Date 5/13/93

HANFORD WORKS
RICHLAND, WASHINGTON

Operated for the Atomic Energy Commission
by the
General Electric Company
under
Contract # W-31-109-eng-52

[redacted] data as defined [redacted] Sec. of 1946

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HANFORD WORKS MONTHLY REPORT

GENERAL SUMMARY

MANUFACTURING DIVISIONS

Production Divisions

A total of 83.25 tons of metal was discharged during the month. The special request program required 200 manhours for the month. Eight special request tubes were charged into the piles for irradiation. Twenty-seven casks containing irradiated samples were shipped off-site. An additional 150 manhours were required for work on Chemical 68-56.

The average time-operated efficiency for 5 pile operation was 89.7%.

During April, seven slug failures occurred -- six were uranium slugs and one a P-10 target slug. A total down time of 205.4 hours were required to discharge the ruptured slugs, with an average of 34 hours for each slug.

A small gain in maximum operating levels was achieved, but the increased incidence of slug failures adversely affected the total production as compared to March by 5.5 percent. The gains in maximum operating levels for all piles amounted to 46 MW detailed as follows:

	B	D	DR	H	F
April	435	423	526	515	418
March	425	395	526	510	415

The average operating level (MW) for each pile was as follows: B-412, D - 402, DR - 467, H - 490, F - 391. The average level for all piles was approximately the same as for March.

The total acceptable pieces canned was 92 tons at a yield of 89.5 percent. The melt plant produced 20 tons of billets at a yield of 88.2 percent and a solid metal yield of 95.1 percent. This is a new record for solid yield.

The fabrication of approximately 1000 test slugs for the du Pont Company was completed on April 12.

A total of 124 charges was started in the canyon buildings.

A total of 124 regular charges was completed through the concentration buildings in addition to two acid washes, four P-11 runs and six master recycle runs from isolation.

A total of 127 regular runs was completed through isolation plus two acid washes, four P-11 runs and five master recycle runs.

The average cooling time was 49 days with the minimum cooling time for dissolved material being 44 days. The average purity of completed charges was 98.4 percent.

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General Summary

Plant Utilities and Maintenance Divisions

The electric power demands for the month of April were:

Process - 4-19-51	(9:00 - 10:00 A.M.)	65,800 KW
Village - 4-19-51	(7:00 - 8:00 A.M.)	26,100 KW

The decline in demands is in line with seasonal expectations.

Unscheduled interruptions of production resulted from the following electrical outages:

1. A total electrical outage to the 200 Areas was experienced on April 23, 1951 for approximately two hours when a sub-contractor's A-Frame truck short circuited 13.8 KV lines near 251 substation.

2. A seven minute electrical outage affecting 105-DR on April 18, 1951 was caused by breaker failure at 151-D Substation.

3. Complete loss of electrical power to Richland and the 300 Area occurred on April 19, 1951 for a period of approximately one hour due to insulator failure on the 115 KV bus at BPA Midway Station.

The Electrical Division has developed and established new procedures for subnormal electric power conditions, permitting two hour re-energization time for Grade W and authorizing agreements for Grade S and W at the Assistant and Area Engineer levels respectively. This change should reflect greater flexibility with more direct and prompt establishment of critical power conditions of the grades stated.

The operation of steam driven condenser pumps in all 100 Areas, 182 Reservoirs, Pump Houses, was discontinued, making possible appreciable savings in steam consumption and operational cost.

TECHNICAL DIVISIONS

A new Analytical Division has been formed, made up of the two Analytical Sections formerly organized as part of the Technical Services Division. Within the Technical Services Division, the Information Group has become the Technical Information Section and the Statistics Group has become the Mathematics Section.

Pile Technology Division

Investigations of pile operation included the use of thorium to replace lithium-aluminum as poison columns, power generation of individual slugs, and tests of the transient reactivity effects of high plutonium concentrations. A delayed neutron monitoring system for detection of ruptured slugs was completed for pile tests.

Lattice design studies continued normally. An exponential pile with an eight inch lattice spacing was completed.

Studies for C Pile included graphite zoning, the use of enriched uranium with the proposed enlarged water annulus, shielding effectiveness, and the induced radioactivity of balls for the third safety system.

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General Summary [redacted]

Programs of test pile measurements, critical mass investigation, and the xenon cross section measurement were continued normally.

In-pile and laboratory studies of water quality, film formation and corrosion included preliminary tests of "Dri Film", measurements of in-pile corrosion rates of slugs at elevated temperatures, inspection of effects of magnesium dummies on front tube corrosion, and flow laboratory tests.

X-ray measurements of graphite samples removed from two counterbored process tube channels of the DR Pile have indicated a general reduction in rate of damage in the high flux regions; however, an unexplained increase in damage was found at a location corresponding to the inlet end of the metal charge.

In-pile burnout measurements of graphite in carbon monoxide have indicated weight losses intermediate between the rates obtained with carbon dioxide and with oxygen under similar conditions.

The special irradiations program was continued normally. In-pile tests in progress included the high pressure water cooled fuel element tests for Argonne National Laboratory, zirconium creep at 260° C. for Westinghouse Atomic Power Division, and a thermocouple slug for Hanford heat transfer studies.

Metallurgical studies of improved canning methods, the effects of uranium rolling temperatures, end cap flaws, and dilatometric methods of slug inspection were in progress at month end.

The glass tritium extraction lines were operated on an experimental basis. were completed during the month.

The metal tritium extraction equipment was ready to receive its first active charge after completion of the synthetic runs.

Tritium extraction development studies included hydrogen diffusion through stainless steel under various conditions, evaluation of magnesium for water decomposition, improvements in metal shipping containers, and increased precision of analyses.

Separations Technology Division

Additional production testing of reduced Bismuth Phosphate process volumes has been continued to evaluate possible slight loss increases with reduced bismuth concentration in extraction. Continued sparging of dissolver solutions has resulted in radioiodine removals ranging from 87 to 99.9 percent based on calculated initial iodine values. Evaluation of the high product recoveries from the Isolation Building filters has indicated that the units were probably blinded from prolonged usage. The hydrofluorination of three batches in inconel boats in the 234-5 Building produced a button slightly high in nickel and chromium impurities.

In Redox and TBP process development, Technical Manual preparation has continued to 77 percent completion of the Redox Manual and 26 percent completion of the TBP Manual. The second group of 17 "S" Division supervisors and 28 operators started a 6-week training period in 321 Building. Tentative specifications for Purex production plant pulse columns were forwarded to O.R.N.L. personnel during a recent visit. The sodium contamination in Redox uranium product was determined in several carefully selected 2D-2E column runs.

[redacted]

General Summary

In the research laboratory Redox head-end scavenging studies have demonstrated that much improved MnO_2 removal can be achieved by inserting a perforated baffle within the centrifuge to intercept the liquid surface. Precipitation of plutonium peroxide from a simulated Redox product stream (2BP) indicated good separation from aluminum, the major contaminant. Uranium stripping under Purex conditions was improved by several factors by increasing the operating temperature from 25°C to 75°C.

Investigation of methods for the destruction of iodide and oxalate in 234 Purification supernates has indicated hydrogen peroxide to be very promising. Production testing in the recovery equipment is planned. Studies of purification obtained by one peroxide purification cycle are continuing. A plutonium III fluoride prepared by the hydrofluorination of the oxalate was reduced to give a yield of 85 percent.

The first six-month operating period for the B Plant silver reactor-Fiberglas unit has resulted in no detectable changes in particulate activity removal, iodine removal, or frictional pressure drop. Lead nitrate substituted for silver nitrate in an experimental reactor resulted in an 80 percent removal of iodine versus the 99.9+ percent obtained with the silver reactor.

Analytical Division

Effective April 15, the responsibility for operation of the P-10 control laboratory and for following the progress of construction of the new laboratory facilities in the 108-B Building was transferred from the Analytical Research Section to the Analytical Service Section. One supervisor and eight other personnel were involved in the transfer. Responsibility for developing and improving analytical equipment and methods has been retained by the Research Section.

A device for removing P-10 samples from the new metal sampling bulbs for mass spectometric analysis has been designed and tested and appears to work satisfactorily. A self-sealing hollow needle is employed.

Continuing work on P-10 in-line sampling techniques has included study of a capillary leak intended to be attached on one end to the process line and on the other end to a copper tube conducting the sample to the mass spectrometer. Previous work indicated no difficulties from background inteference and delayed response to change in sample composition. Additional work has shown that the sample pressure may vary within +50% of the value for which a particular leak is tailored, but that constant pressure must be maintained during the analysis. Encouraging results have been obtained with an adjustable leak that has the advantage of allowing sampling of gas of any reasonable initial pressure.

Consideration of methods for determining fission product beta and gamma activities in recovered UO_3 has indicated that provision must be made for the presence of U^{237} and for the growth of uranium daughter activities subsequent to solvent extraction. Tentative agreement has been reached on a proposal to analyze the final uranium streams from the Redox and TBP Plants rather than the later UO_3, thereby minimizing UX_1-UX_2 interference in the analyses and also identifying any over-specification material before it is fed to the Oxide Process. A preliminary separation of U^{237} will be needed on analytical samples from the Redox Process.

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General Summary

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In the service laboratories, the number of reported determinations per month increased to over 33,000. Several methods have been put into use to provide required new analytical service. Standard sample studies on a considerable number of control determinations have shown most to be under good control; two determinations were somewhat out of control and remedial action is being taken.

Technical Services Division

Both the Design Group and the Technical Shops continued with an excessive backlog of urgent work in support of technical development programs and special equipment needs of Building 222-S. Accordingly, a 6-day work week was initiated for both activities. Technical Shops work cross-ordered to the Instrument and the Maintenance Divisions was being performed by them on this same overtime basis.

Construction work on Building 222-S, the new Redox Laboratory, was completed except for the installation of fume hoods, ventilation balancing, and certain minor items. Final acceptance procedures were in process at month end, pointed toward Technical Divisions acceptance of the building (with exceptions) on May 1.

In the Works Laboratory Program, construction bid invitations for the Radiochemistry Building were sent out and the bid opening date is May 29. A Part II proposal covering construction of the Radiometallurgy Building was forwarded to the A & B Committee, with an estimated total project cost for this facility of $1,720,000 (up from original allocation of $1,463,000). A Part III proposal covering final construction of the Plot Plan & Utilities Project was in preparation at month end.

The Dix Steel Company completed the concrete footings for the Mechanical Development Building in the Works Laboratory Area, and will start erection of the prefabricated structure as soon as the steel arrives. A.E.C. authorization was received for the Phase II construction of this building. This interior work and much of the design involved have been submitted to Dix as a preliminary to negotiating the required extension to their lump-sum subcontract.

The architect-engineer (C. T. Main Co.) continued to make good progress on the design of the Pile Technology Building and the Library & Files Building. A.E.C. authorization was requested for modifying the scope of work proposed for the Pile Technology Building to include utilization of an originally unexcavated portion of the basement as a permanent facility for exponential pile experiments.

The daily distribution of Panellit gage pressure increases for the H-10 loading at H Pile is being determined by the IBM Computing Laboratory in support of the statistical control program formulated to permit early P Division detection of P-10-A slugs that are swelling in the process of rupture. As required by an excessive backlog of urgent mathematical computation, the Computing Group began a 6-day work week on April 16.

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General Summary

The Plant Library work volume continued to rise and the circulation of books and periodicals reached an all-time high. The collection of these reference resources now totals 10,564 books and 4,860 bound periodicals, largely assigned to the Main Library in the 300 Area but with significant holdings in the two branches (W-10 and 108-F). Work on the first complete inventory of classified documents in the Central Files progressed satisfactorily. First attention is being given to research and development reports, inventorying of which must be completed and reported to the A.E.C. by June 30.

HEALTH INSTRUMENT DIVISIONS

There were three informal investigations and six Class I investigations.

Surveys by the Operational Division showed no notable deviation from acceptable radiation protection standards.

With the exception of increased I^{131} deposition, results from control programs in the Biology and Development Divisions showed no significant change from previously reported data.

Research and development activities progressed satisfactorily and without incident.

PLANT SECURITY AND SERVICES DIVISIONS

There was one major injury during the month, making a total of two for the year to date, and a frequency rate of 0.38.

There were four minor fires in the industrial areas. Loss was $3.00.

Laundry volume continues at near capacity for a five-day week. Tentative plans are being made to place the 200-West Laundry on a two shift operation depending upon the opening dates of the Redox Area, 241-W, 241-E and 224-U Buildings.

Additional equipment has been received in the Printing Plant which should aid in cutting down the large backlog of work now in existance.

A procedure was established whereby certain employees in the Community, Medical, Engineering and Construction and Transportation Divisions would only be processed for formal "P" clearance, thereby effecting a substantial reduction in the number of "Q" cleared personnel in the future.

EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

The number of applicants interviewed decreased from 1,671 in March to 1,221 in April. Of these applicants, 400 were individuals who applied for employment with General Electric for the first time. In addition, 307 new applications were submitted through the mail. Open, nonexempt, nontechnical requisitions decreased from 621 at the beginning of the month to 599 at month end. Total plant roll increased from 8,080 to 8,198. Turnover rate increased from 2.38% in March to 2.51% in April. During April, 63 new requests for transfers to other type of work were received by the Employment Office, and 37 transfers were effected. During April advertisements were placed in six Northwest newspapers

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for three days for stenographers, IBM and comptometer operators, designers and draftsmen, journeymen electricians, trackmen, journeymen telephone repairmen, plumber-steamfitter helpers, instrument mechanics, production operators and laborers. A representative of the Employment Group conducted two tours of graduating seniors, who have specialized in commercial studies, through the 700-1100 Areas during April. In addition, the commercial classes of the high schools of Grandview, Sunnyside, Prosser and Richland were addressed during the past month. The Employment Office has been formulating the necessary plans and obtaining the required material to assist the Drafting Trainee School in obtaining applicants who are qualified for this school along drawing, mechanical and mathematical lines from local high schools. The local Draft Board was also contacted regarding the possibility of receiving deferments for young boys who may become drafting trainees. Although no official opinion has been received regarding deferment for these men, it appears that favorable consideration will be given such requests for deferment.

No employee deaths occurred during April. Two employees retired. Two hundred and four visits were made to employees confined at Kadlec Hospital, and 66 salary checks were delivered to employees either confined at the hospital or at home. Following a suggestion made to all departments of the Company, plans have been formulated to adopt an identification card for all employees participating in the Insurance Plan to facilitate admissions to hospitals outside this community during instances of an emergency nature. At month end, participation in the Pension Plan was 95.4%, in the Insurance Plan 96.1%, and in the Employee and Stock Bonus Plan 36.7%. As of the end of April, there were 756 employees registered under the Selective Service Act, and 659 military reservists on the rolls. Since August 1, 1950, 131 employees have terminated to enter military service.

Formal certification of the International Guards Union as bargaining representative for Richland and North Richland Police and Plant Security Guards was received from the NLRB on April 3. The NLRB officially dismissed the CIO petition seeking to represent production and maintenance workers. A consent election was scheduled for May 1 and 2 to determine whether or not Richland and North Richland Village Firemen desired to be represented by the HAMTC. On April 25, NLRB dismissed the petition submitted by the HAMTC covering certain Health Instrument employees. April 27, an offer was made to the HAMTC and the BSEIU for a nine-cent an hour wage adjustment.

Atkinson-Jones and CPFF subcontractors on six-day work week effective April 23. Atkinson-Jones and General Electric lump sum subcontractors generally not scheduled for six days at this time. At isolation pay negotiations in Portland April 11, Atkinson-Jones and Union agreed to consider increases of 15 and 20 cents. The General Electric Company will go on Daylight Saving Time June 10, the unions voted to remain on Standard Time.

Columbia Basin and Cabinet Gorge Dam Ironworker rates of $2.50 for structural and $2.31 for reinforcing were given unfavorable consideration by the Wage Stabilization Board, Rates were reduced to $2.30 and $2.25 respectively after meeting with Wage and Hour Division. Project Rates: $2.50 structural and $2.35 reinforcing. Carpenters' $2.425 rate effective May 1, 1951 decreased one-half cent to assure WSB compliance and maintain uniformity in Tri-City area.

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General Summary

The Hewes' case claim is now at $8,000; Atkinson-Jones are deciding whether to appeal or attempt settlement. OperatingEngineers eleven men dispute has reached the point where the Federal Mediation and Conciliation Service has been requested to submit a panel of arbiters for selection of a fifth man for the Grievance Committee. A "showdown" is expected soon on the Plumbers' refusal to handle helices for Hot Semi-Works because they were fabricated off the Project. Plumbers Maintenance versus construction dispute continues. This office is giving asistance whenever possible. The Puget Sound Sheet Metal Works dispute from April 3 to April 16 did not seriously affect our construction program.

Upon receipt of confirmation from the AEC stating that a reimbursement request would be granted on the proposed increase for designers and draftsmen upon Wage Stabilization Board approval, an application was made for rate increases for designers and draftsmen on April 27. The annual Northwest Area Wage Rate Survey was distributed to participating organizations. A special Pacific Coast Survey on design and draftsmen rates were distributed to thirty-six participating architectural engineering concerns.

A total of 95 releases were distributed during the month. Of these, 63 were sent to local newspapers and radio stations. The remainder was sent to newspapers, radio stations, and wire services throughout the Northwest.

Visitors to Richland during the month of April for information on Richland and Hanford Works for news stories were: B. S. Havens, Editor of the G.E. MONOGRAM; J. Q. Cobb, Advertising and Publicity Department in Washington, D.C.; and Douglas Larson, national correspondent for Scripts-Howard papers; and A. C. Prendergast, editor of WESTERN BUILDING Magazine.

Journalism students from Columbia High School visited Community and Public Relations one day during April to get information and photographs from which they will prepare two pages of the May 4 issue of the Hanford Works NEWS.

The Community Relations supervisor handled publicity for the annual Cancer Drive for the community and the plant.

During the month seven speeches were delivered by Hanford Works people, four of which were "HOBSO" presentations.

Public Events coordinated the Library Open House during the month. Special Programs assisted in the "open house" by writing and arranging for production of an information booklet, special invitations, and production of a directional sign, name tags for library personnel, and imprinting opening day library cards.

Radio spot announcements were written and placed for the following events: Civilian Defense Auxiliary Policemen Recruitment; Community-Army Variety Show for the Cancer Drive; Cancer Drive Green Leaf Tea; Beta Sigma Phi Polio Benefit; Library Open House.

Advance publicity and preparations for the "More Power to America Special" were arranged for its appearance in Richland.

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General Summary

The Photo House produced 8,206 prints during the month.

Stores Division cost code will be used for all future booklets prepared and distributed as a stores tock item, through an arrangement made with the Stores Division. Revised and edited an article prepared by the Technical Personnel Office for distribution to business administration graduates as a recruitment aid.

In line with Special Programs' responsibility for Medical Division public information, four stories were released through the News Bureau to local media: the rabies epidemic, record number of births per month at Kadlec Hospital, two news stories on the Regional Eye Institute in Richland, Two photos concerning the construction program at Kadlec Hospital were also released.

Six letters were written and distributed to Hanford Works people, one being sent only to supervisors. Display type recruitment advertisements were placed in newspapers in Washington, Idaho and Montana covering 11 different job classifications needed at Hanford Works.

Forty-four supervisors attended the 40-Hour Training Program during the week of April 9. PMS groups 13, 14, 15 and 16 met during the month of March. HOBSO meetings for nonexempt employees commenced on April 23. During the period of April 23 through April 30, a total of 39 meetings were held, with a total of 1,514 people in attendance. A special safety meeting was held for members of the Training Staff on Tuesday, April 17.

On Saturday, April 21, the Assistant Training Supervisor presented the appreciation version of HOBSO to approximately 300 people at the Annual State JayCees Convention in Seattle.

During April, 43 copies of the Supervisor's Handbook on Employee Relations were distributed to supervisors. Orientation was given to two transferred and 291 new employees during April. Two copies of the Hanford Works SAGE were prepared and distributed to all supervisors during April.

PURCHASING AND STORES DIVISIONS

Although the number of purchase requisitions processed during the month decreased, actual dollar volue of orders placed increased about $144,000.

An additional appropriation of funds for Project C-431 will permit purchasing of equipment for another four to six weeks.

The work load in the Expediting and Inspection Sections was extremely heavy. Expediting contacts increased by 20%.

Due to extra costs resulting from design changes and material substitutions, the Southwest Welding and Manufacturing Company, fabricators of vessels, submitted claims for extras. These requests were negotiated and mutually satisfactory payments were allowed.

General Summary

Field inspectors reported that most of the fabrication shops were still having difficulty meeting the dimensional and welding requirements of our orders. Through the efforts of the Inspection Section, arrangements were made with the appropriate Technical, Engineering and Construction Divisions' Managers to accept welding which conforms to ASTM Code. This decision will appreciably improve completion dates of many vessels.

Five additional bulk stainless steel orders were placed; 871,700 pounds of stainless steel were shipped from the Pittsburgh Warehouse. Shipping instructions for material to be shipped to fabricators are 98% complete.

A contract for Sulphuric Acid for the period April 1, 1951 through March 31, 1952 was awarded to Stauffer Chemical Company.

The placement of orders for some essential materials for Redox and TBP operations is being withheld until a firm completion date for storage facilities is established.

Invitations to bid were mailed on: (1) yearly requirements for Sodium Bismuthate, Potassium Hydroxide and Rock Salt, and (2) a contemplated two-year contract for publishing the Richland Telephone Directory.

Of the 2,709 purchase requisitions processed through screening, 1,942 items were furnished from plant sources. Eighty-three items of stainless steel not immediately available on the open market were furnished to fabricators from plant inventories.

Maintenance materials and supplies valued at $257,127.99 were disbursed from operations inventories.

Material and equipment valued at $404,847.88 were withdrawn from excess inventories for use on the project.

Ten formal excess lists, totaling $1,302,984.96, were submitted to the Commission for disposition. Excess materials and equipment valued at $786,468.35 were shipped from the Project as directed by the Commission.

A letter, dated April 19, 1951, outlining a program for the sale of surplus personal property was received from the Commission.

A contract for a functional study in the preparation of final design drawings for the Central Stores Warehouse was awarded to Moffatt, Nichol & Taylor, Engineers, Portland, Oregon, by the Commission.

Fifty-five representatives of government and private business were escorted through warehouses and scrap yards for the purpose of negotiating the sale of scrap and transfer of excess property.

Negotiations with Traffic and Operating officials of the Great Northern Railway and the Milwaukee Road resulted in an operating agreement between the two lines to interchange all traffic at Tacoma rather than at Chehalis, Washington, when destined to Hanford, Washington. This change reduces transit time on carload shipments from California points to Hanford.

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General Summary

As a result of rate reductions obtained from carriers, a total savings of freight rate charges for the month amounting to $27,413.74 was effected.

MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS

Richland was awarded first place of special class cities in the National Traffic Safety Contest.

The Columbia Book Store commenced operation during the month, subleasing space in the Richland Investment Company Building.

A barber shop, under management of Mr. Elwood Hamilton, commenced operation in the Richland Recreation Center Building.

Total housing applications pending: 535.

MEDICAL DIVISIONS

Dr. Fuqua attended the annual meeting of the American Association of Industrial Physicians and Surgeons in Atlantic City. Four nursing supervisors attended the annual meeting of the Washington State Nurses Association in Seattle. Dr. Sachs attended (1) Civil Defense (2) Health Officers Medical Care Meeting and he and Mr. Yesberger attended a Fluoridation Conference at the University of Washington in Seattle. Miss M. A. Miller, nursing consultant from the Washington State Department of Health, spent one day at Kadlec in connection with her study of our obstetrical nursing service.

There has been no evidence of injury due to radiation during the current year. "Vacations" was the health topic for the month. Sickness absenteeism (weekly employees) for April decreased by 2.04% to 1.88% while that for monthly employees for March increased by .99% to 2.31%.

The continued high occupancy rate during April, which is usually a month of relatively low sickness rate, emphasizes the need for additional beds in the mixed service area. While it appears that sufficient funds will be available at the completion of the present hospital building project, it has not been felt advisable to risk an over-run by authorizing construction of additional rooms for beds until the present project is essentially completed.

The epidemic of influenza subsided. A marked increase in measles, however, has kept the nursing work load up.

A regional meeting on "Eye Hygiene" was attended by 66 people from Benton, Franklin and Walla Walla counties.

A conference on fluorination of public water supplies at the University of Washington re-emphasized the value of this process in reducing dental caries in children.

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General Summary

The net cost of operating the Medical Divisions, before assessments to other Divisions, was 78,989 a decrease of $3,426 and $11,468 below the budget figure. The improvement was due to a $15,339 increase in revenue. A $9,468 increase resulted from Kadlec's higher census and $5,852 from Industrial Construction pre-employment examinations given Waale-Camplin Company employees for which they were billed. The increased revenue was greater than the increased cost $11,913 which was up due to the following factors:

(1) Increase in salaries due to longer work week.
(2) Increase in purchase of hospital supplies $2979.
(3) Public Health purchase of mosquito control supplies and maintenance items $2042.

GENERAL ACCOUNTING DIVISION

Revision of Hanford Works Instructions Letter No. 67 was issued outlining changes in overtime payment practices for monthly paid employees.

Revised Hanford Works Instructions Letter No. 115 was issued setting forth the procedure to be followed in completing Monthly Attendance Reports including changes made necessary as a result of revision in overtime payment practice. Monthly Attendance Report, Form P-273-D, was revised to permit recording of attendance during the period from the first of the month to the end of the month rather than from the 16th of the previous month to the 15th of the current month.

There were nine auxiliary firemen who had filed claims in November, 1950 for fire brigade pay under the provisions of the agreement reached between Hanford Atomic Metal Trades Council and General Electric Company. Investigation of these claims was completed in April and it was determined that the nine auxiliary firemen were eligible for auxiliary fire brigade pay. Accordingly, payment was made to them in the total amount of $306.26.

Quarterly Federal and State Tax Reports were prepared and filed with the respective government agencies during the month of April.

Report of the study and analysis of payroll practices and procedures prepared by a representative of IBM was received during the month of April. The report is being studied and analyzed and a meeting will be arranged with the IBM representative in May for discussion of his proposals.

During the month of April approximately 1,000 man hours were expended compiling necessary statistics in connection with Wage Stabilization Regulations 5 and 6.

Effective April 30, 1951, two Plant Accounting field representatives were assigned to the 100 Areas, two to the 200 Areas, and two to the 300, 700, 1100 and 3000 Areas. These representatives will maintain headquarters in their respective areas and will act as liaison between operating personnel and the Plant Accounting Section. Their responsibilities will include periodic inventories of selected plant accounts, audit of project completion reports, review of depreciation rates and recommendation of changes in rates, review of charges from work orders, classification of additions to plant accounts, and other related work.

General Summary

In view of the continued increase over the past several months in volume of work in the Accounts Payable Section, the entire Section began working a six-day week effective April 16, 1951. It is expected that daily work can be handled on a current basis and that an accumulated backlog of unaudited completed files can be reduced through working this extra day.

Budget estimates for FY 1953 and revision of estimates for FY 1952 were completed for General Divisions (including Technical) Kadlec Hospital, Research and Development, P-10 Program, Graphite Storage, 700 Area, Equipment and Construction Projects. All estimates were accompanied by narrative justifications and considerable statistical information.

Advances from AEC decreased from $6 500 000 as of March 31, 1951 to $4 500 000 as of April 30, 1951. Advances are accounted for as follows:

	April	March
Cash in Bank - Contract Accounts	$3 871 689	$5 596 364
Cash in Bank - Salary Accounts	50 000	50 000
Cash in Transit	153 311	428 636
Advances to Subcontractors	300 000	300 000
Travel Advance Funds	125 000	125 000
Total	$4 500 000	$6 500 000

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

	April	March
Disbursements		
Material and Freight - GE	$2 544 983	$2 380 070
Payrolls - GE (Net)	2 057 080	2 530 812
Payments to Subcontractors	4 436 526	4 015 533
Payroll Tax	737 409	396 907
General & Administrative Expenses	200 000	200 000
Stock Bonus Plan - Employers Contribution	-0-	168 451
U. S. Savings Bonds	162 146	140 325
Others	307 323	409 811
Total	$10 445 467	$10 241 909

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General Summary

	April	March
Receipts		
Rents	$ 125 428	$ 124 438
Refunds from Vendors	843	11 308
Hospital	68 809	51 598
Income from Special Funds	-0-	40 277
Telephone	14 324	18 265
Miscellaneous Accounts Receivable	11 975	21 940
Bus Fares	9 461	9 315
Scrap Sales	4 946	24 236
AEC Cost-type Contractors	41 435	1 212
Cost of Delivering Material to Buyers	5 879	-0-
Other	9 056	10 684
Total	$ 292 156	$ 313 273

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[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, Technical, Engineering and Construction Divisions	A. B. Greninger
Manager, Engineering and Construction Divisions	R. E. Davison
Manager, Technical Divisions	O. H. Greager
Manager, Manufacturing Divisions	C. N. Gross
Manager, Municipal, Real Estate and General Services Divisions	L. F. Huck
Manager, Health Instrument Divisions	H. M. Parker
Manager, Medical Divisions	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 — APRIL 1951

	EXEMPT		NON EXEMPT		TOTAL	
	3-30-51	4-30-51	3-30-51	4-30-51	3-30-51	4-30-51
GENERAL	20	20	31	30	51	50
LAW	2	2	2	3	4	5
TECH. ENGR. & CONST. DIVS.						
Construction	2	1	25	27	27	28
Const. Acctg.	10	10	63	73	73	83
Design	230	233	232	248	462	481
No. Richland Realty	17	19	96	96	113	115
Proj. Engr.	92	90	107	97	199	187
Technical Divs.						
Administrative	4	4	2	3	6	7
Pile Tech.	116	114	100	102	216	216
Separations Tech.	105	103	42	43	147	146
Technical Services	130	32	331	126	461	158
Analytical Tech.	--	97	--	216	--	313
MANUFACTURING DIVISIONS						
Mfg. General	13	13	4	4	17	17
Mfg. Acctg.	7	8	55	61	62	69
Industrial Engr.	13	12	6	7	19	19
Production Divs.						
"P"	76	76	288	294	364	370
"S"	152	155	469	495	621	650
Plant Utilities & Maint.						
Power	92	93	480	482	572	575
Maintenance	54	54	326	314	380	368
Electrical	53	53	246	251	299	304
Instrument	55	58	231	235	286	293
Transportation	58	57	556	549	614	606
MEDICAL	45	45	237	243	282	288
HEALTH INSTRUMENT DIVS.						
General	6	6	4	4	10	10
Operational	54	54	174	180	228	234
Development	42	42	79	82	121	124
Biology	32	33	43	44	75	77
ACCOUNTING DIVISIONS	25	26	164	172	189	198
EMPL. & COMM. RELATIONS	36	36	71	74	107	110
PLANT SEC. & SERVICES						
Patrol & Sec.	56	55	577	584	633	639
Safety & Fire	42	42	106	106	148	148
Gen. & Off. Services	23	24	232	236	255	260
PURCHASING & STORES DIVISIONS						
Purchasing	69	72	94	99	163	171
Stores	18	18	203	198	221	216
COMMUNITY DIVISIONS	211	209	444	454	655	663
TOTAL	1960	1966	6120	6232	8080	8198

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PERSONNEL DISTRIBUTION - APRIL 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	-	-	-	-	-	-	-	-	-	-	30	30
Total	-	-	-	-	-	-	-	-	-	-	50	50
LAW	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	3	3
	-	-	-	-	-	-	-	-	-	-	5	5
TECH. ENGR. & CONST. DIVS.												
CONSTRUCTION												
Supervisors	-	-	-	-	-	-	-	-	-	1	-	1
Clerical	-	-	-	-	-	-	-	-	-	27	-	27
Total	-	-	-	-	-	-	-	-	-	28	-	28
CONST. ACCTG.												
Supervisors	-	-	-	-	-	-	-	-	-	10	-	10
Clerical	-	-	-	-	-	-	-	-	-	73	-	73
Total	-	-	-	-	-	-	-	-	-	83	-	83
DESIGN												
Supervisors	-	-	-	-	-	-	2	-	-	7	55	64
Other Exempt	31	-	-	-	-	-	-	-	-	39	99	169
Draftsmen & Designers	-	-	-	-	-	-	-	-	-	-	52	52
Clerical	-	-	-	-	-	-	10	-	-	41	119	170
Others	-	-	-	-	-	-	-	-	-	18	8	26
Total	31	-	-	-	-	-	12	-	-	105	333	481

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	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
NO. RICHLAND REALTY												
Supervisors	-	-	-	-	-	-	-	-	-	19	-	19
Janitors	-	-	-	-	-	-	-	-	-	17	-	17
Clerical	-	-	-	-	-	-	-	-	-	48	-	48
Others	-	-	-	-	-	-	-	-	-	31	-	31
Total	-	-	-	-	-	-	-	-	-	115	-	115
PROJECT ENGR.												
Supervisors	-	-	-	-	-	-	-	-	-	15	-	15
Engineers & Estimators	-	-	-	-	-	-	-	-	-	75	-	75
Draftsmen & Designers	-	-	-	-	-	-	-	-	-	46	-	46
Clerical	-	-	-	-	-	-	-	-	-	20	-	20
Others	-	-	-	-	-	-	-	-	-	31	-	31
Total	-	-	-	-	-	-	-	-	-	187	-	187
TECHNICAL DIVISIONS												
GENERAL												
Supervisors	-	-	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	-	-	3	3
Total	-	-	-	-	-	-	-	-	-	-	7	7
PILE TECHNOLOGY												
Supervisors	3	1	1	1	2	-	-	12	-	-	-	20
Metallurgists & Engrs.	23	4	2	3	10	-	2	25	-	-	2	71
Physicists	1	1	3	3	3	-	-	12	-	-	-	23
Tech. Grads.	16	2	1	3	9	-	-	5	-	-	1	37
Technologyists	9	-	-	4	-	-	-	-	-	-	-	13
Laboratory Assts.	15	1	1	2	4	-	-	8	-	-	-	31
Clerical	5	1	-	3	2	-	-	4	-	-	2	17
Engr. Asst.	-	2	-	-	1	-	-	1	-	-	-	4
Total	72	12	8	19	31	-	2	67	-	-	5	216

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	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
SEPARATIONS TECH.												
Supervisors	-	-	-	-	-	1	5	16	-	-	-	22
Chemists & Chem. Engrs.	-	-	-	-	-	5	12	64	-	-	-	81
Tech. Grads.	-	-	-	-	-	-	2	4	-	-	-	6
Clerical	-	-	-	-	-	-	4	8	-	-	1	13
Operators	-	-	-	-	-	-	1	7	-	-	-	8
Others	-	-	-	-	-	-	3	12	-	-	1	16
Total	-	-	-	-	-	6	27	111	-	-	2	146
TECH. SERVICES												
Supervisors	-	-	-	-	5	-	-	8	-	-	3	16
Other Exempt	-	-	-	-	7	-	-	5	-	-	4	16
Technologists, Tech. Grads	-	-	-	-	1	-	-	3	-	-	-	4
Clerical	-	-	1	-	3	-	-	28	-	-	41	73
Others	-	-	-	-	32	-	-	15	-	-	2	49
Total	-	-	1	-	48	-	-	59	-	-	50	158
ANALYTICAL TECH.												
Supervisors	1	-	-	2	-	6	13	15	-	-	-	37
Chemists & Engrs.	8	1	-	2	-	1	8	40	-	-	-	60
Technologists, Tech. Grad	3	-	1	-	-	6	18	19	-	-	-	47
Laboratory Assts.	4	-	-	6	-	31	64	43	-	-	-	148
Clerical	1	-	-	1	-	2	3	14	-	-	-	21
Total	17	1	1	11	-	46	106	131	-	-	-	313
MANUFACTURING DIVISIONS												
GENERAL												
Supervisors	-	-	-	-	-	-	-	-	-	-	6	6
Engineers	-	-	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	-	-	4	4
Total	-	-	-	-	-	-	-	-	-	-	17	17

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	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
MFG. ACCTG.												
Supervisors	-	-	-	-	-	-	-	-	-	-	8	8
Clerical	-	-	-	-	-	-	-	-	-	-	61	61
Total	-	-	-	-	-	-	-	-	-	-	69	69
INDUSTRIAL ENGR.												
Supervisors	-	-	-	-	-	-	-	-	-	-	1	1
Engineers	-	-	3	-	-	-	2	6	-	-	-	11
Clerical	-	-	-	-	-	-	-	-	-	-	1	1
Others	-	-	1	-	-	-	2	2	-	-	1	6
Total	-	-	4	-	-	-	4	8	-	-	3	19
PRODUCTION DIVISIONS												
"P"												
Supervisors	9	18	7	10	-	-	-	13	-	-	3	60
Supv. in Training	1	-	1	2	-	-	-	1	-	-	-	5
Engineers	2	-	1	-	-	-	-	1	-	-	7	11
Operators	34	64	34	34	-	-	-	105	-	-	-	271
Clerical	2	3	2	2	-	-	-	4	-	-	5	18
Others	-	2	1	1	-	-	-	1	-	-	-	5
Total	48	87	46	49	-	-	-	125	-	-	15	370
"S"												
Supervisors	-	-	-	-	-	19	41	17	-	-	4	81
Supv. In Training	-	-	-	-	-	2	23	6	-	-	1	32
Engineers	-	-	-	-	-	-	35	-	-	-	7	42
Operators	-	-	-	-	-	138	265	52	-	-	-	455
Clerical	-	-	-	-	-	6	22	-	-	-	4	32
Others	-	-	-	-	-	2	4	2	-	-	-	8
Total	-	-	-	-	-	167	390	77	-	-	16	650

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	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
PLANT UTILITIES & MAINT.												
POWER												
Supervisors	12	17	12	12	-	7	6	5	3	-	1	75
Engineers	-	-	-	-	-	-	9	-	6	-	3	18
Operators	75	114	74	70	9	23	60	11	8	-	-	444
Clerical	1	1	1	1	-	-	1	-	6	-	2	13
Coal Handlers & Ldrs.	4	5	5	5	-	-	5	1	-	-	-	25
Total	92	137	92	88	9	30	81	17	23	-	6	575
MAINTENANCE												
Supervisors	1	6	8	2	-	4	13	5	1	-	1	41
Engineers	-	-	3	-	-	-	3	1	-	-	6	13
Craftsmen	19	53	47	15	-	28	94	38	-	-	-	294
Clerical	-	1	3	1	-	1	5	2	1	-	1	15
Others	-	1	-	1	-	-	1	1	1	-	-	5
Total	20	61	61	19	-	33	116	47	3	-	8	368
ELECTRICAL												
Supervisors	2	1	1	3	-	1	6	2	17	-	11	44
Engineers	-	-	-	1	-	-	1	1	3	-	3	9
Craftsmen	14	16	12	13	2	10	21	9	60	-	29	186
Clerical	1	-	1	1	-	-	1	1	3	-	26	34
Operators	4	4	4	4	-	-	-	-	10	-	-	26
Others	-	-	-	1	-	-	1	-	2	-	1	5
Total	21	21	18	23	2	11	30	13	95	-	70	304

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	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
INSTRUMENT												
Supervisors	2	6	2	2	-	1	9	8	1	-	3	34
Engineers	1	1	-	-	-	1	2	11	1	-	7	24
Craftsmen	21	21	17	11	-	18	52	48	3	-	10	201
Clerical	1	2	1	1	-	1	4	6	3	-	4	23
Draftsman	-	-	-	-	-	-	-	2	-	-	-	2
Others	2	-	-	-	-	-	1	5	-	-	1	9
Total	27	30	20	14	-	21	68	80	8	-	25	293
TRANSPORTATION												
Supervisors	2	4	1	2	-	2	2	1	8	-	31	53
Engineers	-	-	-	-	-	-	-	-	-	-	4	4
Bus Drivers	-	-	-	-	-	-	-	-	-	-	170	170
Journeymen	3	4	3	10	-	1	4	-	10	-	64	99
Trainmen	-	-	-	-	-	-	-	-	25	-	-	25
Serviceman	1	6	1	2	-	3	5	1	19	-	15	53
Clerical	1	1	1	1	-	1	1	1	2	-	22	31
Equipment Opers.	4	8	3	3	-	5	8	4	17	-	27	79
Others	9	9	2	4	-	17	4	2	7	-	38	92
Total	20	32	11	22	-	29	24	9	88	-	371	606
MEDICAL												
Supervisors	-	-	-	-	-	-	-	-	-	1	25	26
Physicians	-	-	-	-	-	-	-	-	1	2	10	13
Other exempt	-	-	-	-	-	-	-	-	-	-	6	6
Technicians	-	-	-	-	-	-	-	-	1	3	15	19
Nurses	2	4	4	1	-	4	10	3	-	2	63	93
Clerical	-	-	-	-	-	-	1	-	2	7	48	58
Others	-	-	-	-	-	-	-	-	-	1	72	73
Total	2	4	4	1	-	4	11	3	4	16	239	288

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	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
HEALTH INSTRUMENT 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	3	5	5	-	5	9	2	-	-	-	33
Clerical	-	-	-	1	-	-	1	1	-	-	1	4
Others	17	19	13	15	-	20	44	39	8	-	1	176
Total	22	23	19	23	-	26	59	50	8	-	4	234
DEVELOPMENT												
Supversiors	-	-	-	-	-	3	7	4	-	-	1	15
Other exempt	-	-	-	-	-	1	11	14	-	-	1	27
Clerical	-	-	-	-	-	1	2	2	-	-	-	5
Others	-	-	-	-	-	18	32	15	-	-	12	77
Total	-	-	-	-	-	23	52	35	-	-	14	124
BIOLOGY												
Supervisors	-	-	7	-	-	-	-	-	-	-	-	7
Other Exempt	-	-	26	-	-	-	-	-	-	-	-	26
Clerical	-	-	2	-	-	-	-	-	-	-	-	2
Others	-	-	42	-	-	-	-	-	-	-	-	42
Total	-	-	77	-	-	-	-	-	-	-	-	77

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	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
ACCOUNTING DIVISIONS												
GEN. ACCTG. PAYROLL											6	6
Supervisors	-	-	-	-	-	-	-	-	-	-	2	2
Other Exempt	-	-	-	-	-	-	-	-	-	-	83	83
Clerical	-	-	-	-	-	-	-	-	-	-	91	91
Total	-	-	-	-	-	-	-	-	-	-		
GENERAL ACCTG. ACCTG.										1	7	8
Supervisors	-	-	-	-	-	-	-	-	-	1	9	10
Other Exempt	-	-	-	-	-	-	-	-	-	-	89	89
Clerical	-	-	-	-	-	-	-	-	-	2	105	107
Total	-	-	-	-	-	-	-	-	-			
EMPLOYEE & COMM. RELATIONS											25	25
Supervisors	-	-	-	-	-	-	-	-	-	-	1	1
Empl. Rel. Counselor	-	-	-	-	-	-	-	-	-	-	10	10
Other Exempt	-	-	-	-	-	-	-	-	-	-	59	59
Clerical	-	-	-	-	-	-	-	-	-	-	15	15
Others	-	-	-	-	-	-	-	-	-	-	110	110
Total	-	-	-	-	-	-	-	-	-			
PLANT SEC. & SERVICES											4	51
PATROL & SEC.												4
Supervisors	5	6	6	5	-	5	7	7	6	-	-	565
Other Exempt	-	-	-	-	-	-	-	-	4	-	25	17
Patrolman	63	49	67	42	-	67	153	89	10	-	2	2
Clerical	-	-	-	-	-	-	-	-	15	-	-	639
Seamstress	-	-	-	-	-	-	-	-	2	-	31	
Total	68	55	73	47	-	72	160	96	37	-		

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	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
SAFETY & FIRE												
Supervisors	14	-	-	-	4	-	4	4	7	-	-	33
Engineers	1	2	-	1	-	2	-	2	-	-	1	9
Firemen	46	-	-	-	8	-	20	16	10	-	-	100
Clerical	-	1	-	1	-	1	-	-	-	-	3	6
Total	61	3	-	2	12	3	24	22	17	-	4	148
GEN. & OFF. SERV.												
Supervisors	-	-	1	-	-	1	1	1	1	-	19	24
Ldry. Operators	-	-	-	-	-	-	1	-	-	-	1	2
Janitors & Serviceman	7	5	5	5	2	5	19	12	5	-	42	107
Clerical	-	-	-	-	-	-	-	-	-	-	35	35
Others	-	-	-	-	-	-	34	-	-	-	58	92
Total	7	5	6	5	2	6	55	13	6	-	155	260
PURCHASING & STORES DIVS.												
PURCHASING												
Supervisors	-	-	-	-	-	-	-	-	-	-	18	18
Other Exempt	-	-	-	-	-	-	-	-	30	-	24	54
Clerical	-	-	-	-	-	-	-	-	-	-	91	91
Rotational Trainee	-	-	-	-	-	-	-	-	7	-	1	8
Total	-	-	-	-	-	-	-	-	37	-	134	171
STORES												
Supervisors	2	-	-	-	-	-	-	-	-	3	13	18
Clerical	12	-	-	-	-	-	-	-	-	24	49	85
Others	21	-	2	-	-	-	1	1	-	9	79	113
Total	35	-	2	-	-	-	1	1	-	36	141	216

DECLASSIFIED

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
COMMUNITY DIVS.	-	-	-	-	-	-	-	-	-	5	104	109
Supervisors	-	-	-	-	-	-	-	-	-	9	34	43
Other Exempt	-	-	-	-	-	-	-	-	-	23	34	57
Fireman	-	-	-	-	-	-	-	-	-	16	22	38
Patrolmen	-	-	-	-	-	-	-	-	-	-	173	173
Journeymen	-	-	-	-	-	-	-	-	-	-	43	43
Servicemen	-	-	-	-	-	-	-	-	-	-	32	32
Truck Drivers	-	-	-	-	-	-	-	-	-	-	34	34
Power Operators	-	-	-	-	-	-	-	-	-	-	79	79
Clerical	-	-	-	-	-	-	-	-	-	-	55	55
Others	-	-	-	-	-	-	-	-	-	53	610	663
Total	-	-	-	-	-	-	-	-	-			
GRAND TOTAL	543	471	443	323	104	477	1222	964	326	625	2700	8198

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MANUFACTURING DIVISIONS

APRIL 1951

SUMMARY

Production Divisions

A total of 83.25 tons of metal was discharged during the month. The special request program required 200 manhours for the month. Eight special request tubes were charged into the piles for irradiation. Twenty-seven casks containing irradiated samples were shipped off-site. An additional 150 manhours were required for work on Chemical 68-56.

The average time-operated efficiency for 5 pile operation was 89.7 percent.

During April, seven slug failures occurred--six were uranium slugs and one a P-10 target slug. A total down time of 205.4 hours were required to discharge the ruptured slugs, with an average of 34 hours for each slug.

A small gain in maximum operating levels was achieved, but the increased incidence of slug failures adversely affected the total production as compared to March by 5.5 percent. The gains in maximum operating levels for all piles amounted to 46 MW detailed as follows:

	B	D	DR	H	F
April	435	423	526	515	418
March	425	395	526	510	415

The average operating level (MW) for each pile was as follows: B - 412, D - 402, DR - 467, H - 490, F - 391. The average level for all piles was approximately the same as for March.

The total acceptable pieces canned was 92 tons at a yield of 98.5 percent. The melt plant produced 20 tons of billets at a yield of 88.2 percent and a solid metal yield of 95.1 percent. This is a new record for solid yield.

The fabrication of approximately 1000 test slugs for the duPont Company was completed on April 12.

A total of 124 charges was started in the canyon buildings.

A total of 124 regular charges was completed through the concentration buildings in addition to two acid washes, four P-11 runs and six master recycle runs from isolation.

A total of 127 regular runs was completed through isolation plus two acid washes, four P-11 runs and five master recycle runs.

The average cooling time was 49 days with the minimum cooling time 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 of April were:

Process - 4-19-51 (9:00 - 10:00 A.M.)	65,800 KW
Village - 4-19-51 (7:00 - 8:00 A.M.)	26,100 KW

The decline in demands is in line with seasonal expectations.

Unscheduled interruptions of production resulted from the following electrical outages:

1. A total electrical outage to the 200 Areas was experienced on April 23, 1951 for approximately two hours when a sub-contractor's A-Frame truck short circuited 13.8 KV lines near 251 substation.

2. A seven minute electrical outage affecting 105-DR on April 18, 1951 was caused by breaker failure at 151-D Substation.

3. Complete loss of electrical power to Richland and the 300 Area occurred on April 19, 1951 for a period of approximately one hour due to insulator failure on the 115 KV bus at BPA Midway Station.

The Electrical Division has developed and established new procedures for subnormal electric power conditions, permitting two hour re-energization time for Grade W and authorizing agreements for Grade S and W at the Assistant and Area Engineer levels respectively. This change should reflect greater flexibility with more direct and prompt establishment of critical power conditions of the grades stated.

The operation of steam driven condenser pumps in all 100 Areas, 182 Reservoirs, Pump Houses, was discontinued, making possible appreciable savings in steam consumption and operational cost.

C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

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MANUFACTURING DIVISIONS

PATENT REPORT SUMMARY
FOR
MONTH OF APRIL 1951

Richland, Washington
May 9, 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
G. K. Carpenter S Division	Radiation Slide Rule

A radiation Slide Rule is a device which will provide a quick, accurate method of calculating a man's exposure in terms of mr. or minutes permissable exposure.

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
APRIL 1951

Cost Accounting Committee

Considerable work was done in preparing representative cost statements for analysis by the Cost Accounting Committee. Because of the detail required on some of these statements and the urgency of making final decisions on them, considerable overtime was incurred.

Drafts of procedures for billing electricity, telephone and automotive equipment charges at unit cost were submitted.

Cost Control

To overcome inaccuracies and difficulties in balancing total garage labor and material with cost reported (by individual piece) on equipment repair orders, a new procedure is being adopted effective April 30 whereby labor and material will be directly coded to the equipment piece number instead of to routine work orders.

The cost of transporting coal on the project will be charged to current cost as coal is consumed, effective as of April 1. On plant transportation cost of coal will be charged to inventories and the equivalent transportation expense charged to cost as the coal is consumed.

As a result of the increase in the number of process materials carried in inventory due to new plants and expansion of old plants, it has been necessary to change the identifying numbers from a three digit to a four digit code. Discussions have been held with Purchasing and Plant forces so that this change can be made effective May 1.

To facilitate more prompt analysis of elements of cost by Division, an internal working form was introduced so that clerical personnel, in compiling their individual reports, will automatically discover discrepancies between the current months charges and previous periods.

Transfer of Projects to T, E & C

A total of 48 incomplete projects valued at approximately $5,142,000 were transferred to Technical, Engineering & Construction Divisions in April. These are projects being controled by E & C Divisions. Thirty-five projects remain on the Manufacturing Divisions books of which 21 are active projects. The remainder are now or soon will be physically complete and will be transferred to completed projects as the financial details become final.

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Manufacturing Accounting

Budgets

The preparation of Operating Budgets for Fiscal Year 1953 and Revision of Fiscal Year 1952 was particularly involved due, in part, to changes made in the basic assumptions during the preparatinn of the budget. Final budgets were reviewed by the A & B Committee and submitted to A.E.C.

Organization and Personnel

Beginning of Month	63
Acquisitions	9
Transfers Out	4
End of Month	68

The number of people added in April resulted in a substantial strengthening of our Analysis and Reports group. Other sections replaced personnel terminating or expected to terminate. The added personnel in April utilized the little remaining space in the office portions of the 722-A Building and additional quarters must be secured to accommodate nine new employees estimated necessary for proper accomplishment of our current workload.

To better distribute the supervisory workload a "Supervisor - Cost Reports" was appointed. This will free some of the time of the "Supervisor - Analysis and Reports" for more analysis and procedure work.

Manufacturing Cost Division incurred an unusual amount of overtime premium during the month. In addition to regular planned overtime at peak monthly periods, it was necessary to authorize much night and Saturday work on budget preparation and special cost analysis for various new cost committees.

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May 9, 1951

P DIVISION

APRIL, 1951

I. GENERAL

A gain in maximum operating levels totaling 46 MW in the pile areas was achieved during the month of April; however, the increased incidence of slug failures adversely affected the total production in April as compared to March.

During April, seven slug failures occurred which required outages for remedial action. Six of the failures were uranium slugs and one was a P-10 target slug. A total downtime of 205.4 hours was required to discharge the ruptured slugs with an average of 34 hours for each slug.

The average time operated efficiency for 5-pile operation was 89.7%. The total number of outage hours for all piles was 369.6. Of this amount, 76.5% is chargeable to plutonium production and 23.5% is chargeable to other irradiation programs.

The following gains in maximum operating levels were achieved: B Pile was raised from 425 MW to 435 MW, D Pile was raised from 395 MW to 423 MW; DR Pile remained at 526 MW, H Pile was raised from 510 MW to 515 MW, and F Pile was raised from 415 MW to 418 MW. This brings the total maximum operating level of all five piles to 2317 MW compared to 2271 for last month for a gain of 46 MW.

During the month, a record solid yield of 95.1% was achieved in the 300 Area Melt Plant facility. Effective April 9, all of the 300 Area manufacturing facilities were placed on a 6-day week basis of operation.

P Division

II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - April, 1951

Beginning of Month -	364
End of Month	369
Net Increase	5

Eight new operators and one General Clerk C were hired into the 300 Area. A total of six operators terminated voluntarily, one from the 100 Areas and five from the 300 Area.

C. W. Botsford transferred from the Pile Technology Division to the P Division effective April 16, 1951.

Two new rotational pool employees were assigned to the P Division for training and one was transferred to the Instrument Division to continue training.

Mr. K. T. Perkins of the Contact Engineering Group visited the Kellex Corporation in New York City on April 9, 10, and 11 for the purpose of discussing building criteria for Project C-431.

III. AREA ACTIVITIES

100 Areas - Pile Irradiation

The total production for April was 5.5% lower than that of March. This decrease was attributable to a shorter month and increased outage time resulting from slug failures.

Improvement in ruptured slug removal techniques has resulted in a substantial decrease in the average pile downtime for each rupture. During April, this average was 34 hours per failure and amounted to approximately a 40% reduction in the time previously required for this purpose.

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

Pile Production Summary	Pile B	Pile D	Pile DR	Pile H	Pile F
Maximum level attained (MW)	435	423	526	515	419
Average operating level (MW)	412	402	467	490	391
Time operated efficiency (%)	96.7	96.2	88.7	82.5	84.6
Unscheduled outage time (hours)	0	0	48.5	89.8	67.6
*Inlet water temperature (°C.)	9.2	9.1	8.9	9.1	8.8
*Outlet water temperature (Max. °C. 10 tubes 0.240" zone) (10 tubes 0.285" orifice zone at H Area)	54.5	68.6	74.0	69.2	58.4
Maximum graphite temperature (°C.)	375	377	320	398	380
Metal discharged (tons)	12.95	13.17	21.58	18.87	16.68
Inhours gained	19	1	30	1	0
Inhours poisoned	489	498	369	38	497
Inhours in rods	101	76	126	120	115

* Month end figures.

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P Division

Pile downtime during the month of April was mainly attributable to the scheduled discharge of metal and the removal of ruptured slugs. 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	10.5	15.0	22.1	36.2	22.0	105.8
Ruptured Slug Removal	-	-	48.0	89.7	67.6	205.4
Pile Maintenance	10.1	9.5	-	-	14.5	34.1
Production Test and Special Request (except P-13)	3.0	3.0	11.0	-	6.5	23.5
P-13	-	-	-	0.3	-	0.3
Electrical Outage	-	-	0.5	-	-	0.5
Total Hours	23.6	27.5	81.6	126.3	110.6	369.6

Operating Experience

Operating experience during the month was normal except for the unscheduled outages required to remove ruptured slugs from the F, DR, and H Piles. Production tests having operational significance are reported below:

105-103-P (Corrosion Rates at Elevated Temperatures, Supplement D) At F Pile, 26 tubes are operating satisfactorily at elevated temperatures under the provisions of this test. During April, eight additional tubes were charged and one tube discharged and returned to normal.

105-354-P (Operation of ANL-140 with Fuel Installed) Operation of the H Pile was interrupted for 0.3 hours on April 1 due to an unexplained impulse from the P-13 equipment safety circuit. No definite cause could be established. A production loss of 39 MWD resulted.

During the April 4 outage, a two-second time delay device was installed in the P-13 safety circuit. There were indications on April 5 that this action prevented an outage of the type mentioned above. Total production loss attributable to the P-13 project to date is 2497 MWD.

105-338-P (Pile Test of Special Step Plug and Gas Seal) During the April 18 outage at D Pile, Vertical Safety Rod 20 was removed and the graphite channel borescoped to locate 3X balls that were unaccounted for from a previous test. Balls were observed to have lodged in expansion cracks between the top steel shielding block and the thermally displaced graphite blocks, and an undetermined number at the bottom of the channel.

The gas seal was tested and the need for tightening of the silicone plug located in the hollow rod was demon-

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strated. It is planned to remove the 3X balls and tighten the silicone plug during the May outage.

105-391-P (Graphite Burnout and Transport Test)
Graphite samples which were charged into tube 2777-F on December 21, 1950, were discharged on April 12, 1951. No operational difficulty has been experienced with this equipment.

105-407-P (Pile Test of Magnesium Front Dummies)
At the B Pile on April 3, three tubes containing solid magnesium dummies were discharged. Inspection of the dummies revealed that they were moderately corroded after six weeks in the pile. Borescopic investigation of the tubes was inconclusive.

105-417-P (Process Tube Purge During Pile Operation)
DR and B Piles were successively purged while operating during the month. The practice of purging while operating has been adopted for use in all piles. This method of purging will result in a reduction of pile downtime and allow more frequent purges which should favorably effect the present boiling disease limitation of the process tubes.

The special request program required approximately 200 manhours of time during the month. Cask handling and decontamination work continued to consume a large portion of the time charged to this work. Eight special request tubes were charged into the pile for irradiation. Twenty-seven casks containing irradiated samples were shipped off-site. Approximately 150 manhours were required for the charging, discharging, and shipping of Chemical 68-56.

A total of 83.25 tons of uranium slugs was discharged during the month of which 0.41 tons were at 39% and 0.25 tons were at 73% of the nominal goal value concentration and 82.59 tons were at 100% of goal value.

Three unscheduled outages occurred at H Pile during April due to ruptured slugs. The first, an outage of 18.0 hours duration, occurred on April 10, and involved the removal of a ruptured uranium slug from tube 1477-H which contained the H-10 loading pattern. A second outage of 38.8 hours duration occurred on April 20, and involved the removal of a ruptured and deformed P-10 target slug from tube 2974-H. The third outage of 32.7 hours duration occurred on April 23, and involved the removal of a ruptured uranium slug from tube 3373-H.

The three failures are described in detail in documents HW-20878, HW-20776, and HW-20975.

F Pile also experienced three ruptured slugs resulting in a total of 67.6 hours lost time. The first outage occurred on April 9, when a uranium slug failed in tube 2780-F. After removal of the slug was completed, the outage was extended to complete work which had been previously scheduled for April 11. On April 19, a second unscheduled out-

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age occurred due to a ruptured uranium slug in tube 0986-F. A uranium slug failure in tube 2475-F occurred in F Pile on April 30. Removal is in progress at month end. The details involved in the removal of the April 9 ruptured slug are described in document HW-20894; the details of the April 19 ruptured slug will be covered in a document to be issued at a later date.

An unscheduled outage of 48.0 hours duration occurred at DR Pile on April 14, due to a ruptured uranium slug in tube 1377-DR. Following the removal of the slug and subsequent startup on April 16, an unexplained rise occurred in the exit water monitoring system, necessitating a pile shutdown for investigation. Rear face survey and water sample analysis proved inconclusive; however, tube 2077-DR was suspected because of a slightly increased exit activity. Pile operation was resumed and the suspected tube was discharged during the scheduled temporary poison discharge April 17. Visual inspection of the discharged pieces indicated that one of the slugs was defective. The incident will be described in a document to be issued at a later date.

During the month, the DR Pile continued to gain in reactivity. Two additional P-10-A columns were added to increase the pile flattening by approximately 20 inhours.

Mechanical Experience

The general mechanical condition of the pile components and equipment continued good throughout the month.

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

> Horizontal control rod A at 100-D Area was removed from service during the April 18 outage due to the binding condition reported in March. A part of the graphite track was removed from the thimble and a replacement track is being prepared for installation during a May outage. The rod, meanwhile, continued out of service.

Tube 1662-F, which was found leaking and removed from service in January, was replaced on April 11, and returned to service.

Investigation failed to reveal the cause for the failure of vertical safety rod 11-B, reported previously. The rod performed satisfactorily during test and has been returned to service.

The installation of mock-up facilities to permit operational testing of all functions of the tool dolly during pile operation at H Area was completed. This equipment will expedite the training of personnel in the operation and testing of the dolly. The program of training operators in the proficient use of the H and DR tool dollies is continuing.

During the month, installation and operational tests were completed on the Groves Flexflo automatic import valves, located in the raw water

systems at the DR and H Piles. The valves are in service at month end.

The process water downcomer supports at D Pile were repaired during the April 18 outage. Welded reinforcing plates were installed at the angle brackets where vibration had enlarged the bolt holes in the I beam supports.

Gas Processing

The use of the cooler blower was discontinued at H Area and gas circulation was maintained with the drier blower. This method of operation has resulted in a significant reduction in steam consumption for this operation.

The gas leak in the B Pile circulating gas system has not been located. An abnormally high gas activity detected in the inner rod room is to be investigated during the next scheduled outage. The gas pressure and frequency of drier regeneration have been reduced resulting in a 50% reduction in gas consumption.

Pile Development

During the April 10 outage at DR Pile, the exit water sampling facilities were changed to permit the "bucking" of adjacent headers in each water sampling room. It appears that this change in design has considerably improved the effectiveness of the equipment.

At D Pile, the use of slip clutch torque wrenches for limiting the force applied to pile tube caps during replacement after charge and discharge operations proved successful as a means for preventing deformation of the aluminum cap gaskets.

During the month, considerable effort was directed toward the development of equipment and procedures to facilitate the removal of ruptured slugs. The high incidence of slug failures during April furnished ample opportunity to further this development work. The success of the effort is indicated by a reduction of approximately 40% in the average time required for ruptured slug removal.

A method for detecting ruptured and deformed P-10 target slugs involving recognition of a slightly increased rate of rise of the inlet water pressure in the tube containing the offending slug has been developed at 100-H Area. All such failures to date have been detected by P Division personnel assigned to closely follow such effects. To facilitate these detections and reduce the possibility of detection failure by human error, a proposal was made by the P Division that the detection problem be set up for IBM machine analysis. This method has been tried and looks promising; further investigation is under way.

Special Hazards

The radioactive vapors and resulting contamination in the sample rooms and the storage area in 100-D Area have been successfully controlled by the improved ventilation resulting from the installation of larger vents

in the sample room floor drains and from the improved plugs in the storage area drains.

Removal of the ruptured slugs in F, DR, and H Piles was accomplished with no over-exposure to personnel in spite of the high rates of exposure encountered.

The slug failures during the month provided additional opportunity to develop efficient and effective controls over the radiation and contamination hazards incident to this work. Further development of special procedures and equipment for hazard control are in progress for future use.

The loose manhole cover on the DR Pile effluent line reported in March was re-gasketed and replaced resulting in a satisfactory reduction of radiation levels.

Process Control

During the month, the Process Control Group completed tests indicating the feasibility of eliminating the use of the cooler blower for circulation of the pile atmosphere gas at 100-H Area. A study showing economic justification for canning recovered slugs by the lead-dip method was issued. A study was made of the economic justification for the use of 8-inch slugs.

300 AREA METAL FABRICATION

OPERATING SUMMARY

All the 300 Area facilities were operated on a one shift, five-day week through the week ending April 8. Machining, canning and inspection facilities were operated on a one shift, six-day week for the remainder of the month. The Melt Plant operated on a one shift, six-day week during the weeks ending April 21 and April 28. The 305 test pile operated on a one shift, five-day week throughout the month.

During the month, a new record solid yield of 95.1 was attained in the Melt Plant Operation.

Uranium Fabrication	March	April	To Date 1951
Billets Produced (Tons)	16	20	73
Bare Pieces Machined (Tons)	91	99	374
Briquettes Produced (Tons)	12	13	50
Oxide Burned (Weight out - Tons)	2	3	12
Acceptable Pieces Canned (Tons)	90	92	359
Melt Plant Billet Yield (%)	88.3	88.2	87.9
Melt Plant Solid Yield (%)	93.9	95.1	93.9
Machining Yield (%)	80.0	78.7	80.1
Chip Recovery Yield (%)	86.3	87.5	87.5
Canning Yield (%)	91.6	89.5	90.1
Autoclave Frequency (No./M)	0.24	0.06	0.16

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P Division

OPERATING EXPERIENCE

Melt Plant

Four broken stopper rods and one broken mold were experienced during the month; the mold failure was apparently caused by an undetected flaw in a new mold. The broken stopper rods were caused by a shifting of the crucible charge during melting and/or excessive tension on the stopper rod adjusters.

Spring tension stopper rod devices are now being constructed and installed.

Machining

A major portion of the rods machined during the month gave a machining yield of appproximately 80%. However, a stricter machine slug inspection standards imposed on the last six lots processed lowered the monthly yield to 78.7%.

These modified standards provide for the rejection of all slugs having surface defects in excess of 1/16", as well as the continued rejection of those showing any evidence of cracked areas.

Oxide Burning

During the latter part of the month, the graphite burner was enlarged. This change is expected to double the capacity for processing MD-4 oxide.

Canning

The canning yield for the month of April was 2.1% lower than the yield for March. Of the total number of slugs processed, 2.70% was rejected for poor bond, 2.13% for marred surface, 1.69% for non seating, 1.33% for Al-Si on outside of the can, 1.16% for bad welds and 1.49% for other miscellaneous causes.

Continued efforts were made during the month to detect and reject all air pockets and unbonded areas around the cap through fluoroscopic inspection. Effective April 25, more rigid controls were placed on the canning operation time cycle to assure that all off cycle pieces were rejected. This included assigning a quality control operator to each canning line to assure that process specifications were followed precisely. On April 30, the canning cycle was lengthened from 47 seconds to 57 seconds to permit utilization of process tolerances and thereby decrease non-seating and off cycle rejects.

Inspection

A total of three autoclave failures occurred during the month. Two failures resulted from minute pinholes extending through the weld into unbonded areas between the cap and the inside can wall. The third failure was caused by a hole in a non-seated can leading to a porous Al-Si section under the cap.

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

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The following tests were run during April:

Description	No. of Tests
Regular Slugs	31
Billet Eggs	53
Measure the reactivity of uranium slugs with varying thicknesses of end caps	9
Expose nuclear emulsion filaments	3
To measure the absorption cross section of material to be charged in the 105 piles	5
To measure the effect of surface impurities on TDS values of egg samples	42
To measure the reactivity of ORNL-106 pieces	6
Aluminum dummies	7
Process cans 4-3/8" length	1
Production Test 305-14-P (Reactivity Test of a "J" Slug After Discharge from 105 Pile)	9
	166

Special Fabrication Work

The following special materials were canned during the month:

Eighteen SR-13 pieces.
Seventy-five aluminum dummies for corrosion tests.

In addition, one thousand ten poison pieces were canned.

The fabrication of approximately 1,000 slugs for the duPont Company was completed on April 12. This consisted of processing slugs ranging from 6 to 8 inches in length and 3/4" to 1" in diameter. With the exception of excessive slug warpage, the slugs were canned satisfactorily using the triple dip process. All of this work was done on scheduled overtime.

Material Handling

Eighty-one 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 and twenty-four tons of uranium oxides were shipped to Mallinckrodt Chemical Works.

Approximately thirty manhours were devoted to making eleven off-plant shipments of miscellaneous materials.

A total of 218 tons of alpha rolled rods was received from Simonds Saw and Steel Company.

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P Division

Special Hazards

No unusual conditions developed during the month.

Development

During the month, a movable railroad car loading dock was transferred from North Richland to the 300 Area. The use of this dock has made it possible to load and unload box cars with fork lift trucks rather than by manual methods. It is estimated that this change will result in an annual labor savings of at least $800. In addition, the dock has minimized the contamination problems and safety hazards associated with unloading uranium rods.

Tests were run to determine the feasibility of using mold risers to reduce the amount of metal that is cropped from the Melt Plant billets. It was demonstrated that in the majority of cases this method produced an increase of about 1% in billet yield. However, operational handicaps made it difficult to pour the metal through the small openings in the risers. This difficulty nullified some of the gain realized when billets were successfully poured using the risers. It is yet to be determined if the increase in billet yield is sufficient to justify the equipment changes which would be necessary to provide better control over the pouring operation.

As part of a program to develop a more vigorous autoclave test, 2,520 slugs were given the normal 40 hour test, frost tested and returned to the autoclaves for an additional 40 hours in which they were thermally cycled at 8 and 16 hour intervals. Although none of the pieces failed in the autoclave, five frost test rejects were found after thermal cycling. These rejects have been transferred to the Technical Division for further analysis. To date, approximately 14 tons of material have been given this modified autoclave test and only one failure has been experienced. This material is being held in storage pending a special loading into the piles.

Automatic locking devices to assure alpha beta transformation of the slugs when dipped in the bronze baths have been installed on three furnaces. Installation on a fourth and final furnace will be completed in May.

ENGINEERING PROGRAM

Contact Engineering Section

The Contact Engineering Group continued work on a six day per week basis. The design criteria on Project C-431-B, 100-C plant, were completed. The water plant design was approved. Authorization was received for the use of enrichment and a firm decision was made to incorporate the larger size anulus into the C-Pile design. The Ball 3X recovery system was approved.

Procurement of necessary equipment for Project C-411 (J Slug Handling) is proceeding.

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P Division

Engineering Control Section

Work of the Engineering Control Group was directed toward:

(a) Completion of the construction and operating budgets for fiscal year 1953 and review of the fiscal year 1952 budget.

(b) Scoping, project proposal preparation and design follow-up of a number of urgent projects including - "Retention Basin Repairs", "Effluent Downcomer Repairs", "Ball 3X System", and "Panellit Gauge Revisions".

(c) Field follow-up of approved projects which include tests of a Flexible Vertical Safety Rod design and the completion of temporary retention basin repairs at DR and H Areas.

Project Status

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

C-330 (Improved Ventilation Buildings - 313-314 (Engineering and Development Only)
The results of the efficiency tests on the Hersey Bag Filters and the particle size determinations of the air borne contamination in the gases filtered indicates that one 5000 c.f.m. filter of the type installed for this test will adequately handle the Melt Plant ventilation problem and the air within the working area under normal operating conditions can be maintained below the tolerance limit of 5×10^{-5} µg U/cc.

C-411 (J Slug Storage and Shipping Facilities)
A project based on the revised scope is completed. A new estimate for completion of the work will be submitted with the project proposal.

C-438 (Ball 3X Facilities for B, D, DR, H and F Piles (Engineering and Procurement of Critical Materials)
The Pile Technology Division has recommended a nickel-plated boron steel ball for use in the present piles. Tests have proved the advantage for a definite relationship between the sizes of the top and bottom of the flutes in the rod guides. A preliminary design drawing of the method of initiation of the release mechanism of the Ball 3X system has been submitted for consideration. Future work on this phase of the design will be to provide a "fail-safe" 3X system (failure of controls will cause system to operate) rather than a "fool-proof" one.

B-544-R (Install Steel Process Sewer (105-107-B)
In view of possible increased process water flows and the new production facility contemplated at B Area, replacement of the entire line is considered necessary and is budgeted accordingly in the fiscal year 1952.

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P Division

M-713 (Vertical Safety Rod Design - B, D, and F)
The decontamination of the rod and the non-availability of a test location for a free drop test of the rod necessitated obtaining an extension of time for project completion until September 30, 1951. The test was made April 27, 1951, at 181-F. The rod failed on the second drop. Details of the failure will be reported after a close inspection of the rod can be made.

M-806 (Slug Canning - Transformation Timing Equipment)
The equipment has been installed on three furnaces; work is in progress on the fourth, and should be completed by May 20, 1951.

M-821 (Design and Install Replacement Downcomers in 100-B, D, and F)
Designs have been prepared for temporary repairs to the present downcomers. The design involves bracing, supporting, and venting to maintain the present downcomers in usable condition until replacement equipment is available.

M-826 (Cross-Header Pressure Monitoring - 105-H)
All work is complete except to tap into 20 remaining cross-headers. Completion of this work is expected early in May.

M-829 (105-D and DR Safety Circuit Interlock)
Conduit and wiring are completed from 105-D to 105-DR via 190-D. Some circuits are partly completed into the control room at DR. The checking of Beckman wiring at 105-D is continuing. The field work is about 40 percent complete and should be finished by June 30.

B-1966 (Ruptured Slug Handling Equipment)
The need for equipment for removal of downstream metal and dummy pieces from a tube with a ruptured slug will be reviewed in the light of current practice.

The new cask designed for removal of the upstream pieces has operated successfully in trial tests. At present the cask using the vacuum cup principle is still operating satisfactorily.

Plans are being made to make up a steel can with auxiliary piping of various lengths to replace the present G. I. can and flexible tubing.

M-1969 (Earthquake Detectors (B, D, F, DR, and H)
An order has been placed with the O. S. Peters Company, Washington, D.C. for one seismometer (pendulum starting device) to be used in experimental work by the Instrument Division. Delivery of this equipment is expected in four or five weeks.

E. P. Lee
Superintendent
P DIVISION

EP Lee:ges

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Richland, Washington
May 4, 1951

S DIVISION

APRIL, 1951

I. RESPONSIBILITY

During the latter part of the month, Project C-369, First Decontamination Cycle Waste Evaporator - 200 West Area, was completed, and operation was initiated successfully on April 28.

II. ACHIEVEMENT

A. Operating Experience

1. Production Statistics

a. Over-all Performance - Canyon, Concentration and Isolation Buildings (4-1-51 through 4-30-51, inclusive)

	B Plant		T Plant		Combined	
	Normal	Acid Wash	Normal	Acid Wash	Normal	Acid Wash
Charges started in 221	62	1	62	1	124	2
Charges completed thru 224	61	1	63	1	124	2
Special Chgs. thru 224	6		4		10	
Charges completed thru 231	63	1	64	1	127	2
Special Chgs. thru 231	-		-		9	
Avg. purity comptd. chgs.	-		-		98.4	
Avg. elapsed cooling time metal processed (days)	49		49		49	
Yield thru process	101.6		105.5		103.5	
Material balance thru process	102.3		105.2		103.7	

b. Canyon and Concentration Building Performance Data for Completed Charges (4-1-51 through 4-30-51, inclusive)

	B Plant	T Plant	Combined
Percentage of starting product in waste:			
This month	1.8 (a)	1.8 (a)	1.8
Last month	2.3 (b)	2.2 (b)	2.3
Cumulative to date	3.8 (c)	3.7 (c)	3.7
Percentage of starting product recovered:			
This month	98.9	102.9	100.9
Last month	100.6	100.1	100.3
Cumulative to date	96.9	96.1	96.6
Percentage of starting product accounted for:			
This month	100.7	104.7	102.7
Last month	102.9	102.3	102.6
Cumulative to date	100.7	99.8	100.3
Gamma decontamination factor (Log.)			
This month	6.70	6.76	6.71
Last month	6.95	7.06	6.97
Cumulative to date	7.25	7.32	7.28

(a), (b), and (c): Includes waste from processing recycle. The recycle wastes are estimated as: (a) 0.027%, B Plant; 0.036%, T Plant. (b) 0.012%, B Plant; 0.013%, T Plant. (c) 0.011%, B Plant; 0.065%, T Plant.

c. Isolation Building Performance Data (4-1-51 through 4-30-51, inclusive)

	Prepared for Shipment	Recycle	Waste	Retained Samples	Material Balance
Average for this month	93.5	7.40	0.002	0.04	100.9
Average for last month	93.7	5.45	0.04	0.04	99.2
Average to date	95.0	4.99	0.04	0.12	100.0

d. Depleted Uranium and Waste Storage Status

200 East Area

Tank Farm	Gallons (10^3) in Storage B	C	BX	BY	Total	Reserve Capacity in Batches to Process B	C	BX	BY	Total
Metal Waste	1579	3374	3117	2688	10758	0	0	18	955	973
1st Cycle	2645	3170	2645	955	9415	0	0	151	374	525
2nd Cycle	1250	0	0	0	1250	123,052 cribbed from 112-B				
TBP Reserve	-	-	-	-	-	-	-	-	109BY(758,000gal)	
Waste Evap. Reserve						-	106 B (530,000 gal)			

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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	3452	9768	0	0	741	741
1st Cycle	2055	1585	4912	8552	319	0	326	645
2nd Cycle	1596	0	0	1596	Cribbed when necessary			
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 11.4 hours and 10.6 hours were maintained at the Canyon and Concentration Buildings, respectively during April. This includes standard charges, and acid washes. Also included are four charges of P-11 test material, and six master recycle runs, which represents material returned from the Isolation and Purification Buildings. The processing of the P-11 test material and the recycled material required time equivalent to ten standard charges which reduced the Plutonium output from virgin metal, proportionately. At the Isolation Building, an over-all time cycle of 12.5 hours was experienced. This higher than normal cycle reflects the extended flushing and replacement of the nutsche filter blocks in the first cycle operation in cells 3 and 4. The volume of solution obtained from these flushing procedures constituted the major portion of the material recycled to the Concentration Buildings to be reprocessed as master recycle runs. Operation of First Decontamination Cycle waste evaporating facilities was started during the latter part of the month. It is indicated that the designed capacity is readily attainable. More extensive and conclusive results will be available during the coming month.

b. Extraction

Significant data on extraction waste losses are tabulated below:

	B Plant April	B Plant March	T Plant April	T Plant March*
Analysis before rework	1.85	1.84	2.01	2.43
Analysis after rework (throw-away)	1.46	1.45	1.57	1.98
Average MWD/Ton	412	410	412	445

*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 and Concentration Buildings. At T Plant, the Concentration Building preflush was higher than normal due to the pickup of plutonium in the F Cell precipitator tank and the F-10 tank. This problem is being further investigated. 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-11-04-AW-1	8.43	23.05	10.19	41.67	4.00	45.67	24.70
T-11-04-AW-1	7.90	11.53	1.62	21.05	13.38	34.43	32.71

d. Nutsche Filter Block Cleanouts and Replacement - Isolation Building

Continuing the investigation of product hold-up in the first cycle filter blocks, a scheduled flushing procedure using 60 percent nitric acid instead of 25 percent acid, recovered a total of 590 percent of a standard run from Cells 2, 3 and 4. Since the filtering time cycles were abnormally long in Cells 3 and 4, it was decided that the filter blocks had become restricted, with subsequent loss of filtering efficiency, and the filter blocks were replaced. A small amount of product still remains in these blocks and a procedure will be developed to recover the maximum amount, consistent with economy. Meanwhile, the increased inspection frequency rate will be continued on the filter blocks in use, and the technical aspects will be observed closely.

e. Cribbing of Second Decontamination Cycle Waste

The tie-line from tank 241-T-112 to the 241-T crib was completed during the month on Project C-415, which will allow constant overflow of settled second decontamination cycle waste in conjunction with Section 5 waste.

123,052 gallons of second cycle decontamination cycle waste supernatant were cribbed from the 241-B-112 tand during April.

f. First Decontamination Cycle Waste Evaporator Startup

Prior to the startup of the first decontamination cycle waste evaporator, 1,115,000 gallons of supernate were transferred from the 241-T-104, 5 and 106 tanks to the 241-TX-117, and 118 tanks to be used as feed stock. About 470,000 gallons of sludge remains in the 241-T-104 series. It is estimated that this series of tanks has a higher than normal amount of residual sludge since it was used several years ago for the

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storage of second decontamination cycle waste which was cribbed prior to storing first decontamination cycle waste.

The startup of the evaporation facilities proceeded uneventfully, however insufficient data have been collected to date to draw conclusions as to the ultimate optimum capacity.

3. Process Control

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

The fifth reactor filter assembly is being fabricated and is scheduled for completion in May.

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

The construction work was completed and the project was formally accepted on April 27, 1951, with minor exceptions.

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

Work is nearing completion in the 200-West Area, and construction activities will be transferred to the 200-East Area early in May.

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

The preliminary construction work continues. To date the contract for the construction of the tank farm has not been awarded.

4. Investigation and Development

a. Extraction Precipitation Bismuth

Concentration (Production Test 221-B-10)

The turbid first and second cycle product solutions encountered while processing 49% volume Runs (49% of 9-1-46 volumes) has essentially been corrected by the processing of combination 49-56% volume runs. The combination 49-56% volume runs are 49% of 9-1-46 volumes up to product cake solution at the end of the first cycle, and 56% of 9-1-46 volumes starting with this product cake solution, to F Cell of the Concentration Building.

The processing of runs with a concentration of 2.5 g/l of Bismuth in the extraction sections has shown an increase in the waste loss amounting to 0.30% before rework and 0.12% after rework as compared with the standard concentration of 4.5 g/l of Bismuth. In an effort to determine if this waste loss was significant, runs from a single push in alternating pairs at three different sets of conditions, (1) 4.5 g/l

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Bismuth and 70% volumes, (2) 3.5 g/l Bismuth and 63% volumes, (3) 2.5 g/l Bismuth and 49-56% volumes, were processed. The results of these runs show that the 3.5 g/l Bismuth and 63% volume runs as compared with the standard 4.5 g/l Bismuth and 70% volume had a higher waste loss, 0.17% before rework and no difference after rework. The combination 2.5 g/l Bismuth and 49-56% volume runs continued to show high waste losses in the same order of magnitude as originally reported 0.30% before rework and 0.12% after rework. The evaluation of this test will be continued. One of the things to be tried is the use of 3.5 g/l Bismuth concentration in extraction coupled with 56% volume thru the rest of the process to F cell.

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

Seven cuts which were sparged during the reaction period and seven control cuts have been sampled. The results of the analyses of these samples for I^{131} have been highly erratic. However, the average of the results indicates that sparging during the reaction period drives off 5% more of the I^{131} than is released during standard dissolving operation. The standard dissolving operation eliminates approximately 86% of the I^{131}. This test is being discontinued pending an investigation of the distribution of the I^{131} in the canyon process.

c. Reprocessing of P-11 Test Material

The equivalent of four standard runs of material was returned from P-11 for reprocessing through the Concentration Building at B Plant. The processing of these runs proceeded normally with only routine difficulties being experienced.

B. Equipment Experience

1. Operating Continuity

On April 23, 1951, a non-scheduled interruption in the primary electrical service, due to an unusual incident at the 251 substation, resulted in 30 minutes delay in operations in the 200 East Area, and 2 hours and 30 minutes in the 200 West Area. There were no serious processing difficulties caused by this power outage and no spread of contamination was experienced since the emergency ventilation facilities operated satisfactorily.

2. Inspection, Maintenance and Replacements

a. Canyon Equipment Failures - B & T Plants

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Equipment failures in the Canyon Buildings are summarized below:

1) In B Plant the Section 13 first decontamination cycle by-product tank agitator failed, due to a defective electrical circuit in the agitator motor. This assembly was replaced with a spare agitator from the Section 10 by-product tank. The removed agitator was stored for subsequent repair.

2) In B Plant the Section 8 extraction, and Section 19 second decontamination cycle, the precipitator to centrifuge A Jet assemblies became inoperative due to steam leaks in the steam flange of the jet assemblies. They were replaced with new jet assemblies and the removed assemblies were stored until it can be determined if repairs are feasible.

3) In B Plant the second decontamination cycle precipitator to centrifuge B Jet assemblies in Sections 19 and 20 developed leaks at the steam inlet flanges. These assemblies were removed and repaired by replacing the steam inlet gaskets.

4) In B Plant the centrifuge to by-product tank drop leg at Section 16 first decontamination cycle was replaced with a new assembly due to a process leak at the wall connector of the removed assembly.

5) In B Plant during the cake wash procedure at Section 16, and while the Section 16 first decontamination cycle centrifuge was rotating at about 100 RPM, the bowl caught on the B Jet assembly dip tube and suddenly stalled the centrifuge. The B Jet dip tube in the centrifuge was replaced and the centrifuge restored to normal operation.

   Since the centrifuge was rotating at approximately 100 RPM, and as this is near the wobble stage of the centrifuge, it is believed this incident occurred as a result of excess bowl wobble, due to unbalanced weight in the bowl.

6) In B Plant the Section 8 extraction precipitator tank spray assembly was replaced. It was found that in addition to a leak at the steam inlet flange on the jet the dip tube had dropped from the connector into the tank. The tube was removed from the tank by the use of a specially fabricated tool, without incident. Subsequent operation of the spray has been normal.

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7) In T Plant, the Section 17 first decontamination cycle precipitator tank spray assembly failed due to a gasket leak in the process discharge end of the jet. The assembly was replaced and the defective assembly is stored for future reclamation.

8) In T Plant, three failures of the precipitator to centrifuge "A" jet assembly were experienced during the month in Section 17. Two of the three failures occurred at the wall connector, process discharge line. The other failure was a result of plugging of the suction line to the jet. Because of high radiation levels, one assembly was removed from service and stored for future salvage. The other failures were remedied by direct repair and the assemblies returned to service.

   Since there have been frequent failures of this assembly at wall connector #39, four in five months, it was suspected that a faulty or leaky flange and pipe stub could be contributing the leakage. This theory was disproved by application of a hydrostatic test on the piping through concrete - connector #39, Section 17-L to connector #46, 17-R. The piping does not leak.

9) In T Plant, a process leak at the process connector head of the metal solution transfer assembly, 4-5L dissolver to 4-8 metal solution storage tank, connectors 41-42, necessitated replacement of the assembly. The replacement was accomplished by the temporary removal of one connector to the silver reactor. Since a similar failure in Cell 3-R, that is, the 3-5R dissolver to 4-8 storage tank transfer, could not be replaced without removal of the greater portion of the reactor equipment, plans are in progress to provide an alternate routing through Cell 4-R by fabrication of a special jumper. A drawing has been completed of a special jumper, and the necessary fabrication order submitted.

10) In T Plant, a leak developed in the drop line from the wall to the second decontamination cycle precipitator tank in Section 19 and was replaced. The leaky connector was regasketed and stored for future use.

11) In T Plant, another attempt to fit the previously inoperable first decontamination precipitator to centrifuge "A" jet assembly, was successful. The assembly has been used successfully during the month without evidence of leakage. Wall connector #40 is apparently distorted at the kick-plate, but not enough to justify further correction to utilize the assembly.

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12) In T Plant, the 15HP agitator assembly of the second decontamination catch tank failed to start during a periodic check. This assembly is an old one, previously used on the precipitator tank. It was installed for use in semi-parallel operation. For full parallel operation the agitator is not required. The assembly has not been replaced for this reason. Efforts will be made to ascertain the definite source of failure and repair, if possible, for use as a spare.

13) In T Plant the erratic recording of the temperature of the Section 6 reduced metal solution storage tank revealed a faulty thermohm connector. Replacement of the connector corrected the trouble. The old assembly is stored in the cell for possible salvage.

14) In both B and T Plants, a leaky jumper assembly was replaced in the 154-BX and TX diversion boxes, respectively. In each case, the failure occurred in the extraction waste effluent jumper assembly at a wall connector. There was no loss of depleted uranium, since the effluent leakage was retained in the catch tank.

b. Concentration Building Mechanical Difficulties - B & T Plants

1) In T Plant, failure of the B-2 spray assembly occurred on three different occasions, replacements being made in each case. Excessive corrosion of the vertical tube bottom disc, the second such failure in two months; improper angular positioning; and nozzle orifices plugged with foreign material were the contributory causes. The elongated bolt holes in spray flanges permitting a variety of angular positioning will be eliminated in all future fabrications so that only a standard 15° up-stream installation may be made. Investigation of the source of foreign material found in spray nozzles is continuing. In order that confusion may be eliminated a revised spray print has been issued and former prints of this spray assembly voided.

Similarly, difficulties in cake removal in the E-2 unit led to the discovery of a spray unit improperly positioned and with nozzle orifices enlarged by corrosion. This unit was replaced.

A routine inspection of the D-2 spray assembly showed improper angular positioning as in B-2 and E-2. Correction of this condition was precluded because of design factors and replacement is scheduled early in the coming month.

2) In B Plant, while the A-2 centrifuge was being plugged from 200 RPM to a stop, the bowl wobbled sufficiently to strike the dip tubes. Since the replacement of the bent dip tubes the centrifuge has operated normally.

c. Coil Failures, Sodium Hydroxide Solution Storage Tanks

The leaky coils in Tanks SQ 141 and 143 in B Plant were replaced during April.

d. Inspection of Sodium Hydroxide Solution Transfer line-T Plant

Audigage readings made on representative sections of the transfer line from the 211-T tank farm to the Canyon and Concentration Buildings revealed that approximately two-thirds of the original wall thickness remains. Although this line has been in constant service for about five years replacement is not anticipated for at least another year.

e. N-1 Tank Filter Block Replacements - Isolation Building

The filter blocks in the N-1 tanks in Cells 3 and 4 were replaced during the month, when it became evident that the filtering characteristics and efficiencies were seriously impaired.

C. Improvements

1. Adoptions

There were no significant adoptions regarding process or equipment during the period.

2. Inventions and Discoveries

A report of invention, developed by G. K. Carpenter, Senior Supervisor, was received during the month. Essentially the invention consists of a device designated as a Radiation Slide Rule which, it is claimed, will provide a quick, accurate method of calculating personnel exposure in terms of dosage rate or permissible exposure time.

III. PERSONNEL EXPERIENCE

A. Organization Changes

R. C. Grant, Chief Supervisor, T Plant, was promoted to Assistant Superintendent, S Division effective April 1.

F. A. R. Stainken, Administrative Assistant, was promoted to Chief Supervisor, T Plant, effective April 1.

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W. P. Wood, Shift Supervisor, terminated on April 20, to enter the Armed Forces.

W. A. Crossman and L. W. Roddy were promoted from Supervisors-in-Training to Shift Supervisors effective April 1.

J. C. McKay was employed as a Supervisor-in-Training on April 12.

P. H. Mattson, R. C. Hubbard, and J. J. Fitzpatrick were promoted from the weekly roll to Supervisors-in-Training, effective April 1.

B. Force Changes

1. Number of employees on roll

	Monthly Roll	Weekly Roll	Total
Beginning of month	153	476	629
End of month	155	497	652
Net Increase (decrease)	2	21	23

2. Personnel changes

	Monthly Roll	Weekly Roll	Total Changes
Transfers from other Div's.	0	10	10
Transfers to other Div's.	0	-1	-1
Reactivated	0	0	0
New hires	1	24	25
Resigned	-2	-9	-11
Transferred from weekly to monthly	+3	-3	0
Others	0	0	0
	+2	+21	+23

C. Safety Experience

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

D. Radiation Protection

1. Pipe Gallery Contamination - Canyon Building - T Plant

As a result of a defective gang valve, a suck-back occurred in the piping connected to the sparger in a metal solution storage tank at Section 4. After decontaminating the pipe internally to within permissible working limits, it was replaced. There was no over-exposure or personnel contamination.

2. Personnel Contamination - Crane Cab - T Plant

Three employees received general low level contamination on hands, face, hair and clothing while engaged in crane operation above an extraction section. The warning device failed to reflect the abnormal air conditions. Investigation is under way to improve this equipment as well as to provide more efficient filter units for the crane cab air supply system. The contamination was controlled and readily removed from the individuals involved.

3. Personnel Contamination - Isolation Building

There were seven cases of personnel contamination in the Isolation Building during April. Two operators were contaminated while assisting Maintenance in replacing the N-1 filter blocks, two operators were contaminated while performing special leaches and cleanouts of process vessels, and three men received hand contamination from a contaminated survey instrument. All cases were readily decontaminated to within permissable limits.

4. Air Activity - Isolation Building

Samples of the 903 system during the month disclosed an activity of 4.0×10^{-11} to 9.0×10^{-11} ugPu/cc being discharged to the atmosphere. This is considered higher than normal and is attributed to the excessive amount of leaching which was performed on the N-1 tank filter blocks. The above factor is due to the heavy use of the air jets to transfer leaching solutions. Air samples of the system after leaching operations appear normal. Further air sampling and follow-up will be made to insure a proper operating system.

IV. EXPANSION SECTION

A. TBP Project

1. General

a. The project status at month end is as follows:

1) Ninety-four percent of the detail design has been completed as compared to a scheduled 88 percent completion. The balance of the design is expected to be substantially completed by the end of May.

2) To date, 804 requisitions have been written for this project which are substantially 100 percent of the

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requisitions required. Approximately 99 percent of the requisitions written are covered by purchase orders. The total estimated dollar value of purchase orders, contracts and material transferred prior to April 27 is $13,454.200. This figure approximates the project proposal estimate for material and equipment costs.

3) Construction is 18 percent complete based on physical plant completion. Previous completion dates were based on manhour requirements. This progress is behind schedule due mainly to delays in receiving materials.

b. Acceptance Test Procedures

A weighted tabulation of Acceptance Test Procedure completion shows 80 percent of the procedures for all phases to be completed at month end.

2. Essential Materials

a. Dry Chemical Warehouse Facilities

Tentative completion dates for dry chemical warehouse facilities were released by the Engineering Division this month. The dry chemical warehouse requested is expected to be complete about August 15. Storage buildings 270-W and 270-E, limestone storages being built adjacent to the limestone percolation tanks, are expected to be available May 15 and July 1, 1951 respectively.

b. Chemical Procurement and Storage Status

A letter was issued by the Manufacturing Divisions this month outlining the current chemical storage and procurement picture. Dry chemical procurement and storage offers no problems at this time. Fabrication of liquid chemical storage facilities are being delayed resulting in potentially late delivery dates on completed storage tanks. However, with reasonable scheduling and no further substantial delays, it is felt that no serious problems exist. The Engineering Division has been requested to transmit to the Manufacturing Divisions as soon as possible firm dates on the availability of liquid storage facilities. This information is required by the Procurement Division for formulation of shipping schedules for the various chemicals.

3. Design

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

1) Equipment Installation and Storage

Present plans call for the purchase of rotating equipment (i.e. sludge pumps and sluice nozzles) to outfit 21 of the 43 metal waste storage tanks in which uranium is to be removed. This new equipment is planned for use in the removal operation for the first 21 storage tanks, and later it will be transferred to the remaining 22 tanks as needed. Dip tubes and heel jets are being purchased for all 43 of the metal waste tanks.

From an operating point of view, it is not practical to install all the operating equipment in the waste tanks during the construction period. Excessive corrosion and possibly dip tube plugging may occur if equipment of this type is allowed to stand in the tanks over an extended period of time without being operated. It will not be possible to install the heel jets in any of the tanks until the sludge is removed. Process conditions require that the sluicing nozzles not be installed in any tank until the supernate has been pumped out, baring the sludge.

It has been agreed that the construction forces will install sludge pumps and dip tubes in the first two cascades of metal waste tanks in 241-U Area and the two cascades in the 241-C area. However, several problems are presented in the storage and later installation of the equipment not initially installed by the construction forces. The following decision was reached after consideration was given to the problem by the interested parties.

a) The equipment that is not to be immediately installed will be received, assembled, mock-up, run-in and prepared for outside storage. This work will be done by the construction forces. The equipment will be stored in a suitable fenced-in area and controlled by either the "S" or Stores Division.

2) Process Piping for Tanks 111 and 112-BY

In order to eliminate critical procurement problems regarding Schedule 80 black iron pipe, permission has been granted to use Schedule 40 pipe for process routings at the BY 111 and 112 waste removal installations. Recent test runs by the Technical Division have shown that erosion in this pipe, under high pressure and velocity, will be considerably less than previously anticipated during the scope design period.

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3) Sluicing Pump Bearings

No decision had been previously reached on the most suitable type of bearing to be used for the high pressure sluicing pump to be located in the slurry accumulator tanks in the Blend Tank Vaults. The pump purchased for this service is a Johnston 13 stage centrifugal pump with a 26 foot shaft. Considering the service and the alkalinity of the pumped solution, the Johnston Company has run simulated tests on a pump with cast iron bearings, and the test data appear satisfactory. It was decided, due to the shortage of time, to accept this type of bearing in the first unit for installation in the 241-U Area. However, the Separations Technology Division will install duplicate cast iron, bronze and rubber bearings, in a 6 bearing, Peerless deepwell turbine pump now located in the 300 Area, and the pump will be operated in a simulated metal waste solution. The results of this pump test should make possible the selection of the preferred bearing material for the other three similar pumps required for installation at a later date as part of Phase II and for the operational spare.

b. Phase III - Underground Transfer System

Design of this phase is complete, and there were no new developments affecting it during the month.

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

1) Canyon Railway Embankment

The canyon railway embankment has been found to extend considerably into the area in which the new 211-AU tanks are to be located. By discussion with the Health Instrument Division, it has been determined that the embankment, from the tunnel entrance out, may be removed to accomodate the tank farm. This is feasible because no charging operation will occur in the 221-U Building, and any radiation emanating from an open tunnel door will not scatter enough to effect operations in the tank farm area.

2) Corrosion Tests on Sub-standard Stainless Steel

Corrosion tests in simulated TBP process solutions were conducted by the Separations Technology Division on the stainless steel which was obtained from Alleghany-Ludlum and which had previously failed in the Huey tests. Corrosion rates for samples tested in the aswelded

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condition in boiling Waste Metal Recovery process streams RAF, RAW, RCU, and ROS, were of the order of 0.0002 inches per month or less. This rate compares very favorably with an average corrosion rate of 0.0025 on heats tested at the same time with 65% Nitric Acid.

3) Johnston Pump Bearings

The problems arising this month regarding bearing materials for Johnston Pumps to be used in the 221 Canyon are summarized in the following plan adopted at a joint meeting of Technical, Engineering Divisions, and Expansion Group representatives.

a) Graphitar 41 will be used as a bearing material for all canyon pumps with the possible exception of those transferring concentrated neutralized TBP waste solutions.

b) The test program to evaluate Graphitar 41 as a bearing material operating in a concentrated neutralized RAW solution will be carried out by the Separations Technology Division and is to be completed by June 30, 1951. In the event this material proves satisfactory in this service, bearing specifications will remain unchanged, and pump deliveries will be expected to continue according to existing schedules.

c) In the event Graphitar 41 proves unsatisfactory as a bearing material in this service, Boron Carbide will be specified for the foot and column bearings, and Graphitar 41 will be used at the remaining bearing points.

Because of the possible failure of Graphitar 41 in tests, and subsequent Boron Carbide procurement delays, the possibility and cost of having bearing molds made in advance, even though not used, will be evaluated.

4) UNH Concentrators in 224-U

Corrosion tests conducted locally by the Technical Divisions, as requested by the UO_3 Engineering Group, indicates high corrosion rates to stainless steel in concentrating Redox UNH from 60% to 100%. These test results, when applied to the similar service TBP - UNH concentrator tubes, indicate a projected life of three months for these 12 gauge elements. Major design changes cannot be made for the initially installed concentrator units since work has progressed too far; however, the following steps are contemplated as aids in this problem.

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a) Minimize tube stresses at the tube ends by welding to the tube sheet rather than rolling them. Heat treating at 2000°F. would aid but lack of proper facilities for accomplishing this makes use of this method improbable.

b) Anneal the bottom section of the evaporator after the nozzles are welded in.

c) Heat treat the heads and expansion joints at 2000°F. rather than 1600°F.

d) After a restudy of the design and investigation of various types of alloys for this service, procure two improved spare units.

Engineering Division representatives are visiting the Mallinckrodt Plant, where similar materials are being processed to obtain further information, and additional corrosion tests are being run in the Hanford Metallurgical Laboratories. After all available data relating to the problem is obtained, a complete review will be made to determine if improvements are possible through revised design and use of other alloys.

e) Phase VI - Increased Power Facilities for 200-West Area

At month end design and drafting of this phase if 90 percent complete. Requisitioning of miscellaneous operating equipment, as requested by the Expansion Group, was begun by the Power and Mechanical Group this month.

4. Construction

a. Phase I

In the "U" tank farm the concrete pouring and forming of pits, pipe trenches and cover slabs continue. The pits and pipe trenches in the first cascade are being painted, and pipe is being installed. Concrete pouring is continuing for the 244-UR tank vault and the 271-UR Building. The installation of pipe and exhaust ducts continues. The pouring of walls for the 241-UR tank and the installation of the exhaust duct from this vault to the 291-U sand filter are still in progress.

b. Phase II

Concrete pouring and forming is in progress for the 244-CR tank vault, and backfilling around the walls as the lifts

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are poured continues. In the "C" farm area the concrete pits over the tanks continue to be poured, and retainer rings are being installed. In the "BY" tank farm area, as in the "TX" farm area, the work continues on the forming and pouring of concrete for the pits over the waste metal tanks. Excavation is continuing for the 244-TX vault.

c. Phase III

At month-end approximately 19,000 feet, (100%) of the 6 line encasement had been poured. It has been Amercoated and 24,600 feet of pipe has been installed, which represents the installation of six pipes in 4,100 feet of trench. No covers have been installed to date on this encasement. For the three line encasement 6,240 feet have been poured and 18,700 feet of pipe have been installed. Approximately 4,000 feet of the encasement has covers installed. The only appreciable footage of encasement to be poured at this time is the 4 pipe encasement leading to the "B" farm area; 3,100 feet have been poured and 800 remain to be poured.

d. Phase IV

Form setting and concrete pouring continue for the 291-U sand filter. The installation of steam, water, electrical and instrument lines in the 221-U galleries is in progress. The canyon cells and pipe trench are in the process of being painted at month-end.

e. Phase VI

The steam lines are being fabricated, and excavation has started for the new water lines and the 283-W filter.

B. UO_3 Project

1. General

a. Month End Project Status

Work to provide segregation of feed solutions will be designated as Part "B" of Project C-361. Part "A" is the metal conversion facility exclusive of provisions added for segregation of feed solutions.

Status:

	Part A	Part B	Over-all
Scope Design	100%	90%	98%
Detailed Plans	100%	1%	87%
Construction	24%	0%	21%

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b. Procurement

Estimates of delivery dates for major equipment have been received from the Purchasing and Stores Division. The item with the most unsatisfactory delivery date, bubble cap tower A-1, is estimated to be 4½ months later than the required date. For a September 1 construction completion, this tower delivery must be improved a minimum of six weeks. Procurement of some othermajor vessels vary from one to 3½ months later than the required date. To improve delivery dates overtime payments for fabrication work is being authorized.

c. Revised Project Proposal

The revised project proposal is currently being prepared and should be issued in May. Estimates indicate that the current directive funds are inadequate by about $250,000 for the over-all project, chiefly due to a six day work week anv increase in equipment cost over the study report estimates for segregation.

d. Visit to Mallinckrodt Plant

Two "S" Division supervisors spent ten days at the Mallinckrodt Chemical Works in St. Louis, Missouri during the month, studying UO_3 operational procedures. A full trip report has been issued. It is felt that the experience gained during this trip will be very valuable during the start-up and operator training periods of the Hanford UO_3 Plant.

2. Design

a. Segregation of Feed Streams

Revised design study, GEO-14, was issued during the month and has been accepted by the Manufacturing Divisions. Scope work has been essentially completed on the segregation program, and detail design work has been instigated.

b. Decomposition Pots

Two additional decomposition pots were cast during the month. After extensive testing, including zyglo and x-ray tests, and after consultation with the Engineering and Construction and Procurement Inspection representatives, the cast pots were accepted. The order for the decomposition pots fabricated from plate has been cancelled, and all decomposition pots will be cast.

3. Construction

a. 2714-W Warehouse

Construction is 80 percent complete.

b. 224-U Building

Construction is 13 percent complete. The operating platform in the pot room is complete. Paving of concrete foundations for the decomposition pots is progressing.

C. Redox (Project C-187-D)

1. General

a. Procurement of engineered items for the silver reactors (for dissolver off-gas treatment) has been developed to a point where it is believed safe to plan for their initial installation in the cells. The reactrol units being fabricated by General Electric are the items scheduled for latest delivery, and these are being subjected to special procurement methods.

b. The expansion bellows for some 126 cell jumpers, the subject of considerable controversy and calculation in the past, have not been received from the vendor, and experience to date has indicated that quoted vendor delivery dates are unreliable. To expedite fabrication of these jumpers, the Engineering Division has authorized the deletion of the bellows from approximately 75 percent of the jumpers in question.

c. Investigation into the possibility of obtaining chromic nitrate solution at low cost for use in the metal feed solution preparation step of the process was concluded when it was determined by a potential vendor that corrosion of stainless steel by the material (presumably in the Manufacturing step) was a major problem. For that reason and because the same equipment is used in vital ANN production, the vendor would not consider undertaking production of the material. The material will be received as a solid as originally planned.

d. To eliminate costly and time consuming boring and regrinding procedures on the cell electrical connector heads and the corresponding stubs in the cell kick plates (regrinding required because of distortion during welding), the Engineering Division has proposed procedures and methods by which this work may be promoted without, presumably destroying the explosion proof characteristics of the

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assembly. Authorization has been granted the construction subcontractor to proceed with the new methods; however, there has since been some question of electrical code violation raised, and the Manufacturing Divisions are requesting that the procedures and methods again be reviewed in meeting with all interested parties present.

e. Clearance of certain special color codes and labels for pipe indentification has been obtained from the HW Standards Committee, and listings of required labels, both stock and special items, have been turned over to the Engineering Division for procurement.

f. The initiation of hydrostatic testing of canyon tunnel piping led rapidly to the modification of test specifications from a previously required eight hour hold test, with pressure and temperature readings at half hour intervals, and conventional hammer testing of the welds. A more practical one hour minimum pressure test at 300 psig under a "no pressure loss" requirement, with hammer tests perfotmed at the start and prior to the conclusion of the test, has been substituted.

g. Because of potential schedule delays arising from a shortage of sheet metal welders available for work on the D Cell stainless steel floor liner, the Engineering Division has proposed the use of a relatively new hexone resistant coating, Expon-RN-34, developed by the Shell Chemical Company. This material, applied by spray gun and allowed to polymerize in place, will be applied over the entire cell floor except for the cell gutters and sumps which have already been lined with the stainless material. Because of the potential schedule delay involved, the Manufacturing Divisions have consented to the substitution subject to the final approval of the Separations Scope Committee.

2. Construction

a. 202-S Building and Associated Outside Facilities

At month end the 202-S Building structure was estimated to be 97.5 percent complete; however, considerable structural work was yet required on the Organic Treatment Building (276-S) and the stack fan turbine house in the 291-S Area. The propane storage facility, Building 2726-S, and the filtered water high tank were completed and accepted from construction during the month.

Installation of piping in the hot pipe tunnel was completed during the month, and tunnel piping is being extended into the silo area for connection to silo U frames as they are

installed. Hydrostatic testing of the pipe tunnel piping was in progress at month end.

The installation of process equipment in the cells is scheduled to start on May 14 at which time the canyon area will be subject to security control. As of April 23, seventeen vessels had been completed in the Mock-up Building and were available for building installation. The possibility of completing the building by "cell units" has been studied by the construction subcontractor, and a tentative schedule is being prepared. It is currently planned to turn cells E and F over to operations early in June.

Excessive water leakage through agitator shaft seals is continuing to be a problem in the mock-up Building, although in most cases leakage has decreased sharply during extended run-in periods. More serious at the moment is the return of a third hot pump to the vendor, this time for a frozen shaft caused by broken baron carbide bearings. It appears that shaft seals and pump bearings may be a source of persistent trouble in building operation. Thirteen agitators and eight pumps have been successfully run-in to date.

The status of construction at month end was as follows:

Improvements to land	15%
Temporary Construction	81%
202-S Building	75%
211-S	48%
240-S	93%
276-S	38%
277-S	98%
282-W	100%
284-W	89%
291-S	82%
2702-S	100%
2726-S Propane Storage	100%
Sanitary Waste Facilities	93%
Electrical Distribution	79%
Water Distribution	98%
Steam Distribution	89%
Railroads	56%
Over-all Facilities (A&J)	76.24% (scheduled 88.84%)
Pipe Jumpers Fabricated to Date	739

b. 241-S Waste Farm and Associated Facilities (Fred J. Early Contract)

Progress on the 241-S Tank Farm and associated facilities was made at an even rate during the past month, standing at 68.6 percent versus a scheduled 86.7 percent at month end.

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A revised schedule presented by Early indicates completion of initial job components in May with contract fulfillment scheduled for July 13.

D. Training and Procedures

1. Training

a. Training Lectures

The Training Lecture Series ended on April 25th. Starting on November 13, 1950, these lectures covered 17 topics pertinent to process and equipment of the Redox, TBP and UO_3 Plant. The 17 lecture series was given four times in order to make this information available to S Division shift supervision. Other interested personnel attended.

b. Redox-TBP Training School - 321 Building

The second six week cycle started April 2, and will be completed May 13, 1951. Twenty-nine operators and sixteen supervisors are in training during this cycle. Twenty-eight operators and 12 supervisors completed the first cycle.

Personnel changes were made during April in the Technical Training group. S Division Training Supervisors have assumed added responsibilities so that the above changes could be accomplished.

Due to experience gained during the first training cycle, the second session is improved and running more smoothly.

2. Procedures

a. Redox

Final tank calibration procedures and data sheets have been completed and issued.

Rough draft operating procedures have been issued for the following sections of the Redox Plant:

Aqueous Make-up Rooms
Dissolvers and metal solution storage as far as the metal solution oxidizer
PR cage

The Separations Technology Division is currently writing rough draft operating procedures for the balance of the process.

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Rough draft "Operability and Capacity Test" procedures have been written on several of the process concentrators. These tests are aimed primarily at establishing maximum boil-up rates and locating possible bottle-necks in over-all Redox production.

b. TBP and UO_3

Rough drafts of Maintenance and Equipment Procedures and Vessel Calibration Procedures have been prepared and submitted for comment. Rough drafts of Job Hazard Breakdowns, also, have been completed, and have been reviewed. Cell diagrams, which are to be incorporated into a cell and trench inspection manual, are 70% complete.

Temporary storage space for miscellaneous expendable operating supplies was made available in the third floor laboratory of 271-U Building. Initial deliveries will be received during the month of May.

At the end of the month, a list of "Tickler" assignments was being prepared, and a list of required operational and safety signs was nearing completion.

3. General

An information manual has been issued for Redox supervision. This manual contains, at present, simplified functional sketches of Redox process equipment, and will be expanded to include other operating information of a type that does not belong in the Manual of Standard Procedures, or elsewhere.

S. Bell

Superintendent
S DIVISION

RS Bell:mvk

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INSTRUMENT DIVISION

MONTHLY REPORT

APRIL, 1951

I. SUMMARY

Personnel requirements still lag employment to the extent that it is necessary to continue the six day work week of maintenance forces. Shop work load increased to the point that they also went on a six day work week.

The high mortality rate of temperature monitor thermocouples in 100-H Area continues to be a problem. Assistance is being given other plant groups in a study of slug failures.

II. STATISTICAL AND GENERAL - JOB EXPERIENCE

100 AREAS (Ref: HW 21017)

100-B Area

Due to the abnormal loss of gas from the pile atmosphere, all instrument lines to the gas system have been carefully inspected for leakage but none of any consequence were found.

Increases in power level made it necessary to provide additional ranges on the L & N power level indicator.

100-D Area

The high speed temperature scanner was set up in 105-D as a demonstration unit, monitoring 46 thermocouples simultaneously. Performance appears satisfactory.

100-DR Area

The water activity monitoring system was revised to monitor activity difference between adjacent headers. Time will be required to evaluate the merits of this system; however, ease of adjustment has been considerably improved.

100-F Area

During the shutdown of April 9 a test was run at increased water pressure. Data taken on the pressure monitor indicated a change of gauges to the next higher pressure range to be necessary in order to operate at that pressure. All other instrumentation functioned normally.

100-H Area

Due to repeated instances of P-13 scrams, a study of the control circuit for this instrumentation was made. Control wiring was isolated, the electronic relay enclosure was relocated and a two-second time delay was introduced into the trip circuit. Since making these changes no unusual incidents have occured.

Shutdown Experience

100-B Area - None due to instrument failure.

100-D Area - None due to instrument failure.

100-DR Area - Shut down manually at 2:15 P.M., April 14 due to increase in water activity. Investigation revealed a ruptured slug in tube No. 1377. Startup began at 2:15 A.M., April 16. Unit was shut down manually again at 1:36 P.M., April 16 due to suspected slug rupture but investigation revealed suspicion to be false. Startup began at 3:36 P.M. April 16.

100-F Area - Unit was shut down manually at 5:50 P.M., April 9 due to high activity indications on water monitor. A ruptured slug was located in tube No. 2780. As a regular shutdown was scheduled for April 11, normal shutdown work was performed at this time and the unit again started at 6:35 P.M., April 12. Unit was shut down manually again at 9:25 A.M., April 19, again due to increased activity on the water monitor. A ruptured slug was located in tube No. 0986. Startup began at 4:51 P.M., April 20. In both above instances the water activity monitor gave the only indication of slug failure; temperature and pressure remained normal.

100-H Area - A scram occured at 9:36 P.M., April 1 due to P-13 equipment alarm. Investigation disclosed no abnormal operation. Unit was started back to power at 10:17 P.M. The unit was shut down manually three times during the month to remove ruptured slugs from process tubes No. 1477, 2974 and 3373. In all instances the first indication of slug failure was determined by water activity monitor increases.

200 AREAS (Ref: HW 21018)

T & B Plant Production Instruments

The resistance thermometer element in the inlet duct of the 291-B sand filter failed in service. Examination of the element indicated corrosion of the brass enclosure capsule. Assuming nitric fumes to be the cause of the corrosion, the replacement unit was coated with lead.

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Z Plant Production Instruments

The temperature controller on furnace #2, hood 14 of building 234-5 failed due to a faulty thermocouple. Exact nature of the fault could not be determined. If it had opened, the instrument would have failed safe, shutting off the furnace. However, the thermocouple was found fused to the well, making a closed circuit. Replacement was extremely difficult due to this condition.

General

All instrumentation for the new laundry building 2724 has been received. All has been put in service with the exception of one poppy which had a defective high voltage transformer.

300 AREA

MANUFACTURING SECTION

Project C-290 - Fabrication of Neutron Spectrometer

The mechanical portions of the Neutron Spectrometer were moved to the 105-DR Building on April 13. Notification was received that the project was closed out on April 17.

B-11363 - Fabrication of Hanford Design Fluorimeter and 12 C.I. Probes

These items were requested by the A. E. C. for off-site installation. Fabrication of the probes has been completed and the fluorimeter is scheduled for the first part of May.

Project C-289 - Additional Laundry Facilities

Receipt of the special transformer permitted the completion, testing and delivery of the final unit on April 9.

DEVELOPMENT SECTION

P-11 Project

The Liquid Level Indicator with a sensitivity of 0.003 inches and an accuracy of $\pm$ 0.01 inches has been installed and is now in operation. Operation at the above accuracy has been satisfactory but improved stability is necessary to bring the accuracy nearer to the sensitivity.

Logarithmic Beckman Development

Further development of the Beckman RXG-2 instrument has produced satisfactory logarithmic response over a range of 6 decades, from 10^{-13} amperes to 10^{-6} amperes. The instrument may also be switched to its normal linear ranges of one decade.

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General

Occupancy of the new Maintenance and Development Shop, Building 3717-B has been delayed, awaiting delivery of control valves for the heating and ventilating equipment. These valves are beginning to arrive and occupancy is now expected approximately May 5.

ENGINEERING & CONSTRUCTION GROUP - 760 BLDG. (Ref: HW 21022)

Project C-431 - 100-C Area

Two specifications for the 190-C flow metering and control systems have been prepared for discussion. One proposes a system similar to that of 190-DR, with local control stations, the other for a completely centralized control panel.

Design criteria for the 100-C reactor instrumentation were completed and received scope committee approval. The material and equipment list was revised and expanded. All items were scheduled as to the dates by which requisitions would be issued. A complete drawing schedule was prepared and reviewed.

Project C-187 - Redox Process and Facilities

Calibration and acceptance testing procedures have been completed and sent to the field. It is probable that first acceptance testing will start in Building 202-S near the middle of May.

Project C-413 - Building 234-5, RM-B Line

The General Electric Company's bid was accepted for two mass spectrometer leak detectors using argon as a tracer gas in the presence of a helium atmosphere.

III. ORGANIZATION AND PERSONNEL

There were six new hires, two transfers from other divisions and four terminations during the month, for a total force gain of four.

	Monthly	Weekly	Total
Beginning of month	55	233	288
End of month	58	236	294
Net increase	3	3	6

The majority of the maintenance forces remained on a six day work week. The Machine Shop work load increased to the point that it was necessary for the Machine Shop, Electronic Fabrication Shop and Mechanical Design Section to go to a six day work week also.

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MAINTENANCE DIVISION
April, 1951

GENERAL

The divisions backlog as of April 30 represents twenty-five days of work for the present force. This is an increase of eight days over last month due mainly to the release of project work to the 200 Areas and a decrease of 13 men in the work force.

Backlog Status:

Mandays Work	March 31	April 30
Project work	1026	2486
Maintenance work	2877	3107
New work	629	1039
Routine work	594	595
TOTAL	5126	7227
Total crew	302	289
Crew days work	17	25

In order to complete work assigned to the division from the 101 Technical shops it was necessary to work all the machinists in the division on a six day schedule during April.

100 AREAS

There were six emergency pile shutdowns during the month caused by ruptured process metal pieces. Three of these occured at "H", two at "F" and one at "D". The removal of the metal was accomplished by normal methods, in all cases, with an average emergency unit downtime of approximately thirty-three hours. Because of the increased number of these emergencies the shift schedule was changed on April 30 from Shift III-1 to Shift III-3 which will give continuous maintenance coverage. Formerly there was no coverage on Saturday and Sunday night shifts.

One Engineer has been assigned part time to lend assistance to the Contact Engineer groups of the "P" and Power Divisions as a Maintenance consultant for the design of Project C-431.

Project C-291 - Installation of Security Fences

The work on this project is completed.

100-B Area

A leak of approximately 400 pounds per hour of CO_2 gas developed in the 105-B pile after the March 21 start-up and the source of this leak has not been located. Readily accessible locations around the pile and in the gas

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tunnel to 115 Building have been checked. Continued investigations will be made on future scheduled shutdowns of the pile.

The concrete block wall panels between the pilasters on the south side of the 183-B Head House were found to be loose. Angle iron wall braces were attached to the pilasters to prevent the wall panels from falling during a high wind.

100-D Area

Three process tubes were removed from the DR pile during the scheduled shutdown on April 10 to allow Pile Technology to remove graphite samples from the tube channels. New 72-S aluminum tubes were installed.

The lime lines as originally installed in the DR Area Head House contained numerous 90° bends and short runs of pipe which caused line stoppages. This condition required frequent maintenance clean-out services. The lines were revised and eliminated as many bends as possible.

As an experiment to try to prolong the life of the brick work in #2 boiler in the "D" Power House, a solution of refractory cement was sprayed on the entire inner surface. All pockets, cracks and uneven surfaces are built up by this method, thus eliminating weak spots in the lining.

100-F Area

Project M-713 - Vertical Safety Rod Design B, D, and F

The flexible safety rod which performed satisfactorily in the production test in the pile was given a free fall test in a vacant pump well in the F Area River Pump House. On the second drop of thirty-three feet, the rod failed at the upper flexible joint.

100-H Area

Project M-810 - Control Mechanism - 100-H Pile

The final production test was run on April 4.

200 AREAS

200 West Area

The emergency steam driven exhaust fan in 291-T has in the past failed to pick up its load due to slippage of the link type "V" belt drive. Normal "V" belts with an idler pulley for belt tension were installed to eliminate the possibility of future failures.

As a test, stainless steel flexitallic gaskets with Teflon inserts were installed in one of the 221-T Separations Building jet connectors to try

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to determine if this type of gasket is superior to the Teflon ring gasket now in use.

Metal Fabrication

The ½" tantalum line from Hood #5 to Hoods #29 and #30 were replaced with "Saran" tubing. This revision has eliminated twelve flanged connections which were a continual source of vacuum leaks.

The ball bearings on the drive shaft on EM-4 exhaust fan in 291-Z have been known to be loose, because of an undersize shaft. The shaft was built up using a low temperature welding rod and machined to the correct diameter in place, using tools specially made for the job. If this method had not been devised it would have been necessary to remove this 200 HP fan from the building at considerable expense to do the repair.

The Maintenance Shop "D" in the 234-5 Building has been completed and is now in use instead of the temporary 272-Z shop.

Project C-326 - Underground Geological and Hydrological Investigation Program

The air compressor, electric hoisting unit, and tripod were mounted on the special truck and minor alterations were made on the soil sampler, as required by the project design.

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

A wooden mock-up hood has been fabricated according to design drawings to be used to determine or confirm the location of equipment and glove ports.

200-East Area

The diversion box jumper repair at 154-BX afforded the first opportunity to use the trailer specially designed for this work. It is estimated that thirty-two man hours labor were saved on this one job.

300 AREA

At the "P" Division's request, a new propane burner was designed for the 314 Melt Plant Burn Out Room. Previously there was no provision to prevent a flash back from the burner to an exhasted cylinder. The new design includes a mixing chamber equipped with safety screens installed between the burners and the cylinders.

Two mechanics are scheduled to work one shift overtime each week to give maintenance coverage for the sixth day of "P" Division operations.

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ELECTRICAL DIVISION

APRIL, 1951

GENERAL

The month end backlog of scheduled work was 6,197 mandays, or 24.4 mandays per non-exempt employee. There is a very slight increase from the previous month end.

The power demands for the month were:

	Date	April KW Demand	Comparative March Demand
Process Load	4-19-51 (9:00-10:00 a.m.)	65,800	69,550
Village Load	4-19-51 (7:00-8:00 a.m.)	26,100	31,500

The Village peak is declining seasonally from the January peak. The small process load decline is also in line with seasonal expectations.

The principal co-ordinating activities with design groups were:

1. Reviewed proposed plans and made recommendations for C-361-362 outside line requirements in the 200 Areas.

2. Supplied data, made recommendations and participated in a series of discussions with Engineering and Construction Divisions relative to permanent power supply for Project C-431. Tie line (13.8 KV) to adjacent area was abandoned because of inadequacy for anticipated loads. A third duplicate transformer bank will be installed and the 151-B Substation expanded. Motor voltage (Building 190) was established at 4160 volts.

3. Agreements were reached, permitting change in Project C-341 (Additions to Richland Distribution System) without contractual modifications. It was necessary to re-route George Washington Way tie feeder to avoid the proposed Central Fire Station site.

New procedures for subnormal electric power conditions were agreed upon and established, permitting two hour re-energization time for Grade "W", and authorizing agreements for Grade "S" and "W" at the Assistant and Area Engineer levels, respectively. Extensive operating experience indicates that this change is in order and should reflect greater flexibility with more direct and prompt establishment of critical power conditions of the grades stated.

The Area Engineer (Electrical Distribution), and an Electrical Engineer visited various Portland public utilities to study meter shops, methods, and procedures in relation to Project C-380 (Electric Metering - Village of Richland).

The position of General Foreman was established for the 100 Area Electrical Maintenance forces. One General Foreman will cover 100-D, 100-DR and 100-H, and another will cover 100-B and 100-F, effective May 1, 1951. The one Assistant Area Engineer

will function in staff capacity, devoting his time to engineering studies, project assistance, material procurement, and expansion problems. It is believed that the change will provide for a more efficient organization, and will make available the required assistance for expansion programs in the 100 Areas.

AREA ACTIVITIES

The 105-DR Building scrammed at 6:35 a.m. on April 18 due to the failure of the latching mechanism on the 13.8 KV tie line breaker C4-X-19 in Substation 151-D. The load was being transferred to the 100-H tie line, preparatory to performing maintenance on a 13.8 KV transformer breaker. Power was restored in approximately seven minutes.

Installation of the time delay feature developed by the Electrical Division for the P-13 safety circuit in 105-H Building was completed. This should eliminate most of the unexplained scrams from the P-13 operation.

On April 3, while the No. 1 bus in Building 234-5 was being supplied from transformer No. 2 through the bus tie circuit breaker, the tie breaker tripped out, dropping part of the supply fan load in the building. Service was restored in five minutes. The trouble was found to be in a defective door interlock switch in the bus tie cubicle.

A total power outage to the 200 Areas occurred on April 23 at 3:08 p.m. as a result of a Subcontractor's A-Frame truck running into 13.8 KV lines C8-L1 and C8-L4 west of Substation 251. The resulting short circuit caused damage to the oil circuit breaker and cubicle in Substation 251 which had to be cleared before the station bus could be re-energized. Power was restored to the 200 Areas at approximately 4:55 p.m. During the period of the outage, the emergency generators in 284-E and 284-W Power Houses supplied power for the partial operation of the T and B Areas. Full operation of all equipment in the 234-5 Building was made possible by transferring it to the emergency generator supply. Pending cubicle repairs, a temporary short 13.8 KV tie line has been constructed to another breaker cubicle to provide full service to the 200 Areas, as well as to the Army Camp of the 200-W Area.

On April 5, a ground occurred in the control circuit of Building 384 Power House coal handling equipment, causing a shut down of four hours while the trouble was found and repaired. Hand firing of boilers was resorted to during part of this time. Similar shut downs in this and other areas will be avoided by ungrounding and using ground detectors as proposed in Budget Item B-537 now in preparation.

Saturday coverage of the 300 Area by one electrician is now being provided as a result of "P" Division's six day work week in this area.

In the 200 Areas, shift coverage was re-established on April 2 because of expanding construction and production activities.

TRANSMISSION AND DISTRIBUTION

An insulator failure on the 115 KV bus at Bonneville's Midway Substation at 3:37 p.m. on April 19 caused a complete loss of power to Richland and the 300 Area. Normal power was restored at 4:17 p.m., although power had been restored intermittently for short periods before this time.

The 66 KV line, White Bluffs to Allard Stations, has been stubbed as necessary,

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tightened and completely rehabilitated for power service to C-431 construction.

A test structure for the removal of 230 KV jumpers at switch yards was installed at Switch Yard No. 13 at 100-D tap. The installation of similar structures at each of the three 230 KV switch yards will make it possible to overhaul any one of these 230 KV switches on a critical "W" arrangement because they make it possible to remove and replace the jumpers and reclose the loop within the allotted time. This would eliminate the necessity of installing an additional 230 KV switch in each by-pass line to provide means for isolating the present switches for maintenance purposes and therefore resulting in a saving of approximately $50,000. A Project Proposal study is in preparation against FY-52 Budget Item B-1801.

A rearrangement of primary and secondary services in the vicinity of the 703 and 722-A Buildings in Richland was completed to eliminate some undesirable conditions and make it possible to remove substation D1-S6 in the rear of the 703 Building.

The installation of a 30 KW constant current street lighting transformer near Dormitory M-7 in Richland was completed to relieve overloaded circuits (M-827).

Modifications necessary to accommodate new work being performed by the Subcontractor are essentially complete in relation to the Richland Fourth Housing Addition. For the rehabilitation program, 70 prefabs were reconnected in Richland.

TELEPHONE SECTION

With reference to B-1889 (Additional Line Equipment and Conversion to Four Party Service - Richland), further studies were made and a report prepared relating to a proposed alternate scheme.

A complete manual of "Regulations and Rates for the Richland Exchange" was prepared and issued jointly with the Atomic Energy Commission.

Work was completed in connection with the preparation and proof reading of the May, 1951 issue of the Richland telephone directory.

A temporary cable was installed from manhole No. 8 to the mens dormitory feeder, making it possible to remove the present 51 pair cable between manholes No. 8 and No. 9 to replace with a larger cable serving the Fourth Housing Addition apartments and the mens dormitories.

Installation was completed on 50 additional subscriber intercept lines in the Richland Exchange, making the total now 150.

A Western Electric No. 506-A cordless switchboard was installed at the White Bluffs Fire Station.

Western Electric telephone repeaters recently installed in the 200-E-W exchange were tested and the associated line-balancing networks were adjusted. These repeaters are ready for service but satisfactory operation will require that provision be made to keep the circuits in which they are to be used terminated at both ends at all times. This is being studied at the present time.

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

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	Lines in Service	Stations in Service	Extensions in Service	Vacant Lines
Richland	3,829	6,050	1,037	171
Project Total	5,316	7,647	1,885	633

[redacted]

POWER STATISTICS - ELECTRICAL DIVISION
FOR MONTH ENDING APRIL 30, 1951

ITEM	ENERGY - MW HRS. March	ENERGY - MW HRS. April	MAX. DEMAND - KW March	MAX. DEMAND - KW April	LOAD FACTOR - % March	LOAD FACTOR - % April
230 KV SYSTEM						
A-2 Out (100-B)	7,740	8,780	12,400	12,800	83.9	95.3
A-4 Out (100-D)	13,570	12,940	21,000	21,000	86.9	85.6
A-5 Out (100-H)	8,856	7,920	18,000	17,100	66.1	64.3
A-6 Out (100-F)	7,050	6,300	11,200	11,200	84.6	78.1
A-8 Out (200 Areas)	4,500	4,104	7,920	7,560	76.4	75.4
TOTAL OUT	41,716	40,044	70,520**	69,660**	79.5	79.8
MIDWAY IN	42,523	40,598	62,000*	61,200*	92.2	92.1
Transm. Loss	807	554				
Percent Loss	1.9	1.4				
115 KV SYSTEM						
B1-S4 Out (N.Rich.)	2,165	1,891	3,974	3,629	73.2	72.4
BB1-S1 Out (Richland)	7,354	4,960	15,120**	12,790**	65.4	53.9
BB1-S2 Out "	7,564	5,124	16,110**	13,590**	63.1	52.4
BB3-S4 Out (300 Area)	832	768	1,840	1,840	60.8	58.0
TOTAL OUT	17,915	12,743	37,044**	31,849**	65.0	55.6
Benton In	18,410	4,370	36,800*	27,000*	67.2	22.5
S. Richland In		8,420		29,700*		39.4
TOTAL IN	18,410	12,790	36,800**	56,700**	67.2	31.3
Transm. Loss	495	47				
Percent Loss	2.6	.4				
66 KV SYSTEM						
B7-S10 Out (W.Bluffs)	465	435	1,237	1,193	50.5	50.6
Hanford Out	330	332	600	600	73.9	76.8
TOTAL OUT	795	767	1,837**	1,793**	58.2	59.4
HANFORD IN	797	783	1,700*	1,600*	63.0	68.0
Transm. Loss	2	16				
Percent Loss	.2	2.0				
PROJECT TOTAL						
230 KV Out	41,716	40,044	70,520**	69,660**	79.5	79.8
115 KV Out	17,915	12,743	37,044**	31,849**	65.0	55.6
66 KV Out	795	767	1,837**	1,793**	58.2	59.4
TOTAL OUT	60,426	53,554	109,401**	103,302**	74.2	72.0
230 KV In	42,523	40,598	62,000*	61,200*	92.2	92.1
115 KV In	18,410	12,790	36,800**	56,700**	67.2	31.3
66 KV In	797	783	1,700**	1,600**	63.0	68.0
TOTAL IN	61,730	54,171				
Transm. Loss	1,304	617				
Percent Loss	2.1	1.1				

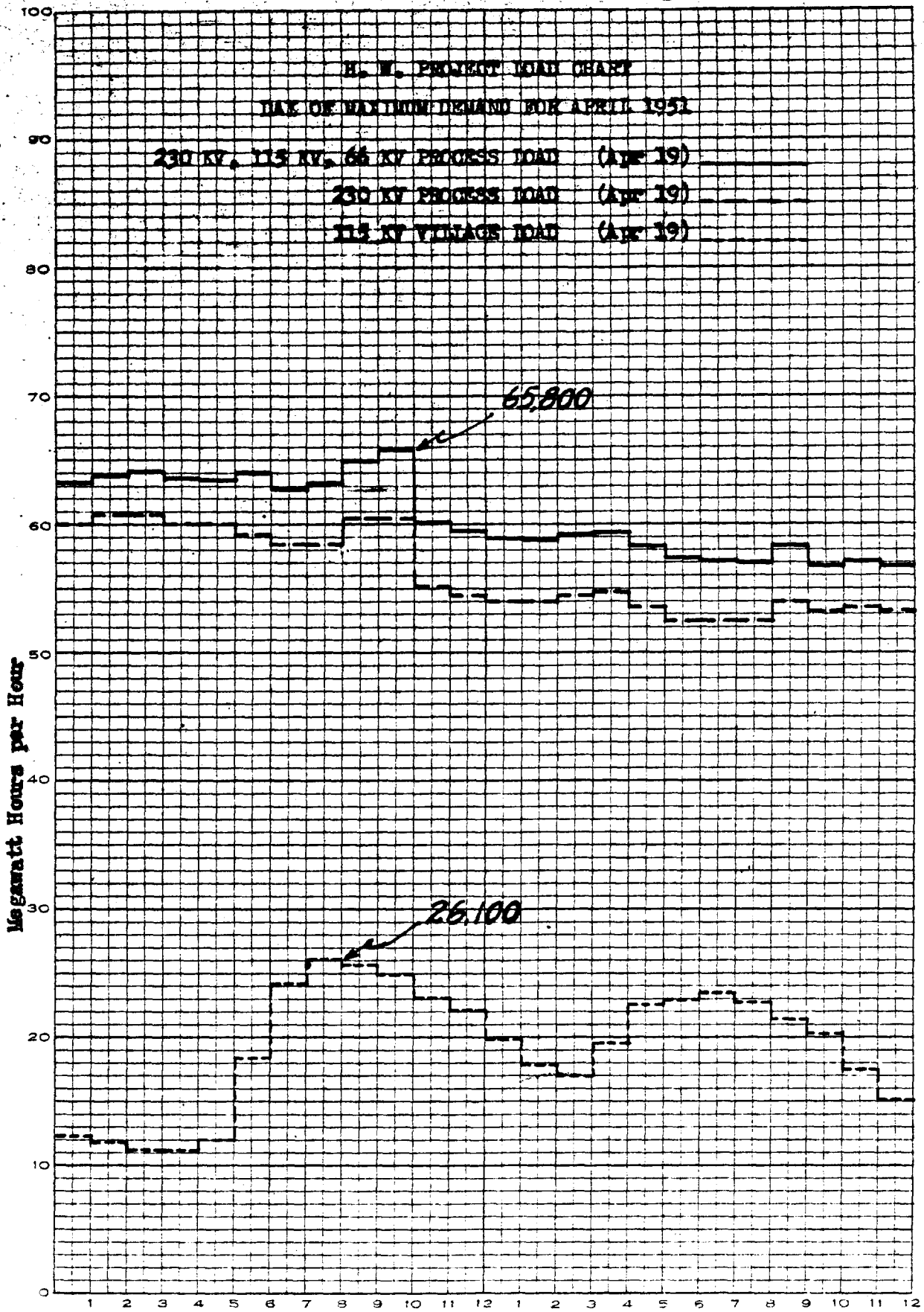
* Coincidental Demand
** Non-Coincidental Demand

Average Power Factor - 230 KV System--94.6
Average Power Factor - 115 KV System--94.4
Average Power Factor - 66 KV System---83.3

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EUGENE DIETZGEN CO.
ONE DAY BY HOURS

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Classification Cancelled [redacted]

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12-18-51

TRANSPORTATION DIVISION MONTHLY REPORT April 1951

GENERAL

The Transportation Division issued a Summary Report of the ~~March 9 meeting~~ held in Richland of the Inter-Agency Motor Equipment Advisory Committee of Oregon and Washington. This report is presently being reviewed by Public Relations and upon release will be reproduced and distributed to members of the Committee.

Stemming from the March 9 meeting, the U. S. Bureau of Reclamation in Denver expressed interest in the Transportation Division Equipment Maintenance unit cost system and requested additional information and forms in this connection.

Transportation Division personnel forces decreased from 608 to 599 employees during the month by 18 new hires, 11 transfers in, 2 re-activation - personal illness, 20 terminations, 17 transfers out and 3 de-activations - personal illness.

RAILROAD ACTIVITIES

Commercial cars handled during April increased 8.8% over March.

Process movements during April decreased 23.2% over March.

Cars handled during April including process movements totaled 2,078 compared to 1,984 in March, 1,793 in February and 2,625 in January.

Special switching service into and out of Richland was rendered on April 23 for movement of the General Electric Company Apparatus Department's special train "More Power To America."

The following recapitulation indicates the number of commercial cars handled:

Carload Movements -	Loads In	Empties In	Loads Out	Empties Out
General Electric Company	689	27	25	630
Subcontractors and Others				
American Cyclone Fence Co.	1	-	-	1
Atkinson & Jones Co.	66	-	-	65
L. E. Baldwin & Associates	30	-	-	28
F. J. Early	21	-	-	22
Electric Smith Co.	1	-	-	1
McAtee & Heath Co.	3	-	-	3
Morrison-Knudsen Co.	8	-	-	7
S. S. Mullen Co.	3	-	-	3
H. D. Powell Plumbing Co.	1	-	-	1
Sound Construction Co.	6	-	-	6
Taylor Bros.	1	-	-	1
Washington Electric Co.	1	-	-	-
U. S. Army	1	-	-	1

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Major repairs to 80-ton Diesel electric locomotive [redacted] removed from service in February, are progressing satisfactorily.

Installed new main center bearing in 120-ton Diesel electric locomotive 39-3730.

Railroad track maintenance and rehabilitation work continued on a normal basis throughout the five sections. Surfacing was in progress at Riverland Junction, 200-East, 183 track in 100-F Area, between Stations B-2260 and B-2411, and in the Richland Yard requiring 3,258 man-hours. Relaid rail across bridge and removed the abandoned lumber track and turnout in 200-East requiring 433 man-hours. Installed new ties in 200-East coal track; 658 treated cross ties in 200-East Area; and 620 cross ties in 100-F Area requiring 1,644 man-hours. Preparation of track for the installation of four blacktop crossings in 100-B Area required 460 man-hours. Hauling and distributing of ties required 465 man-hours.

AUTOMOTIVE ACTIVITIES

The Area Bus System transported 2.5% fewer passengers in April than in March. The following tabulation indicates the April passenger volume by shifts and the total revenue received:

No. 1 outbound and No. 3 inbound	25,382
No. 2 outbound and No. 1 inbound	55,575
No. 3 outbound and No. 2 inbound	53,572
Total	134,529
Revenue	$ 6,726.45

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	10
Passenger busses - 100-H	10
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	4
Passenger busses - North Richland	3
700-300 Area Shuttle Service	26
Inter-Area Passenger Service	3
Inter-Area Express Service	1
Inter-Area Mail Service	1

Shuttle service within the 200-West Area was expanded during the month in keeping pace with increased activity.

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By Authority [redacted]
By [redacted]

Transportation Division

Special bus tours to White Bluffs and vicinity were made on April 5, 6 and 9 for prospective tract house buyers at the request of the Purchasing and Stores Divisions.

Effective April 2, the 700-300 Area Shuttle Route was revised in North Richland to travel via Avenue "W" instead of Stevens Drive to better serve the 101 Building.

The Richland Local Bus System transported 14.9% fewer passengers in April than in March. Decrease in passenger volume was due to more favorable weather and the school holidays on April 4, 5 and 6. Volume of service rendered is indicated in the following statistics:

Total passengers including transfers	37,596
Total bus trips	3,583
Total bus miles	19,707
Total revenue	$ 2,647.10

Off-Plant automobile trips (Company business and/or official visitors) totaled 189.

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

Applicants:	Male	110	Number retested	0
	Female	14	Number rejected	0
		124	Number tests given	124

Permits issued:	Limited to driving with glasses	32	
	Unlimited	92	
		124	
Permits reissued		50	

The following tabulation indicates the Plantwide usage of automotive equipment:

Code	Type	No. of Units	Total Mileage
1A	Sedans	323	551,691
1B	Busses	170	237,225
1C	Pickup Trucks	468	274,791
1D	Panel,Carryall,Sta.Wagon	112	128,289
1E	Armored Cars	12	603
1G	Jeeps	2	557
68 Series	Trucks	304	84,662
		1,391	1,277,818

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By [redacted] 1-52

Transportation Division

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	39,537	16,390	[illegible],162	1,441	155
Received during month	103,499	25,555	34,719	2,565	212
Total	143,036	41,945	40,881	4,006	367
Delivered to Areas	104,287	30,907	24,421	2,257	83
Stock at end of month	38,749	11,038	16,460	1,749	284

The following tabulation indicates the volume of inspection and maintenance service rendered to Hanford Works automotive and heavy equipment by the Equipment Maintenance Section: 33 motor overhauls, 173 Class A Inspections and Repairs, 1,429 Class B Inspections and Lubrications, 1,512 other routine maintenance repairs and service calls, 692 tire repairs and 584 wash jobs.

Summerizing of all types of HO equipment was begun on April 16 and is approximately 75% complete.

LABOR ACTIVITIES

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

	MC 1	MC 3	MC 4	MC 5
Stock at start of month	0	4,430	0	0
Received during month	0	0	0	0
Dispensed during month	0	4,430	0	0
Stock at end of month	0	0	0	0

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

	100 B	100 D	100 F	100 H	200 W	200 E	300	Total
Cars coal unloaded	87	153	91	67	67	17	0	482
Cars other material	6	5	2	7	10	5	5	40
Cars loaded out	0	4	0	0	0	0	0	4

Crushed and stockpiled 1,208 cubic yards of 5/8" crushed rock and 768 cubic yards of 1/4" crushed rock requiring 513 man-hours. Manufactured 194 tons of 3/4" pre-mix material and 58 tons of 1/4" pre-mix material. Delivered 300 tons of 3/4" pre-mix and 300 tons of 1/4" pre-mix for use within the community of Richland.

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Transportation Division

Maintenance of primary roads required 420 man-hours; secondary roads 127 man-hours; and Patrol roads 78 man-hours.

Vegetation control spraying operations were begun during April in all Plant Areas.

Handling of miscellaneous materials for the Stores Division at White Bluffs required 2,369 man-hours.

Handling, unloading and transporting of materials for the Stores Division in the 700, 1100 and 3000 Areas required 1,252 man-hours.

Handling of Area deliveries required 1,315 man-hours; Stores deliveries 348 man-hours and office furniture 1,200 man-hours.

Handling and loading of 7 carloads of equipment, 35 carloads of lumber, 5 carloads of rail, 63 truckloads of equipment and 20 truckloads of miscellaneous material required 2,658 man-hours.

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

Labor and transportation equipment were furnished for Projects: M-713, M-769, M-770, M-772, M-822, M-823, M-824, M-834, P-172, P-192, P-290, P-291, P-337, P-338, P-340, P-349, P-366, P-371, P-378, P-396, P-398, P-399, P-402, P-410, P-411, P-415, P-422, P-423, P-424, P-430, P-432.

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By Authority of [redacted] Board
By [redacted]

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POWER DIVISION
APRIL 1951

GENERAL

On April 27, the operation of steam driven condenser pumps in all 100 Area, 182 Reservoir Pump Houses, was discontinued for normal operation, making possible appreciable savings in steam cost. The steam pumps will be immediately available, however, in event of power failure.

The inspection of one boiler in each of eight Power areas was completed by a Travelers Insurance Company certified boiler inspector on April 10.

PERSONNEL

On April 30, a reduction in operating personnel was made in the 100 Areas at the 182 Reservoir Pump Houses. This made available twelve operators to Power facilities in other areas.

Number of employees on payroll - April	
Beginning of month	574
End of month	576
Net Increase	2

The indicated net increase is the result of five new hires and the transfer into the Division of four employees, while seven employees left the Division. Those leaving the Division included four terminations, one retirement, one call to military service, and one employee on sick leave.

100 AREAS

Unusually high river water turbidities were encountered during the early part of the month, the peak being 296 ppm on April 5. Coagulant feeds were increased to a maximum of 16-18 ppm in order to produce water of the required quality.

In the 100-H Area, 105 Pile Building the Groves automatic valve on the export raw water line to the pile was tested and placed in service on April 4.

The six remaining deaerators were removed from the 100-B Area, 185 Deaerator Building, between April 1 and 13, and removal of structural steel was in progress during the balance of the month. In the 100-D and F Areas, this project was in the final stages with work progressing on necessary repairs to the building. All work is in connection with the C-172 Deaerator Removal Project.

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Power Division

A condenser water failure of five minutes duration occurred in the 100-B Area on April 17 during a condenser water pump change in the 182 Reservoir Pump House. This interruption was caused by a defective valve and resulted in a 3 psi variation in process water pressure.

An electric power outage occurred in the 100-D and DR Areas on April 18 when one of the incoming line oil circuit breakers opened at the 151 Substation. Approximately one-half of all operating electrical equipment in each building tripped out. Normal power was restored in 14 minutes, and normal water pressure and flow was restored in 22 minutes.

A concrete span has been constructed over the export line on the road to the Army Camp near the 100-H Areas.

200 AREAS

The air pressures in Zone I and II in the 200 West Area, 234-5 Facility were equalized on April 4 at the request of the "S" Division and Engineering and Construction Divisions in connection with the 234-5 Facility Expansion Project C-413.

Tests made on the electrical system serving the 200 West Area, 234-5 Facility, during the week ending April 13, satisfactorily demonstrated that either one of the two transformers could carry the normal supply fan load.

On April 23, a complete electrical outage occurred in the 200 East, West, and North Areas as a result of a short circuit at the 251 sub-station. This outage affected all Power equipment and required the operation of emergency facilities in the 200 East and West Areas for approximately two hours. All emergency equipment responded satisfactorily.

300 AREA

On April 19, a complete electrical power outage occurred as a result of trouble at the Midway Substation. The emergency generator in the 382 Pump Station provided emergency electrical service to the area for forty minutes.

GENERAL PLANT AREAS

On April 19, a complete electrical outage occurred at the 101 Shops and White Bluffs Ice Plant due to trouble at the Midway Substation. The outage lasted for approximately forty minutes.

POWER ENGINEERING SECTION

Directive HW-[illegible]9, dated March 28 was received from the Atomic Energy Commission, authorizing expansion of the 300 Area Power House and Pumping Station facilities on Project C-433. Design specifications have been completed for this project and negotiations are in progres for award

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Power Division

of a lump sum design and construction subcontract.

Upon receipt of a letter from the Atomic Energy Commission concurring with the Manufacturing Divisions' recommendation for installation of an additional boiler in the 200 West Area, a request has been forwarded to the Engineering and Construction Divisions for project cost estimates pursuant to preparation of a project proposal.

Preliminary studies and budget cost estimates have been made relative to increasing capacities of the water facilities in all 100 Areas.

Preparation of cost estimates and a project proposal for coal car shakeout and car pullers for the 100-B, D, F, and H Areas and the 200 East and West Areas is in progress, with the completion expected on or about June 1.

The high flow test through the filter plant at 100-B Area continues satisfactorily at 3450 gpm per filter basin unit.

The first of a series of experiments involving the flow of various concentrations of supercel through 30, 40, and 50-mesh screens at different flow rates were run in the 105 valve pit in the 100-B and 100-F Areas during the month. An evaluation of test results will be made when additional experiments have been completed.

Sand and anthrafilt samples were taken from filters in the 100 Areas and analyzed for screen size. This is part of an evaluation program concerning the effect of filter media size on filter performance.

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POWER DIVISION STATISTICS

From April 1, 1951
Through April 30, 1951

		AREAS				
		100-B	100-D	100-DR	100-F	100-H
RIVER PUMP HOUSE (Building 181)						
River Elevation (msl ft.)	(max)	396.6	386.8		373.5	379.1
	(min)	388.2	380.2		366.5	372.1
	(avg)	392.2	383.4		369.9	375.5
River Temperature	avg. °F.	43.3	43.5		43.7	43.9
Water to Reservoir	gpm avg. rate	42,273	53,448		35,653	46,110
Water to 183 DR	gpm avg. rate		29,708			
RESERVOIR (Building 182)						
Flow to Filter Plant	gpm avg.rate	37,043	44,835		32,094	41,459
Flow to Cond. System	gpm avg.rate	3,238	3,129		2,803	4,047
Flow to Cond. System (DR)	gpm avg.rate		3,410			
Flow to Export System	gpm avg.rate	1,992	2,047		756	604
Flow to Export System	gpm nor.rate	5,426	5,426		5,426	5,426
Chlorine, Added (#1 Inlet)	Pounds	18,000	19,390		13,500	15,970
FILTERED WATER (Building 183)						
Flow to Power House	gpm avg.rate	265	468		233	237
Flow to Process (190)	gpm avg.rate	32,033	32,197	34,836	28,737	38,008
Flow to DR	gpm avg.rate		5,679			
Flow to Fire & Sanitary	gpm avg.rate	216	232		249	79
WATER TREATMENT (Building 183)						
Chlorine - Consumed	pounds	4,300	990	8,120	4,500	4,830
	ppm avg.	1.50	1.07	.76	1.44	1.28
Lime - Consumed	pounds	78,300	96,200	64,030	62,431	92,910
	ppm avg.	5.9	6.0	6.0	5.4	6.2
Coag - Consumed	pounds	165,390	191,640	134,350	143,850	201,738
	ppm avg.	12.4	11.9	12.6	12.5	13.5
Raw Water pH		7.88	7.77	7.98	7.83	7.94
Finished Water pH		7.69	7.70	7.67	7.69	7.77
Alkalinity, M.O. - Raw	ppm avg.	62	60	56	59	64
Finished	ppm avg.	60	57	54	58	60
Residual Chl. - Finished		.15	.08	.14	.13	.15
Iron - Raw	ppm avg.	.88	.97	1.34	.69	1.04
North Clearwell	ppm avg.	.021	.020	.020	.020	.022
South Clearwell	ppm avg.	.017	.022	.017	.020	.020
Hardness - Finished	ppm avg.	77	73	74	77	76
Turbidity - Raw	ppm avg.	51	51	52	45	48
Filtered	ppm avg.	0	0	0	0	0

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Power Division Statistics

From April 1, 1951
Through April 30, 1951

		100-B	100-D	100-DR	100-F	100-H
POWER HOUSE (Building 184)						
Maximum Steam Generated	lbs./hr.	160,000	278,000		140,000	151,000
Total Steam Generated	M lbs.	99,322	170,628		85,300	89,456
Steam Load - Avg. Rate	lbs.hr.	137,947	236,983		118,472	124,244
225 psi Steam to Plant(est)	M lbs.	83,669	144,137		71,778	75,303
15 psi Steam to Plant(est)	M lbs.	556	556		556	556
Coal Consumed	Tons	6,169	10,697		5,766	5,467
Coal in Storage (est)	Tons	38,710	37,597		39,769	36,948
TANKS (190 Building)						
Flow to 190	gpm avg.rate	31,783	31,947	34,836	28,487	37,758
Dichromate-Consumed	pounds	22,500	23,200	25,400	19,800	28,600
Chemical Analysis:						
pH	pH avg.	7.62	7.63	7.66	7.62	7.68
Dichromate	ppm avg.	1.8	1.9	1.9	1.8	1.8
PROCESS PUMP ROOM (Building 190)						
Flow to 105	gpm avg.rate	31,608	31,772	34,179	28,312	37,583
	gpm nor.rate	33,276	33,500	36,200	31,850	42,150
Water Temperature	Avg. °F.	46.4	50.2	50.2	46.6	46.4
VALVE PIT (Building 105)						
Solids Consumed	pounds	2,500	2,000	3,600	5,300	6,900
Chemical Analysis						
A, B, C, & D Headers						
Standard limits						
pH 7.5 - 7.8	pH (max)	7.70	7.70	7.75	7.70	7.70
	(min)	7.55	7.55	7.60	7.60	7.60
	(avg)	7.65	7.65	7.65	7.65	7.65
$Na_2Cr_2O_7$ 1.8 - 2.2	ppm (max)	2.0	2.0	2.0	2.0	2.1
	(min)	1.8	1.8	1.8	1.8	1.8
	(avg)	1.8	1.9	1.8	1.8	1.9
Iron	ppm (max)	.020	.020	.025	.020	.040
	(min)	.010	.010	.010	.010	.010
	(avg)	.015	.015	.015	.015	.015
Chlorines	ppm (avg)	1.9	1.8	1.6	1.8	1.8

1196169

Power Division Statistics

From April 1, 1951
Through April 30, 1951

		200 AREAS	
		200-E	200-W
RESERVOIR (Building 282)			
Raw Water Pumped	gpm avg. rate	2,310	3,116
FILTER PLANT (Building 283)			
Filtered Water Pumped	gpm avg. rate	339	829
Chlorine Consumed	lb.	160	285
Alum Consumed	lb.	3,496	9,256
Chlorine Residual - Sanitary Water	ppm	.48	.40
POWER HOUSE (Building 284)			
Maximum Steam Generated	lbs./hr.	31,000	72,000
Steam Generated - Total	M lb.	19,175	47,605
Steam Generated - Ave. Rate	lb./hr.	26,632	66,118
Coal Consumed (Est.)	Tons	1,278	2,939
Coal in Storage (Est.)	Tons	9,136	18,614

		300 AREA
POWER HOUSE (Building 384)		
Maximum Steam Generated	lb./hr.	22,000
Steam Generated - Total	M lb.	13,241
Steam Generated - Avg. Rate	lb/hr.	18,390
Coal Consumed - Total (Est.)	Tons	882
Coal in Storage (Est.)	Tons	1,776
SANITARY AND FIRE SYSTEM (300)		
Sanitary Water From 3000 Area	gal.	26,727,408
Well Water Pumped - Total	gal.	23,182,000
Total Water Per Day	gal/day	1,663,647
Total Water	gpm avg. rate	1,155
Chlorine Residual	ppm	.46

		MISCELLANEOUS AREAS
WHITE BLUFFS		
Ice Manufactured	lbs.	999,000
101 SHOPS		
Coal Consumed	Tons	541

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MANUFACTURING DIVISIONS

INDUSTRIAL ENGINEERING SECTION

APRIL 1951

I. Responsibility

As of April 2, the Industrial Engineering Section was transferred to the Manufacturing Divisions General Staff, reporting to the Assistant to the Manager, and assigned responsibility for Manufacturing Divisions Industrial Engineering work only.

II. Personnel

J. C. Baudendistel was named Group Leader for the 100 Industrial Engineering Group.

One Rotational Trainee was added and two Engineers were transferred to the Project Engineering Division, making a total of 16 in the Section at month's end.

An authoritative college level Industrial Engineering course was purchased and training of all members of the Section initiated.

III. Achievements

100 Areas

Final report was essentially completed on quantitative study of the relative decontaminability of various metals and the relative effectiveness of various decontaminating agents. It is believed that these data will be of general plant interest.

Work directed toward increased operating efficiency during pile outage periods was initiated.

One Industrial Engineer completed training on shift in 100 Area operations and was assigned to study work.

200 Areas

Work on "S" Division labor requirements was initiated in the "T" Plant in 200-W Area. An office was assigned by the "S" Division and one Engineer placed on "B" shift for training in 221 and 224 buildings.

To aid in precise determination of labor and equipment requirements for the R.G. Line at varying production levels, a rate balance was prepared showing present line through-put with percentage and disposition of rejects for each major operating component.

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Efforts were directed toward development of equipment operating efficiency for the major steps of the R.G. Line with emphasis being placed on determining amount of maintenance downtime and causes thereof.

Work was initiated on establishment of manpower and equipment requirements for Part II, R.G. Line, under anticipated operating rates.

300 Areas

Preliminary tests indicate that slug machining rate can be increased, without affecting slug quality, by a combination of increased feed rate and improved tooling. A number of slugs produced under test conditions are being canned by the "P" Division to evaluate any possible effect on canned slug quality.

Design of an experimental automatic canning mechanism was pursued actively.

Design was essentially completed on a test model of an improved canned slug welding device which should assure reproducible location of the welding bead.

Preliminary studies directed toward formulation of a more extensive cost reduction program in the 300 Areas were initiated.

Plant General

The proposed diversion of HW railroad coal deliveries from the Richland Terminal to the Riverland project entrance was analyzed. It was determined that no appreciable on-plant savings can be realized by this diversion.

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TECHNICAL DIVISIONS 5-10-51

APRIL, 1951

SUMMARY

Technical Divisions

A new Analytical Division has been formed, made up of the two Analytical Sections formerly organized as part of the Technical Services Division. Within the Technical Services Division, the Information Group has become the Technical Information Section and the Statistics Group has become the Mathematics Section.

Pile Technology Division

Investigations of pile operation included the use of thorium to replace lithium-aluminum as poison columns, power generation of individual slugs, and tests of the transient reactivity effects of high plutonium concentrations. A delayed neutron monitoring system for detection of ruptured slugs was completed for pile tests.

Lattice design studies continued normally. An exponential pile with an eight inch lattice spacing was completed.

Studies for C Pile included graphite zoning, the use of enriched uranium with the proposed enlarged water annulus, shielding effectiveness, and the induced radioactivity of balls for the third safety system.

Programs of test pile measurements, critical mass investigation, and the xenon cross section measurement were continued normally.

In-pile and laboratory studies of water quality, film formation and corrosion included preliminary tests of "Dri Film", measurements of in-pile corrosion rates of slugs at elevated temperatures, inspection of effects of magnesium dummies on front tube corrosion, and flow laboratory tests.

X-ray measurements of graphite samples removed from two counterbored process tube channels of the DR Pile have indicated a general reduction in rate of damage in the high flux regions; however, an unexplained increase in damage was found at a location corresponding to the inlet end of the metal charge.

In-pile burnout measurements of graphite in carbon monoxide have indicated weight losses intermediate between the rates obtained with carbon dioxide and with oxygen under similar conditions.

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The first six-month operating period for the B Plant silver reactor-Fiberglas unit has resulted in no detectable changes in particulate activity removal, iodine removal, or frictional pressure drop. Lead nitrate substituted for silver nitrate in an experimental reactor resulted in an 80 per cent removal of iodine versus the 99.9 per cent obtained with the silver reactor.

Analytical Division

Effective April 15, the responsibility for operation of the P-10 control laboratory and for following the progress of construction of the new laboratory facilities in the 108-B Building was transferred from the Analytical Research Section to the Analytical Service Section. One supervisor and eight other personnel were involved in the transfer. Responsibility for developing and improving analytical equipment and methods has been retained by the Research Section.

A device for removing P-10 samples from the new metal sampling bulbs for mass spectrometric analysis has been designed and tested and appears to work satisfactorily. A self-sealing hollow needle is employed.

Continuing work on P-10 in-line sampling techniques has included study of a capillary leak intended to be attached on one end to the process line and on the other end to a copper tube conducting the sample to the mass spectrometer. Previous work indicated no difficulties from background interference and delayed response to change in sample composition. Additional work has shown that the sample pressure may vary within ±50% of the value for which a particular leak is tailored, but that constant pressure must be maintained during the analysis. Encouraging results have been obtained with an adjustable leak that has the advantage of allowing sampling of gas of any reasonable initial pressure.

Consideration of methods for determining fission product beta and gamma activities in recovered UO_3 has indicated that provision must be made for the presence of U^{237} and for the growth of uranium daughter activities subsequent to solvent extraction. Tentative agreement has been reached on a proposal to analyze the final uranium streams from the Redox and TBP Plants rather than the later UO_3, thereby minimizing UX_1-UX_2 interference in the analyses and also identifying any over-specification material before it is fed to the Oxide Process. A preliminary separation of U^{237} will be needed on analytical samples from the Redox Process.

In the service laboratories, the number of reported determinations per month increased to over 33,000. Several methods have been put into use to provide required new analytical service. Standard sample studies on a considerable number of control determinations have shown most to be under good control; two determinations were somewhat out of control and remedial action is being taken.

Technical Services Division

Both the Design Group and the Technical Shops continued with an excessive backlog of urgent work in support of technical development programs and special equipment needs of Bldg. 222-S. Accordingly, a 6-day work week was initiated for both activities. Technical Shops work cross-ordered to the Instrument and the Maintenance Divisions was being performed by them on this same overtime basis.

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Construction work on Bldg. 222-S, the new Redox Laboratory, was completed except for the installation of fume hoods, ventilation balancing, and certain minor items. Final acceptance procedures were in process at month end, pointed toward Technical Divisions acceptance of the building (with exceptions) on May 1.

In the Works Laboratory Program, construction bid invitations for the Radiochemistry Bldg. were sent out and the bid opening date is May 29. A Part II proposal covering construction of the Radiometallurgy Bldg. was forwarded to the A & B Committee, with an estimated total project cost for this facility of $1,720,000 (up from original allocation of $1,463,000). A Part III proposal covering final construction of the Plot Plan & Utilities Project was in preparation at month end.

The Dix Steel Company completed the concrete footings for the Mechanical Development Bldg. in the Works Laboratory Area, and will start erection of the prefabricated structure as soon as the steel arrives. A.E.C. authorization was received for the Phase II construction of this building. This interior work and much of the design involved have been submitted to Dix as a preliminary to negotiating the required extension to their lump-sum subcontract.

The architect-engineer (C. T. Main Co.) continued to make good progress on the design of the Pile Technology Bldg. and the Library & Files Bldg. A.E.C. authorization was requested for modifying the scope of work proposed for the Pile Technology Bldg. to include utilization of an origianlly unexcavated portion of the basement as a permanent facility for exponential pile experiments.

The daily distribution of Panellit gage pressure increases for the H-10 loading at H Pile is being determined by the IBM Computing Laboratory in support of the statistical control program formulated to permit early P Division detection of P-10-A slugs that are swelling in the process of rupture. As required by an excessive backlog of urgent mathematical computation, the Computing Group began a 6-day work week on April 16.

The Plant Library work volume continued to rise and the circulation of books and periodicals reached an all-time high. The collection of these reference resources now totals 10,564 books and 4,860 bound periodicals, largely assigned to the Main Library in the 300 Area but with significant holdings in the two branches (W-10 and 108-F). Work on the first complete inventory of classified documents in the Central Files progressed satisfactorily. First attention is being given to research and development reports, inventorying of which must be completed and reported to the A.E.C. by June 30.

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May 9, 1951

PILE TECHNOLOGY DIVISION

APRIL, 1951

VISITORS AND BUSINESS TRIPS

Visitor	Address	Date	Purpose
Robert M. Potter	Los Alamos Nat'l. Lab.	4-25/26-51	P-10 Consultation
R. D. McCrosky F. A. Damewood	DuPont, Wilmington, Del.	4-1/13-51	Follow canning of special pieces.
A. U. Seybolt	Knolls Atomic Power Lab.	4-30-51	Liaison on KAPL Assistance to Hanford.
D. Bowen, R. Carter, Frank Farris	North American Aviation	4-11/13-51	Graphite Conference on Radiation Damage

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Visitor	Address	Date	Purpose
J. R. Gilbreath, G. Henning, W. L. Primak, O. C. Simpson	Argonne Nat'l. Lab.	4-11/13-51	Graphite Conference on Radiation Damage
W. W. Tyler	Knolls Atomic Power Lab.	4-11/13-51	Graphite Conference on Radiation Damage
H. Z. Schofield	Battelle Memorial Institute	4-11/13-51	Graphite Conference on Radiation Damage
J. Karp	Brookhaven Nat'l. Lab.	4-11/13-51	Graphite Conference on Radiation Damage
B. E. Warren	Massachusetts Institute of Technology	4-11/13-51	Graphite Conference on Radiation Damage
J. S. Koehler	University of Illinois	4-11/13-51	Graphite Conference on Radiation Damage

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

Name	Place Visited	Date	Purpose
R. Ward	A.E.C., New York	4-6-51	A.E.C. Meeting
	Oak Ridge Nat'l. Lab.	4-16/18-51	Metallurgical Information Meeting
	Argonne Nat'l. Lab.	4-19-51	Metallurgical consultation on fabrication of uranium.
W. L. Schalliol	Research Welding and Engineering Co., Los Angeles, California	4-9/10-51	Consultation with vendor of vacuum tank.
J. B. Burnham	Oak Ridge Nat'l. Lab.	4-16/17-51	Metallurgical Information Meeting
	Oak Ridge Nat'l. Lab.	4-18-51	Consultation on Design of Hot Spectrometer

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P. F. Gast	Washington, D.C.	4-9/10-51	Reactor Physics Planning Committee Meeting.
	Wilmington, Delaware	4-11-51	Consultation on Reactor Problems
	Knolls Atomic Power Lab.	4-12/13-51	Exchange of Technical Information
	Argonne Nat'l. Lab.	4-16-51	Technical Consultation on Test Pile
J. E. Faulkner	Oak Ridge Nat'l. Lab.	4-23/24-51	Discussion on absolute counting technique.
	Washington, D.C.	4-25/26-51	Attend the meeting of the American Physical Society
	Nat'l. Bureau of Standards	4-27-51	Discuss nuclear physics problems.
F. E. Kruesi G. M. Muller	Oak Ridge Nat'l. Lab.	4-24/28-51	Technical consultation on P-11 Problems
	Argonne Nat'l. Lab.	4-30-51	Discussion on Reactor Design
H. F. Zuhr	Knolls Atomic Power Lab.	4-2/4-51	P-10 Consultation
	General Engineering Lab.	4-5/7-51	P-10 Consultation
A. R. Matheson	Knolls Atomic Power Lab.	4-9/15-51	P-10 Consultation
T. P. Heckman	Atlanta, Georgia	4-2/5-51	Nat'l. A.S.M.E. Meeting
G. P. Kerr	Oak Ridge Nat'l. Lab.	4-23/24-51	Discussion of absolute counting techniques.
G. E. Duvall	Knolls Atomic Power Lab.	4-23/30-51	Discussion on Hanford problems.

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ORGANIZATION AND PERSONNEL

	March	April
Physics Section	53	54
Engineering Section	67	67
Metallurgy Section	39	38
P-10 Project	54	62
Administrative	5	5
	218	226

One laboratory assistant was hired for the Physics Section. A technical graduate transferred in from E & C Division, a physicist transferred from H.I., and a steno-typist transferred from Separations Technology to the Physics Section. One laboratory assistant and one steno-typist terminated.

In the Engineering Section, four technical graduates and one engineering assistant transferred in from the E & C Division. An engineer transferred to P Division and a laboratory assistant transferred to S Division. Three engineers and one laboratory assistant terminated from the Engineering Section. The Section Chief was promoted to Division Head.

A metallurgist was hired for the Metallurgy Section and a chemist transferred to Purchasing and Stores Division.

Two laboratory assistants and one technical graduate were hired for the P-10 Section and five technical graduates transferred in.

W. K. Woods became Assistant Manager of the Technical Divisions and G. E. McCullough became Division Head of Pile Technology Division.

PHYSICS

Area Physics Work

A significant change in the flux distribution of H Pile occurred during the month due to poison discharges in order to gain reactivity. This produced a flux unbalance and a decrease in the number of effective central tubes. The number of effective central tubes did not change materially in the other piles. The following table gives the value for each pile at the end of the month:

B Pile	1269
D Pile	1331
DR Pile	1318
F Pile	1462
H Pile	1331

The necessary equipment has been assembled to conduct a test of delayed neutron monitoring of the outlet water to detect the presence of fission products. This equipment will be installed at H Pile at the next shutdown. A study was made of the power distribution among the slugs in a pile in connection with the ruptured slug problem. Results of this study have been recorded in the 100 Areas Technical Activities Report - Physics for April. Results indicate that only two percent of the slugs in DR Pile were operating above eight kilowatts.

At the request of the Atomic Energy Commission an investigation was made of the feasibility of substituting thorium for lithium-aluminum alloy in flattening columns. No basic difficulties are anticipated if such a change is made, although a slight reduction in power output may result since the thorium columns will be less flexible than the present lithium-aluminum alloy.

A reactivity coefficient test was performed at the DR Pile to furnish data on the value of the coefficients in a pile containing a large amount of plutonium. Results of the test are being analyzed. A similar test will be made after the discharge of a large amount of irradiated uranium.

The testing of a new type neutron sensitive chamber for pile control has been undertaken.

Lattice Design

One of the important constants used in pile calculations is the diffusion length of thermal neutrons in the pile lattice. It is not possible to determine this quantity experimentally in a lattice containing fissionable material, since the multiplication of the neutrons occurring in this case obscures their absorption. It is possible, however, to check methods of calculating the diffusion length by making measurements in exponential piles which contain only absorbing material. Such a measurement was made in the standard Hanford lattice using lithium-aluminum alloy slugs throughout in place of the natural uranium. The experimental data are being analyzed and will be compared with theoretical values when results are complete. Construction of an exponential pile with an eight in. lattice spacing has been completed, and measurements in this pile were begun during the month. The first measurement was made to determine the thermal diffusion length in the graphite stack before tubes were placed in the holes.

Further measurements were made on the exponential pile with the eight and three-eights in. standard Hanford lattice spacing to determine the effective size of the pile with respect to neutron diffusion. The effective dimensions of the pile were found to be somewhat larger than predicted by theory, but the results are now in better agreement than was the case with former measurements of this quantity. A measurement was also made with the outer tubes removed from the pile and the holes plugged with graphite. Analysis of the results will be made by the I.B.M. group when machine time is available. Measurements were also made with the water removed from the standard Hanford lattice. Analysis of this data is also awaiting I.B.M. machine time.

Shielding

The design of iron masonite slabs to be used in calibrating the shielding facility on the top of the DR Pile has been completed. These slabs are designed so that foils may be inserted at 350 points for a complete mapping of the neutron flux distribution in the facility. The design has also been made in such a way that the thicknesses of iron and masonite may be varied; one of the first experiments to be performed will be an experimental determination of the iron-masonite ratio which is most effective for shielding.

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A program has been formulated for the study of the radiation damage suffered by shielding materials in present use and by new materials which are proposed for future use. This program includes the work planned by the Reactor Division.

C Pile Design

The graphite zoning for C Pile has been discussed and the decision reached that C Pile should contain substantially the same amount of purified graphite as H Pile. An increase in the amount of purified graphite is not warranted since the additional material would have to be placed in regions of low neutron flux and thus would not be utilized efficiently. On the other hand, there is no reason to reduce the use of purified material since there is a large stock pile available. The plan adopted will use approximately one-half of the Hanford stock pile of purified graphite; the highest quality fraction will be used.

Approval was received from the A.E.C. for the use of enriched uranium to compensate for the reactivity losses arising from a thicker cooling water annulus in the C Pile. A study is in progress to determine the best method of using enriched material to increase the plutonium production of the Hanford piles. For immediate use in C Pile, a U^{235}-aluminum alloy is desirable. The exact composition of this alloy has not yet been determined, but it is expected that the uranium concentration will be less than the seven percent which was used in the H-10 loading. Work on this problem is continuing and some experiments will probably be undertaken at an early date.

It is planned to increase the number of thermocouples installed in C Pile to measure graphite temperatures. The calculation of the reactivity absorbed by these thermocouples has been made and the results reported in Document HW-20952.

Special Request Program

Equipment has been installed in the Helium Purification Building at F Area to monitor the gamma ray activity of special requests in those cases where such activity will be useful for planning further irradiations or for basic information with regard to shielding. Equipment was calibrated by the Health Instrument Calibration Group and measurements were begun on the gamma activity induced in pure lead by pile exposure.

A number of different types of boron steel balls designed for use with the proposed ball third safety system have been irradiated and the resulting activities were measured. Analysis of this data is in progress to determine what activities will be encountered in handling such balls after their use in the safety device.

Work has been resumed on a program originally started several years ago for the determination of neutron fluxes at various positions in the piles. Work on this program had been dropped because of the press of more urgent work. By standardizing beta counters with known standards, it is expected that fluxes in the piles can be determined with considerably greater precision than they are now known.

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Monthly statistics on the Special Request Program are tabulated below:

P-10-A pieces charged	80
P-10-A pieces discharged	30
P-10-A pieces being irradiated (Exclusive of H-10)	1230
Special Request samples charged	100
Special Request samples discharged	63
Samples on hand awaiting charging	902
Samples now being irradiated	395
Samples awaiting shipment	45
Samples shipped during April	133

Test Pile

Considerable effort has been expended in detecting and correcting conditions which have interfered with the precision operation of the test pile. Difficulties with the control rod setting were traced to faulty lubrication and this trouble has been corrected. Assistance was given to the Instrument Division in placing in operation a replacement for the differential galvanometer. It has not been possible to install a suspension in this instrument which will give the required sensitivity. Five special work requests were performed during the month. These special work requests included exposure of nuclear emulsion films for the Theoretical Physics Group, testing the purity of aluminum samples submitted by Alcoa, measuring the purity of aluminum dummy slugs, determining the effects of surface contamination on uranium eggs, and measuring the reactivity effect of thorium slugs.

Critical Mass of Plutonium

Before repairs were undertaken on the experimental equipment, an attempt was made to determine the effect of lithium on the critical mass of plutonium solutions. This experiment was terminated when it was discovered that plutonium was precipitating from the test solutions. These solutions were returned to the S Division for reprocessing. The cause of the precipitation has not been determined, but it is not believed that the lithium was responsible and an attempt will be made to do these experiments after the experimental equipment has been repaired.

A report is being prepared which will contain all of the experimental data obtained to date on this program and a theoretical interpretation of the results.

Xenon Cross Section Measurement

Additional test runs were made with the equipment designed to separate the xenon from other gaseous fission products. These test runs indicated some difficulty with the operation of the equipment and attempts are being made to correct these difficulties. The neutron spectrometer has been moved to the upper experimental level at the DR Pile, thus completing the work covered by the original project. A project proposal is now being prepared to cover the construction of a large neutron beam catcher for use with this spectrometer. The project will also cover a number of small improvements to the spectrometer as now constructed.

Measurements were made of the intensity of the neutron beam which emerged when the smallest aperture through the shield was opened. This beam was found to contain approximately 2×10^7 neutrons per second.

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Instrument Development

Work is continuing on the magnetic spectrometer. Supports for the targets and detectors have been completed.

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
Rods	101	76	126	109	120
Xenon Poison	623	616	678	614	720
Special Requests					
Lead-Cadmium Columns	0	0	0	0	0
Bismuth	90	94	15	110	0
Plant Assistance	10	36	0	20	5
Dummy Columns	10	15	11	27	5
Overall Coefficient	-290	-368	-169	-400	-158
Total cold, clean reactivity	923	823	1004	820	720

The DR Pile gained 29 inhours during the month as the result of a continued accumulation of plutonium. The inhour changes at the other piles were small and of no particular significance.

PILE ENGINEERING

Pile Power Levels

Maximum levels attained in March and April are given in the following table:

Pile	March	April
B	425 MW	433 MW
D	395	420
DR	526	525
F	415	415
H	510	515
	2271 MW	2311 MW

The gains at the B and D Piles are primarily the result of flattening and control rod adjussments which take advantage of the knowledge of graphite conductivity variations obtained from recently installed thermocouples. The gradual annealing of the graphite thermal conductivity is continuing.

The H Pile power levels can be expected to decrease as the radial heat distribution of the pile is distorted by the continuing replacement of the H-10 loading with normal loading.

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Purges During Pile Operation

Successful purges while operating at reduced levels were performed at the B and DR Piles during the month. It is expected that this procedure will be used more frequently in the future because of the longer interval between scheduled outages as a result of discharges at higher concentrations.

Ruptured Slugs

Five ruptured uranium slugs, one probable ruptured slug, and one ruptured H-10 target slug were removed from the DR, F, and H Piles this month. About 187 hours of operating time were lost in the removal of these pieces. A statistical procedure has been set up to give early warning of target slug failures in the H-10 load.

Water Quality Studies

Work on the conversion of the 100-D flow laboratory is continuing and the major part of the Water Quality Program is awaiting its completion. The minor revisions to the 100-F flow laboratory are complete and several tests are in progress. Initial results from the Dri-Film tests in the 100-F flow laboratory were sufficiently favorable to justify further study, including in-pile tests, to evaluate fully this method of preventing film build-up.

The possibility of accelerating the test program for eliminating sodium dichromate by using the recirculating system at the H Pile is being studied. An increasing amount of evidence is being collected which indicates that the low concentration of dichromate in the process water, 1.8 - 2.0 ppm, may not be effective in preventing the front tube corrosion which constitutes a danger to the life of the tubes at present.

Ball 3-X Development

The decision has been made to use nickel plated boron steel balls in the 3-X system of the present piles. Tests on samples of such balls, furnished by the Midwest Chrome Process Company of Detroit, indicated that a 0.0001 in. layer of nickel will give adequate corrosion resistance, will not chip off, and will not affect the nuclear function of the boron steel balls. Ball specifications call for 1.5 percent boron, 0.2 percent manganese, and .055 to .075 carbon. It is expected that this type ball will be used in the C Pile which will make it possible to interchange balls between piles if necessary. Total ball requirements will approximate 150 tons for six piles including one spare charge.

A borescopic re-examination of #20-D VSR channel showed that a larger number of balls were left in the graphite than was reported in Document HW-19665, "Ball Third Safety Demonstration", dated December 8, 1950. An improved type borescope was used which located a total of sixteen balls in cracks in the graphite, plus an undetermined number at the bottom of the channel, and a few in the thermal shield. Most of the balls in the graphite cracks did not appear to be wedged so it is probable they can be removed.

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VSR Measurements

A falling rate recorder has been fabricated to record the falling time of VSR's. This instrument was used at the D Pile on April 18, and recorded drop times of from 2.4 to 2.8 seconds for various rods. This time was measured from the interruption of the rod holding current until the rod was 28 feet in the pile.

Heat Transfer Studies

As a part of the general program to increase power levels of the piles, a study is being made to evaluate gains which can be realized by enlarging the outlet fittings. The present pigtails and nozzles limit the power output since it is at this point that critical flow would take place if boiling in the tube should occur. Experimental work is being continued to determine the size of the outlet fittings which will eliminate this possibility. At present it appears that a one-inch diameter pigtail will be adequate.

Attempts to calibrate an irradiated iron-constantan thermocouple have been hampered by the extreme radioactivity encountered. Results obtained to date do not indicate that irradiation effects the emf of such couples.

Graphite Studies

The first series of samples has been removed from the overbored process tube channels at the DR Pile. C_o-spacing determinations were made on mined powder scrapings and solid cores which were cut from the tube bore and tube blocks along the channel. Similar samples were cut from a conventional channel for comparison. The maximum crystal expansion in the standard channel occurred thirteen feet in from the front gun barrel. This is in agreement with the fringe zone expansion found in the other piles. The damage in the overbored channel was reduced significantly in the central zone, but the peak of damage had moved to the extreme front edge of the metal charge and had approximately the same magnitude as the peak in the standard channel. These results were not anticipated. Because such data are pertinent to design considerations for the C Pile, samples will be removed at close intervals from another overbored tube at the DR Pile during the next shutdown to obtain detailed confirmation.

Core samples removed from the DR Pile represent the first successful application of the core borer. The equipment operated smoothly and the samples are sufficiently large to allow the determination of physical properties other than x-ray spacing and stored energy. Damage gradients from the tube bore to the tube block edge may also be measured.

Large graphite bars, oxidized in air in a laboratory oven, show significant changes in their mechanical properties with a small amount of oxidation. Central portions of these bars show less density change than the outside regions even for gross oxidation rates as low as one percent per month. This oxidation gradient into the bar increases markedly with increasing temperature of oxidation. Mechanical tests made on uniform samples from the center of one graphite bar indicated a decrease of ten percent in Young's Modulus and a decrease of twenty percent in compressive breaking strength as the result of an oxidation of approximately one percent.

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Capsule samples of transverse CSF graphite were discharged from the D Pile after an exposure of 965 MD/CT at an average temperature of 37°C. These samples showed expansion rates of 0.88 percent/1000 MD/CT for physical expansion, which is greater than the rate reported earlier for similar samples exposed under the same conditions but with only a 555 MD/CT exposure. This may indicate a break in the physical expansion versus exposure curve for transverse CSF graphite somewhat similar to that found for transverse KC material.

Weight losses of five percent per 1,000 days and 25 percent per 1,000 days were obtained on samples of virgin and previously irradiated graphite at a temperature of 385°C in the purified carbon monoxide gas stream of the in-pile burnout experiment. These results are intermediate between the rates obtained with carbon dioxide and with oxygen under similar conditions. These data are not readily explainable and, if correct, must be attributed to the effects of radiation. Additional experiments are in progress to confirm and extend these results. Information obtained to date on the problem of in-pile gas reactions with graphite demonstrates the complicated nature of the problem and indicates that extensive effort will be required. No indication was obtained of weight increases in the cooler fringe zone samples; this indicates that carbon monoxide probably is not responsible for the graphite transport previously obtained with actual pile gas.

Preliminary laboratory tests indicate that the thermal coefficient of thermal conductivity is strongly positive in the range 20 to 80°C for the C stringer graphite from the B Pile, in direct contrast to the negative thermal coefficient of unirradiated graphite. The effect of temperature from -60° to 360°C on the electrical resistance of a similar set of samples indicates a marked difference between the high exposure C stringer sample and the virgin KC samples, although the trend in either case is negative with decreasing slopes. The damaged material shows an inflection point at about room temperature.

Work is continuing normally on the controlled temperature exposure of graphite, monitoring and sampling, stored energy, pile gas considerations, structural studies, surface studies, physical length annealing investigations, and the in-pile gas atmosphere project.

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

The behavior of water, prototype fuel, and structural materials is being determined under conditions simulating those of the STR as nearly as possible in the Hanford Piles. Operation during April was routine at An unexplained scram occurred on April 1, causing a production loss of 39 units. On April 4, a two-second time delay was installed in the scram circuit to eliminate future pulse scrams. It had been determined that no conceivable failure of the ANL-140 equipment would be aggravated by the inclusion of this time delay; the time delay prevented a pulse scram later in April.

Creep of Zirconium (Pneumatic Loading) (WAPD-M-106, P.T.-105-430-P)

A zirconium tensile specimen stressed to 14,000 psi and heated to 260°C was being irradiated to determine the influence of pile flux on the creep rate. It is now established that friction drag in the slug assembly prevented free creep

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of the specimen. It is assumed that the binding is the result of breakage of one of the ceramic tube insulators used inside the slug: A new test slug is being fabricated at WAPD eliminating the fragile ceramic tubes by substitution of woven glass sleeving.

Slug Temperature Measurements (P.T.-105-411-P)

Thermocouple measurements of uranium slug temperatures indicate values higher than those previously measured or calculated. The hottest uranium in a tube with a power output of 290 KW should be between 220° and 260°C.

METALLURGY

Uranium Billet Casting and Rod Fabrication

The surface and dimensional quality of the April shipment of rolled rods appeared normal except for the unusual appearance of yellow oxide spots on the surface of a large number of the rods. The significance of these spots has not been determined.

Uranium Canning

Since the residual pipes and cracks frequently found in standard aluminum caps, machined from extruded rods, are responsible for about ten percent of the autoclave failures occurring since last September, steps are being taken to procure caps coined from rolled sheet. It is believed that internal flaws in the coined caps will lie parallel to the flat face and that the opportunity for water to channel through such flaws to the slug will be less than in the machined caps.

A test sample of Dy-Chek has been procured for evaluation as a means of detecting pinholes and cracks in slug closures and jackets. This product is a dye which penetrates into cracks and later seeps out, coloring a developer film applied to the surface of the test object after excess dye has been removed.

Suitable substitutes for carbon-tetrachloride as a solvent for acenapthene are being sought because the use of carbon-tetrachloride is hazardous. Only chloroform worked satisfactorily of the substitutes considered; the others did not have suitable volitity. Since the toxicity of chloroform is only slightly less than that of carbon tetrachloride there would appear to be little advantage in substituting this solvent.

Studies made under simulated operating conditions indicate that virgin Al-Si has only very slightly less viscosity at 600°C than at 590°C. Further studies are planned to check the effect of various impurities on viscosity.

Slugs in Group N of Production Test 313-113-M were canned and inspected. This group of slugs was machined from rods which had been continuously rolled at Lockport using a lower than normal preheat. The metallographic structure of this metal before and after canning was similar to normal process metal. P.T.-313-113-M, concerned with the 300 Area processing of metal rolled at 300 to 600°C, is now complete and the slugs produced are ready for pile testing.

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Uranium Metallurgy

Equipment is being designed to check the line intensity obtainable by double diffraction. A two plane diffraction system suggested by Borie of Oak Ridge will be tried rather than the single plane system originally contemplated.

Dilatometry

One-hundred process slugs were tested on the production dilatometer to determine how such data correlates with that obtained in the degree of transformation versus expansion tests run on the laboratory dilatometer. Some of these process pieces will be checked in the laboratory slug dilatometer prior to making the above correlation to determine if data from the two units are comparable for the same pieces.

The automatic recording dilatometer was completely rewired. Detail drawings of equipment modifications for the 234-5 interferometer are nearly finished.

Radiometallurgy

Five irradiated uranium slugs ruptured in the pile units during this month and two slugs discharged in the normal manner from suspect tubes were observed to have defective weldments. The known pertinent data is listed in the following table:

No.	Slug Identification	Canning Data	Charge Date	Discharge Date	Time	Observations
9	2780-F	MRH 7-14-50	9-13-50	4-10-51	210 days	Cap bulged but attached. Metal removed from side. Slug #38.
10	1477-H	MRH 4-26-50	6-28-50	4-10-51	288 days	Cap forced from slug. Can wall rippled. Normal discharge.
11	1377-DR	MRH 5-5-49	11-4-50	4-15-51	163 days	Cap intact. One in. hole in side near bottom. Slug #30.
12	0986-F	MRG 6-2-50	8-2-50	4-20-51	261 days	Cap intact. Three-fourth in. hole in side near bottom. Slug #32.

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No.	Slug Identification	Canning Data	Charge Date	Discharge Date	Time	Observations
13	3373-H	MRG 1-15-51	2-12-51	4-24-51	70 days	Not inspected.
	2077-DR	MRH 5-6-49	11-4-50	4-16-51	164 days	Crack observed near weld. Normal discharge.
	0573-H	MRG 7-13-50	9-5-50	4-24-51	231 days	Crack observed near weld. Normal discharge.

These slugs were pushed into the 105 basins and the affected components examined through the underwater viewer. Satisfactory photographs were not obtained with existing facilities, therefore, after visual examinations were completed, the slugs were canned in an aluminum receptacle and transferred to the 111-B Building for better examination. Arrangements have been made to decontaminate the caps and to examine them metallographically.

A separate report concerning the examination of all the ruptured slugs is in progress.

A set-up of the remote polishing equipment was made in anticipation of the macro and micro examination of the caps that were attached to ruptured slugs. A preliminary check of one non-irradiated cap revealed very poor wetting of the Al-Si to the cap.

A report covering the initial observations of the slug that failed in tube 3188-DR was issued as document HW-20778.

P-10 Alloy

The examination of the second ruptured P-10 slug (3483-H) indicated that the pattern of failure was similar to that of the first (3177-H) except that swelling had occurred at only one end of the slug. The third rupture occurred on April 20, 1951, in process tube 2974-H and the piece was stuck so tightly that efforts to push the slug were unsuccessful. The piece is now in the center of a five foot section of this process tube. Plans are now being prepared to remove the piece from the tube and study the pattern of failure.

The study of the corrosion of unirradiated P-10 target slugs has been continued in order to explain anomalous effects noted in earlier work. It has been observed, for example, that not all punctured target slugs have swelled after immersion in hot water. A series of tests are planned to resolve this problem.

The results of the examination of ruptured slug 3177-H have been reported in HW-20761.

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Results of duplicate gas analyses by the Metallurgy Section and KAPL on materials contemplated for use in the P-10 extraction process were not consistent. Analyses for hydrogen checked fairly well on some materials but on other materials KAPL results were both higher and lower than Hanford data. Work on an anlytical gas line having a non-metallic extraction chamber is continuing. A fabricated quartz-Vycor extraction tube for this line was received from an outside vendor.

Some palladium to Kovar and Kovar to Kovar welds submitted for evaluation were much sounder than those examined previously. Although the weld thickness was not uniform, there was good bonding and little porosity.

Examinations of the welds and materials indicate that fabrication of the furnace pots is proceeding satisfactorily with respect to these details. The spectrographic laboratory is now furnishing semi-quantitative analyses of Type 347 stainless steel for tantalum so that its influence on tritium holdup can now be followed.

The design criteria for the metallurgical facilities of project C-412 are essentially complete. Orders for standard items of metallurgical equipment are to be placed in the near future and detail design of the laboratory area will proceed as personnel become available. In the meantime, emergency operations will be performed in the gloved box now installed in the hood of the can opening room in Building 108-B.

Corrosion

Three of the process tubes charged with magnesium dummies in the front sections to determine if the aluminum tubing could be cathodically protected in this manner were inspected. One of the tubes, protected for one month, was unchanged in appearance compared with an unprotected tube. The other two tubes, protected for two months, had areas of bright aluminum from which the normal film was removed. The magnesium dummies were slightly corroded. These results indicate that the magnesium was providing cathodic protection for the aluminum; however, the exposure period was not long enough to determine whether over-protection was occurring. Final conclusions on the use of magnesium dummies must await the results of longer exposure tests.

The corrosion observed on several process slugs during storage at 105-DR was successfully reproduced in the laboratory. A large pit was obtained on a process slug kept in a tote box having a moistened cardboard liner and felt pad.

Twelve anodized and dyed slugs were received from Battelle Memorial Institute. These will be tested to determine the feasibility of anodizing for identification and corrosion inhibiting purposes.

Examination of some stainless steel-aluminum orifice assemblies, used for six months, revealed that the corrosion was not so severe as to render the assemblies unusable. The aluminum was etched and pitted while the stainless was unaffected. Extended service may result in increased difficulty in changing the orifice block or screen. A detailed report is given in Document HW-20784.

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Laboratory tests indicated that the corrosion rates of sensitized T-309 SCb and T-304 ELC stainless steel in boiling 77 percent uranium nitrate solution were high. A test program was initiated to verify these data and to determine if there are other more suitable materials for handling this solution. This work is related to Project C-362.

The corrosion resistance of two commercial lots of T-347 stainless, as determined by the Huey test, was improved by a four hour stabilizing anneal at 1650°F followed by water quenching and by a one-half hour homogenizing anneal at 1975°F followed by air cooling. However, tests in selected waste metal recovery solutions for which this material would be used, indicated that such heat treatment was not warranted.

Special Requests

Under the Special Request program, six process tube request slugs were processed and inspected; seals on two test hole samples were repaired and the pieces were tested; special sample casings were designed and made of magnesium for use in monitoring pile flux. In addition, 75 aluminum dummies were canned and tested for use in corrosion studies, and 300 Request 13 slugs were recanned. The last two items were done in collaboration with the P Division.

Miscellaneous

A second phase of the duPont pilot test lot canning program was completed, in which approximately 1000 3/4 in. x 8 in. uranium slugs were canned and tested in collaboration with the P Division. Considerable trouble with warpage was encountered with these small diameter slugs.

Battelle is still checking the erratic creep behavior of 2S aluminum noted at 500°C and 300 to 350 psi. A recent test at 300 psi checked previous data and they now plan to run another test at 325 psi to determine if premature failure occurs as happened previously.

Atempts were made to prepare and fabricate a boron modified Type 430 chromium stainless steel. One heat containing 0.7 percent boron was successfully hot worked but was quite brittle at room temperature.

P-10 PROJECT

Extraction Operations

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The following 12 production tests were completed during the month:

108-B-35	Diffusion rate of H_2 through ELC 304 stainless steel furnace tubes as compared with 347 stainless steel tubes.
108-B-35 Supplement	Volume calibration for 108-B-35.
108-B-49	Comparison of four in. and four and one-fourth in. slugs - split temperature data.
108-B-53	Effect of molten metal above a slug during extraction.
108-B-55	Determination of the amount of tritium that can be extracted without melting the slugs.
108-B-56	Inspection of differently outgassed furnace tubes for lithium-aluminum deposits.
108-B-57	Metal line pilot run.
108-B-58	H_2 solubility effects with lithium-aluminum added to a leaded furnace tube.
108-B-59	H_2 solubility effects of lead-lithium.
108-B-60	H-10 slug yield - split temperature extraction.
108-B-63	Data on canned slug extraction.
108-B-63-A	Data on canned slug extraction.

The final revisions, leak testing, and calibration of Line 3 were completed. The glass line hood room air monitoring facilities were revised to include a six decade log scale in conjunction with the original full scale range for the most sensitive decade.

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

Metal Line Developments

The metal extraction equipment was ready to receive the first active charge at the end of April. Preliminary testing of all components and services was completed. Additional runs were made using synthetic hydrogen-helium mixtures.

All necessary revisions have been made for handling and remote loading procedures for the furnace pots. A radiation check of the equipment was made with one pot loaded . These tests indicate that an eight hour time limit will be permitted when handling such a loaded furnace pot.

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Twenty-eight cold slugs were loaded into a pot and charged to the extraction furnace. Satisfactory temperature control and heating rates were obtained on a thermal cycle. Continual air sweep of the furnace was maintained. The air sweep blower and heat exchanger functioned satisfactorily.

Construction of a manifold for evacuating metal shipping containers on an experimental basis has been completed and the manifold placed in service. Two containers were evacuated in eight hours using H_2 purges and a "bake-out" at 100°C with an infra-red lamp. After this treatment, a container was "sealed-off" for 72 hours; subsequently, the gas recovered as a result of internal out-gassing equaled only 0.0026 percent of the total capacity.

Six additional metal line runs have been made using synthetic hydrogen-helium mixtures. The following observations were made:

(1)

(2)

(3)

(4)

(5)

(6)

(7)

(8)

Design, fabrication, and installation of the piping tees, Skinner solenoid valves and blind flanges, necessary to permit addition of a stripper section and "in-line" sampling has been completed. The details have been transmitted to the General Engineering Laboratory so that they may incorporate the necessary dimensions into the design of the stripper equipment. Final design of this equipment and shop fabrication of components is proceeding on schedule.

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Several samples of process gas from cold metal line runs were removed in aluminum tubes by using cold-welds.

A calibration of a Kanne type ion chamber with known mixtures of tritium, air, and helium with various amounts of water vapor has been completed. The ion currents observed for the homogeneous mixtures of tritium and air in the Kanne chamber agreed within acceptable limits with current theoretical calculations as given in "P-10 Calibration of Ionization Chambers", HW-18780, P. L. Eisenacher to Files, 9-8-50. However, the memory effect is extensive; after admitting and presumably removing tritium and air mixtures, it takes several hours for the chamber current readings to return to background values while passing air through the chamber. Special purge and evacuation cycles appear to significantly reduce the time required.

Process Development Activities

By-product metal ion chambers are being calibrated in the instrument development room, using low purity tritium. Line 2 in the instrument development room is being installed by construction personnel. The revision of Line 5 in the operating hood room is 50 percent complete and Line 4 in the cold lab is 60 percent complete.

Experiments on Line 6 indicate that the uranium method of analysis for small traces of hydrogen is sufficiently precise and accurate for analysis of the effluent gas from the simulated stripper line.

Experimental Hot Line Activities

The transfer of the Hot Development Line, from Line 5 to Line 1, has been accomplished. The latter now has dual by-product and product systems to give more accurate data on one-slug extractions. More accurate temperature data can be taken by making one-slug extractions in shortened furnace tubes, because test data does not have to be qualified due to gradients through the furnace tube.

Nine single slug extraction-separation runs have been made to compare three different extraction techniques. Data are not complete on the last three of these runs; however, the data from the first six runs are summarized briefly below. Three of the runs were made following standard operating procedures and three runs were made using split-temperature extractions.

	T_2/He^4	$He^4/2T_2 + He^3$*
Average of three standard runs using non-leaded furnace tubes		
Average of three split-temperature extractions using leaded furnace tubes		

* The theoretical value of $He^4/2T_2 + He^3$ is approximately 1.01; values above 1.01 probably indicate product losses.

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The data for the split-temperature runs indicate more tritium is recovered than is theoretically possible. Since the data are firm, an explanation for these results is being sought.

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INVENTIONS

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

Inventor	Title
J. V. McMaster and R. E. Nather	Screw-Closure Receptacle Slug Assembly
L. A. McClaine and D. B. Lovett	The Measurement and Detection of Flux Densities

Signed G. E. McCullough

G. E. McCullough
Division Head

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May 8, 1951

SEPARATIONS TECHNOLOGY DIVISION

MONTHLY REPORT
APRIL, 1951

VISITORS AND BUSINESS TRIPS

W. H. Lanham and R. B. Lindauer of the Oak Ridge National Laboratory and A. N. Parkes of duPont visited here April 10 through 11 for consultations on the Hanford Assistance to ORNL program of Purex studies.

W. D. Egnor, KAPL, visited Hanford for consultations on the Long Range Bearing Program on April 20, 1951.

W. F. Johnson and C. M. Slansky attended the ACS Meeting in Cleveland, Ohio from April 9 through 12. They visited ORNL April 12 and 13 for consultations on pulse columns.

F. Clagett attended the ACS Meeting in Cleveland April 9 through 12. He visited Michigan State College on April 5 and 6 recruiting personnel, and visited KAPL April 12 and 13 for SPRU consultations.

ORGANIZATION AND PERSONNEL

Personnel totals are as follows:

	March	April
Administration	2	2
Special Assignment	2	3
Research Section	34	34
Development Section	75	73
Process Section	31	32
	144	144

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Development Section: One Tech. Grad was transferred to Pile Technology Division. One Steno-Typist C returned from a leave of absence, one General Clerk C was transferred from Medical Division, one Steno-Typist B was transferred to Pile Technology Division, and one Steno-Typist C was added as a new hire.

Process Section: One Steno-Typist A was transferred from Employee Services Division.

200 AREAS PLANT ASSISTANCE

Canyon Buildings

Additional tests, with a larger number of runs than originally planned, are being made under Production Test 221-B-10 in attempt to evaluate possible slight loss increases with reduced bismuth concentration (2.5 gm./l.) in extraction, and process solution volumes decreased by 30 per cent.

Analyses of seven dissolver solutions for radioiodine indicated that approximately 86 per cent of the iodine calculated to be present in irradiated metal is liberated during dissolving. Sparging with 50 cu. ft./min. of air during dissolving, tested under Production Test 221-B-9, indicated an average evolution of 91 per cent of the calculated iodine. Individual values, however, ranged from 81 to 88 per cent for the non-sparge cases and from 87 to 99.9 per cent for the sparged runs. Although the calculated theoretical total iodine concentration varied from 6 to 280 microcuries per ml. the limited number of data indicated the ratio of iodine removed to theoretical iodine to be independent of total iodine.

Concentration Buildings

The abnormally large amount of product returned to the Concentration Building with the Isolation Building special filter leach solutions necessitated processing several batches of recycled material as runs. These were processed without incident.

Material which had partially precipitated for unknown causes during P-11 experiments was recovered without incident.

Isolation Building

Abnormally large recoveries of product from the N-1 filters appeared with initiation of the use of 60 per cent nitric acid leach instead of 25 per cent. Maximum recovery was obtained from Cell 2 where approximately 150 per cent of a run was recovered. Since leaches on a two-week schedule continued to result in high recoveries, the filter blocks in the three cells were leached with a large number of portions of 60 per cent nitric acid (59, 27, and 21 in cells 2, 3, and 4 respectively) with resultant total recoveries of 160, 63 and 69 per cent of a run including the recovery from partial leaching of the filter aid used during the preceding two-week period. Since the filter blocks in cells 3 and 4 appeared to be mechanically plugged, these blocks were replaced. It has not been determined at present if the deposition is of recent origin or the result of accumulations not removed by routine leaching methods.

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Frequent leaching will continue on a routine basis until the nature of this deposition has been resolved. Process performance has been normal with respect to precipitation and supernate peroxide destruction during the two-month period in which 50 per cent hydrogen peroxide has been evaluated. A separate report recommending the use of 50 per cent hydrogen peroxide will be issued.

Purification and Fabrication Building - Plant Assistance

Approximately 900 units of product were salvaged or continued in the Purification step by special procedures prepared to compensate for off-standard conditions which developed during processing. These off-standard conditions resulted from (1) excess 47 per cent HI in purification operation, (2) too dilute oxalic acid concentration during precipitation, (3) removal of solid phase with supernate liquid during washing of the oxalate cake, and (4) removal of product to the trap in the transfer flask station.

Lanthanum content determinations on twenty-five AT batches in 231 Building show that the La ranges from 1000 to 10,000 parts per million parts of Pu. The average La content of material originating from "T" Plant was 6000 ppm. and from "B" Plant 3000 ppm.

The product concentration in oxalate precipitate supernates averaged 0.057 gm/Kg. of supernate solution following passage through the "Aloxite" (aluminum oxide) filter in Hood 5 and 0.074 gm/Kg. after passage through the conventional paper filters in Hoods 6 and 7. The filtration rate in Hood 5 (Aloxite filter) dropped to 300 ml./min. after processing eight batches. The rate was increased to 1.0 liters/min. following back washing and air sparging vs. 2 liters/min. at the time of installation. A regular cleaning procedure has been introduced as normal operating practice.

Direct hydrofluorination of the plutonium(III) oxalate was instituted for a one-month trial period beginning with batch X-11-4-86. The results indicate no serious problems although some batches have been returned for further hydrofluorination because of abnormal color. An Inconel boat was employed for three batches in the foregoing operation. The button obtained from this plutonium(IV) fluoride was found to contain 200 parts of nickel per million parts of plutonium, 200 ppm. chromium and 200 ppm. iron. Recent averages for these elements in normal production have been: Ni - 60 ppm., Cr - 15 ppm., and Fe - 300 ppm. Although the nickel and chromium are present in greater than average amounts, they are not prohibitively high. Sufficient material will be prepared in this Inconel boat from which to make a casting.

The average "c/q" summation for castings produced in March was 0.58. Beginning with charge chemical "70-58" has been added at the casting step. Subsequently the observed La content has decreased to an average of 50 ppm. whereas the La had reached 10,000 ppm. in some castings prepared from material in which "70-58" was added at the reduction step.

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REDOX AND METAL WASTE RECOVERY DEVELOPMENT

Technical Manuals

On April 25 the preparation of the Redox Technical Manual was approximately 77% complete. The following five additional chapters were completed during the month, bringing the total number of chapters completed to date (except for reproduction) to twenty:

I. Introduction
X. Waste Treatment and Disposal
XI. General Description of the Plant
XV. Gas Scrubbing, Concentration, and Distillation Equipment
XXV. Critical Mass Control

Reproduction of some of the completed chapters was continued.

The writing of the Uranium Recovery Technical Manual was continued. On April 25 the preparation of this manual was about 26% complete.

Process Studies

A study of plutonium extraction stage and transfer unit requirements for the Redox IA Column, based on the most recent Chemical Research Section plutonium equilibrium data, was begun. A formal report on this study is planned.

Further study of the potential capacity of the Redox Plant has indicated that plutonium processing rates of 50 Kg./mo. (at 420 M.W.D./T.) or 70 Kg./mo.

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(at 600 M.W.D./T.) should be attainable from Redox after making relatively minor equipment revisions estimated to cost less than $1 million. Results of this joint survey (made with the Manufacturing Division) are to be issued along with estimated uranium and plutonium unit processing costs (for Redox) at various production rates.

Redox Solvent-Extraction Studies

Studies in the Demonstration Unit were devoted primarily to training "S" Division personnel for operation of the Redox process. A series of four 2D-2E Column cascade runs was carried out in the Demonstration Unit under Redox HW #4 flowsheet conditions (with 2D column operating at 50 to 90 per cent of flooding) to determine the amount of sodium contamination in recovered uranium. The resulting 2EU product contained from 200 to 420 parts of sodium per million parts of uranium.

TBP Solvent-Extraction Studies

During the month, 58 solvent-extraction studies were carried out in 5-in., 8-in., and 16-in. diameter pulse columns at conditions prescribed on the O.R.N.L. Purex process flowsheet for Columns IA, IB, and IC. In addition to evaluating extraction performance, these studies included determining the the flooding capacities of the IA scrub section and the IB extraction section.

On the basis of the partially completed Purex pulse-column studies, tentative design specifications for plant-size (2.5 tons of uranium/day) Purex pulse columns were transmitted informally April 11 at Hanford Works to W. B. Lanham and R. B. Lindauer of O.R.N.L., and A. Parkes of the duPont Company. These tentative specifications are to be confirmed in writing.

Operation of the 5-in. diam. IA extraction section (700 gal./(hr.)(sq.ft.), 12-ft. packed height, "standard" cartridge) on a "low acid" Purex flowsheet (1 M HNO_3) resulted in a 0.14% uranium loss (1.7-ft. H.T.U.) compared with 0.01% loss (1.2-ft. H.T.U.) for the standard O.R.N.L. flowsheet (2.4 M HNO_3 in the IAFS.)

Operation of the above 5-in. pulse column to determine its flooding capacity as a IA simple scrub section disclosed that the amplitude must be reduced from 1 in. to 0.5 in. to attain the highest flooding capacity, 1200 gal./(hr.)(sq.ft.), sum of both phases, operating at a pulse frequency of 70 cycles/min. Since the normal flooding capacity of the IA extraction section is substantially higher, greater than 2000 gal./(hr.)(sq.ft.), tentative specifications for the Purex plant IA pulse column call for an 8-in. diam. extraction section and an 11-in. diam. scrub section.

The performance of the above 5-in. pulse column as a IB simple scrub section was considerably improved over previous studies by reducing the pulse frequency from 70 to 50 cycles/min. (still retaining 1-in. amplitude), and by doubling the IBS solvent flow ratio. H.T.U.'s for the new method of operation were as

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low as 10 x 10^{-5}% of the IAF uranium, corresponding to a uranium content of the plutonium of 0.2% (compared to 16% previously).

The flooding capacity of the IB extraction section (5-in. diam. pulse column, "standard" cartridge) was 2000 gal./(hr.)(sq.ft.), sum of both phases, at 0.5-in amplitude and a pulse frequency of 70 cycles/min.

An 8-in. diam. IC pulse column employing fluorothene plastic plates (1/8-in. holes, 23% free area, 4-in. plate spacing, 8.6-ft. "packed" height) was found to perform as well, with the aqueous phase dispersed, as the same column employing stainless-steel perforated plates which had been Dri-filmed.

Three IC studies in a 16-in. diam. pulse column ("standard" stainless-steel cartridge, Dri-filmed, aqueous phase dispersed) resulted in optimum performance at 400 gal./(hr.)(sq.ft.), giving 0.4% U loss (1.43-ft. H.T.U.) at a uranium processing rate of 1.4 tons/day. This compares with a 1.1-ft. H.T.U. in an 8-in. diam. column at comparable conditions.

Towards the end of April emulsification and flooding were experienced during some of the Purex IA and IB pulse column studies at operating rates, amplitudes, and frequencies which had previously operated satisfactorily. This behavior is believed due to the presence of deleterious solvent decomposition products, and steps are being taken to clean up the Purex feed solutions.

321 Building Construction and Maintenance

Items of maintenance worthy of note on the Demonstration Unit included: (a) installation of graphitar or oilite inserts in all large solvent pump gland followers, (b) installation of humidifiers in the instrument air (inert gas) lines to the IA and IB Column interface dip tubes, (c) replacement of several defective motors on the Fisher pumps due to normal wear of the commutators and brushes, and (d) adjustments to the air purge system. Similar items for the Scale-Up Unit included: (a) reinstallation of the 16-in. column with a cartridge containing 60 Dri-filmed stainless steel plates, (b) changing cartridges twice in the 8-in. pulse column (including one with 25 fluorothene plates, and one with 50 Dri-filmed stainless steel plates), (c) installation of graphitar inserts in solvent pump packing gland followers, and (d) several minor piping changes and flow control instrumentation changes made as required for special purpose runs.

321 Building Operations

During most of the month the Demonstration Unit was operated on routine training runs. Considerable difficulty is still being experienced with inadequate removal of the MnO_2 by the centrifuge during head-end treatment. There has been some carryover to the IA column but no operating difficulty resulted. Plans are being made for further piping revisions, and steps are being taken to install a baffle in the 26-in. Bird centrifuge.

A series of IA-IB-IC cascade runs followed by a 2A-2B series were made to obtain a quantity of 2BP to be used by the Chemical Research Section in studying methods for coupling Redox directly with the 234-5 process.

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Separations Technology Division

The Scale Up equipment continued operation on combined Purex flowsheet and training runs. Mechanical performance of the solvent extraction contactors, pumps, and control equipment was satisfactory throughout the month with the exception of one instance in which the ICW pump had to be replaced because of overheating due to rubbing of the packing gland follower on the pump shaft.

Some difficulty was encountered during the month in jetting neutralized waste to the underground storage tanks. It was found that the use of a direct strike during neutralization caused precipitation of Al_2O_3, which subsequently plugged the jet. The A-7 neutralizer tank was boiled out with HNO_3 to dissolve the Al_2O_3. Neutralization was then carried out as a reverse strike with no further difficulty.

321 Building Operations Training

The second cycle of the training program started on April 2nd with a group of 28 operators and 17 monthly roll trainees. This group will complete its training on May 13, 1951.

Plant Assistance

A start has been made during the period toward the organization of a group to assist production personnel in the start up of the Redox Plant.

In addition to organization planning, some work has been completed by this group on start up operating procedures and in making preparations for moving to the Redox Area.

Hot Semiworks

A construction schedule received from the L. H. Hoffman Co. indicates a completion date of January 10, 1952 for the Hot Semiworks. According to the field engineer's estimate, the construction work is now 1.8 per cent complete as compared with the Hoffman schedule forecast of 4.7 per cent complete as of April 21, 1951.

Equipment Development

Submerged Pump No. 2, a submerged regenerative turbine pump, has been employed to evaluate bearing materials for the Hot Semiworks. Under conditions simulating the oxidizer in the Redox process (MnO_2 scavenger present in quantity of 7 g./l.) the pump underwent 22 days of operation at a speed of 3450 rev./min., with a process lubricated bearing of boron carbide running against a Stellite No. 6 shaft journal. Over the test period the pump characteristics were unchanged and the maximum wear of the journal and bushing was 0.2 mil. Operation was resumed and has continued uneventfully for 16 additional days.

Peerless 4"-LA, a four stage deepwell turbine pump, has been employed to evaluate bearing materials under conditions simulating those which will exist in the slurry accumulator, TBP process. The pump (equipped with process

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solution lubricated boron carbide bearings operating against a Type 347 stainless steel shaft) has operated smoothly and uneventfully for 3 days at 1750 rev./min. in a simulated incubated underground metal waste (fission products and plutonium free).

TBP Production Plant Pumps. Two Johnston Pump Co. deepwell turbine pumps are scheduled for arrival at Hanford prior to May 10. These pumps will be evaluated for suitability of graphitar 41 bearing material when lubricated by concentrated neutralized RAW.

Pump and Agitator Acceptance Tests - Redox

Four Redox "hot service" submerged pumps were put through the mock-up shop. Three pumps were accepted, and one was returned to the vendor because of a broken lower bearing. To date, seven pumps have been accepted leaving 10 pumps remaining to be mocked-up.

Nine Redox "hot service" agitators were put through the mock-up shop and accepted. To date, eleven agitators have been accepted leaving 12 agitators remaining to be mocked up.

Process Calibration of Redox Instruments

Complete process calibration procedures have been prepared for the Redox instruments and will be submitted to the Instrument and "S" Division for approval.

Epon Coatings

Epon, a linear condensation polymer containing carbon to carbon and ether linkages and containing reactive hydroxy and epoxide groups has demonstrated chemical resistance to a variety of solutions, good decontamination characteristics, and stability to intense radiation (from slugs in the 200 N Area storage basin).

Decontamination of Stainless Steel

Samples of stainless steel with four surface finishes (#2B cold roll, #1 hot roll sheet, #1 hot roll plate, and 100 grit polished) were contaminated with underground metal waste. The surfaces were decontaminated by flushing once with water, swabbing three times with 5% Versene solution, swabbing twice with 1% sodium citrate-5% NaOH solution, and then repeating the entire procedure.

Since the differences in decontamination factors for the four surfaces were insignificant (D.F.'s ranging from 4×10^3 to 9×10^3), the surface finish for vessels should be selected on the basis of availability and economics.

Process Chemistry

321 Assistance - Redox. The distribution coefficient, Eg, for sodium in the 2DS-2DU system has been shown by a series of laboratory batch experiments to be in the range of 0.01 to 0.04, and the maximum concentration of sodium in the 2DU

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stream is not expected to exceed 2000 parts per 10^6 parts of uranium under normal flowsheet conditions. There was no apparent entrainment of the aqueous phase in the organic product stream.

321 Assistance - Purex. The removal of Dri-Film "A" from stainless steel surfaces may be accomplished by means of exposure to a solution of 25% NaOH, followed by a 20% HNO_3 rinse, the time of exposure required, being inversely proportional to the temperature of the caustic. At 25°C., the decomposition of the Dri-Film by the NaOH may require from 1 to 2 hours. At 75°C., 15 minutes will suffice.

Column performances have been unsatisfactory with respect to low emulsification values and flooding capacities in recent Purex IA, IB, and 2D runs under conditions which were previously satisfactory. A series of laboratory-synthesized stream samples (prepared from c.p. chemicals) whose disengaging times were determined and compared with column samples, has failed to indicate a significant difference from the re-cycled materials used in the Scale-Up operations. The average D.T. lies between 60 and 70 seconds, for all samples tested.

Solvent washing procedures for the removal of "inextractable" uranium from Purex process ICW have shown that a sulfate wash will remove the uranium, but not the cause for the inextractability, whereas the use of 5% Na_2CO_3 removes both.

TBP Waste Studies The boiling points of neutralized RAW (TBP-HW #4 Flowsheet) have been determined as a function of concentration, and are found to range from 102°C. at no concentration, to 114°C. when concentrated to 40% of the original volume.

SEPARATIONS PROCESS RESEARCH

Centrifugation of Manganese Dioxide Slurries

It has been demonstrated that at 1730XG a "skating effect" occurs when slurries of manganese dioxide in 2 M $UO_2(NO_3)_2$ are fed into a full unbaffled 5" solid bowl centrifuge, i.e., the effluent stream immediately becomes turbid when the slurry is fed into the bowl filled with pure uranyl nitrate solution. However, optically clear effluents can be obtained if a perforated baffled plate which intercepts the liquid surface is inserted in the centrifuge. For example, a manganese dioxide slurry (26 g MnO_2/l, three to ten times expected plant concentration) was fed into a baffled centrifuge with a 10 minute hold-up time yielding an effluent stream containing only 0.1% of the initial MnO_2. Further, a manganese dioxide slurry (2.6 g MnO_2/l) was fed into the baffled centrifuge bowl with hold-up times as low as two minutes. Even at such high flow rates the manganese dioxide content of the effluent stream was below analytical detection, i.e., $<<$ 0.1% of the initial MnO_2.

Behavior Of Iodine In The Redox Process

Work to date on this problem has concerned head-end treatment of Redox feed. Evolution of iodine during ozone sparging is very low ($<$ 1%) in the presence of 0.06-0.08 M permanganate. Following reduction of the permanganate with chromic

ion, about two-thirds of the iodine is carried by the resulting manganese dioxide while one-third remains in the supernatant. Behavior of the iodine remaining in the supernatant throughout other phases of the Redox process will be investigated next.

Evaporation of IIBP Solutions

A SPRU-IIBP solution (reduced 7.5-fold in volume at KAPL) spiked with plutonium to Hanford level was evaporated to determine the maximum plutonium concentration attainable without solid formation and the associated nitric acid concentration. An additional 45-fold volume reduction by evaporation gave a viscous concentrate having a plutonium concentration of ca. 440 g/l. Slight dilution during removal from the apparatus yielded a solution having a freezing point near room temperature as indicated by its partial solidification upon standing. The composition of this final solution was about 350 g Pu/l, 8-9 M HNO_3, 64 g U/l, 12 g Al/l, 35 g Cr/l, 9 g Fe/l and 1.4 g Ni/l. Dilution of this solution, e.g., to ca. 50 g Pu/l, would reduce the nitric acid concentration to a level which normally gives low plutonium losses in either the plutonium peroxide or oxalate precipitation.

234-5 Coupling Studies - Plutonium Peroxide

A plutonium peroxide precipitation has been carried out using diluted AT material and in the presence of aluminum to simulate concentrated Redox feed. The AT solution before peroxide addition contained ca. 75 g Pu/l, 2 M HNO_3, 0.16 M $Al(NO_3)_3$, ca. 0.005 M $Fe(NO_3)_3$, 0.15 M $(NH_4)_2SO_4$ and enough ammonium sulfite to reduce any Pu(VI) to Pu(IV). One volume of 30% hydrogen peroxide was then added to two volumes of the AT solution. The aluminum content of the thoroughly washed plutonium peroxide precipitate was found spectrographically to be 50 ppm which is well below tolerance.

Two plutonium peroxide precipitations were carried out using a partially concentrated SPRU-IIBP solution spiked with AT solution to produce a solution about 10 g Pu/l, 5.8 M HNO_3, 0.35 g Al/l, 1.8 g UNH/l, 0.25 g Fe/l and 1.04 g Cr/l. Ammonium sulfate was added to 0.25 M, and plutonium peroxide precipitated from this solution as is and after reducing its acidity to 2 M. In both cases the peroxide precipitate contained only 20 ppm of aluminum. Both plutonium peroxides had aluminum and corrosion products contents below tolerance.

234-5 Coupling Studies - Plutonium(IV) Oxalate

The precipitation of Pu(IV) oxalate from AT solution requires that the Pu(VI) normally present (ca. 40%) be reduced to Pu(IV). The rate of reduction of Pu(VI) by oxalic acid has been found to be too slow even at 90°C. However, iron wire rapidly reduces Pu(IV) and Pu(VI) to Pu(III), and once the iron is removed and the solution heated, plutonium(III) and ferrous iron are oxidized to plutonium(IV) and ferric iron, respectively. The addition of oxalic acid precipitates Pu(IV) oxalate and low solubilities are obtained, viz., 0.064 g Pu/l at 0.34 M $H_2C_2O_4$ and 0.42 M HNO_3; 0.092 g Pu/l at 0.37 M $H_2C_2O_4$ and 0.38 M HNO_3. The impurity content of the solids remains to be investigated.

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Redox Coupling Studies - Plutonium(III) Sulfate

Plutonium(III) sulfate has proven extremely difficult to precipitate from AT solution although it can be easily precipitated from pure plutonium stock solutions. The impurities in AT solution responsible for this effect are under investigation.

Recycle of Slag and Crucible To The Bismuth Phosphate Process

Experiments simulating the recycle of 30 grams of plutonium in slag and crucible solution (Los Alamos type dissolution) to the bismuth phosphate by-product precipitation step in the 224 Building indicate that:

1. The bismuth phosphate precipitation was incomplete. The volume of the precipitate obtained was approximately one-third the size of the precipitate prepared in the absence of recycle material.

2. The succeeding by-product lanthanum fluoride did not precipitate upon adding the prescribed amount of hydrofluoric acid. The addition of a 200% excess of hydrofluoric acid precipitated the lanthanum fluoride which carried 2.7% of the plutonium as compared to a 1.4% loss in the absence of recycle material. However, the plutonium was successfully recovered by reworking the lanthanum fluoride precipitate.

3. The addition of oxalic acid which is used for reducing Pu(VI) to Pu(IV) prior to the lanthanum fluoride product precipitation resulted in the formation of bismuth oxalate which carried 48% of the plutonium.

4. The volume of the lanthanum fluoride product precipitate was about one and one-half times the size of that prepared in the absence of recycle material. The supernatant solution losses in the presence and absence of recycle material were 1.3% and 0.3%, respectively.

5. Separation of calcium, magnesium and aluminum occurred mainly in the lanthanum fluoride product precipitation step. Separation factors for calcium, magnesium and aluminum were 20, 100 and 14, respectively.

The recycle of slag and crucible solution to the bismuth phosphate product precipitation in the second decontamination cycle has been reported previously (HW-20817 and HW-20863). The results of additional experiments show that:

1. Although small amounts of calcium, magnesium and aluminum are carried by the bismuth phosphate precipitate, they did not interfere with the 224 Building concentration operations.

2. The small amounts of calcium, magnesium and aluminum which are carried into the lanthanum fluoride product precipitation step are further separated from plutonium by factors of about 20, 50 and 100, respectively.

It is concluded that the recycle of slag and crucible to the product precipitation step of the second decontamination cycle is feasible. Over-all separation factors

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from calcium, magnesium and aluminum of about 2000 are expected through the concentration building. Recycle of slag and crucible to the lanthanum fluoride product precipitation step may be a satisfactory second choice, particularly if slag and crucible dissolution occurs in the absence of aluminum.

Recovery of Plutonium From Slag And Crucible - Stripping Studies

Hydroxylamine sulfate solution has been found to give satisfactory plutonium stripping recoveries from the organic phase resulting from TBP extractions of slag and crucible solution. However, using this stripping agent requires neutralization of nitric acid in the organic phase before high plutonium recoveries can be realized. Ammonium bifluoride and ammonium sulfite are being investigated as possible alternate stripping agents. Three portions of a partially neutralized 30% TBP-AMSCO solution containing plutonium were stripped three times each (20 minutes per contacting) with one-tenth volumes of 0.02 M $NH_4F \cdot HF$, 0.1 M $(NH_4)_2SO_3$, or 0.1 M $(NH_2OH)_2 \cdot H_2SO_4$; the amount of plutonium left in the organic phases were 37, 9 and 0.1%, respectively. Parallel experiments using unneutralized organic phase are in progress.

Extraction Of Plutonium From F-10-P Solution

Currently isolation and concentration of plutonium from F-10-P solution is accomplished in the 231 Building by means of two peroxide precipitations and an evaporation step. Substitution of a solvent extraction process appears chemically feasible and would present a facility to which slag and crucible and other recovery solutions might readily be recycled.

Preliminary experiments have been concerned with the extraction of plutonium from F-10-P solution into various TBP-AMSCO 125 solutions with and without the addition of aluminum nitrate as a salting agent. When F-10-P solution (2 M HNO_3, 0.5 M La^{+3}, 10 g Pu/l) is contacted with 15, 20 and 30% TBP-AMSCO solutions, plutonium extraction coefficient values of 1.0, 1.4 and 2.0, respectively, are obtained. However, when F-10-P solutions containing ca. 1 M $Al(NO_3)_3$ and 1.4 M HNO_3 are equilibrated with 15, 20 and 30% TBP-AMSCO, extraction coefficient values of 89, 103 and 165, respectively, are obtained. In the experiments using aluminum nitrate salting the second and third extraction coefficients values decreased to about 2 and 0.3, respectively. The abnormal decrease in the extraction coefficients is probably due to the presence of americium. The alpha loss after three extractions in the 1 M $Al(NO_3)_3$ - 30% TBP system was 0.16%. The actual plutonium loss should be considerably lower. It is tentatively concluded that plutonium may be recovered readily from F-10-P solutions by 15-30% TBP in AMSCO when aluminum nitrate is added for salting.

Physical Measurements Of Purex And Metal Recovery Solutions

The solubility of water at 25°C. in TBP-AMSCO 125-90W solutions was measured and found to vary from 63.2 g/l in pure TBP to 0.06 g/l in pure AMSCO. The solubility of water is not directly proportional to the mol fraction of TBP in diluent, e.g., in 15% TBP the solubility is 2.40 g/l, about one-fourth of that predicted by the mol fraction.

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Temperature coefficients of viscosity for various streams in the metal recovery process (HW #3 flowsheet) have been determined over the range of 0 to 60°C. For both aqueous and organic solutions a change in temperature from 25 to 40°C. reduced the viscosity by about 25% and a change from 25 to 60°C. reduced the viscosity by about 50%. Diffusion has roughly the same temperature dependance as viscosity. Thus, if degree of mixing (a function of viscosity) and rate of transfer through a stationary phase (a function of diffusion) can be considered independently then an increase by a factor of four would be obtained in the over-all transfer rate on changing the temperature from 25 to 60°C. This temperature effect is being evaluated by pulse column studies.

Pulse Column Operation At Elevated Temperatures

Previous studies on the stripping of uranium from TBP - AMSCO 125-90W solutions demonstrated a reduction in H.E.T.S. by increasing the operating temperature from 25 to 40°C. The work has been extended to 63 and 75°C. for 12 1/2 and 30% by volume TBP in AMSCO. greatly reduced losses at the elevated temperatures were observed as well as improved coalescence of drops which resulted in increased column throughput and decreased emulsification or entrainment.

These observations were made on a 1" diameter x 17" pulse column with 0.039" diameter holes in fluorothene-stainless steel compound plates and using either the conventional bellows pulse pump or a valve-actuated pulse mechanism. With TBP flowsheet HW #4 conditions and a flow of 500-600 gal/sq ft/hr the waste loss from the valve-actuated column was reduced from 21 g/l UNH at 25°C. to 12 g/l at 40°C. and 3 g/l at 63°C. with H.E.T.S. values of 32", 21" and 13", respectively. With Purex flowsheet conditions (ORNL #2) at 500 gal/sq ft/hr the losses dropped from 65 g/l UNH at 25°C. to 11 g/l at 75°C. with H.E.T.S. values of 15" and 3.5", respectively.

Purex Decontamination Studies

Extraction and scrub studies simulating Purex IA conditions were made using dissolver solution obtained from 44-day cooled slugs. Essentially identical results were obtained in runs in which Shell Spray Base and AMSCO-125 were used as diluents.

Decontamination factors through an extraction and three scrubs of untreated feed were 1.3×10^5, 1×10^4, 1.7×10^5 for gross beta, gross gamma, ruthenium and zirconium, respectively; values very similar to those previously reported when using dissolver solution of considerably greater age. However, the values for gross beta and gamma decontamination are undoubtedly low since they were not corrected for 6.6 d U^{237}. This nuclide may well account for a large portion of the activity in the final organic phase in these experiments because of the short cooling period. Analytical difficulties presented by U^{237} in these short-cooled materials are not yet resolved.

Ruthenium and zirconium accounted for most of the activity in the organic phase when measured under conditions which minimize the interference of U^{237}.

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Decontamination Of Aged First Cycle Supernatants

Countercurrent batch contacting of first cycle supernatants at 60-80°C. with Attaclay (0.8 g/25 ml at each stage) gave an over-all cesium decontamination factor of about 50 using four contact stages. Comparison with D.F.'s previously obtained in a single contact indicates some decrease in decontamination efficiency per stage as a result of the successive contacts. Plutonium, cerium and strontium decontamination factors over the four stages were 500-1000, greater than 1000 and greater than 50, respectively; residual activity being so low that analytical results were somewhat doubtful.

The effluent Attaclay from the above countercurrent experiments had a settling rate in these supernatants of about 18 in/hr. Ferrous ferrocyanide, previously reported a very good general scavenging agent for these supernatants, had a settling rate of about 6 in/hr when precipitated at pH 6. Addition of 0.1% Aerosol AM increased the settling rate by a factor of about four.

234-5 PROCESS DEVELOPMENT

Reduction of the amount of oxalic acid in the combined supernate and wash solutions resulting from purification by plutonium oxalate precipitation to 40 per cent of the quantity prescribed by the present flowsheet was demonstrated in laboratory studies. The oxalate concentration during precipitation was reduced to 75 per cent of the flowsheet concentration without significant differences in Pu concentration in the supernate. Precipitate washes were made with 0.1 Molar HNO_3 vs. 0.1 M HNO_3 - 0.1 M $H_2C_2O_4$ solution specified by the flowsheet. The final wash solution was changed to 0.02 M HNO_3 vs. water specified by the flowsheet in order to reduce peptization of the plutonium(III) oxalate. The tests will be repeated with 231 Building AT solutions and in sufficient quantity to evaluate the purity based on the analysis of a metallic button.

Two more runs were made employing F-10-P (224 Bldg. product solution) as the starting material for a two-cycle peroxide purification procedure. Each precipitate was collected on a separate filter to prevent recontamination. Analytical results from samples of the precipitate button and button solution are being obtained. A 5.0 gm sample of plutonium(III) fluoride was prepared by the low temperature (~ 250°C.) hydrofluorination of plutonium(III) oxalate and reduced to metal with a 85.7 per cent yield. The iodine charged in the Reduction step was increased to 1/3 mol/mol of plutonium vs. 1/4 mol/mol of plutonium when reduced to plutonium(IV) fluoride.

The oxidation and dissolution of metallic plutonium in dilute (0.5 M) or concentrated (60 per cent) nitric acid does not appear to be catalyzed by mercury.

Four oxidants, hydrogen peroxide, potassium permanganate, sodium dichromate, and sodium bismuthate were investigated as agents for the destruction of oxalic acid and the oxidation of iodide to iodine in the supernate solution from the precipitation of plutonium oxalate in 234 building. The addition of the stoichiometrical amount of hydrogen peroxide results in the complete oxidation and removal of iodide as iodine and destruction of 75 per cent of the oxalic acid following

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evaporation to 30 per cent of the original volume. Greater than stoichiometrical quantities of hydrogen peroxide decrease the residual amount of oxalic acid remaining after boil down but this condition also leads to the formation of iodate if all of the oxalic acid is destroyed. A procedure based upon the use of hydrogen peroxide in an amount sufficient to oxidize all of the iodide to iodine plus partial destruction of the oxalic acid appears to be the most promising. The unreacted oxalic acid can be accepted in the 224 Building process since oxalic acid is presently employed to reduce plutonium prior to the product strike in "B" and "E" cells.

Potassium permanganate was effective in immediately oxidizing the oxalic acid at 70-80°C; however, any excess reagent results in the formation of MnO_2 which is objectionable from a mechanical handling standpoint. Sodium dichromate reacts rapidly with the oxalic acid at 20 - 30°C. but there was some difficulty in observing the end point.

234-5 Quality Control

STACK GAS DISPOSAL

The first six months operation of the first silver reactor and Fiberglas assembly installed in the off-gas line of 4-5L dissolver at B Plant have not resulted in any detectable changes in the filter efficiency, iodine removal efficiency, or frictional pressure drop characteristics of the system.

The possible substitution of lead nitrate for silver nitrate was investigated in an experimental unit. A two-inch diameter bed packed to a depth of 13 inches with lead nitrate impregnated 1/4 inch Beryl saddles operated at a temperature of 220°C. and a superficial vapor velocity of 90 ft/min resulted in 80 per cent removal of iodine. Under similar conditions, except an 8-inch bed depth, silver nitrate impregnated packing gave 99.9+ per cent removal. This concludes the evaluation of lead nitrate.

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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	
F. R. Roesinger	Metering Pump (Regenerative Turbine Type)
C. G. McCormack and W. E. Roake	Centrifuge Baffle Plate Design

R. B. Richards by [illegible]
R. B. Richards
Separations Technology Division

Date: 5-1-51

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ANALYTICAL DIVISION

APRIL 1951

VISITORS & BUSINESS TRIPS

A. F. Gebhart, of the Consolidated Engineering Corp., Pasadena, California, spent March 27-29 making a routine inspection and adjustment of the Consolidated-Nier Mass Spectrometer located in 108-B Bldg., 100 B Area.

Business trips of Analytical Division personnel were as follows:

E. P. Galbraith spent April 2-3 at the University of Arizona, April 5-6 at Brigham Young University and April 7 at Utah State College recruiting technical personnel.

M. B. Leboeuf spent April 2-5 attending the American Chemical Society Meeting in Boston, Mass. and April 6-7 at the Knolls Atomic Power Laboratory, Schenectady, discussing vacuum combustion analyses.

C. R. McCully spent April 9-10 at the Consolidated Engineering Corp., Pasadena, California, discussing mass spectrometers for uranium isotope determination; April 10 at Aerojet Engineering Co., Azusa, California, inspecting the General Electric mass spectrometer; April 11-15 at Los Alamos Scientific Laboratory, Los Alamos, New Mexico, discussing P-10 analyses.

E. W. Christopherson spent April 6 recruiting technical personnel at the College of Puget Sound, Tacoma, Washington.

J. K. Figenshau spent April 5 in Yakima, Washington, giving a talk on Hanford Works laboratory equipment.

ORGANIZATION AND PERSONNEL

Personnel totals in the subdivisions are summarized as follows:

	March 31	April 30
Analytical Service Section	241	258
Analytical Research Section	45	35
Administrative	3	3
Division Totals	289	296

Effective April 15, the responsibility for the operation of the P-10 Control Laboratory was transferred from the Analytical Research Section to the Analytical Service Section. One supervisor, three exempt and two non-exempt chemists,

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and three laboratory assistants engaged in this work were similarly transferred.

ANALYTICAL SERVICE

Work Volume Statistics

The following tabulation shows the source and volume statistics for samples on which analyses were completed. Statistics for P-10 analyses are included for the first time.

	March		April	
	Samples	Determinations	Samples	Determinations
Process Control - 200	4,752	9,678	5,504	11,878
Process Control - 300	469	1,044	538	971
Water Control - 100, 700	767	3,015	955	3,555
Research & Dev. Programs	1,791	3,265	2,748	4,910
P-10 Control	--	--	225	2,025
Process Reagents	2,101	2,425	2,388	2,850
Essential Materials	192	615	216	811
Special Samples	658	6,924	684	6,324
Totals	10,730	26,966	13,258	33,324

The major causes for the increases in Process Control - 200 and Process Reagents work volumes were: (1) an increase in production of ca. 12%; (2) Production Test 221-B-10 (Bismuth and Volume Reduction) which led to an increased number of cake solution samples received in an undissolved state, thereby, necessitating many resamples; (3) study of the plutonium hold-up in the Nutsche filters in the 231 Building which required many special analyses. The training program, being conducted by the Chemical Development Section, has also caused a large increase in the analytical load in support of research and development programs.

100 Areas Water Control

Colorimetric aluminum determinations, sensitive to five parts per billion, were made on process inlet and outlet waters from the 105-H Building. These determinations showed a pick-up of five to ten parts per billion aluminum by the water as it passed through the tubes. The analyses were made at the request of the Pile Engineering Section for use in their studies of corrosion of slugs and tubes in the piles.

Recent erratic results in the analysis of Naval Reactor (P-13) Project water for nickel content in the parts per billion range led to a critical study of the colorimetric dimethylglyoxime method being used. It was found that the degree of alkalinity had to be carefully controlled, that the alcoholic dimethylgloxime had to be mixed gently when added during the analysis to prevent the formation of a cloudy precipitate, and that heating above room temperature destroyed the color development with such low concentrations of nickel.

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Difficulties with the colorimetric magnesium analysis led to an investigation which disclosed that the solid reagent titan yellow deteriorated with age or on exposure to light. A new bottle of reagent eliminated the trouble.

One-hundred and five river water samples were received from the H. I. Development Group for determination of iron and turbidity. The analytical work was completed without incident.

200 Areas Control

Two minor time saving (18 hrs/month) changes have been made in these laboratories. First, the procedure for the analysis of the extraction waste solution (7(8)-3-WS(2)) has been revised whereby the hydroxylamine reductant is added to the flask from which aliquots are taken instead of to the individual cones. Second, the 40% sodium nitrite Process Reagent sample at the 231 Building was discontinued with the adoption of the peroxide heat kill (Production Test 231-11).

All of the 116 leaches made of the Nutsche (N-1) filters at the 231 Building during a special leaching program indicated excessive plutonium hold-up. In assistance to this problem, a check on the completeness of the LaF_3 metathesis with hydroxide was made by analyzing a series of six metathesized slurry solutions (B-4-PS) for potassium hydroxide. Laboratory results indicated metathesis was complete.

Because of the rupture of two mica windows during operation and consistently low results with replacement windows, the low geometry vacuum (ASVP) counters at the 231 Building laboratory have been removed from service. The standard (ASP) counters will be used on all samples pending the installation of a new vacuum chamber attachment. Use of the standard counters will necessitate secondary dilutions in the radio-assay of AT samples.

In an effort to determine the possible source of high lanthanum impurity in the Cast Metal from the 234-5 Process, twenty-five AT samples (231 Building final solution) were analyzed spectrographically for lanthanum. Results obtained were in the range of 1,000 to 10,000 ppm with an average of 4,000 ppm. These are in line with previous spectrographic results obtained on P-4 samples (234-5 Building starting solution). It was thus concluded that the high lanthanum impurity was not due to any recent increase in lanthanum carry-over from the Separations Process.

A satisfactory spectrographic method for the determination of titanium in concentrated oxalate supernate (SN-3) samples has been developed and placed in use in the 234-5 Building laboratory. A spectrophotometric method for the determination of silicon in those samples has also been put into use.

Approximately one man-week was expended at the 234-5 Building Laboratory in attempting to dissolve the gelatinous, semi-solid precipitate which appeared in three samples received from Critical Mass Studies (P-11). A small amount of precipitate remained in each sample even after treatment with nitric acid and permanganate, and necessitated abandonment of many of the analyses originally planned.

Analytical Division

300 Area Control and Special Services

Effective April 15, regular Saturday service was established in support of the 300 Area P Division operations which went on a six-day week.

The analysis of standard samples of uranium metal and uranium oxide, received from the Bureau of Standards Laboratory, New Brunswick, N. J., were completed without incident. Carbon in uranium metal was determined by the standard combustion-gravimetric and the new combustion-volumetric methods with excellent agreement (374 ppm vs 365 ppm respectively). It is anticipated that the combustion-volumetric method can be used in the future, with certain equipment variations, and save about 50% in analytical time. It was found that the main cause for the variation in duplicate samples was due to minor temperature fluctuations; consequently water taps were sealed into the gas buret jacket to effect constant temperature control.

A special aluminum-silicon alloy sample received from Alcoa by the Metallurgy Section was submitted for analysis of some eleven elements by the wet chemical procedures used in these laboratories. The same sample will be analyzed by Alcoa and these data then used to correlate previous corrosion study results wherein the two sites did not agree on the original composition of the aluminum.

A sample of molybdenum-silicon alloy received from Fansteel Company and submitted by the Electrical Division was subjected to chloride flux corrosion. After one week at 750°C. with pieces submerged in the molten flux and other pieces supported above the molten flux, no drastic corrosion was noted. Surface discoloration and slight scaling was the only effect noticed. Investigation of various types of corrosion resistant alloys are being undertaken by the Electrical Division in order to find an alloy which will replace the nichrome heating elements in the bronze pot used in the "Triple Dip" Canning Process.

In support of the Chemical Research Section's studies to determine the distribution coefficients of bismuth and uranium between aqueous and 12% TBP-CCl_4 phases, several samples were analyzed for bismuth. This was determined in the organic phase by a spectrographic method and in the aqueous phase by chromous sulfate titration using a potentiometric end point. Chromous sulfate reduces Bi^{+++} quantitatively to Bi° in the absence of nitrate ion which is removed with formic acid. Other studies concerning elevated temperature effects on columns in the Metal Recovery and Purex systems have resulted in numerous samples of aqueous and non-aqueous streams to be analyzed for UNH. Another investigation concerned the stability of dibutyl ethyl phosphate, diethyl butyl phosphate and tributyl phosphate, with temperature and type of diluent as principal variables. The decomposition is being followed by measuring the free phosphate ion formed; consequently, some 15-20 samples per day are being submitted for $PO_4^{\equiv}$ determination.

Chemical Development Service Laboratory

Analytical control operations continued on a routine basis during the month of April.

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Using tracer solutions, radiochemical analyses for fission products were performed during the month employing the methods developed by the Analytical Research Section. This work served to test the methods for future routine control application in the 222-S Bldg. and also to train personnel. Methods requiring further modifications have been returned to the Analytical Research Section and those that are ready for use will be incorporated in the forthcoming Redox and TBP Methods Analytical Manual. The following table summarizes the status of each method:

FP	METHOD	CODE	AVERAGE CHEMICAL YIELD	STATUS
Zr	Barium Fluozirconate	RZr-1	52.1%	Further modifications necessary.
Zr	TTA Extraction	RZr-2	----	Procedure not issued.
Nb	Potassium Bromate	RNb-1	18.1%	Further modifications necessary.
Sr	Fuming Nitric Acid	RSr-1	85.7%	Ready for use.
I	Continuous Extraction	RI-1	80.0%	Ready for use.
Ce	Oxalate-Iodate	RCe-1	54.6%	Ready for use.
Cs	Chloroplatinic Acid	RCs-1	71.5%	Ready for use.
Ru	Direct Reduction	RRu-1	112.5%	Ready for use.
Np	TTA Extraction	RNp-1	----	No work performed. Ready for use.
Am-Cm	Cerium Fluoride	CA-19a	100.%	Routinely used in 200 Area.

During the past three months, ten synthetic TBP stream samples (RAFS) were submitted to the Chemical Development Service Laboratory by the Analytical Research Section. A summary of the analytical results is reported below and indicates that the methods employed are in a reasonable state of control. The greatest improvement over a similar test made last fall was noted in the UNH and nitric acid determinations.

Constituent	Method	Concentration (g/l)	Found (g/l)
UNH	x-ray absorption	95.0	95.9 ± 1.0
SO_4	volumetric	15.5	15.4 ± 1.6
PO_4	volumetric	15.5	16.2 ± 1.8
Na	colorimetric	60.0	55.8 ± 7.0
NO_3	vac. dist.	296.3	289.4 ± 6.7
HNO_3	potentiometric	155.6	154.8 ± 3.4

P-10 Control

The operating manual for the mass spectrometer is being revised to incorporate improved techniques and procedure changes which have been initiated during the past month.

A series of mass spectrometer analyses are being made to assist the Analytical Research Section in their evaluation of the rates of exchange of tritium with Apiezon N, Apiezon W, and fluorothene wax. This test will show which of these

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materials, used on the glass stopcocks, are least likely to contaminate the tritium gas in samples and in the production lines.

A charcoal trap is being installed on the mass spectrometer manifold to replace the palladium bed used to trap the tritium from spent samples. It was decided to make this change when the operating groups found that overheating of the palladium bed stopcock while evolving tritium from the bed caused air contamination of the product.

Methods Control Group

Studies of Analytical Precision and Accuracy

To evaluate the precision and accuracy of the radiochemical analyses used as a basis for the calculation of material balance and yield in the plant operation report (S Division Summary of Plant Results), standardized synthetic solutions similar to 6-3-MR and AT were analyzed by personnel of the 222-B, 222-T and 231 laboratories. The pure plutonium nitrate solution used for the preparation of the synthetic solutions was standardized on a radiochemical basis (d/m/ml) using reference instrument ASVP-1 in Building 3706, to a precision of ± 0.2%. Results obtained by the service laboratories are given below:

	Standard Pu Solution		Synthetic 6-3-MR	
	231 (ASVP)	231 (ASP)	222-T (ASP)	222-B (ASP)
% Average Recovery	101.2	102.2	100.0	100.3
Source of Error	% Precision			
Chemists	1.38	---	1.54	(0.48)
Disc Preparation & Counting	0.90	1.43	1.86	2.04
Dilution Preparation	---	2.88	----	(0.62)
Total Reported Answer	1.65	3.21	2.41	2.19
Number of Analysts	16	10	24	16

Figures in () obtained by subtraction of the two variances that are not significantly different and are therefore not significant, i.e., not a valid estimate of the error.

The high recoveries obtained in Building 231 were investigated, but no assignable causes were found. The ASVP counter used in the test was taken out of service due to equipment failure before a cross check of its geometry with that of the ASVP counter in Building 3706 could be made. A check of the geometry of the ASP instruments in the 231 Building indicated these instruments were counting at a geometry of 50.38% instead of 50.5%. This condition was corrected, but since the error is in the opposite direction it fails to explain the abnormally high recovery. The high 231 Bldg. work load resulting from flushing of the Nutsche filter prevented repetition of the test. As soon as the work load permits, the test will be repeated with another plutonium standard. Both the average recovery and precision of reported answer indicate the analysis of the 6-3-MR solution for total alpha count is in satisfactory control.

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To evaluate the precision and accuracy of the potentiometric titration of the AT solution, a primary standard was prepared by dissolution of 4.5 grams of high purity (99.7%) plutonium metal with hydrochloric acid and subsequent conversion to nitrate by heating with nitric acid. This solution was aliquoted by weight into 10 volumetric flasks and will be used for investigations of both chemical and radiochemical methods for determination of plutonium. Since the specific activity of the plutonium metal is not accurately known, this constant will be obtained by radiochemical analysis using the ASVP in Building 3706 and substantiated by isotopic analysis by the Analytical Research Section.

An evaluation of the fluorimetric method for the determination of chemical 70-58 in plutonium metal established that at the 99% confidence level an individual determination was within ± 8% of the true value. The overall average of a total of 32 analyses performed by four analysts was within 0.4% of the nominal value, which is within the precision of this test. The main source of error was due to instrument fluctuations and the precision may be improved, if required, at the expense of additional analytical time.

The precision and accuracy of the X-Ray photometric determination of uranium in metal oxides was measured by analysis, in duplicate, of 10 samples of billet oxide (99.95% purity) by personnel of the 300 Area Control and Physical Testing Laboratory. No significant error was found either between chemists of between samples within chemists, most of the errors being between instrumental readings. The precision of the reported answer (average of duplicates) is ± 0.48%. Using a graph relating mils of aluminum absorber an average recovery 0.45% low was obtained. To eliminate this bias and a possible error in reading the graph a linear equation was fitted to the data, permitting direct calculation of the % uranium from observed equivalent mils of aluminum.

The chromous sulfate potentiometric titration of uranium has been used by the Chemical Research Service Laboratory for over a year with little apparent difficulty. This method is rapid and requires a minimum of training time, and is scheduled for use in control of the Redox process. A previous study indicated the precision for duplicate determinations was ± 0.93%; however, in view of a high percentage of reruns, 37.5%, made this estimation of the precision of the method has been regarded as questionable and the method has been re-evaluated. The present study indicates the precision of the average of duplicates to be ± 8.4% and the results, on the average, 3.5% high. The primary source of the lack of precision appears to be a large day to day fluctuation. Standardization of the titrant may be responsible. Also, an increase in sample size to use approximately 50% instead of 25% of the burette volume may improve the precision.

A sampling study of the E-4-RC tank, used for adding recycle in the $BiPO_4$ Process, indicated the variation of plutonium analysis due to sampling is ± 3.43% at the 99% confidence level. The precision was calculated after elimination of one set of samples having excessive sampling error. A material balance study incorporated in the same test program showed that the amount of plutonium recycled as calculated from the analysis of the samples taken from the E-4-RC tank agreed with the calculated additions based on the analyses of the material added to the E4 tank (CTLR from Building 231) within 0.4% except in two instances where greater than normal variation was noticed. In view of the sampling error at the E-4-RC tank, it would seem feasible to calculate the plutonium recycled

from prior analysis of material added to that tank. This proposal was rejected because occasional gross errors, as experienced in the test, would give misleading information on waste losses, transfers, etc.

Review of Analytical Methods and Techniques

A review of the analytical techniques employed in the potentiometric titration of plutonium in the AT sample failed to indicate any deviation from standard procedure that would be expected to result in serious loss or lack of precision. Several minor deviations were noticed; the one appearing most serious was the rate of addition of the standard ceric titrant. A test of the error caused by too rapid an addition indicated the error was less than 0.1% at a rate of 4 seconds per cm. (30 lambda per cm. of burette) increasing to 0.65% at a rate of 1.3 seconds per cm. The individual results of each chemist are being tabulated and will be statistically analyzed in an attempt to locate possible variations and individual biases.

The spectrophotometric method for the determination of micro amounts of fluoride in plutonium metal has at times been erratic. The fault is believed to be due to color developing reagent, the zirconium salt of p-dimethylaminazophenylarsonic acid. The present supply of this reagent is limited and attempts to prepare a new batch have not as yet been successful. As soon as a satisfactory batch is prepared for present operation, the feasibility of replacing this method with fluorimetric method using aluminum-morin reagent will be studied.

New or Revised Methods

Before recycle of the concentrated oxalate supernate (SN-3) from the Metal Fabrication Process to the $BiPO_4$ Process can be made, the amount of silica in the solution must be determined. Since the solution contains a considerable amount of nitrate, spectrographic assay is not possible without preliminary research to develop a method to eliminate or circumvent the interference of nitrates on the copper electrodes. The spectrophotometric method utilizing the intense blue color of the reduction of the silico molybdate complex appears to be applicable to this determination. The personnel of the 234-5 Bldg. laboratory were instructed in this method. A review of the analytical results obtained to date indicates satisfactory precision for duplicate analyses of the same sample but widely varying recoveries of a known amount of silica added to the samples. The cause of this variation is being studied further.

The falling drop apparatus for the determination of the specific gravity of highly radioactive process solutions was installed in the 222-B Bldg. laboratory and personnel of this laboratory are being trained in the use of the equipment. Present plans are to determine the specific gravity of the 6-3-MR solution first, then extend the calibration to cover all samples from the present Separation Process too active to be measured by a pycnometer.

New Equipment and Techniques

Two types of magnetic stirrers, capable of simultaneously stirring a large number of samples, have been devised and tested which use iron wire sealed in quartz or pyrex as the stirring element. The standard magnetic stirring elements are

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almost unavailable.

A suggestion to replace platinum with plastic stirring wires was investigated and found to be an improvement. Adoption will be withheld until the feasibility of replacing all mechanical stirring with magnetic stirring has been studied.

The use of a commercial product, Radiacwash, was tested for use in decontamination of doorstops, bayonets and bayonet insert sample containers and fluorimetric dishes. This compound was not as effective as concentrated nitric acid in removing plutonium contamination but was superior in removal of beta and gamma activity and in removing uranium from fluorimeter dishes. Since this solution is less expensive than nitric acid, as well as less hazardous, it is recommended for use wherever possible.

Counting and Chemical Standards

A new counting instrument (ASP and ASVP) control program was instituted April 16. This program is designed to decrease the possibility of errors in radiochemical determinations of plutonium due to the use of improperly operating instruments. A comprehensive statistical control will be maintained on the geometry of the instruments and the standard discs used for the determination of the geometry will be recalibrated each week.

An attempt to apply the equation derived for the calculation of the geometry of the ASVP type instrument to the BGO (Beta-Gamma Offner Sealers) type revealed the derivation was apparently based on some assumptions that did not apply to the physical dimensions of the BGO. Due to the complexity of the integration of the general equation it is impractical to make a manual computation. The expense of using the I.B.M. Computer is being investigated and, if economically feasible, the necessary computations will be made by this method.

Special Hazards Control

Three Special Hazards Incidents were formally investigated. Two occurred in the 300 Area and involved possible overexposure to the chemist's hands. The cause was ascribed to be faulty techniques and lack of planning in the handling of radioactive materials. The other incident occurred in the 222-B Laboratory and involved possible plutonium ingestion. The main source of difficulty here was a lack of follow-up of radiation control regulations. All recommendations arising from the investigations have been met through a review of procedures, ordering of special equipment and new instructions.

All material for Project M-772 (Improved Decontamination Facilities - Buildings 222-T and 222-B) has been procured and is on the plant site. Construction of the new Decontamination Sink Enclosures has been started. Present schedules indicate that the installation of the new facilities will be accomplished during the first week of June in the 222-B Building and during the second week of June in the 222-T Building.

A suspense code (T-440) was set up for the construction of a new dry waste crib for the 222-T Building. The estimated total cost of this installation is set at $6,000. This expenditure was approved by the Appropriations and Budget

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Committee on April 24, 1951. All materials are scheduled for delivery by rail direct to the construction site during the first week of May. The sinking of the crib is scheduled to start immediately upon arrival of the materials.

ANALYTICAL RESEARCH

Radiochemical Methods (RDA #TC-1)

Consideration of methods for determining fission product beta and gamma activities in recovered UO_3 shows that provision must be made for the presence of U^{237} and for the build-up of uranium daughter activities. In the analysis of one dissolver solution it was found that the U^{237} content was considerably less than expected, but was sufficiently high to invalidate fission product determinations by direct beta and gamma counting. In a discussion among representatives of the H.I. Development Division, Separations Technology Division, and the Analytical Division, tentative agreement was obtained on a proposal to analyze UNH effluents from the Redox and Metal Recovery Plants rather than the later oxide material per se and thus both minimize the interference of uranium daughter activities in the analytical determination and provide a basis for controlling the introduction of over-specification material into the Oxide Process. It was further agreed that it would be necessary to develop and apply a method to separate fission products from U^{237} in samples from the Redox Process.

Analysis of one Bismuth Phosphate run has shown the following distribution of the americium-curium originally in the dissolver solution: 7-3-WS, 96%; 7-3-WS2, 75.8%; combined 7-4-P after rework, 23.5%; 19-4-P, 1.3%. On an alpha count basis, 30% recovery was obtained by the rework; however, plutonium was responsible for only half of this recovered count. Further data, currently being obtained, are needed before any generalized conclusions as to the distribution of americium-curium may be drawn.

A total of ten AT samples of MWD levels between 55 and 605 have been analyzed by spontaneous fission counting for Pu^{240}. A fair relationship was obtained between the power level and the Pu^{240} content, although some scattering is observed. The results are about 10-20% less than those calculated by the Pile Physics Section, but do tend to support the new isotope correction curve proposed by the Analytical Division. The newly installed Fairstein alpha pulse analyzer has proven to be very stable. Minor adjustments have improved the resolution such that a half width of 65 Kev is obtained; this is two to three times better than obtained with the previous instrument.

Spectrochemical Methods (RDA #TC-2)

The use of metal sampling bulbs in P-10 production line operations has placed high priority on the development of a device for withdrawing samples from such bulbs for mass spectrometric analyses. An initial device opened the capsule by crushing but was unsatisfactory because of the high volume into which the sample was released and because the sample was subject to impurity pick-up by contact with the outside surface of the capsule. A second device using a self-sealing hollow needle to puncture the capsule appeared to be satisfactory in crude

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preliminary tests. An improved model has been constructed and appears to work very satisfactorily. An additional unit incorporating several improvements is being constructed.

Continuing work on P-10 in-line sampling techniques has included study of a capillary leak that would be attached on one end to the process line and on the other end to a copper tube that would conduct the sample to the mass spectrometer. Previous work indicated no difficulty from background and delay time. Additional work has shown that the sample pressure may vary within ± 50% of the value for which a particular leak was tailored, but that constant pressure must be maintained during the analysis. Encouraging results have been obtained with an adjustable leak that has the advantage of allowing sampling of gas of any reasonable initial pressure.

A new metal manifold has been installed for handling mass spectrometer samples. It has the advantages of smaller size, stopcock elimination, and ruggedness. The initial tests showed faulty construction, resulting in leaks.

Tests under controlled conditions show that there is an interchange between tritium and the hydrogen present in grease and wax. The rate of exchange is proportional to the area of grease exposed and not to the quantity, but is sufficiently small that under ideal conditions, for limited periods of time, a negligible loss of tritium occurs in a sample retained in a bulb with stopcock closure.

Repeated analyses of high deuterium-hydrogen binary mixtures with the emission spectrometer show that the former can be determined with the precision of ± 0.2% at the 99% precision level. Modification of the sampling line and the procedure to reduce sample consumption led to the observation that the intensity of the excited lines is related not only to the sample pressure but also to the flow rate. As a consequence, a new set of operating conditions has been developed.

Repeated application by control personnel of the revised cupferron-copper spark spectrographic procedure for the determination of trace impurities in plutonium metal has shown the method to offer considerably improved precision. With the old procedure there were frequent cases of five- or six-fold variation between duplicates. With the new procedure all results agree within a factor of two. Development is nearly complete on a spectrographic procedure for determining lithium in solutions of 0.1 - 1 g/l lithium and about 40 g/l plutonium which are employed in critical mass measurements. Using barium as an internal standard, a precision of ± 10% is obtained for a single determination. Since analyses of greater precision are required, it is proposed to make multiple determinations.

Investigations have continued on a spectrochemical method to replace the conventional electroplating method for the determination of copper in bronze bath. Since chloride offers no interference in the procedure under investigation, aqua regia may be employed to dissolve the sample rapidly. The self-color of copper and the use of various complexing agents have been investigated. The triethanolamine complex appears to be most satisfactory and to yield results having a relative precision of about 1%.

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Infrared absorption techniques have been applied to the determination of the purity of hydrocarbon diluents for solvent extraction. Amsco solvent 149-92 BR was found to contain about 10% aromatics, which are mostly alkyl-substituted derivatives of benzene and naphthalene. Stoddard Solvent was found to contain 1% aromatics. The procedure is rapid and has the advantage of indicating the nature of the impurity. To support Chemical Research Section studies, a group or samples has been analyzed for alkyl phosphate degradation products, employing newly developed spectrochemical absorption procedures, and other samples have been analyzed for total manganese in solutions used in critical mass studies.

Since the use of small, constant volume cells for x-ray absorption determinations of uranium and plutonium offers advantages of speed, precision, and convenience, effort has been made to expedite receipt of such sample cells. One manufacturer is sending four types of glass cells for tests, and plans have been completed to test plastic cells prepared on-site.

Electrochemical Methods (RDA #TC-3)

Minor difficulties encountered in the continuing investigation of coulometric methods for the determination of uranium included poor temperature control during titration, unsatisfactory operation of the calomel electrode at an elevated temperature, and high blanks. Installation of a new automatic temperature control unit eliminated the first problem. Embedding the calomel electrode in a reference solution separation from the sample by a silica gel plug effected considerable improvement in its response. The high blanks were found to result from impurities in the distilled water supply. Precision tests have shown that the instrument operates in a satisfactory manner, and it is planned to repeat analyses of a group of J-slug solutions that had been prepared for the purpose of calibrating the Test Pile.

Conventional Chemical Methods (RDA #TC-4)

To develop more sensitive and accurate procedures for the determination of trace impurities in uranium and plutonium, investigation of a zirconium phosphate column adsorption technique has continued. A solution of uranium was spiked with 1000 ppm of 23 different metals and passed through such a column; analyses of effluent fractions proved that essentially all of the impurity additions were eluted before uranium appeared. It was observed that two bands of uranium formed in the column, one was strongly held at the top while the other was more easily eluted. Increasing the pH of the eluting solution increased the fraction of the strongly held portion, but no pre-treatment methods were found that would increase this fraction beyond about 50%.

Apparatus is under construction for preparation of moderately large quantities of standard carbon monoxide-carbon dioxide mixtures to be used to calibrate Pile Technology Division infrared spectrometers, employed for analyses of gas mixtures obtained in in-pile graphite reaction studies. A cost estimate has been obtained, and a Work Order initiated for preparation of a gas laboratory in Building 3706 to house this and other apparatus. A chemist has been assigned to development of gas analysis methods, and necessary equipment has been placed on order.

Analytical Division [redacted]

The standard sample program conducted to evaluate and support Analytical Service Section routine analyses has continued and is reported in the monthly report of that Section.

Miscellaneous

The large plutonium holdup on Nutsche filters in the 231 Building is under investigation. A determination of americium-curium in the filter leach suggests that plutonium has been retained for a considerable period of time. To estimate this hold-up period more definitely, additional samples have been taken for the determination of Pu^{240}. Examination of moderately large volumes of the F-10-P solutions that are passed through these filters revealed the presence of particulate matter. Analyses of F-10-P and filter effluent solutions for polymeric plutonium (IV) are in progress to find if the presence of this form is responsible for the retention.

INVENTIONS

All Analytical 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 April 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 F. W. Albaugh
F. W. Albaugh, Division Head

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TECHNICAL SERVICES DIVISION

APRIL 1951

VISITORS & BUSINESS TRIPS

There were no off-site visitors during the month.

Business trips of Technical Services Division personnel were as follows:

C. A. Bennett spent April 2-8 attending and presenting a paper at the National Meeting of the American Chemical Society in Boston. On April 12-15 he visited the University of Washington to interview mathematicians.

R. B. Socky spent April 16-18 at the Chas. T. Main Co. offices at Boston, Mass., reviewing design criteria for the Pile Technology Bldg.

W. A. Briggs, J. F. Gifford and E. Hollister visited on April 16-17 the Radiation Laboratory at the University of California, Berkeley, reviewing their latest developments in the field of remote control devices and waste disposal facilities.

ORGANIZATION AND PERSONNEL

Effective April 2, the two Analytical Sections were separated from the Technical Services Division and made to comprise a fourth primary Division in Technical. At the same time, the Information Group and the Statistics Group became the Technical Information Section and the Mathematics Section, respectively.

Personnel totals in the several subdivisions are summarized as follows:

	March 31	April 30
Analytical Service Section	244	—
Analytical Research Section	45	—
Engineering Section	78	78
Technical Information Section	71	74
Mathematics Section	18	21
Administrative	3	3
Division Totals	459	176

ENGINEERING SERVICES

Mechanical Shops (Bldgs. 101 and 3706)

Work volume statistics for the Mechanical Shops are as follows:

Technical Services Division [redacted]

	Customer Division or Program	March No. of Jobs	March Man-Hours	April No. of Jobs	April Man-Hours
Work Done on Jobs Completed	P-10	19	501	22	869
	Pile Tech. (Incl. P-12) (a)	44	740	63	610
	Separations Tech.	17	196	17	164
	Analytical	20	125	34	326
	Technical Services	15	388	19	495
	Other Divisions	4	194	0	0
	Sub-Total	119	2,144	155	2,464
Work Done on Jobs Not Completed	P-10	7	248	6	362
	Pile Tech. (Incl. P-12)	12	68	12	83
	Separations Tech.	10	276	14	161
	Analytical	1	4	2	25
	Technical Services	9	184	4	454
	Other Divisions	2	52	2	56
	Sub-Total	41	832	40	1,141
Total Work Done			2,976		3,605

			Man-Hours To Complete		
Work Backlog:					
Jobs Started	P-10	7	1,484	6	875
	Pile Tech. (Incl. P-12)	12	3,989	12	3,852
	Separations Tech.	10	173	14	125
	Analytical	1	2	2	18
	Technical Services	9	793	4	294
	Other Divisions	2(b)	134	2(b)	68
	Sub-Total	41	6,575	40	5,232
Jobs Not Yet Started	P-10	4	154	5	96
	Pile Tech. (Incl. P-12)	16	345	10	213
	Separations Tech.	4	148	8	145
	Analytical	5	59	8	266
	Technical Services	10	872	6	605
	Other Divisions	0	0	0	0
	Sub-Total	40	1,578	37	1,325
Total Backlog			8,153(c)		6,557(d)

(a) P-12 designates the Exponential Pile Project.
(b) Includes one order that is unestimated because work is of routine nature.
(c) Does not include 215 man-hours transferred to Instrument, 257 man-hours transferred to Maintenance, nor 16 man-hours transferred to Transportation during March.

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(d) Does not include 1,235 man-hours transferred to Instrument nor 1,103 man-hours transferred to Maintenance during April.

Due to high work load factors in support of P-10, Bldg. 222-S equipment, and special Pile Engineering programs, the Technical Shops worked a planned six-day work schedule throughout the month. Instrument and Maintenance Division machining craftsmen worked the same overtime schedule, on jobs cross-ordered from Technical.

Fabrication work is continuing on a spare set of mercury pots for P-10. Fabrication work on a modification of the Los Alamos vacuum bellows valve was completed for use in the P-10 program. Shop work is continuing on the fabrication of a stainless steel stripper line, and a desiccant dryer was fabricated for use in activating silica-gel, both for P-10.

Assistance is continuing in the erection of piles for the P-12 project. A number of specialty items required for P-12 also were fabricated. Work is continuing on the "W" hole mock-up, as well as on the fabrication of specialty items and accessories for use in conjunction with this mock-up. A flow rate recorder for the checking of rate of fall of the vertical safety rods was completed. This instrument checks and measures the variation of rod fall due to the curvature of the graphite opening.

Several jobs for the Pile Engineering Section were processed and cross-ordered to the Maintenance and Instrument Shops. Fabrication work was completed on a sphincter gas seal for this section.

The shop work load in support of the Equipment Design Group and the Analytical Research Section for Bldg. 222-S is continuing. The majority of this work involves the fabrication of handling tongs, accessories for gloved boxes, floor trays, blower brackets, sliding doors and interchange locks. Work is being continued on the second air hoist for the multicurie cell. Two machinists are being employed full time on master-slave manipulators for the multicurie cell. Ten micro fiber-glass filter units were fabricated in the carpenter shop. A tote truck for a lead glass viewer was fabricated.

A large number of small jobs were completed in the Bldg. 3706 Shop, principally in support of Chemical Research, Analytical, and Metallurgy. Fabrication work on a 10-place mixer settler, explosion-proof type, for use in a gloved box was completed during the month. A 0.01 lambda pipetter for the Analytical Service Section was fabricated and has been tested and found mechanically satisfactory.

A Detrex degreaser was received but has not yet been installed.

Glass Shop

Work volume statistics for the Glass Shop (exclusive of P-10 service) are as follows:

	March	April
Jobs Completed		
New	51	53
Repairs	16	15
Revisions	18	9
Total	85	77
Job Backlog	16	9

Development work was completed on the Vibrating Reed Chamber for the H.I. Divisions. Tests by H. I. indicate that a highly satisfactory product has been obtained, and that the life of this instrument will be vastly prolonged through the improved method of sealing the wire in the chamber.

Assistance is continuing in support of the P-10 program at Bldg. 108-B. Three glass blowers are continuing on shift work, and three are lending assistance in development work on glass line installation on days. 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.

One glass blower trainee continued on assignment to the H. I. Biology Division in Bldg. 108-F.

The glass blower training program is beginning to pay dividends, and the apprentice glass blowers are making excellent progress. This progress has been evidenced by the ability of the trainees to fabricate manifold parts for the P-10 program, as well as other smaller parts which are helping considerably in meeting time schedules in connection with this work.

Equipment Design

Work volume statistics for the Equipment Design Group, expressed in man-hours, are summarized as follows:

	March		April	
	Engineering	Drafting & Misc.	Engineering	Drafting & Misc.
Pile Technology				
P-10	16	-	-	-
Physics Section	-	-	4	78
Engineering Section	124	418	121	471
Metallurgy Section	116	14	128	173
Separations Technology				
Chemical Research Section	164	43	118	48
Process Section	111	40	40	66
Analytical Services				
Control Section	122	104	630	361

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	March		April	
	Engineering	Drafting & Misc.	Engineering	Drafting & Misc.
Technical Services Statistics Section	-	-	-	20
Laboratory Equipment Development (RDA #TC-5)	494	580	353	326
Totals	1,147	1,199	1,394	1,543

High work load factors in connection with the completion of designs for the multicurie cells and other special equipment for Bldg. 222-S, as well as for Pile Engineering programs, resulted in a planned six-day work schedule being initiated on April 9 for a number of the engineers and all designers and draftsmen in this Design Group.

The following work was done for the various sections as indicated:

Pile Engineering

Many drawings were made, including a pile test sample container, slug schematics, underwater chuck, beta slug charging, flux meter, pile proposals, tube removal monorail system, W-cooler, thermocouple slug and various graphs.

Pile Physics

Drawings were made of a shield test facility.

Metallurgy

The adaptations of the interferometer to gloved hood operation continued, and additional work was done on the slice and dice boxes and the metallurgical polisher. Various drawings were made of hot metallurgy equipment for projection purposes. One draftsman was placed on direct assignment in Bldg. 3706.

Chemical Research

A reaction vessel with associated tanks and condenser was designed; a shielded waste disposal container was designed. Various drawings were made of a tall gloved box and an air filter.

Chemical Development

Drawings were made of a fifteen-stage counter current extractor, and shop assistance was given in the fabrication of the KAPL miniature extractor.

Analytical Control

Preparation of gloved boxes and junior caves for Bldg. 222-S was underway, as well as work on the organic waste stripper and the 222-B gloved box which is nearly finished. Numerous drawings were made of equipment

pieces.

Mathematics

Format drawings were made for an IBM chart.

Laboratory Equipment Development (RDA #TC-5)

Development continued on the vapor ionization detector, the multicurie cell air hoist, various manipulators and a service panel.

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 complete except for (1) the installation of fume hoods and related work, including balancing of the air system, and (2) the installation of door locks. Since the fume hoods have been delayed until late in May, plans were made for formal acceptance of the building from the subcontractor on May 1, with exceptions. This will allow Technical Divisions occupancy to proceed, and will permit the laboratories to be prepared for operation prior to physical completion.

About 63% of J. Gordon Turnbull "as-built" prints are in the checking process.

Bldg. 219-S, the associated waste neutralization facility, is 93% complete. The chief delaying item is the stainless steel waste tank, which has had a relatively low priority among the Hanford Works items being built by the Willamette Iron & Steel Co.

Radiochemistry Bldg., Proj. C-381

The construction bid invitations on the Radiochemistry Bldg., one of the major facilities in the new Works Laboratory Area, were sent out. The bid opening date is May 29.

Plot Plan & Utilities, Proj. C-394

The preliminary sketches and specifications for these outside service facilities of the Works Laboratory Area were received from the L. S. Rosener Co., and comments and suggested changes have been supplied to the E & C Divisions for transmittal. Preparation of a project proposal covering construction of these facilities was in progress at month end.

Radiometallurgy Bldg., Proj. C-385

The Part II Project Proposal was written covering the construction of this new facility in the Works Laboratory Area, and was forwarded to the A & B Committee. The estimated total project cost for this laboratory is now $1,720,000, of which $124,000 was previously authorized.

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Mechanical Development Bldg., Proj. C-406

The Dix Steel Co. (of Spokane) completed the concrete footings for this building, but erection of the prefabricated steel structure has been temporarily delayed pending arrival of the steel. A.E.C. Directive HW-204, Modification No. 2, was received authorizing the Phase II construction of this building. This work, and much of the design involved, have been submitted to Dix for estimating prior to negotiation of the required extension to their lump-sum subcontract. The target date for occupancy of this building is still September 1.

Pile Technology Bldg., Proj. C-414

A letter request for a Directive modification authorizing a change in scope for this Works Laboratory building to include utilization of an originally unexcavated portion of the basement was sent to the A.E.C. This additional space is required by the Pile Technology Division as a permanent facility for exponential pile experiments (P-12) which will have to be conducted in temporary quarters after vacating Bldg. 101 this fall.

The Chas. T. Main Co. continued to make good progress on the design of the Pile Technology Bldg., and final prints are expected to arrive early in May. A status report of special equipment for this building dated April 20 shows purchasing to be 75% complete. It is expected that the remainder of the equipment will be placed on order within the next two weeks. Directive Modification No. 1 was received from the A.E.C. changing the original Directive HW-212 to allow payment of "Title III Services" by CPFF subcontract.

Library & Files Bldg., Proj. C-421

The first of the preliminary specifications for this facility have been supplied by the Chas. T. Main Co., architect-engineer. These specifications are arriving in sections and the Technical Divisions' comments are being submitted to the E & C Divisions promptly for retransmittal to the A-E.

Laboratory Services

300 Area (Bldg. 3706)

Normal Bldg. 3706 services continued routinely. Material control, stockroom and work order activity is summarized as follows:

	March	April
Purchase Requisitions		
Total number processed	61	63
Number requiring special expediting	14	14
Number requiring emergency handling	0	2
Stores Stock Requests Processed	0	0
Store Orders		
Total number processed	775	887
Number requiring emergency pick-ups and deliveries	5	9

	March	April
Work Orders Processed	47	59

Replacement of the dry filters of Bldg. 3706 air supply units was completed. Results of H. I. Operations survey indicated a slight beta and gamma contamination on all units, which was expected because of the increase in radiochemical work being carried on in unfiltered fume hood units. It is planned to check filter surfaces routinely to determine, if possible, the rate and source of contamination.

A work order was issued for the conversion of Room 59, Bldg. 3706, to a standard gas laboratory according to the specifications of the Analytical Research Section.

The 3706-321 Area was reclassified from "exclusion" to "limited" status on April 11 at 12:01 A.M. Immediate advantage of free access to the building via alternate gates was gained by shop personnel working out of the Instrument, Electrical and Maintenance buildings. Employees assigned to Bldg. 3706 are committed to challenge all strangers entering their work areas.

The project proposal covering design and construction of a Solvent Bldg. to be located just east of Bldg. 321 in the 300 Area was approved by the A & B Committee on April 24 and forwarded to the A.E.C.

MATHEMATICAL SERVICES

Statistical Services

300 Area

At the request of the Accountability Section, a study of shipper-receiver weight differences on uranium rods was undertaken to develop a means of detecting weighing bias, and to determine the maximum allowable weight difference for individual rods and for shipment of rods.

In a study made at the request of the Metallurgy Section, no correlation was found between volume transformation of canned uranium slugs during dilatometric testing, and the quantity of various impurities reported by chemical analysis of wafers from the slugs. Other studies were made at the request of the Metallurgy Section to determine the "d" spacing for plutonium compounds, and to determine whether there is appreciable variation in the degree of preferred orientation along the length of a slug.

Assistance was rendered to the P Division in designing a production test to evaluate the performance in the 100 Area piles of rejected triple-dip slugs recanned using the lead-dip process.

A study was begun, at the request of the 300 Area Plant Assistance Group, to determine the degree of process control applied to can preheat, can submerge, cap preheat, and bath temperature in 300 area canning operations. Preliminary data indicate this study may lead to improved

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canning conditions.

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 300 Area Plant Assistance Group, statistical control of canning rejects by days, as well as by lots, was begun. Document HW-20895 summarizes the quality of uranium metal produced during the year 1950, as measured by current functional and chemical tests. At the request of the P Division, the average reactivity (dih) of 8" A, 8" MZ, 4" A, and 4" M canned uranium slugs tested in the 305 Test Pile since plant start-up was calculated.

100 Areas

Normally, the rupture of a uranium slug in one of the production piles is detected by the radioactivity of the effluent cooling water. With P-10-A slugs, however, this method of detection is not available, since the rupture of such slugs does not affect the reactivity of the effluent water significantly.

One possible alternate method of detecting unusual swelling, distortion, or rupture of a slug is through the increase in front-face water pressure caused by such distortion. A statistical study of Panellit gage readings of these pressures was requested to determine the best method of utilizing these data to predict those tubes in which trouble might be expected.

The Panellit pressure readings of individual tubes increase from day-to-day for reasons independent of slug distortion. Furthermore, the average daily increase in Panellit readings is not constant, due to variations in the several factors which contribute to normal increases in pressure. It was necessary to distinguish between the normal pressure increase, and any increase attributable to the swelling or distortion of a P-10-A slug.

The statistical study revealed that daily increases in front-face water pressure of the pile formed a smooth frequency distribution, except for a few tubes which showed abnormal increases. Four tubes were discharged where trouble was indicated. In three of these a slug was starting to swell, and the fourth tube contained a badly distorted slug.

A routine statistical control procedure has been formulated whereby the daily distribution of Panellit pressure increases for the H-10 loading at H pile is determined by the IBM Computing Laboratory, from which a list of tubes showing abnormal pressure increases is furnished to the P Division for appropriate action.

Solution of a transcendental equation in connection with the design of C pile is being performed for the Theoretical Physics Group. A numerical integration of a Maxwell distribution was performed for the same group to estimate the time required to perform similar operations on a problem being contemplated. Assistance of a statistical nature is being afforded the Pile Engineering Development Group in the design of water quality experiments for pile and flow laboratory tests.

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A method for the final discharge of H-10 loading to obtain maximum production was devised at the request of the Pile Technology Division. At the request of the P-10 Methods Group, a program was initiated to provide information on the precision of routine spectrometer results.

200 Areas

For the Process Section, Separations Technology Division, a study was made to determine whether increases in plutonium pick-up by leaches of N-1 nutsches in Bldg. 231 were reflected in differences between F-10-P and P-1 assays of the preceding runs. In two of three cells studied in that building, the product recoveries from cleanouts showed evidence of correlation with product hold-up as indicated by the corresponding F-10-P, P-1 assay differences.

Also for the Process Section, a correlation revealed that D-4-BP waste losses were related to plutonium and lanthanum in recycle to D-1, at the B plant, and to plutonium in recycle at the T plant. This difference might be ascribed to the more nearly constant lanthanum additions at T plant.

For the Analytical Division, an examination of data to determine the desirability of correcting for cobalt recovery in certain spectrographic standard results was undertaken. Range limits for use by the Bldg. 231 Control Laboratory in checking the radioassay of flushes was determined. A monthly report of 200 Area control laboratory reruns was issued.

In connection with the current statistical study of isotope correction data, additional data continued to show the previously observed and reported correlation between the CA/RA averages between B and T plant runs.

Calculations have been completed of the reduction in coincidence loss which would be obtained if a radioassay counting instrument could be provided with a memory. Extensive calculations are to be made of the effect on the geometry of a radioassay instrument caused by circular aperture. Preliminary studies of the calculation methods to be used are now underway.

The regular semi-monthly reports of certain Kr-85 computations for the A.E.C. were completed and forwarded.

General

From a sample of 400 documents obtained in a specified random fashion, an estimate was made for the Technical Information Section of the number of individual copies of documents now being retained at this site.

A statistical study of Richland vital statistics for the years 1949 and 1950 was made for the Medical Division.

Computing Services

In support of the P-12 Project, exponential curves were fitted to 33 sets

of diffusion length data, least square curve fitting was completed for 3 term cosine series in 156 cases, and modified least square fit of 3 term exponential series was completed for 9 sets of data, making a total of 198 equations fitted. By conservative estimate, 600 man hours of desk calculator time was replaced by 40 man hours using IBM equipment in fitting these equations.

The daily distribution of Panellit pressure increases for the H-10 loading at H pile is being computed in support of a statistical control program formulated to permit early detection of H-10 slugs that are swelling in the process of rupture.

An additional study of the expected exposure of tubes with H-10 loading was made using revised constants. Programming has been completed for the boiling disease problem and calculations have been completed for 25 cases. Programming is well underway on the thermal utilization equation.

A new pile temperature map suitable for printing from IBM cards punched at H and DR was designed. A frequency distribution of the tube temperatures by orifice zone was prepared from data taken on the IBM punch at DR. Also, the number of effective tubes in DR, on the basis of the hottest central tubes, was computed for the pile physicists.

Punching has been completed on a year's backlog of data on blood chemistry for the H. I. Divisions' sheep experiment and preliminary calculations have been made. Programming is completed for the reduction of data taken on the sheep thyroid experiment. For the Medical Division, a series of weighted averages were calculated on blood count data.

Routine calculations were completed on graphite temperatures for the D, F, and H piles; Special Request accountability; uranium metal quality; and aquatic biology data.

A special control panel has been wired for the tabulator for testing newly programmed cards to detect and isolate programming or punching errors that would cause machine trouble in the calculator. Cards are passed through the tabulator which prints the number of the offending card. Preparation of an improved general test deck of cards for calculator accuracy is in progress.

As required by the excessive work backlog, and the fact that the Computing Group is not yet staffed for two-shift operation, a six-day work week was initiated on April 16.

TECHNICAL INFORMATION SERVICES

Plant Library

Library work volume and book statistics were as follows:

	March	April
Number of books on order received	239	761
Number of books fully cataloged	193	400
Number of bound periodicals processed but not fully cataloged	6	141

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Technical Services Division [redacted]

	March	April
Pamphlets added to the pamphlet file	141	1,928
Miscellaneous material received, processed and routed (Including maps, photostats, patents, etc.)	66	99
Books and periodicals circulated	3,197	3,901
Unclassified reports processed	229	226
Unclassified reports circulated	160	288
Reference services rendered	1,805	1,500

	Main Library	W-10 Branch	108-F Branch	Total
Number of books	7,188	3,041	335	10,564
Number of bound periodicals	4,305	0	555	4,860

These statistics indicate a total work load approximately 50% larger than the previous month, and reflect the continuously rising curve of the Library's activities. This increase was principally in the amount of material received and cataloged, and the book and periodical circulation. The latter increased approximately 30% over the April figures to reach another all time high.

A wide variety of technical reference questions were answered for all Hanford Divisions. A sampling of the questions follow:

Reaction kinetics of zirconium-nitrogen and zirconium-carbon dioxide at high temperatures.
Amount of oxygen required by an average man to sustain healthy life.
Composition of an 8" pipe to withstand corrosion by hydrogen iodide.
The toxic effects, if any, of tributylphosphate.
Information on the electrodeposition of radium.
The change of density of water with respect to temperature.
Sound dictating practices, and use of the Dictaphone.
Industrial method for purifying C_2H_2.
Direction for spraying fluorothene.
Prices and sources of liquid soap.
Design and construction of well-holes or drop manholes.
Comparative humidity of cities of 100,000 to 150,000 population.
Material on modern theories of valence.
Address of the Southern Regional Laboratories.
General information on thermistors.
The decay system of praseodymium.
Availability and price of neon.
Differential equations for problem of water hammer in pipe lines.
Capacity of screw conveyors.
Tensile strength of copper brazed stainless steel lap joints.
Techniques for vulcanizing neoprene.
Corrosion of metals by mercury.
Time of moonrise for April 23, 1951.
Rewinding a 3-phase two speed motor.
Preservative treatment of wooden poles.
Home storage of drinking water.
Variation of rate of gas flow through porous beds with temperature.
How to strip nickel plate from base metal.

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A bibliography on industrial management and problems of supervision was given Plantwide distribution to supervision. An additional bibliography on management of research was completed and is being processed for similar distribution. The response to these book lists has far exceeded expectations and indicates that there are many new supervisors and employees at Hanford who are unaware of the Library's reference resources, and that the book collection has been developed to meet their specific needs.

The A.E.C. Technical Information Service in Washington requested that Hanford supply names of Plant personnel interested in receiving free personal subscriptions to certain technically valuable "controlled circulation" magazines distributed by various industrial concerns. A check list of these periodicals was prepared and at month end was awaiting distribution to Plant supervision through the addressograph system.

An excellent run of the "Zeitschrift fur Anorganische und Allgemeine Chemie" was received and will add appreciably to the Plant's periodical reference file.

Classified Files

Work volume statistics for the Classified Files were as follows:

	March	April
Documents routed	11,843	18,066
Documents issued	6,790	6,501
Reference services rendered	4,360	4,375
Registered packages prepared for offsite	314	340
Inter-area mail sent via transmittal	35,571	31,029
Holders of classified documents whose files were inventoried:		
(a) Because of normal perpetual inventory procedure	1	4
(b) Because of transfer of work assignment	7	19
(c) Because of termination	1	8
Inventory reductions:		
Copies of documents destroyed	2,027	1,172
Copies of documents downgraded	0	0
Copies of documents declassified	0	60
Classified documents located which were unaccounted for in previous inventory	8	47
Volume of unclassified mail handled by the 300 Area Mail Room	39,556	37,085

Work on the inventory of classified documents in the central files is proceeding satisfactorily, although impeded somewhat by recent increases in termination and job transfers, necessitating unanticipated office inventories. In the 300 Area Classified Files the inventory and summary of the offsite originated research and development reports, to which high priority had been given, was completed on April 30. The inventory of HW originated research and development reports, which is to be included in the final report to the A.E.C. has been completed and the final summary is approximately 50% done. This indicates that we will easily meet the June 30 reporting deadline. In

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the 700 Area Classified Files the inventory of the subject file is complete (as reported last month) and the inventory of the numerical file is 35% done. The inventory of the E & C Files has been completed for some time and the final summary is in process.

Continuing efforts were made during the month to correlate the present Classified Files program with that of the Records Control Division. It seems quite certain, for instance, that a considerable quantity of unclassified material is being received in the Classified Files which is of little reference value and for which the originator has responsibility to maintain the "Record File" in accordance with H. W. Instructions Letter No. 123. The Classified Files, therefore, is increasing the retirement of unclassified file copies of routine material when it has been determined that the originating office is maintaining the record file. It expects to accelerate this program in the future. In this connection, the Chief Librarian met with the Hanford Records Committee on April 18 to discuss the elimination of the 300 Area and 700 Area file copy coverage for unclassified material. It was agreed that these copies are not record requirements, but that additional information should be developed on the reference aspects of this proposal before a decision could be made.

The 8th revision of M-3679 (Standard Distribution Lists for USAEC Research and Development Reports) was received on April 23, 1951. The proposed category revisions discussed in previous monthly reports were incorporated in this edition with the exception of the Hanford recommendations regarding revision of the "Health and Biology" category.

Considerable time was expended during the month on review of the preliminary and final plans for the Library & Files Bldg. to be erected in the Works Laboratory Area. A number of suggested alterations in the specifications, plans, etc., were relayed to the E & C Divisions. In connection with the proposed establishment of a Branch Library & Files facility in the 200-W Area, Building 222-U was surveyed. The structural plans of this building (which H. I. expects to release next winter) are currently being studied for their adaptability to this purpose.

During the month working arrangements were set up with the Non-Technical Document Review Board recently established by G. E. at Hanford. Inasmuch as the Classified Files will be the main source of material for review by this new Board, suitable procedures, forms, etc., are being drafted to exploit the Board's value in the reduction of classified document inventory.

Central Reporting Service

Work volume statistics for this Unit were as follows:

	March	April
Ditto masters run	510	612
Mimeograph stencils run	620	648
Ditto copies prepared	18,587	26,856
Mimeograph copies prepared	53,525	55,264
Formal Research and Development Reports issued	11	11

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Technical Services Division

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	March	April
Reports abstracted	475	93

Work in the Central Reporting Service proceeded routinely, although a backlog resulting from increased work volume and reduced personnel has necessitated some overtime work. In addition, delays are occurring because of complete editing of the reports before submission to the Unit for processing. This necessitates numerous alterations in the finished masters, and has delayed considerably the issuance of the reports.

The Technical Abstracting Unit is currently at work on a number of bibliographies requested by Plant personnel. A compilation of all available information on process water handling in the production piles is almost completed. Final drafts are being typed on a definitive list of all reports on slug failure in the piles. The bibliography on the 105 Production Tests is going foward, and another on x-ray diffraction studies of plutonium and its compounds is underway. At the request of the A.E.C., a bibliography of Hanford reports on the polarographic analysis of uranium was recently completed.

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 April 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, Division Head

TWH:mcs

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MEDICAL DIVISIONS

APRIL 1951

General

Personnel Changes

The roll increased from 282 to 288.

Visits

Dr. Fuqua attended the annual meeting of the American Association of Industrial Physicians and Surgeons in Atlantic City.

Four nursing supervisors attended the annual meeting of the Washington State Nurses Association in Seattle.

Dr. Sachs attended (1) Civil Defense (2) Health Officers Medical Care meeting and he and Mr. Yesberger attended a Fluoridation conference at the University of Washington in Seattle.

Miss M. A. Miller, nursing consultant from the Washington Department of Health, spent one day at Kadlec in connection with her study of our Obstetrical nursing service.

Industrial

Employee physical examinations changed little from 2817 to 2797.

Dispensary treatments increased from 9161 to 9983.

Two major and ten sub-major injuries were treated as compared with four major and fourteen sub-major injuries for the previous month. One major and two sub-major injuries were sustained by General Electric employees.

Six day Industrial Medical service was started in the North Richland Medical Center for construction employees.

There has been no evidence of injury due to radiation during the current year.

"Vacation" was the health topic for discussion.

Sickness absenteeism (weekly employees) for April decreased by 2.04% to 1.88% while that for monthly employees for March increased by .99% to 2.31%.

Kadlec Hospital

The average daily census decreased from 112 to 93.7 (83.0 adults, 10.7 infants). The census was 83.8 a year ago.

The occupancy rate for the mixed services (all services except obstetrics) was 86.5%.

The continued high occupancy rate during April which is usually a month of relatively low sickness rate, emphasizes the need for additional beds in the mixed service area.

While it appears that sufficient funds will be available at the completion of the present hospital building project, it has not been felt advisable to risk an over-run by authorizing construction of additional rooms for beds until the present project is essentially completed.

Nursing hours per patient day were 3.25 for the mixed services and 4.40 for obstetrics.

Public Health

The epidemic of Influenza subsided. A marked increase in Measles however has kept the nursing work load up.

A regional meeting on "Eye Hygiene" was attended by 66 people from Benton, Franklin and Walla Walla counties.

A conference on fluorination of public water supplies at the University of Washington, re-emphasized the value of this process in reducing dental caries in children.

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Costs (March)

Medical Divisions' operating costs, before assessments to other divisions, were as follows:

	February	March	March Budget
Industrial Medicine (Oper. Div.)	$ 36,680	$ 38,243	$ 40,674
Public Health	10,352	12,303	11,070
Kadlec Hospital (net)	21,531	19,466	21,959
Hospital assessments to other divisions and workmen's compensation	2,446	2,367	3,374
Subtotal - Operations - Medical Divisions	71,009	72,379	77,077
Construction Medical (Industrial & Public Health)	11,406	6,610	13,380
Total Operations and Construction	$ 82,415	$ 78,989	$ 90,457

The net cost of operating the Medical Divisions, before assessments to other divisions was $78,989, a decrease of $3,426 and $11,468 below the budget figure.

The improvement was due to a $15,339 increase in revenue. A $9,468 increase resulted from Kadlec's higher census and $5852 from Industrial Construction pre-employment examinations given Waale-Camplin Co. employees for which they were billed. The increased revenue was greater than the increased cost $11,913 which was up due to the following factors. (1) Increase in salaries due to longer work week. (2) Increase in purchase of hospital supplies $2979. (3) Public Health purchase of mosquito control supplies and maintenance items $2042.

MEDICAL DIVISIONS

APRIL 1951

Industrial Medical Division

General

Physical examinations decreased slightly, from 1355 in March to 1276. General Electric employees sustained one major injury and 2 sub-major injuries. Sub-contractor employees sustained 1 major injury and 8 sub-majors.

Six day first aid service was begun in the 3000 area 4-15-51. Six day service was also provided intermittently during the month at two of the construction first aid stations.

Procurement of industrial nurses has been difficult and the staff was two short at the end of the month.

Dispensary treatments increased from 9161 to 9983. Construction treatments increased by 700 while operations employee treatments decreased by 200.

Dr. Miller returned to the staff from retirement, approval was obtained for work for one year.

A Bausch and Lomb Company representative, Mr. Broom, spent one week training our personnel in the technical aspects of testing vision.

Dr. Fuqua attended the 36th annual meeting of American Association of Industrial Physicians and Surgeons from April 24th thru the 27th. A report of the papers and proceedings of this meeting was made at the industrial physicians scientific meeting.

The Chemical Hazards committee met on April 20th. The use of insecticides, ditto fluids, and Redox chemicals were discussed, and the report on the ventilation and exhaust gas study made at the 716 and 1131 garages was submitted.

The Health Activities committee met on April 19th. The Health topic on "Vacations" was presented. Material on this subject was prepared for distribution to all employees. It was decided that representation on this committee will be by division rather than by area location.

Absenteeism (weekly employees) due to all causes decreased by 1.98% to 2.67%, while absenteeism due to sickness decreased 2.04% to 1.88%. Absenteeism (monthly employees) due to all causes increased .92% to 2.74%, while absenteeism due to sickness increased .99% to 2.31%.

The net cost of operations increased $1345 as compared with the previous month. This was chiefly due to the increased cost of professional services. This cost was $2413 below the budget.

MEDICAL DIVISIONS

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Industrial Medical Costs:

	Increase or (Decrease) over Previous Month	March	February	March Budget
Administration	$ 747	$ 8,246	$ 7,499	$ 8,937
Household and Property	156	1,563	1,407	1,300
Professional Services	1,714	25,351	23,637	26,250
Total Direct Expense	2,617	35,160	32,543	36,487
Accrual for Public Liability Claims	0	150	150	0
Transferred from Other Divisions	(616)	4,068	4,684	5,130
Less: Revenue	438	1,135	697	943
Workmen's Compensation	218	682	464	700
Net Cost of Operations	$1,345	$37,561	$36,216	$39,974

Physical Examinations	March	April	Year to date
Operations			
Pre-employment	241	283	1044
Rehire	53	47	233
Annual	321	321	1459
Interval	336	262	1059
Visitor	1	0	2
A. E. C.	20	8	59
Re-examination and rechecks	178	181	623
Termination	205	174	613
Sub-total	1355	1276	5092
Sub-contractors			
Pre-employment	344	368	1441
Rehire	349	324	1394
Recheck	85	102	370
Termination & Transfer	684	727	2400
Sub-total	1462	1521	5605
Total Physical Examinations	2817	2797	10697
Laboratory Examinations			
Clinical Laboratory			
Government	91	38	247
Pre-employment, termination, transfer	6567	6575	26065
Annual	1681	1678	7576
Recheck (Area)	1693	1349	5496
First Aid	19	9	58
Clinic	3131	2132	11175
Hospital	4888	4211	18332
Public Health	20	45	120
Total	18090	16037	69069

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MEDICAL DIVISIONS

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	March	April	Year to date
X-Ray			
Government	14	8	36
Pre-employment, termination, transfer	1017	1037	4267
Annual	112	330	1431
First Aid	170	216	687
Clinic	250	311	1053
Hospital	338	272	1078
Public Health	6	2	34
Total	1907	2176	8586
Electrocardiographs			
Industrial	25	18	111
Clinic	2	7	19
Hospital	33	35	129
Total	60	60	259
Allergy			
Skin Tests	2	3	14
First Aid Treatments			
Operations			
New Occupational Cases	230	377	1213
Occupational Case Retreatments	711	1196	3860
Non-occupational Treatments	3473	2732	11605
Sub-total	4414	4305	16778
Construction			
New Occupational Cases	735	1068	3136
Occupational Case Retreatments	2680	3552	11131
Non-occupational Treatments	1305	1028	4086
Sub-total	4720	5648	18353
Facility Operators	27	30	118
Total First Aid Treatments	9161	9983	35249
Major Injuries			
General Electric	0	1	2
Sub-contractors	4	1	15
Total	4	2	17
Sub-major Injuries			
General Electric	4	2	7
Sub-contractors	10	8	38
Total	14	10	45

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MEDICAL DIVISIONS

APRIL 1951

Absenteeism Report - Weekly Employees

	Male	Female	Total	Percent Absenteeism	Comparison with Previous Month
No. days absent due to all causes	2230	1053	3283	2.67%	1.98% less
No. days absent due to sickness only	1510	798	2308	1.88%	2.04% less

Avg. days absent due to sickness by each male employee ..... .33 day or 330 days/1,000 employees
Avg. days absent due to sickness by each female employee ..... .49 day or 490 days/1,000 employees
Avg. days absent due to sickness by all employees ..... .37 day or 370 days/1,000 employees

Comparison of present year-to-date total absenteeism figure with the 1950 figure shows an increase of .67%.

Absenteeism (Weekly Employees) by Divisions:

Municipal, Real Estate & General Service	2.15%
Manufacturing	2.55%
Plant Security and Services	2.60%
Health Instrument	2.73%
Purchasing & Stores	2.76%
Employee & Community Relations	2.85%
Technical, Engineering and Construction	3.10%
Medical	3.13%
General Accounting	3.47%

Absenteeism Report - Monthly Employees:

	Male	Female	Total	Percent Absenteeism	Comparison with Previous Month
No. days absent due to all causes	1004	68	1072	2.74%	.92% more
No. days absent due to sickness only	857	48	905	2.31%	.99% more

Avg. days absent due to sickness by each male employee ..... .45 day or 450 days/1,000 employees
Avg. days absent due to sickness by each female employee ..... .89 day or 890 days/1,000 employees
Avg. days absent due to sickness by all employees ..... .46 day or 460 days/1,000 employees

Absenteeism (Monthly Employees) by Divisions:

General Administrative	1.30%
Municipal, Real Estate & General Services	1.70%
Purchasing & Stores	2.05%
Employee & Community Relations	2.08%
Manufacturing	2.30%
Health Instrument	2.54%

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MEDICAL DIVISIONS

APRIL 1951

Absenteeism (Monthly Employees) by Divisions: (Continued)

Technical	2.56%
Plant Security and Services	3.24%
Engineering & Construction	3.95%
General Accounting	4.40%
Medical	6.02%

Absenteeism Investigation	March	April	Year to date
Total No. calls requested	17	6	53
Total No. calls made	17	6	53
No. absent due to illness in family	0	0	0
No. not at home when call was made	5	1	12

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MEDICAL DIVISIONS

APRIL 1951

Hospital Division

General

The average daily adult hospital census decreased from 97.7 to 83.0, as compared to 71.7 a year ago. This represents an occupancy percentage of 80.6% broken down as follows: Mixed Service (Medical, Surgical, Pediatrics) - 86.5%; Obstetrical Service - 56%. The minimum and maximum daily census during the month ranged as follows:

	Minimum	Maximum
Mixed Service	57	87
Obstetrical Service	8	16
Total Adult	65	98

The average daily newborn census decreased from 14.3 to 10.7, as compared to 12.1 a year ago.

Nursing hours per patient per day:

Medical, Surgical, Pediatrics	3.25
Obstetrical	4.40

The ratio of hospital employees to patients (excluding newborn) for the month of March was 1.52. When newborn are included, the ratio is 1.33.

The net expense of the Richland community medical program for March 1951 was $19,466., as compared to $21,531. for February. Summary is as follows:

Kadlec Hospital net expense $19,466.

This is a decrease of approximately $2100. as compared to February. Expenses increased approximately $7300. due to an increase in salaries resulting from a longer work month and an increase in purchases of supplies. However, this increase in expenses was more than offset by increased revenue of approximately $9400. as a result of increased patient census.

Miss Mary A. Miller, R. N., Nursing Consultant from the Washington State Department of Health, paid a visit to Kadlec hospital on April 5. She presented a verbal summary of the study made recently by herself and Miss Margaret Thomas, R. N. of our obstetrical nursing service. A written report is expected in the near future.

The following personnel attended the annual meeting of the Washington State Nurses Association in Seattle on April 12: Mrs. Helen Turner, R. N., Mrs. Ruth Eisert, R. N., Miss Myrtle Albright, R. N. and Mr. E. J. Quigley, R. N.

Another periodic fire drill was held on April 25.

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MEDICAL DIVISIONS

APRIL 1951

Hospital Division (Continued)

Kadlec Hospital	March	April	Year to date
Average Daily Adult Census	97.7	83.0	90.3
Medical	31.4	27.7	27.6
Surgical	32.7	32.2	33.3
Pediatric	19.3	11.9	17.2
Obstetrical	14.3	11.2	12.2
Average Daily Newborn Census	14.3	10.7	12.1
Maximum Daily Census:			
Mixed Services	94	87	
Obstetrical Service	23	16	
Total Adult Census	113	98	
Minimum Daily Census:			
Mixed Services	61	57	
Obstetrical Service	7	8	
Total Adult Census	76	65	
Admissions: Adults	606	499	2175
Discharges: Adults	615	508	2172
Newborn	85	67	282
Patient Days: Adult	3028	2490	10,753
Newborn	444	322	1,439
Total	3472	2812	12,192
Average Length of Stay: Adults	4.9	4.9	5.0
Newborn	5.2	4.8	5.1
Occupancy Percentage: Adults	94.9	81.3	89.6
Newborn	102.1	76.4	85.7
(Occupancy Percentage based on 103 adult beds and 14 bassinets.)			
Avg. Nursing Hours per Patient Day:			
Medical, Surgical, Pediatrics	2.76	3.25	
Obstetrics	3.06	4.40	
Avg. No. Employees per Patient (excluding newborn)	1.52		
Operations: Major	77	75	339
Minor	71	84	352
E.E.N.T.	78	82	325
Dental	3	5	14
Births: Live	90	61	271
Still	0	0	1
Deaths	6	4	19
Hospital Net Death Rate	.14%	.17%	.28%
Net Autopsy Rate	0	25.0	31.6
Discharged against advice	0	0	4
One-day Cases	101	115	417
Admission Sources:			
Richland	75.7	75.4	75.6
North Richland	11.9	11.8	11.3
Other	12.4	12.8	13.1

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MEDICAL DIVISIONS

APRIL 1951

Kadlec Hospital (Continued)	March	April	Year to date
Admissions by Employment:			
General Electric	71.6	70.8	72.2
Government	1.8	2.2	2.4
Facility	4.6	3.6	4.2
Sub-contractors	16.2	19.4	15.9
Schools	2.3	.8	1.1
Military	2.1	1.2	2.3
Others	1.3	2.0	1.4
Hospital Outpatients Treated	516	406	1828
Physical Therapy Treatments			
Clinic	187	145	700
Hospital	62	54	308
Industrial: Plant	144	179	619
Personal	17	31	87
Total	410	409	1714
Pharmacy			
No. of Prescriptions Filled	3795	3170	13050
No. of Store Orders Filled	751	731	2960
Patient Meals			
Regulars	4788	4000	16501
Specials	1495	1224	5129
Lights	18	1	41
Softs	1729	1212	6398
Tonsils & Adenoids	187	175	741
Liquids	238	233	866
Surgical Liquids	122	72	337
Total	8577	6917	30013
Cafeteria Meals			
Noon	1354	1374	5393
Night	193	203	874
Total	1547	1577	6267

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MEDICAL DIVISIONS

APRIL 1951

Public Health Division

General

The epidemic of upper respiratory type of infection, probably due to influenza A prime, subsided. Red measles remained on the increase. The total number of communicable diseases increased by approximately 60%, due primarily to measles.

The home nursing visits remained on the same level since our morbidity picture had not changed materially. There was a shift from morbidity visits to communicable disease control visits. The former number of calls decreased approximately 50%, but the latter increased by 66%. The overall picture of the total number of cases remained about the same.

The Division arranged for a regional meeting for Miss Helen E. Weaver, Consultant in Nursing Activities, National Society for the Prevention of Blindness; Mrs. Elizabeth England, Consultant, Special Services Unit, State of Washington Department of Social Security; and a local ophthalmologist on "Eye Hygiene". A total of 66 persons from Benton-Franklin and Walla Walla counties attended the afternoon and evening sessions.

A conference on fluoridation of public water supplies was held at the University of Washington, Seattle, with two representatives from this department in attendance. During recent years, dental, medical and engineering science has proved beyond reasonable doubt that fluorides in drinking water in the proper quantity can aid in reducing the incidence of dental caries. The greatest benefits are derived when fluorides are ingested in this manner from infancy through the eighth year. Maximum tooth protection is afforded when the drinking water contains fluorine (as fluorides) in amounts ranging from 1.0 to 1.5 p.p.m. If the fluorine contents exceeds this amount mottled teeth may result.

Producer milk supplies in the past month were found to be satisfactory with the exception of two which were inspected and found to have improper cooling facilities. Results of samples after pasteurization have been satisfactory.

The incidence of dog bites has remained at approximately the same level. One dog's head was sent to the State Department of Health for examination for rabies and proved to be negative.

An inspection was made of the food handling establishments by this Department. All have indicated improvement and have been operating satisfactorily.

Results of the bacteriological analysis of samples collected from the sewage disposal plant were satisfactory.

Mosquito control operations consisted chiefly of clearing and burning accumulations from various drainage ditches, which are conducive to mosquito breeding. Spraying will commence in the near future.

Social Service activities centered around children who were in conflict either with their parents, with the school or with the community. Work was done both with parents and directly with the children involved with resultant modification of behavior symptoms.

Help in making vocational and personal adjustments was also given to two persons who were incapacitated by industrial accidents.

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MEDICAL DIVISIONS

APRIL 1951

Public Health Division (Continued)

Education	March	April	Year to date
Pamphlets distributed	1200	10000	40591
News Releases	0	0	0
Staff Meetings	1	1	5
Classes	4	0	5
Attendance	53	0	67
Lectures & Talks	7	6	33
Attendance	123	285	853
Films Shown	4	1	18
Attendance	94	135	928
Community Conferences	37	44	167
Radio Broadcasts	0	0	0
Immunizations			
Diphtheria	5	5	93
Diphtheria Booster	4	1	80
Tetanus	6	130	577
Tetanus Booster	102	1	221
Pertussis	2	5	16
Pertussis Booster	2	1	59
Typhoid	0	0	13
Typhoid Booster	0	0	0
Smallpox	1	0	14
Smallpox Revaccination	3	2	27
Tuberculin Test	7	7	21
Social Service			
Cases carried over	84	96	333
Cases admitted	19	18	70
Cases closed	7	26	62
Remaining case load	96	88	341
Activities:			
Home Visits	22	46	108
Office Interviews	233	230	908
Conferences	84	65	316
Meetings	15	12	57
Sanitation			
Inspections made	129	107	554
Conferences held	5	8	49
Bacteriological Laboratory			
Treated water samples	169	192	714
Milk samples (inc. cream & ice cream)	12	12	40
Other bacteriological tests	314	248	1110
Total	495	452	1864

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MEDICAL DIVISIONS

APRIL 1951

Public Health Division (Continued)

Communicable Diseases	March	April	Year to date
Amoebic Dysentery	0	1	1
Chickenpox	87	26	357
Erysipelas	0	0	7
German Measles	19	16	45
Histoplasmosis	0	1	1
Impetigo	0	0	2
Influenza (Upper Respiratory Infection)	3090	0	3091
Measles	18	219	237
Meningitis	1	1	2
Mumps	0	1	3
Salmonellosis	1	0	2
Pinkeye	0	5	8
Ringworm	4	4	10
Roseola	1	0	13
Scabies	1	0	2
Scarlet Fever	11	6	39
Syphilis	0	3	3
Tuberculosis	2	3	6
Whooping Cough	1	2	3
Total	3236	288	3832
Total No. Nursing Field Visits	953	949	3274
Total No. Nursing Office Visits	139	149	556

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HW-20991 -Del

HEALTH INSTRUMENT DIVISIONS

APRIL 1951

Summary

There were three informal investigations and six Class I special hazards investigations.

Surveys by the Operational Division showed no notable deviation from acceptable radiation protection standards.

With the exception of increased I^{131} deposition, results from control programs in the Biology and Development Divisions showed no significant change from previously reported data.

Research and development activities progressed satisfactorily and without incident.

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Health Instrument Divisions

HEALTH INSTRUMENT DIVISIONS

APRIL 1951

Organization

The composition and distribution of the force as of 4/30/51 was as follows:

	100-B	100-D	100-F	100-H	200-E	200-W	300	700	P.G.	Total
Supervisors	1	1	8	2	4	12	12	6	-	46
Engineers *	4	3	31	5	6	18	16	4	-	87
Clerical	-	-	2	1	1	3	3	5	-	15
Others	17	19	56	15	38	76	52	13	8	294
Total	22	23	97	23	49	109	83	28	8	442

* includes chemists, biologists, etc.

Number of Employees on Payroll	April 1951
Beginning of month	435
End of month	442
Net increase	7

Added to the roll were a chemist, 3 inspectors, 5 laboratory assistants, 6 personnel meters clerks, a stenotypist, and 2 general clerks.

Removed from the roll were a radiation engineer, a calibrations supervisor, a technical graduate, 3 inspectors, 2 laboratory assistants, a personnel meters clerk, and 2 general clerks.

General

There were three informal investigations, - and six Class I special hazards incident investigations. Three of the Class I incidents referred to beta-ray exposures in metal fabrication, due to the change to a six-day schedule. Two others arose from high finger ring exposures of Technical Divisions personnel in the 300 Area. The last, and potentially most serious, concerned face and head contamination of a laboratory assistant.

Considerable study was given to proposed Commission policy governing disposal of radioactive liquid wastes. The policy proposals as written would have a disastrous effect on plant operation, on account of various technicalities. It appears that, in fact, the current practices at Hanford Works meet the real intent but not the letter of the proposed regulations. Possible exceptions, which are being studied, are the release of algae from retention basins,

Health Instrument Divisions

and the accumulation of radioactive materials in algae and plankton in the river. Document HW-21002 outlines the waste disposal position.

At a Special Hazards Committee meeting, an improved SWP form was approved, plans to study the coverage in the event of a major accident similar to the Chalk River affair were elaborated, and better channels to identify "radiation hazard neurotics" and to refer them to the Industrial Medical Division were established.

In recognition of Dr. M.L. Barad's standing in the field, and further to promote integration between local and university programs, he was appointed honorary lecturer in the Department of Meteorology, University of Washington.

The following trips were reported:

C.C. Gamertsfelder	-	Tripartite conference on radiation detection instruments, Harwell, England.
J. Katz	-	Biology conference, ORNL
P.L. Eisenacher	-	GE Radiation Instruments meeting, West Lynn, Mass.; visited GE&CL and KAPL, Schenectady.
F.E. Adley	-	Industrial Hygiene conference, Atlantic City, N.J.; KAPL; and Army Chemical Center, Edgewood, Maryland.

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
none	none

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Health Instrument Divisions

OPERATIONAL DIVISION

100 Areas

General Statistics

	March					April					1951 to Date
	B	D	F	H	Total	B	D	F	H	Total	
Special Work Permits	619	959	635	776	2989	558	1031	774	670	3033	12929
Routine & Spec.Surveys	548	637	513	504	2202	615	834	635	585	2669	9330
Retention Basin	72	164	82	100	418	87	248	84	172	591	1909
Air Monitoring Samples	135	179	125	92	531	120	143	236	82	581	2220

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	433	410	500-525	415	515
Average beta dosage-rate (mrep/hr)	1.7	1.7	2.8	1.9	2.5
Average gamma dosage-rate (mr/hr)	4.3	4.0	6.3	5.3	4.6
Average total dosage-rate (mrep/hr)	6.0	5.7	9.1	7.2	7.1
Average integrated dose in 24 hrs.(mrep)	144	137	218	173	170
Maximum integrated dose in 24 hrs.(mrep)	187	170	259	218	209
Maximum integrated dose in 24 hrs.(mrep) 1951	187	170	259	226	209

100-B Area

Pile and Associated Buildings

Radiation conditions were normal.

P-10 Operation - 108 Building

Two employees gave urine samples showing greater than 20 /uc of tritium oxide/liter; the maximum sample was 45 /uc/liter for a glassblower.

Metallurgical Laboratory - 111 Building

Decontamination of the transfer and work areas continued in preparation for installation of air exhaust facilities.

Health Instrument Divisions

100-D Area

105-D Pile and Associated Buildings

The removal of the NEPA apparatus from air tube #2680 resulted in widespread contamination to personnel and the work area corridor. This incident was informally investigated.

105-DR Pile and Associated Buildings

Efforts to remove a ruptured piece in tube #1377 resulted in the contamination of the caps on the back face up to 50 r/hr at one inch, and spots of contamination up to 35 rep/hr including 400 mr/hr at 6 inches on the elevator. Decontamination is in progress.

100-F Area

Pile and Associated Buildings

There were two ruptured pieces encountered during this period, one in tube #2780 and the other in tube #0986. Removal efforts resulted in the contamination of the back face and elevator. Dosage rates up to 10 rep/hr including 500 mr/hr at 3 inches were reported.

Biology Facilities

During an experiment involving P^{32} in bean plants, hand exposure rates up to 3 rep/hr were reported.

P-11

Forty-three of the 71 air samples taken were above 10^{-11} ug Pu/cc. The maximum sample of 9.3×10^{-9} ug Pu/cc was taken in the cutting room during the replacement of duct filters.

100-H Area

Pile and Associated Buildings

Three ruptured pieces occurred during this period, one in tube #1477, the second in tube #2974 and the third in tube #3373. Simultaneous with the third shutdown, two other tubes were pushed when abnormal radiation levels were detected on the pig tails. One piece from these tubes showed a rupture at the cap. Another piece from the second tube is currently being inspected.

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Health Instrument Divisions

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200 Areas - T and B Plants

General Statistics

	March					April					1951
	T	231	234-235	B	Total	T	231	234-235	B	Total	to Date
Special Work Permits	456	35	276	320	1087	583	31	290	285	1189	4565
Routine & Spec.Surveys	533	458	425	514	1930	561	473	379	551	1964	7772
Air Monitoring Samples	581	627	1327	705	3240	696	332	1241	769	3038	12338
Thyroid Checks	45	-	-	41	278	61	-	-	22	83	361

Canyon Buildings

In the T plant, 252 of the 587 air samples showed results above 10^{-12} /ug Pu/cc, with a maximum of 8×10^{-9} /ug Pu/cc taken during crane work in the 9R pipe trench; 163 samples were above 10^{-10} /uc f.p./cc with a maximum of 6.7×10^{-10} /uc f.p./cc. Increased maintenance work in the canyon produced considerable deck contamination. Inadequate control of this condition resulted in spread of contamination to the R-13 stairwell and change house where dosage rates up to 150 mrep/hr at surface were reported. Positive thyroid counts were obtained on three occupants of the crane cab after exposure for 90 minutes to atmopsheres containing 4×10^{-9} /uc f.p./cc.

In the B plant, 141 of 584 air samples showed results above 10^{-12} /ug Pu/cc, with a maximum of 5.7×10^{-9} /ug Pu/cc obtained in the canyon with the blocks off Section 19; 132 samples were above 10^{-10} /uc f.p./cc, with a maximum of 6.2×10^{-8} /uc f.p./cc. Increased maintenance activity contributed to widespread canyon deck contamination.

Concentration Buildings

In the T plant, considerable maintenance work resulted in significant contamination spread. Two instances of personnel contamination involving 1 /ug Pu on the head and chest resulted during removal of contaminated waste. The incident was informally investigated.

Cell roof vents indicated the following average discharge rates:

Cell Vent	ug Pu/24 hours 224-T	224-B
A	-	90
B	295	65
C	225	-
D	222	50

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Health Instrument Divisions

Waste Areas

In the T plant, the start-up of the Waste Evaporator indicated a maximum dosage rate of 85 mr/hr on the evaporator tank. All air samples were less than 10^{-10} /uc f.p./cc.

In the B plant, the above ground jet assembly from the 102-BX tank to the 103-BX tank being used to by-pass the plugged line showed dosage rates up to 17.5 r/hr at 2 inches during jetting.

Construction Areas

In the 200 West Area, chipping of the 42 inch manholes of storage tanks in the 241-U area is in progress. A maximum exposure rate of 700 mr/hr was reported.

In the 200 East Area, work around the 42 inch manhole of the 104-CR tank was begun. The maximum exposure rate reported was 300 mr/hr.

Plant Laundry

Eight of the 51 air samples showed positive results, with a maximum of 2.2×10^{-11} /ug Pu/cc obtained while processing 200 Area clothing.

General

All routine thyroid checks were below the warning level. However, three special checks were above the warning level.

Isolation Building

One hundred and forty-six of 332 air samples taken were above 10^{-12} /ug Pu/cc; the maximum of 3.2×10^{-10} /ug Pu/cc was obtained on the 903 duct system. Eighty-nine unregulated items and nine floor locations were found contaminated. The maximum levels of gamma radiation encountered was 420 mr/hr on PR containers, 38 mr/hr at the process hoods and 8 mr/hr on SC cans.

Purification Building

Air Sample Results

Two hundred and forty-seven of 1241 air samples were above 10^{-12} /ug Pu/cc; the maximum sample of 2.1×10^{-8} /ug Pu/cc was obtained in the ducts after the Primary Filter.

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Health Instrument Divisions

234 Building - Operating Sections

Maintenance work on the supernate storage tank in hood 29 resulted in widespread contamination to room 222.

235 Building

No unusual condition was encountered during this period.

General Building

The plutonium concentration in the discharge air for the 26 inch vacuum exhaust averaged 3.3×10^{-11} /ug Pu/cc.

200 Area Control Laboratories

	T	B	231	234 235
Items contaminated - not regulated	180	122	289	138
Skin contamination - alpha	1	3	2	2
Skin contamination - beta	1	4	-	-
Contaminated floor locations	14	43	17	13

In the T plant, the removal of floor paper contaminated to 30 rep/hr without following accepted procedure was investigated informally. Unknown conditions continue to cause positive air concentrations in room 6 research laboratory. The maximum air sample result reported was 5.7×10^{-11} /ug Pu/cc.

In the B plant, personnel contamination to the nose, ears, hair, eyes, and glasses involving approximately 0.2 /ug Pu was successfully decontaminated. This was formally investigated as a Class I incident.

In the Purification Building, slipping of the hood damper in room 134 again caused air contamination up to 1.1×10^{-10} /ug Pu/cc.

Particulate contamination in particles per 1000 cubic meters was as follows:

Location	March	April
222-T Outside	28	140
Hallway	58	92
Room 7	450	680
222-B Outside	19	100
Hallway	55	71
Room 7	735	1090

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Health Instrument Divisions

300 Area

General Statistics

	March	April	1951 to Date
Special Work Permits	149	139	473
Routine & Spec. Surveys	330	353	1189
Air Samples	273	204	863

Metal Fabrication Plant

Twenty-eight of 50 air samples were above 5×10^{-5} µg U/cc; the maximum of 1.6×10^{-2} µg U/cc was obtained while unloading rods.

Three apparent overexposures of 320 mrep, 400 mrep and 320 mrep as detected by film badges were reported for "P" Division personnel. Two of the high exposures resulted when standard procedures designed for a five-day work week were not adjusted for a six-day work week. The other resulted when the working time limits were exceeded. These incidents were investigated formally.

Technical Building

Two instances of hand exposures greater than 5000 mrep as detected by finger ring film were reported. Investigation of these exposures is currently in progress.

Fifty-six items, not regulated with respect to handling, were found contaminated on routine surveys of laboratories. Fifty-two regulated items were found contamimated above recommended limits. Sixty non-regulated items were found contaminated with uranium.

Hand Score Summary

There were 47,861 alpha and 50,948 beta scores reported. About 0.15 percent of the alpha and about 0.12 percent of the beta scores were high. No attempted reduction was indicated on one high alpha score from 222-B, and four beta scores, 3 from 222-B and 1 from 100-H Area. Where decontamination was attempted, it was successful in all cases reported.

Health Instrument Divisions

PERSONNEL METERS

Pencils

	100-B	100-D	100-F	100-H	E&N 200	200-W Constr* 200-W 11,072*	300	Total	1951 To Date
Pencils Read	17,338	16,293	14,601	9,769	25,447	34,426	36,019	164,965	633,283
Single Readings (100 to 280 mr)	22	16	17	10	41	56 11*	39	212	804
Paired Readings (100 to 280 mr)	0	0	0	0	0	0	0	0	6
Single Readings (Over 280 mr)	18	21	21	17	22	38 16*	40	193	890
Paired Readings (Over 280 mr)	0	0	1	0	1	0	2	4	20
Lost Readings	1	1	0	0	0	1	0	3	26

Of the four significant pencil readings reported, only one was 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.T. 200-N	200-W	300	Total	1951 to Date
Badges Processed	2,714	2,630	4,163	1,947	2,284	524	4,134	6,678	25,074	99,517
Number Readings (100 to 300 mrep)	7	35	37	22	56	0	85	121	363	1,420
Number Readings (300 to 500 mrep)	0	1	5	0	2	0	3	2	13	109
Number Readings (500 to 1,000 mrep)	0	0	0	0	0	0	0	0	0	24
Number Readings (Over 1,000 mrep)	3*	0	0	0	0	0	0	0	3	7
Lost Readings	0	0	1	0	0	0	1	3	5	33

*Gamma over 300

Lost readings were accounted for as follows:

Badge lost in area	2
Light struck	1
Stuck film	1
Sensitive film not packaged	1
Total	5

Investigation of the above lost readings indicated no possibility of an overexposure.

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Health Instrument Divisions

Badge Resume, Construction Areas

	200-W Const.	200-E Const.	Total	1951 To Date
Badges Processed	3,920	2,726	6,646	25,176
Number Readings (100 to 300 mrep)	27	6	33	108
Number Readings (300 to 500 mrep)	1	2	3	24
Number Readings (500 to 1,000 mrep)	0	1	1	11
Number Readings (Over 1,000 mrep)	0	0	0	1
Lost Readings	1	1	2	5

Total badges processed 1951,	Operation	99,517
	Construction	25,176
	Total	124,693

In addition to the badge program, a total of 1,321 items of a 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	55	80	126	66	269	596	2,316
Number of significant readings	0	12	10	4	15	41	112
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	43	146	57	128	47	421	1,291
Special	0	5	12	0	20	37	97

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CONTROL AND DEVELOPMENT DIVISION

CONTROL GROUPS

Site Survey

Levels of radioactive contamination in drinking water and test wells did not differ significantly from previous measurements. The maximum activity density of beta emitters in any drinking water source was 2.4×10^{-7} μc/cc as measured in a sample taken at Pasco. The highest activity density measured in sludge taken during backwashing of the sand filters at the Pasco Filter Plant was 1.6×10^{-3} μc/gram. The activity density of beta emitters in the Columbia River remained essentially the same as last month; the higher levels of 7 to 8×10^{-6} μc/cc were measured in samples taken near Hanford. Cross-section surveys in the Columbia River were taken during the time of ferro-floc "basin flushing" at the 100-B Area; radiochemical analyses of the water indicated significant correlations with the iron concentrations and turbidity of the water. Aerial photographs confirmed the channelling of the ferro-floc and radioactive contamination in the river between 100-B and 100-D Areas. These findings are in agreement with the results obtained in December, 1950, at 100-H and 100-F Areas.

Small increases in dosage-rates of 0.2 to 0.7 mrep/24 hours were noted in reviewing the detachable ionization chamber data; this increase was confined to the immediate environs of the separations area. Filterable beta emitters in the air increased by a factor of about 3 at most locations. I^{131} in the atmosphere as measured using scrubber solutions indicated significant increases this month. The average I^{131} concentration inside the 200-E Area was 3.8×10^{-11} μc/cc, 10 to 15 times higher than last month. The maximum weekly averages in the 200-W and 200-E Areas were 2.7×10^{-10}, and 1.0×10^{-10} μc/cc; spot scrubber measurements during daylight dissolving indicated some values exceeding the maximum permissible level of 3×10^{-9} μc/cc.

The activity density of I^{131} on vegetation near the separations area was about twice the level measured during March. The average activity density of I^{131} at the point of maximum deposition near the 200-W Area was 1.5×10^{-3} μc/gram, with a maximum of 4×10^{-3} μc/gram. Average levels in the Tri-City Area varied from 6×10^{-6} μc/gram to 2.1×10^{-5} μc/gram; the highest individual measured value was 6.6×10^{-5} μc/gram as sampled at the Kennewick Highlands.

The increased quantities of I^{131} measured in the atmosphere and on the ground were attributed to the dissolving of irradiated metal of reduced cooling time and to dissolving during daylight hours as well as at night.

Stack monitoring of the effluent in the 200-W Area during April confirmed the increased stack emission of I^{131} to the atmosphere reported last month. Current measurements indicate that about 10 to 13 curies of I^{131} are discharged into the atmosphere daily; this figure represents 1.5 to 2% of the calculated amount of I^{131} in the uranium before dissolving. Preliminary measurements of the I^{131}

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in the canyon air as sampled between the stack and the sand filter indicates that at least 50% of the total I^{131} measured in the stack comes from that source.

The results of monitoring for radioactive contamination in the 100, 200, and 300 Area waste systems were within expected levels.

Bioassay

Five hundred and eleven urine samples were analyzed for plutonium; seventy-four spiked and blank urine samples were processed as controls. Plutonium measured in urine samples using the present T.T.A. extraction method averaged 0.04 dis/min. The average recovery yield during the month was 91%. One set of urine samples was discarded due to a low recovery yield (55%); these individuals are being resampled. One urine sample indicated 0.44 dis/min; a resample is in process. Resamples of 2 individual cases reported to be above the detection limit of 0.33 dis/min indicated 0.04 dis/min.

Followup of a previously confirmed high sample which included a bi-weekly urine sample and a bi-monthly feces sample indicated a probable body deposition of about 0.01 µg plutonium based on the urine analysis. The fecal extraction curve appears higher than that expected when using the equations of W. Langham; this conceivably indicates release of plutonium from the lungs through ciliary action.

Five hundred and seven urine samples were analyzed for fission product isotopes; 72 samples were processed as controls. None of the above urine samples exceeded the reporting level of 10 counts per minute. The four special incident samples reported as positive last month were resampled; these values were all less than 10 counts per minute.

Two hundred urine samples were analyzed for uranium by the fluorophotometer procedure. Samples were taken from individuals after possible exposure to four days on the job and then sampled after two days of no exposure. A summary of the results of analyses of these samples appears below:

Job Description	END 4TH DAY OF EXPOSURE µg/liter Maximum	Average	END 2ND DAY, NO EXPOSURE µg/liter Maximum	Average	TOTAL NUMBER SAMPLES
Canning	9	4	4	2	42
Machining	35	9	7	4	30
Melt Plant	40	15	46	14	13
Material Handling	15	15	7	4	6
Inspection	17	5	16	3	20
Car unloading	58	10	3	1	54
305 Building	2	2	2	2	6
Clerical	3	3	3	2	5
Random	1	2	-	-	-

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Seven hundred and one urine samples were analyzed for tritium oxide; 705 samples were run as controls, and 206 were processed as reruns to confirm values of the original analyses. Two hundred and twenty-six air samples and control samples were also processed for tritium oxide. The hydrogen counter is almost exclusively used for the tritium oxide measurements. Six hundred and fifty-one urine samples indicated < 5 μc/liter with the remainder indicating positive values as follows:

TRITIUM OXIDE IN URINE
μc/liter

Concentration Group	5	5-10	10-20	20-50	50
Number of samples	651	26	15	9	0

Analytical-Control Laboratory

A slight improvement has been noted in the over-all operation of the end window beta-gamma counters. Difficulties with a "shifting x" on the counters still necessitates frequent geometry checks to cancel the fluctuations in counting efficiencies of these counters.

Measurements for the activity density of alpha emitters in large volume water samples have indicated low recovery yields. A method employing the use of a continuous extraction process appears more satisfactory than the present one.

Quantitative analysis of pile area effluent water continued with most of the effort directed on the rare-earth fraction. An isotope of 56-64 hour half-life in this rare-earth fraction has not been specifically identified.

Tritium oxide was measured in 17 samples taken from the P-13 water system during the period March 8 to 29. The results indicated a continuous buildup of tritium oxide in the P-13 water from initial exposure of water on March 8 until this water was changed on March 29. After correcting the tritium oxide concentration for dilution effects caused by the periodic addition of fresh water to the system, it is estimated that the concentration buildup is about 7 μc/liter per operating day, or about 30 μc/liter per day if exposed in the pile 24 hours per day. The source of this activity has not yet been determined.

It now appears that tritium oxide is present in the condensate of the pile gas driers. One sample collected at 100-D Area indicated 80 mc/liter of condensate; condensate from the #2 drier of 100-H Area indicated 4.6 mc/liter of condensate. These values have not been confirmed and are being checked; a sample has also been submitted to confirm these results using the mass spectrograph.

Work continued with the contaminated glassware from the tritium operations. The active material on the glassware was found to emit mainly soft X-rays.

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A summary of samples analyzed and measurements made in the counting room follows:

Laboratory

Type Sample	April 1951	1951 To Date
Vegetation	1231	5551
Water	2431	7463
Solids	152	1106
Fluorophotometer	584	2708
Special Survey Analyses	27	112
Air Sample Analyses	165	651
Total	4590	17591

Counting Room

Beta measurements (recounts included)	5370	18053
Alpha measurements (recounts included)	3499	14005
Control points (beta and alpha)	2444	8468
Decay curve points	2987	9270
Absorption curve points	159	1150
Total	14359	50946

Calibrations

	Number of Routine Calibrations		
Radium calibrations:	March	April	1951 To date
Fixed Instruments			
Gamma	327	265	1,098
Portable Instruments			
Alpha	354	300	1,202
Beta	697	611	2,481
Gamma (radium)	1,310	1,255	4,717
X-ray	3	5	12
Neutron	3	3	9
Total	2,367	2,174	8,421
Personnel Meters			
Beta	778	773	3,182
Gamma (radium)	5,860	6,475	28,483
X-ray	3,023	816	11,815
Neutron	59	28	118
Total	9,720	8,092	43,598
Grand Total	12,414	10,531	53,117

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Synoptic Meteorology

Forecasts	April 1951 Number made	Percent Reliability
Production	90	87.6%
24-hour	60	88.0%
Special	25	80.0%

The month as a whole was unusually dry and clear. Relative humidity averaged 37%, or 10% below normal. Sky cover (scale 0-10) averaged only 3.2. This was only about half the normal cover of 5.4. There were 18 clear days -- 11 more than the normal number for March.

Although all measurable precipitation occurred on the 27th and 28th, the total for the month (0.53 inch) exceeded normal by 0.15 inch. A heavy shower on the 28th brought 0.28 inch in 25 minutes (1735 to 1800).

The rain of the 27th broke one of the longest dry spells of record for this time of year. Prior to the 27th there had been no precipitation since March 29 -- no measurable amount since March 15.

Temperatures averaged 54.1°F.-- slightly above the normal of 53.8. The highest was 82 on the 27th. The lowest was 26 on the 21st.

Windspeeds averaged near normal. There was no unusually high wind, and there was no blowing dust. However, dust in the air (not picked up locally) restricted visibility for a brief period on the 18th. This cloud of dust moved in from the north. It accompanied a cold front which passed the station at 1515.

DEVELOPMENT GROUPS

Experimental Meteorology

Trajectory analysis was continued.

Measuring courses for oil fog emission tests were completed. Theoretical studies included considerations of the structure of small scale atmospheric vortices and elaboration of the theory of behavior of a plume between its vertical emission from a stack and its eventual horizontal motion.

Industrial Hygiene

Studies of the atmospheric contamination in the metal fabrication area were completed except for X-ray diffraction analysis of collected samples.

Conventional industrial hygiene studies included determination of carbon monoxide exposures in the 700 Area and 1100 Area garages, where substandard conditions

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were found, a study of "Ditto" operations, an analysis of stencil correction fluid, and a report on toxicity and the proper use of pesticides and weed killers.

Geology

Ground water contamination levels in the 200 Areas did not change materially. Decreased activity density was found in ground water around the 241-T-361A reverse well area. As yet there was no detectable water contamination from the tank leak reported last month. There was no significant change in the ground water contamination beneath the 300 Area.

No significant activity was detected in the special 100-B Area wells.

Liquid samples from wells around the second cycle crib in the 241-T Area were obtained through perforations at depths between 30 and 45 feet. Some of these were exceptionally active (up to 6×10^{-3} μc f.p./cc and 10^{-4} μc (alpha emitters) per cc. This lateral spread of contamination will be followed when necessary test holes become available.

A sediment sample from the well 1 (46 feet) in the same area showed the highest beta contamination to date (1.3×10^{-3} μc/gm.) The last of the projected wells for the 300 Area investigations was completed into bedrock. The water level in the well was some 40 feet higher than the natural water table. The origin of the artesian head has not yet been determined.

Soil Science

The influence of pH on removal of plutonium from solution was tested over the range pH 0 to pH 14 for earth materials from a new crib. Percent removal was as follows:

pH	0	1	2-3.5	3.5	3.5-8	8-12	13-14
%	47	58	> 99	99.88	> 99	> 83	99.97

It appeared that pH 3 to Ph 7 would be an appropriate range for crib disposal.

Methods Development

Testing of the electrodeposition-nuclear track film process for plutonium analyses continued at the Bioassay laboratory. Yields averaged 90% on one series of runs with glass plating cells, and close to 100% with the new plastic plating cells. The standard deviation of the values was 11-13%. The efficiency of the NTA film, as determined by exposing a known source, averaged 48% with variations wider than expected, and no apparent correlation with sample results. Emulsion backgrounds were on the order of 0.003 d/m with blank samples about 0.016 d/m. It is felt that this process is about ready for routine use in

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spite of the unexplained variations encountered in the film efficiency and the yields at a level of 3 d/m. At the level of ordinary samples, these variations will be insignificant compared with the statistical fluctuations in number of events measured. A new electrodeposition unit to handle 16 samples is nearly completed in design.

A series of fillings were made on the alcohol-argon GM tubes to be used in the calibration of tritium-hydrogen samples. The effects of various argon pressures and hydrogen pressures were investigated. Satisfactory plateaus were obtained with 1.2 cm alcohol, 8 cm argon, and 0.4 cm of hydrogen, although the plateau length decreases from the 6 inch tube to the 18 inch tube. The counting rate measured with an external gamma source was reproducible to within 3% on repeated fillings.

Studies of the group analysis procedure with phosphorus indicate little cross contamination of the groups if about 10 mg of phosphorus carrier are added. Studies with Cs, Ce, and Fe, indicated adequate separation of the 5 groups but poor differentiation between subgroups 3A and 3B in the procedures used. A test of the molybdate procedure for phosphorus indicated adequate recoveries if sufficient carrier was added to give 50-100 mg of precipitate.

Physics

The proportional counting of tritium as hydrogen in an argon-methane counting gas was applied to two problems. A sample of hydrogen formed by electrolysis was found to be 43 $\pm$ 13% as active as a sample of hydrogen formed by mixing water and calcium.

An active water sample was evaporated to half volume and then a hydrogen sample formed and measured; experimentally, the same activity density was found before and after the evaporation. This verified that there was no appreciable difference in the rate of evaporation of ordinary and tritiated water.

A range-energy relationship for NTB emulsions was calculated using the Bethe-Bloch formula. The results are believed to be accurate to within 10% for energies above 2 Mev. More refined calculations following Bethe are being made to achieve similar accuracy below 2 Mev.

One hundred and seventy additional tracks were examined on the Po-Be, lead-shielded slide. They were in agreement with those previously measured. It is now sure that Po-Be and Ra-Be give about the same neutron spectrum in contradiction to the results of DeMers.

The gamma flux, predominantly from the ~6 Mev radiation of N^{16}, in the near-downcomer room at 100-H Area was measured with graphite and aluminum walled ion chambers. By interpolation between these, the reading of an air wall chamber was deduced and the dose-rate determined. The readings of several gamma instru-

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ments were then compared to this standard. Normalized to the standard, the results were:

Standard ion chambers	1.00
CP (shield on or off)	1.04
Juno (shield on or off)	~ 1.13
Beckman	1.11
Totem Pole	1.03
Film packets, open window, read on open window radium gamma calibration by Metering and Filing	0.86
Film packets, shielded, read on shield radium gamma calibration by Metering & Filing	1.32
Pencils	1.00

A portion of a cadmium poison slug has been obtained and canned to serve as a 0.5 Mev source. It is currently being monitored with an electroscope to make sure that the source exhibits only the half-life of the activity wanted.

The Po-B neutron source #182 has been compared to Ra-Be sources in the sigma pile by indium foil activation again. On April 27, 1951, it was found to emit 8.48×10^{7} n/sec. This agrees with the previous determinations after correcting for the half-life of Po.

A comparison of Ra-Be source 68B and Pile Technology's Ra-Be source #3 was made. The ratio of 68B to PT-3 was found to be 1.074 ± 0.003. This comparison was made because Pile Technology expects to have their source calibrated by the National Bureau of Standards sometime soon.

Instrument Development

A scintillation probe for I^{131} was built and partially tested. The probe uses an anthracene crystal, lead-shielded to reduce background and give a controlled collimating effect. The detector's sensitivity was investigated with a point radium source and a radium gamma beam about 3 mm in diameter at the receptor. The point source response curve was normal, and the beam curve showed a constant sensitivity within 5% of center value out to a radius of 2 mm less than that of the collimator. The detector shield was 27 mm thick lead with a 19 mm diameter collimating hole.

A scintillation needle counter was built and tested unsuccessfully. The difficulties appear to stem from (1) too much absorber in the needle wall and end plug, and (2) poor light transmission to the photomultiplier. At period's end, the #15 hypodermic needle had been reamed out to a 0.004 inch wall thickness, a larger crystal had been cut and mounted, the lucite light pipe was joined to the crystal with Canada balsam, and thin walled aluminum tubing of appropriate diameter ordered.

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An ionization chamber for measuring tritium uptake by enzymes has been finished and the necessary shields, mounts, etc. are being built.

Preliminary designs of smoke monitoring equipment using an ultra-violet fluorescence detector are being sketched, and suitable ultra-violet producing equipment is on order.

The study of gases and/or gas mixtures for proportional counting of tritium at atmospheric pressure had yielded data which indicate that good results may be obtained with hydrogen using a 0.010 inch wire at 3800-4300 volts with an amplifier gain of about 1000 and 1 millivolt input sensitivity. Such a system would have the advantage of shorter resolution time than attainable with an externally quenched geiger or limited proportional counter. Freon and a mixture of 10% freon and 90% argon were also investigated. Neither showed promise as a proportional counting medium because of multiple pulsing and/or excessively wide range of pulse heights. However, freon-argon may be usable in the geiger region and will be investigated further.

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BIOLOGY DIVISION

Analyses Group

1. Radioactivity in Carcasses

Radium determinations have been run on aliquots of cadaver ashes from five adults by chemical separation of the radium and counting. In the samples run, activity levels from 0.38 x 10^{-10} gm Ra/total ash to 1.2 x 10^{-10} gm Ra/total body ash were observed.

2. Alpha and Beta Analyses of Organic Material

In order to confirm the previously reported high percentage of radio copper found in aquatic organisms from the river, other analytical methods were tested. Analysis by electrodeposition gave good yields, and this method was applied to river algae confirming previously reported values.

3. Radioelements in Organisms in Pile Effluent

Two samples of Hydropsyche Cockerelli and one algae sample were analyzed for beta emitters. The results, although not as yet confirmed by decay studies, indicate Na^{24} and P^{32} as the prime beta emitters in the insects with traces of Cu, As, Fe, Zn, and rare earth isotopes. Analyses of an algae sample confirmed previous studies; beta emitters are primarily composed of the isotopes of Cu and P with traces of Na, Fe, the rare earths, and As isotopes.

Samples of river algae were analyzed for Pu with negative results.

4. Physical Processes Affecting Methods for Isotope Use

Further standardizations were made to determine the efficiency of the vibrating reed electrometer when used for measuring tritium. Results confirmed previous measurements showing an average yield of 60% ± [4] %.

Samples of CaC_2 were analyzed for Ra content to determine if varying amounts of Rn, released during C_2H_2 generation, could cause the observed background in tritium measurements. Approximately 1 d/m Ra/gm of CaC_2 was found, a value high enough to explain the background readings.

Work continued on experiments using the Tracerlab windowless flow counter to count liquid samples containing tritium oxide. Over 100 calibrated samples of varying activity were counted, and the results plotted on a graph of counting rate vs. sample activity. A straight line with a slope of 0.45 ± [04] c/m/ mμc/cc was found. The method has been applied to routine use.

5. Waste Disposal Methods for Biological Specimens

Inactive

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6. Physical Chemical Methods for Dosimetry due to Deposited Isotopes

Six samples of particles from the 200-E Area off gases were tested for solubility in acid, water, and blood plasma. Complete solubility in acid was observed, but only partial solubility (24 hour exposure in the solvent) was found for the latter two liquids.

Approximately 50 samples of exudate from a dog were analyzed for Pu in conjunction with the Physiology group bone deposition studies.

Services

Analytical services to other biology groups included the analysis of approximately 2400 samples, and the taking of approximately 5400 alpha and beta counts, including decay and absorption studies.

Aquatic Biology Group

1. Effect of Pile Effluent Water on Aquatic Organisms

Chinook salmon monitoring studies continued without unusual incident.

2. Biological Chains

As a result of higher metabolism rates due to higher temperatures, the activity density of the 2-year old rainbow trout held in 5% pile effluent was about twice as high as last month.

TABLE 1

Water Condition	Food	Activity density ($\mu c/gm$) x 10^5 Fish scales	Water
River water	Normal diet	2.1	0.3
5% effluent	Normal diet	55	~ 7
5% effluent	10% active algae	86	~ 7

Some of these fish have reached maturity and eggs have been obtained.

3. Radiobiological-Ecological Survey of the Columbia River

The spring freshet period started, and collection of bottom organisms was

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impeded. Juvenile fish were still readily available along shore, and the relatively great numbers of young chinook salmon indicated unusually successful spawning in this area last fall.

The activity density of the plankton was about one-third that observed last month. Conversely, the activity density in juvenile fish increased as warmer water became available. The activity density of invertebrates remained about the same. In the vicinity of Hanford, average figures amounted to 6.3×10^{-3} μc/gm for plankton, and 9×10^{-5} μc/gm for small fish. For large fish, a maximum activity density of 3×10^{-4} μc/gm was found in the liver of a sucker; the maximum value for flesh amounted to only 5×10^{-5} μc/gm.

4. Control of Algae in 107 Retention Basins

No progress.

Biochemistry Group

1. Relative Biological Effects via Biochemical Systems

Attempts were made to correct several anomalies observed in the growth of L. Casei on the suboptimal culture medium used in this problem.

2. Absorption of Pu from the G.I. Tract

Both the control rats and the rats receiving Pu appeared to be in good health. In order to shorten the duration of this experiment, two feedings per day were initiated - one in the morning and one in the late afternoon.

3. P-10 Biological Hazards Investigations

A tabulated summary of findings to date (Table 2 and Table 3) on percutaneous absorption of tritium oxide follows. Included are previously reported results along with those obtained this month with earlier data modified by the completion of analyses. Absorption values for skin are given in terms of μg H_2O/cm^2 skin/minute.

4. Possible Therapeutic Agents for Radiation Damage

No progress.

5. Percutaneous Absorption of Radioelements

Since percutaneous absorption may be greatly influenced by the vascular state of the skin, methods for removing the hair from the skin of experimental animals, with a minimum of irritation, were investigated.

Services

The biological Services laboratory performed 673 biochemical, and 930 hematological determinations during April.

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TABLE 2

Animal	Exposure Period	No. of Samples	Concentration of Tritium Oxide: Liquid phase mc/g H_2O	Concentration of Tritium Oxide: Vapor phase µc/cc	Absorption Values for Skin: Immediate	Absorption Values for Skin: Equilibrium	Absorption Values for Skin: Body Water
Rats	1 hr.	42	150	~5	2.6 ± 1.4	--	2.6 ± 1.4
Rats	1 hr.(4 times)	24	150	~5	2.3 ± 1.1	4.2 ± 1.2	5.3 ± 1.2
Dogs (Young)	1 hr.	4	1500	~50	2.2 ± 1.4	--	--
Dogs (Adult)	1 hr.(4 times)	6	1500	~50	2.7 ± 0.6	3.4 ± 1.0	--
Human	1 hr.	2	75	~2.9	7*	10*	--
Human	1 hr.	1	200	~7.0	1.1	5.6	--

* These results are not reliable because readings were made near the detection limit of the vibrating reed.

The above exposures were made at a water vapor pressure assumed to be 31.8 mm Hg at 30°C. Table 3 summarizes observations on the effect of lower vapor pressures.

TABLE 3

Animal	Exposure Period	No. of Samples	Concentration of Tritium Oxide: Liquid phase mc/g H_2O	Concentration of Tritium Oxide: Vapor phase µc/cc	Vapor Pressure mm Hg	Absorption Values for Skin: Immediate	Absorption Values for Skin: Equilibrium
Rats	2-4 hrs.	26	150	0.42	2.6	1.0 ± 0.5	1.3 ± 0.5
Rats	2-3 hrs.	23	150	1.67	10.3	1.6 ± 0.7	2.1 ± 1.2*

* Incomplete results.

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The protein-bound iodine in 110 blood samples of sheep was determined colorimetrically. At the same time, the radioactive iodine present in the organic and inorganic form was determined.

The increase in coli from bacteria present in the gastro-intestinal tract of sheep receiving high doses of I^{131} was investigated.

Botany Group

1. Agricultural Field Station

The average activity density of 10 soil samples taken from the experimental plots was 2×10^{-5} /uc/gm ranging from 5.6×10^{-6} to 3.1×10^{-5} /uc/gm.

2. Translocation of Radioelements in Plants

The absorption and translocation of Sr to the leaves of red kidney bean plants was found to be inversely proportionaly to the hydrogen ion concentration of the root nutrient medium over a range of pH 4.0-6.0, in a single experiment in which one mg of Sr and 0.099 /uc Sr^{90} were used per liter of solution. The amount of Sr in leaves of plants grown in a nutrient medium of pH 7.0 was less than that of leaves of plants grown in a medium of pH 6.0, but the maximum concentration of Sr in roots occurred at a root nutrient pH of 7.0.

Red kidney bean plants grown for four days, in a nutrient solution of pH 6.0 that contained 1 mgm of Sr and 0.099 /uc Sr^{90} per liter, absorbed and translocated to the leaves twice as much Sr, 40 /ug per gm of dry matter, as Russian thistle plants grown under the same conditions. Wheat and tomato plants were intermediate in their ability to absorb and translocate this element.

3. P-10 Botanical Investigations

In the experiment reported last month 375 /uc, instead of 3.5 mc, of tritium should have been reported present in Azotobacter v. cells. Approximately 10% of the activity was found to be present in the ammonia obtained in a Kjeldahl analysis. Another 60% was found as tritiated water after acid hydrolysis of the cellular material, thereby indicating that exchange reactions probably occurred. Further fractionations to determine the chemical sites of the incorporated activity are in progress.

Azotobacter v. fixed approximately 0.16% of tritium oxide, from a solution of 62 mc/liter, into its cellular material.

In 24 hours a culture of E. coli fixed 0.013% of the tritium oxide, from a solution of 62 mc/liter, into its cellular material and 0.45% into the soluble solids of the culture medium. Only 2% of the activity in the soluble solids was found in the organic acids fraction.

In a series of short experiments initiated to provide a means for rapid semi-quantitative activity density determinations, a near linear relationship between the count and the amount of tritium activity in tritiated organic compounds was observed. Sample weights were less than 1 mg/plate; counts ranged from 1,000 - 5,000/m.

Preliminary experiments indicated the practicability of using a Parr bomb for combusting organic materials containing tritium. The addition of a small amount of flammable substance such as octyl alcohol proved necessary for complete combustion.

4. Effects of Radiation on Plant Life

An experiment under greenhouse conditions, in which P32 levels of 0, 25, 100 and 250 μc per plant (and per liter in the nutrient medium) were used, yielded no significant differences in weights of plant parts or content of phosphorus at the end of an eight day growing period. However, the extremely large within-sample variation was troublesome.

The uptake of Y by excised barley roots was reduced below that of controls at levels of 50 μc/liter. At 1000 μc/liter the uptake of Y was only one-third that of controls. These results are somewhat similar to those obtained earlier for like experiments with P^{32}.

Physiology Group

1. Biological Effects of Active Particles

Inactive.

2. Bone Metabolism of Radioelements

The animal to which Pu^{239} was administered in the amount of 0.12 μg/gm progressed uneventfully for three weeks, at which time loss of appetite and general listlessness were apparent. Pu toxicity was indicated, although only one-third the LD_{50} 30 days had been given. It was decided to resect another rib before the animal became too debilitated, but while the surgery was successful, the animal did not survive beyond the next day.

3. Techniques in Autoradiography

No report.

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4. P-10 Hazards Biological Investigation

The apparatus for administration of tritium via the respiratory system was made operable. The experimental rat does not follow exactly the normal respiratory pattern because of the inability to construct a mechanical system accurately proportioned to the volume flow and pressure differentials found in rat respiration; the longevity of the animal under the experimental conditions indicated that no major change in lung ventilation occurred.

Dissolution of the subject in 50% potassium hydroxide with distillation and combustion of the tritium and tritium oxide finished the procedure. By proper arrangement of dry ice traps, the separation of tritium from tritium oxide was effected.

Services

150 slides were made during the month. Photographs and autoradiographs were also made.

Zoology Group

1. Biological Monitoring

Waterfowl

Due to mating and nesting now in progress no waterfowl was sacrificed for activity density studies.

The monthly aerial census revealed a total of 837 waterfowl within the plant boundaries. This is a reduction of 13% from last month and represents changes in numbers and species abundance due to northerly migration of several species of ducks.

A survey of Canada geese nesting on the islands of the river revealed a thirty percent increase in number of nests and a fifty percent increase in total number of eggs over those counted in 1950.

Upland Wildlife

There was a general increase in thyroid activity densities during the month. Rabbits taken near the 300 Area, near 200 East Area and in the vicinity of 100-F Area all showed thyroid activity densities exceeding the chronic MPC for man. Maximum density found was 1.4×10^{-2} /uc/g.

A ring-necked pheasant taken near the 1100 Area showed a thyroid activity density of 7.2×10^{-2} /uc/g.

[redacted]

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Health Instrument Divisions

2. Toxicology of I^{131} in Stock Animals

Upon completion of the first year of feeding daily increments of I^{131} to mature ewes, thyroids of the 240 μc/day group were reduced to only about 5 percent of their original iodine holding capacity. Other groups were not affected.

Lambing operations were almost completed during this period. Eighty-six ewes gave birth to 140 lambs.

Ten ewes in the 240 μc/day group dropped 14 lambs. One of these was a monster, not necessarily due to radiation effects.

Of the 14 lambs dropped in the 240 μc/day level none survived beyond 3½ days.

The wool coat on these lambs varied from normal to almost complete alopecia. The thyroid glandular tissue found varied from moderate amounts in some to an almost complete athyroidal condition in others. In those whose thyroids were most severely affected there was an involvement of the trachea adjacent to the gland.

The eleven ewes that lambed in the group receiving 5 μc/day dropped 19 lambs and to date all these lambs survived. This was the best lamb survival rate of any group.

All of the nine ram lambs previously placed (February 12, 1951) on a feeding regimen containing 480 μc of I^{131}/ram/day have indicated thyroid damage as registered by a drop in external counting rate.

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GENERAL ACCOUNTING DIVISION
MONTHLY REPORT

April 1951

Revision of Hanford Works Instructions Letter No. 67 was issued outlining changes in overtime payment practices for monthly paid employees.

Revised Hanford Works Instructions Letter No. 115 was issued setting forth the procedure to be followed in completing Monthly Attendance Reports including changes made necessary as a result of revision in overtime payment practice. Monthly Attendance Report, Form P-273-D, was revised to permit recording of attendance during the period from the first of the month to the end of the month rather than from the 16th of the previous month to the 15th of the current month.

There were 9 Auxiliary Firemen who had filed claims in November 1950 for fire brigade pay under the provisions of the agreement reached between Hanford Atomic Metal Trades Council and General Electric Company. Investigation of these claims was completed in April and it was determined that the 9 Auxiliary Firemen were eligible for Auxiliary Fire Brigade pay. Accordingly, payment was made to them in the total amount of $306.26.

Quarterly Federal and State Tax Reports were prepared and filed with the respective government agencies during the month of April.

Report of the study and analysis of payroll practices and procedures prepared by a representative of IBM was received during the month of April. The report is being studied and analyzed and a meeting will be arranged with the IBM representative in May for discussion of his proposals.

During the month of April approximately 1,000 man hours were expended compiling necessary statistics in connection with Wage Stabilization Regulations 5 and 6.

Effective April 30, 1951, two Plant Accounting field representatives were assigned to the 100 Areas, two to the 200 Areas, and two to the 300, 700, 1100 and 3000 Areas. These representatives will maintain headquarters in their respective areas and will act as liaison between operating personnel and the Plant Accounting Section. Their responsibilities will include periodic inventories of selected plant accounts, audit of project completion reports, review of depreciation rates and recommendation of changes in rates, review of charges from work orders, classification of additions to plant accounts, and other related work.

In view of the continued increase over the past several months in volume of work in the Accounts Payable Section, the entire Section began working a six-day week effective April 16, 1951. It is expected that daily work can be handled on a current basis and that an accumulated backlog of unaudited completed files can be reduced through working this extra day.

Budget estimates for FY-1953 and revision of estimates for FY-1952 were completed for General Divisions (including Technical) Kadlec Hospital, Research and Development, P-10 Program, Graphite Storage, 700-Area, Equipment and Construction Projects. All estimates were accompanied by narrative justifications and considerable statistical information.

General Accounting Division

Advances from AEC decreased from $6 500 000 as of March 31, 1951 to $4 500 000 as of April 30, 1951. Advances are accounted for as follows:

	April	March
Cash in Bank - Contract Accounts	$3 871 689	$5 596 364
Cash in Bank - Salary Accounts	50 000	50 000
Cash in Transit	153 311	428 636
Advances to Subcontractors	300 000	300 000
Travel Advance Funds	125 000	125 000
Total	$4 500 000	$6 500 000

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

	April	March
Disbursements		
Material and Freight - GE	$ 2 544 983	$ 2 380 070
Payrolls - GE (Net)	2 057 080	2 530 812
Payments to Subcontractors	4 436 526	4 015 533
Payroll Tax	737 409	396 907
General & Administrative Expenses	200 000	200 000
Stock Bonus Plan - Employers Contribution	-0-	168 451
U. S. Savings Bonds	162 146	140 325
Others	307 323	409 811
Total	$10 445 467	$10 241 909
Receipts		
Rents	$ 125 428	$ 124 438
Refunds From Vendors	843	11 308
Hospital	68 809	51 598
Income From Special Funds	-0-	40 277
Telephone	14 324	18 265
Miscellaneous Accounts Receivable	11 975	21 940
Bus Fares	9 461	9 315
Scrap Sales	4 946	24 236
AEC Cost-type Contractors	41 435	1 212
Cost of Delivering Material to Buyers	5 879	-0-
Other	9 056	10 684
Total	$ 292 156	$ 313 273
Net Disbursements	$10 153 311	$ 9 928 636

General Accounting Division

STATISTICS		Monthly	Weekly
Employees and Payroll	Total	Payroll	Payroll
Employees on Payroll at beginning of month	8 051	1 955	6 096
Additions and transfers in	291	18	273
Removals and transfers out	(171)	(22)	(149)
Transfers from Weekly to Monthly Payroll	--	18	(18)
Transfers from Monthly to Weekly Payroll	--	(1)	1
Employees on Payroll at end of month	8 171	1 968	6 203
Number of Employees		April	March
Bargaining group - HAMTC		3 112	3 099
Bargaining group - Building Services		70	69
Other weekly		3 021	2 928
Two platoon firemen		57	57
Executive, administrative and operating		1 321	1 295
Professional		552	564
Other monthly		38	39
Total		8 171	8 051
Number of Employees			
Manufacturing		3 264	3 232
Technical, Engineering and Construction		1 729	1 691
Municipal		226	230
Real Estate and General Services		432	425
Health Instrument		441	434
Employee and Community Relations		110	105
Plant Security and Services		1 051	1 037
Purchasing and Stores		383	373
Medical		282	279
General Accounting		195	189
General Administrative		58	56
Total		8 171	8 051
Overtime Payments			
Weekly Paid Employees		$101 707 (1)	$110 418 (2)
Monthly Paid Employees		38 692	28 291
Total		$140 399	$138 709
Number of Changes in Salary Rates and Job Classifications		1 555	1 058
Gross Amount of Payroll			
Manufacturing		$ 1 299 130	$ 1 574 523
Technical, Engineering and Construction		661 121	723 088
Municipal, Real Estate and General Services		224 080	272 163
Other		818 439	972 207
Total		$ 2 932 770 (3)	$ 3 541 981 (4)

(1) 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 March 1, 1951 to March 31, 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) Includes payments for the four (4) week period ended April 22, 1951 in the case of weekly paid employees.

(4) Includes payments for the five (5) week period ended March 25, 1951 in the case of weekly paid employees.

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General Accounting Division

Annual Going Rate of Payroll	April	March
Base	$34 129 425	$33 746 807
Overtime	1 927 094	1 588 608
Isolation Pay	1 060 502	1 038 613
Shift Differential	422 612	406 441
Other	51 547	47 389
Total	$37 591 180	$36 827 858

Average Hourly Base Rates		
Bargaining group - HAMTC	1.939	1.947
Bargaining group - Building Services	1.492	1.495
Other weekly	1.609	1.610
Two platoon firemen (monthly rate ÷ 173.9 hours)	1.877	1.883
Executive, administrative and operating	2.793	2.783
Professional	2.680	2.702
Other monthly	2.188	2.150
Total	2.078	2.067

Average Earnings Rate Per Hour (1)

	April			March (2)		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	$2.106	$2.808	$2.225	$2.115	$2.807	$2.233
Technical, Engineering & Construction	1.697	2.785	2.118	1.699	2.782	2.135
Municipal, Real Estate & General Services	1.861	2.368	2.019	1.867	2.373	2.026
Other	1.703	2.683	1.878	1.703	2.680	1.878
Total	$1.886	$2.723	$2.078	$1.893	$2.721	$2.086

% Absenteeism	April	March
Weekly - Men	2.81	3.93
Weekly - Women	3.67	5.73
Total Weekly	3.03	4.70
Monthly	2.08	2.74
Grand Total	2.80	4.06

Employee Benefit Plans		
Pension Plan		
Number participating at beginning of month	6 494	6 530
New participants and transfers in	65	54
Removals and transfers out	(102)	(90)
Number participating at end of month	6 457	6 494
% of eligible employees participating	95.4%	95.6%

(1) Includes shift differential and isolation pay. Excludes overtime premiums, commissions, suggestion awards, etc.

(2) March statistics recast to reflect the average earnings rate of Technical, Engineering and Construction Divisions as a group.

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General Accounting Division

Employee Benefit Plans (continued)

Pension Plan (continued)

	April	Total to Date
Employees Retired	2	162-a)
Number		
Aggregate Annual Pensions Including Supplemental Payments	$253	$38 297-b)
Amount contributed by employees retired	633	25 832

(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	April	March
Number participating at beginning of month	7 759	7 715
New participants and transfers in	268	199
Cancellations	(13)	(14)
Removals and transfers out	(71)	(141)
Number participating at end of month	7 943	7 759
% of eligible employees participating	96.1%	95.3%

Dependent Coverage		
Number participating at beginning of month	5 026	5 029
Additions and transfers in	96	89
Cancellations	(6)	(6)
Removals and transfers out	(70)	(86)
Number participating at end of month	5 046	5 026

Claims - Disability Benefits (2)

Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	238	150
Daily Hospital Expense Benefits	263	127
Special Hospital Services	286	137
Surgical Operations Benefits	179	96
Dependant Benefits		
Daily Hospital Expense Benefits	359	165
Special Hospital Services	404	193
Surgical Operations Benefits	243	122
Amount of claims paid by insurance company:		
Employee Benefits	$47 524	$23 248
Dependent Benefits	40 617	20 441
Total	$88 141	$43 689

Claims - Death Benefits (3)	April	Total to Date
Number	-0-	61
Amount	-0-	$314 312

(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.

(3) 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)

Group Life Insurance

The Group Life Insurance Plan was discontinued November 30, 1950. As of April 30, 1951, 20 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 April 30, 1951, 9 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 April, 119 checks in payment of benefits of $7,989 on 82 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

	April			Total to Date		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	8	8	16	104	38	142-a)
Technical, Engineering & Construction	4	11	15	12	20	32
Municipal, Real Estate & General Services	4	1	5	13	2	15
Health Instrument	1	0	1	1	0	1
Employee and Community Relations	1	0	1	1	0	1
Plant Security & Services	3	2	5	44	16	60
Purchasing and Stores	2	0	2	7	0	7
Medical	0	0	0	2	0	2
General Accounting	0	0	0	4	0	4
Total	23	22	45	188	76	264

(a - Total to date reduced by 3 cancellations.

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General Accounting Division

Employee Benefit Plans (continued)

U. S. Savings Bonds	Mfg.	Technical, Engineering & Construction	Municipal, Real Estate & General Services	Other	Total
Number participating at beginning of month	1 505	350	269	1 310	3 434
New authorizations	30	9	3	29	71
Voluntary cancellations	(31)	(9)	(4)	(27)	(71)
Removals and transfer out	(14)	(15)	(5)	(338)	(372)
Transfers in	6	329	3	8	346
Number participating at end of month	1 496	664	266	982	3 408
Percentage of Participation					
G.E. Employees Savings and Stock Bonus Plan	40.0%	34.6%	36.1%	33.9%	36.7%
G.E. Savings Plan	11.9%	6.7%	9.1%	9.1%	9.7%
Both Plans	45.8%	38.4%	40.4%	39.0%	41.7%
Bonds issued					
Maturity value	$ 91 275	$ 39 500	$ 15 975	$ 53 800	$ 200 550
Number	1 578	670	274	954	3 476
Refunds issued	33	20	4	26	83
Revisions in authorizations	25	12	5	13	55
Annual going rate of deductions					
G.E. Employees Savings and Stock Bonus Plan	$598 040	$272 696	$103 627	$364 729	$1 339 092
G.E. Savings Plan	212 598	59 069	31 319	109 526	412 512
Total	$810 638	$331 765	$134 946	$474 255	$1 751 604

Annuity Certificates (For duPont Service)	April	Total to Date
Number issued	-0-	75

Suggestion Awards		
Number of awards	34	975
Total amount of awards	$495	$15 795

Employee Sales Plan

	April		
	Major Appliances	Traffic Appliances	Total
Certificates issued	37	225	262
Certificates voided	-0-	5	5

Salary Checks Deposited

	April		March	
	Weekly	Monthly	Weekly	Monthly
Richland Branch - Seattle First National Bank	684	847	698	836
North Richland Area Office - Seattle First National Bank	12	6	13	7
Richland Branch - National Bank of Commerce	250	190	251	189
Out of state banks (Schenectady staff)	--	3	--	3
Total	946*	1 046	962**	1 035

* Week ended 4-15-51
**Week ended 3-18-51

Special Absence Allowance Requests	April	March
Number submitted to Pension Board	4	5
Absenteeism (Weekly Paid Employees)	1951	1950
7. January 1 to April 22	3.34%	2.63%

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General Accounting Division

PERSONNEL AND ORGANIZATION

Number of Employees	April	March
On Payroll at beginning of month	189	188
Removals and transfers out	(8)	(11)
Additions and transfers in	14	12
Number at end of month	195	189
Net increase (or decrease) during month	6	1
% of terminations and transfers out	4.2%	5.8%
% of absenteeism	3.39%	5.42%

Changes by division in number of Accounting Division employees during April 1951 were as follows:

	Name
General: No Change	
Accounts Payable: No Change	
Two new hires	Elsie J. Grant
	V. B. Shwinberg
One illness removal	Elpie K. Poe
One termination	R. S. Diesner
Cost: No Change	
One new hire	J. N. Byland
One termination	D. P. Brosnan
General Accounts: Increase of one employee	
One transfer from Plant Accounting	Dorothy R. Klinefelter
Plant Accounting: No Change	
One new hire	N. R. Ballou
One transfer to General Accounts	Dorothy R. Klinefelter
Weekly Payroll: Increase of one employee	
Six new hires	Gladys R. Brightman
	Martha M. Buchanan
	Ruth G. Jacobsen
	Shirley G. Joldersma
	Catherine H. Larcom
	Lois B. Stroup
One transfer to Purchasing and Stores	Melba L. Bailey
Four terminations	Vera P. Heminger
	Lucie C. McCollum
	Edythe T. Mooers
	Jean A. Sullivan
Monthly Payroll: No Change	
One new hire	Marjorie J. Hoschouer
One transfer to Special Assignment	W. W. Kiester
Special Assignment: Increase of three employees	
Two new hires	W. I. Brown
	George Hessney
One transfer from Monthly Payroll	W. W. Kiester
Budgets: No Change	
Internal Audit: Increase of one employee	
One new hire	J. C. Cortz

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General Accounting Division

PERSONNEL AND ORGANIZATION (Continued)

Injuries	April	March
Major	-0-	-0-
Sub-major	-0-	-0-
Minor	1	1

Number of Accounting Division employees as of April 30, 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	18	1	19
Plant Accounting	27	2	29
Weekly Payroll	61	6	67
Monthly Payroll	18	1	19
Special Assignment	4	1	5
Budgets	5	1	6
Internal Audit	3	6	9
Total	169	26	195

Non-exempt employees may be summarized as follows:

	Number as of	
Classification	4-30-51	3-31-51
Accounting A	2	2
Accounting B	3	3
Accounting C	7	7
Accounting D	10	10
Business Graduate	14	12
Clerical Working Leader	9	9
Cost Clerk A	1	1
Cost Clerk B	1	1
Cost Clerk C	2	1
Cost Clerk D	3	3
Field Clerk C	2	2
General Clerk A	18	19
General Clerk B	39	37
General Clerk C	19	19
General Clerk D	8	9
General Clerk E	3	1
Office Machine Operator A	8	7
Office Machine Operator B	5	6
Office Machine Operator C	1	1
Secretary B	1	1
Steno-Typist A	3	3
Steno-Typist B	6	6
Steno-Typist C	3	3
Steno-Typist D	1	1
Total	169	164

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PERSONNEL AND ORGANIZATION (Continued)

Open employment requests as of April 30, 1951 were as follows:

Accounting B	3
Accounting C	1
Business Graduates	14
Cost Clerk C	1
Cost Clerk D	1
General Clerk A	2
General Clerk B	4
General Clerk C	1
General Clerk D	1
Total	28

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General Accounting Division

	April	March
Accounts Payable*		
Balance at Beginning of Month	$ 92 850	$ 71 794
Vouchers Entered	1 633 725	1 502 347
Cash Disbursements	1 572 976 DR	1 482 560 DR
Cash Receipts	258	1 269
Balance at end of month	$ 153 857	92 850
Number of Vouchers Entered	2 358	2 577
Number of Checks Issued	1 306	1 484
Number of Freight Bills Paid	321	375
Amount of Freight Bills Paid	$ 4 567	$ 6 133
Number of Purchase Orders Received	840	1 113
Value of Purchase Orders Received	$ 372 782	$ 451 450
Cash Disbursements		
Municipal, Real Estate & General Services	$ 242 132	$ 288 637
Engineering & Construction	5 804 269	5 201 137
General	3 792 202	4 153 697
Manufacturing	606 864	598 438
Total	$10 445 467	$10 241 909
Material and Freight	$ 2 544 983	$ 2 380 070
Lump Sum and Unit Price Subcontracts	602 886	489 917
CPFF Subcontracts		
Labor	2 950 846	2 767 076
Others	882 794	758 540
Payrolls (Net)	2 057 080	2 530 812
Payroll Taxes	737 409	396 907
U. S. Savings Bonds	162 146	140 325
Income From Special Funds	-0-	40 277
General & Administrative Expenses	200 000	200 000
Stock Bonus Plan - Employers Contribution 1950	-0-	168 451
All Other	307 323	369 534
Total	$10 445 467	$10 241 909
Cash Receipts		
Municipal, Real Estate & General Services	$ 109 897	$ 117 216
Engineering & Construction	40 942	51 009
General	8 557 077	11 203 333
Manufacturing	12 876	21 225
	$ 8 720 792	$11 392 783

*General Divisions Only

General Accounting Division

	April	March
Detail of Cash Receipts		
Advances from AEC	$ 8 428 636	$11 079 510
Rents	125 428	124 438
Hospital	68 809	51 598
Telephone	14 324	18 265
Scrap Sales	4 946	24 236
Bus Fares	9 461	9 315
Miscellaneous Accounts Receivable	11 975	21 940
A.E.C. Cost-type Contractors Accounts Receivable	41 435	1 212
Refunds from Vendors	843	11 308
Employee Sales	1 093	1 171
Educational Program	124	1 119
Income From Special Funds	-0-	40 277
Cost of Delivering Material to Buyers	5 879	-0-
All Other	7 839	8 394
Total	$ 8 720 792	$11 392 783
Number of Checks Written		
Municipal, Real Estate & General Services	264	283
Design & Construction	910	817
General	1 306	1 484
Manufacturing	755	810
Total	3 235	3 394
Bank Balances At End of Month		
Chemical Bank & Trust Company - New York Contract Account	$ 1 113 860	$ 3 034 783
Seattle First National Bank - Richland		
Contract Account	2 205 263	1 823 565
U. S. Savings Bond Account	215 748	186 919
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
Travel Advance Account	44 107	50 925
Seattle First National Bank - Seattle Escrow Account	31 685	31 685
National Bank of Commerce - Richland		
Contract Account - Manufacturing	494 698	701 562
Contract Account - Municipal, Real Estate & General Services	57 868	36 363
Total	$ 4 213 229	$ 5 915 893
Travel Advances and Expense Accounts		
Cash Advance balance at end of month*	$ 32 453	$ 41 343
Cash Advance balance outstanding over one month*	12 219	21 126
Traveling and Living Expenses:		
Paid Employees	34 017	38 866
Billed to Government	29 986	34 301
Balance in Variation account at end of month	25 656 DR	21 625 DR

*General Divisions Only

General Accounting Division

	April	March
Hospital Accounting		
Accounts Receivable		
Balance at Beginning of Month	$ 145 780	$ 128 789
Invoices Issued	60 412	73 558
Refunds	557	639
Cash Receipts	68 809 CR	51 598 CR
Payroll Deductions	6 321 CR	5 523 CR
Bad Debts Written Off	-0-	-0-
Adjustments	28 CR	85 CR
Balance at End of Month	$ 131 591	$ 145 780
Scrap Sales		
Number of Sales	18	350
Revenue (excluding Sales Tax):		
Scrap Sales	$ 4 946	$ 341 636
Tract House Sales		
Revenue to AEC	1 419	29 138
Revenue to GE	355	13 414
Total	$ 6 720	$ 384 188

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General Accounting Division

ACCOUNTS PAYABLE

Volume of work in this section continues high. The number of vouchers booked in April was 2 358 amounting to $1 633 725 and compares with 2 577 vouchers in March amounting to $1 502 347.

Number of checks issued in April was 1 306 compared with 1 484 issued in March. Details by banks are as follows:

	April	March
Chemical Bank & Trust Company	398	484
Seattle-First National Bank	908	1 000
Total	1 306	1 484

A total of 2 277 vouchers were paid in April, averaging 1.74 vouchers per check, the highest average attained to date and compared with an average of 1.70 in March.

On April 30 there were 1 378 vouchers on hand requiring additional supporting data before forwarding to AEC for final audit. Details, compared with March, are as follows:

	April	March
Number on hand - Paid	413	469
Number on hand - Unpaid	965	1 044
Total	1 378	1 513

Of the above 413 paid vouchers on hand, there were only 11, amounting to $2 552 older than 90 days, and of the 965 unpaid vouchers (including uncollected debit vouchers) only 2 were older than 90 days.

Number of freight bills paid in April was 321 amounting to $4 567 compared to 375 in March amounting to $6 125.

The General Ledger Accounts Payable balance on April 30 was $153,856.98. Details of this balance by months, compared with March, are as follows:

	April	March
October	$ 3.21 Dr.	$ 3.21 Dr.
November	25.50 Dr.	35.44 Dr.
December	--	113.14 Dr.
February	572.33 Dr.	964.65 Dr.
March	1,892.41	93,966.29
April	152,565.61	--
Total	$ 153,856.98	$92,849.85

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General Accounting Division

ACCOUNTS PAYABLE (CONT'D.)

New purchase orders issued in April applying to General Divisions numbered 840 amounting to $372 782 as compared with 1 113 in March amounting to $451 450.

Throughout the section a decrease in volume of work was noted during the month of April. In spite of this decrease in volume, it was decided this month that the entire section should work six days per week for approximately six weeks in order to keep the work more current and to eliminate certain accumulated backlogs.

BUDGETARY CONTROL

The entire month of April was devoted to preparation of estimates for the Budget for FY 1953 and Revision of the Budget for FY 1952.

Budget estimates were completed for Kadlec Hospital, Research and Development, P-10 Program, Graphite Storage, 700 Area, Property In Service - Equipment and General Divisions Construction Projects. In addition to these estimates, a detailed submission was made covering costs of each General Division. All estimates were accompanied with narrative justifications and statistical information covering divisional activities. Estimates for Technical Divisions were submitted under separate cover.

Prior to final submission estimates were reviewed by AEC, responsible division managers and the Appropriations and Budget Committee. Recommendations made in these reviews were followed through and budget estimates revised accordingly.

A close working arrangement was maintained with the A.E.C. Budget Office which greatly facilitated preparation of estimates on A.E.C. program costs. Presentation was made in line with their classification of accounts as established by the Washington Office of the A.E.C.

At the close of the month work was progressing satisfactorily on the budget for Cash Working Capital and Inventories. Completed working schedules received from concerned divisions were being analyzed as to estimated changes prior to consolidation.

COST

General Divisions Operating Reports for the month of March were issued on April 15, 1951. Detailed reports of Research and Development costs for Technical and Health Instrument Divisions programs were issued on April 19, and the consolidated Summary of Costs was issued on April 30, 1951.

1196297

General Accounting Division

COST (CONT'D)

Cost analyses letters were issued to each General Division Manager showing a summary of March costs and a comparison with budgeted costs as set forth in the fourth quarter budget review. Significant changes in costs from the previous month were explained in detail. Copies of these letters were forwarded to plant management and to the AEC Finance Division.

Current IME liquidation rates for all General Divisions were reviewed and revisions made where necessary in order to more accurately distribute indirect costs for the final quarter of the fiscal year.

Unit cost studies issued in connection with the 200 W and 700 Area Laundries were revised in order to present a more useful comparison of costs from one month to the next, and to reflect a more accurate picture of volume output per employee when comparing periods involving an unequal number of working days.

Based on information furnished by the Surplus, Salvage and Scrap Section it was determined that considerable expense was incurred by General Electric in handling sales of tract houses for the AEC. This expense has in the past been charged to the Surplus, Salvage and Scrap Section. The entire revenue from sales, however, was transferred to AEC. A revised routine was established whereby the AEC will be credited for the gross amount of the sales less a 20% handling charge which is to be credited to expenses of the Surplus, Salvage and Scrap Section. A retroactive adjustment was also made to charge AEC for handling costs on prior sales of tract houses.

Operating code 650 - Duplicating Service was established effective April 2 to accumulate costs of the Duplicating Unit - Clerical Services Division. Previously this work had been performed by the Printing Section. In April a separate unit was established to provide duplicating service throughout the plant.

In addition to the above, divisional code 294 was established to accumulate costs incurred by Health Instrument Divisions in training AEC personnel from other locations in radiation and contamination hazards control methods. Costs incurred in connection with this training will be charged to AEC monthly.

A new account code was also established for use of the Technical Personnel Office to accumulate authorized travel expense of prospective employees invited to Richland for personal interviews. Use of this code will provide a means of distinguishing between this type of expense and travel expense incurred by Technical Personnel Office employees engaged in normal recruiting activities.

In order to provide adequate training for personnel scheduled to be transferred to Technical, Engineering and Construction Accounting Division to handle Technical Divisions costs, it was agreed that the personnel to be transferred would remain with the General Cost Section until closing for the month of April had been effected (approximately May 21).

1196298

GENERAL ACCOUNTS

Advances from A.E.C. decreased from $6 500 000 to $4 500 000 as of April 30, 1951 primarily due to a lower cash balance at the end of April as compared with that at the end of March. The advances as of March 31 may be compared with those of April 30 as follows:

	April	March
Cash in Bank - Contract Accounts	$3 871 689	$5 596 364
Cash in Transit	153 311	428 636
Cash in Bank - Salary Accounts	50 000	50 000
Travel Advance Funds	125 000	125 000
Advances to Subcontractors	300 000	300 000
Total	$4 500 000	$6 500 000

The balance of Accounts Receivable accounts other than Kadlec Hospital carried on General Divisions' ledgers are as follows:

A.E.C. Cost-Type Contractor	$ 76 464
Miscellaneous	2 162
Sale of Safety Shoes to Employees	450

Close attention is being given to past due items which are relatively few in number. Every account considered past due as of April 30, 1951 is expected to be cleared early in May.

During the month, travel advance balances and files of Technical Divisions personnel were transferred to the Technical, Engineering and Construction Divisions. As a result, General Division processed fewer travel reports, the actual number being 113 in the amount of $16 559 for which reimbursement from the Atomic Energy Commission was received in the amount of $14 927. The difference of $1 632 was charged to the Travel and Living Expense Variation Account.

A total of $4 031 was charged to the Travel and Living Expense Variation Account this month, of which $918 was for entertaining expenses and $3 113 the difference between expenses incurred by employees and the amount billed the Atomic Energy Commission. Fiscal Year to Date, this account has been charged with $25 656 (All Divisions).

All requests for travel funds were checked to determine that provisions of HW Instruction Letter No. 14 relative to liquidation of previous advances were being complied with.

The Cash Control Unit has established records to control the daily average balances in the contract accounts with the local banks. An average book balance of approximately $2 250 000 was maintained in the Seattle First National Bank and $625 000 in the National Bank of Commerce during the month.

1196299

General Accounting Division

GENERAL ACCOUNTS (CONT'D.)

General Ledger Trial Balances for March were received from all divisions by April 16, 1951. Hanford Works Financial Statements were issued on April 20 and Consolidated Financial Statements on April 24. All other accounting reports were completed by April 27. Considerable time was spent analyzing all accounting reports for improvements in the method of presentation. Certain changes will be included in the reports to be issued in May.

This Section assisted and advised the Office Equipment Section this month in the revision of their system of accounting for Furniture and Fixtures. In order to reconcile this account with the General Ledger balance, a physical inventory was taken as of March 31, 1951. An adjustment was made to bring the general ledger balance into agreement with the physical inventory. A revised accounting procedure was prepared and will be made effective next month.

An analysis of estimated cash requirements compared with actual expenditures by divisions was prepared this month. The major discrepancies were noted and brought to the attention of those preparing those estimates in order that a more accurate forecast of cash requirements could be made in the future.

Work progressed on the development of a revised Application of Funds report. This report will give a more detailed explanation of how funds were provided and how these funds were applied.

Charges in the amount of $203 221 were received for General Engineering Laboratory Assistance to Hanford, $11 779 KAPL Assistance to Hanford, and $115 Research Laboratory Assistance.

INTERNAL AUDIT SECTION

During April, 1951, a study was begun of "Adjustment of Discrepancies Arising from Incorrect Unit Prices of Stores Division Inventory Items." The study encompassed (1) discrepancies due to differences between purchase order and billing prices, and (2) arithmetical errors in calculation, application and extension of unit prices. Instructions will be issued in May governing adjustments of this nature. Discrepancies result due to the fact that purchase order prices are used in posting receipts of material to Stores Division memo records and invoiced prices are used in posting receipts of material to inventory sub-accounts in the general ledger. Arithmetical errors arising from use of incorrect unit prices or extensions may require adjustments of several types, varying from a correction of the unit price shown on Stores Division memo records to correction of charges made to using divisions for material withdrawn.

1196300

General Accounting Division

INTERNAL AUDIT SECTION (CONT'D)

An analysis of Technical, Engineering and Construction Divisions' construction costs for Manufacturing Divisions' Project C-399-5 for the Construction of office building No. 1703-B in the 100-B Area was begun during the month and will be completed in May.

In accordance with an agreement reached in a meeting in March of personnel of Stores and General Accounting Divisions and the AEC Finance Division and Property Branch, working papers for four physical inventories completed by the Inventory and Audit Section of the Purchasing and Stores Divisions were submitted late in April to the Internal Audit Section for review. A review of the working papers covering Memo Employee Sales Inventory was completed and a letter was issued, describing the analysis that was made of physical and clerical differences between the balance of the inventory sub-account in the general ledger and the balance determined by the physical count. Reviews and analyses of the working papers of the other three physical inventories will be completed early in May. Additional physical inventory working papers submitted by Inventory and Audit Section will be reviewed currently.

Follow-up of two previously issued audit reports was completed during the month and reports will be issued in May, concerning:

(1) "Procedure for Receiving Tank and Bulk Car Shipments." A proposed H. W. Instructions Letter on this subject was submitted by Traffic Section, Purchasing and Stores Divisions, for review and comment by Internal Audit Section. Changes and additions relative to financial controls were incorporated with the Traffic Section proposal and a new draft of the Instructions Letter was submitted.

(2) "Memo Employee Sales," covering the control by using divisions of direct-charge materials, supplies, equipment, and protective clothing in connection with H. W. Instructions Letter No. 49.

A report was completed and issued during April, covering an audit of bus revenues and cash change funds of the Transportation Division.

Additional time will be required for field work and report preparation for several audits, currently in process, which have been delayed due to special assignments and priority of other audits. However, it is expected that reports for several of these audits can be prepared and issued during May.

MEDICAL ACCOUNTING

The balance in Accounts Receivable decreased $14 189 during the month; from $145 780 in March to $131 511 in April, due primarily to an increase in cash receipts of $17 211.

1196301

General Accounting Division

MEDICAL ACCOUNTING (CONT'D.)

Out-patient invoices numbered 2 075 and amounted to $12 056 as compared to 2 549 invoices amounting to $17 701 in March. The billing to Waale-Camplan Company (Army Subcontractor) in March amounting to $5 005 for pre-employment physical examinations given to their employees, accounts for the decrease in April.

In-patient revenue decreased $7 500 in April as compared to March due primarily to a decrease in the adult patient day census from 97.7 in March to 80.5 in April.

A total of 23 claims in the amount of $1 276 were submitted this month to Fort Lewis for services rendered Military Personnel. Reimbursement on 8 claims in the amount of $231 on prior months billings was received during the month.

Blue Cross claims paid during the month numbered 32 and amounted to $2 923.

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	36	7 965
Collections by Yakima Adjustment Service	51*	2 593
Accounts recalled	7	1 486
Accounts at 4-30-51	98	17 423

*Includes 28 accounts paid in full and 23 accounts partially collected.

Medical Divisions budget for FY 1953 and revision of budget for FY 1952 was completed and forwarded to the Appropriations and Budget Committee for their review prior to submission to the AEC.

A supplemental project proposal revising the scope of project C-204 AB, Additions to Kadlec Hospital was submitted to the Appropriations and Budget Committee for their approval and submission to the AEC. This proposal modifys Directive No. H.W. 20. The revised scope provides for the addition of six rooms.

PLANT ACCOUNTING

Effective April 30, 1951, two field representatives were assigned to the 100 Areas, two to the 200 Areas, and two to the 300, 700, 1100 and 3000 Areas. These representatives will maintain headquarters in their respective areas and will act as liaison between operating personnel and the Plant

1196302

PLANT ACCOUNTING (CONT'D.)

Accounting Section. Their responsibilities will include periodic inventories of selected plant accounts, audit of project completion reports, review of depreciation rates and recommendation of changes in rates, review of charges from work orders, classification of additions to plant accounts, and other related work.

The estimated service life of equipment included in the process account "Irradiation Equipment" has been under review for some time by Plant Accounting and representatives of the Atomic Energy Commission. Based on recommendations to the Operations Division of the A.E.C., new rates have been adopted and approved which will reduce estimated annual depreciation by approximately $4 000 000. Adjustments to charges for depreciation expense will be made to reflect the reduction for the current fiscal year. No adjustments to reserves established prior to the current fiscal year are planned.

In view of the current rehabilitation of Richland prefabricated houses, the depreciation rate applicable thereto was reviewed with representatives of the A.E.C. and of the Municipal, Real Estate, and General Services Divisions. As a result, it was determined that the estimated service lives of the prefabricated houses would not be extended beyond the original twenty-year estimate established by the 1949 appraisal. Since the valuation of the units will be increased as a result of the rehabilitation program, the amount of annual depreciation will increase in order to liquidate these costs as well as the remaining net book value over the remaining life years of the original unit.

Review of other depreciation rates affecting various Plant Accounts is being continued.

General Ledger Account 29 - Spare Equipment Held in Storage is currently being set up. Plant Accounting will maintain records for the account in order to furnish reconciliation with the Purchasing and Stores Divisions. Depreciation rates for this account were discussed at great length with the Atomic Energy Commission's Office of Finance, and it is their recommendation that no depreciation be recognized for equipment held in storage.

1196303

General Accounting Division

PAYROLLS

During the month of April there were 171 removals from payroll, including 6 leaves of absence and 2 transfers to other units of the Company. There were 291 additions to the payroll including 19 employees re-engaged with continuous service, and 2 transfers from other units of the Company. The result is a net increase of 120 employees on the payroll.

First Quarter Reports for Social Security Tax purposes were prepared for approximately 8,500 employees and were forwarded to General Office for filing with the Collector of Internal Revenue.

First Quarter Reports for unemployment compensation purposes applicable to the states of Washington, Oregon, New York, Virginia, Illinois and Pennsylvania were prepared and forwarded to the General Office for filing with the various State Unemployment Compensation Divisions.

Payment was made to the Oregon State Tax commission on April 13, 1951 of the amount of income tax withheld from salaries of employees claiming residence in the State of Oregon.

Revision of Hanford Works Instructions Letter No. 67 was issued outlining changes in overtime payment practices for monthly paid employees.

Revised Hanford Works Instructions Letter No. 115 was issued setting forth the procedure to be followed in completing Monthly Attendance Report including changes made necessary as a result of revision in overtime payment practice. Monthly Attendance Report, Form P-273-D, was revised to permit recording of attendance during the period from the first of the month to the end of the month rather than from the 16th of the previous month to the 15th of the current month.

Revised Hanford Works Instructions Letter No. 23 covering the Vacation Plan was issued during April.

There were 9 auxiliary firemen who had filed claims in November 1950 for auxiliary fire brigade pay under the provisions of the agreement reached between Hanford Atomic Metal Trades Council and General Electric Company. Investigation of these claims was completed in April and it was determined that the 9 auxiliary firemen were eligible for auxiliary fire brigade pay. Accordingly payment was made to them in the total amout of $306.26.

During the month of April approximately 1,000 man hours were expended compiling necessary statistics in connection with Wage Stabilization Regulations 5 and 6.

Report of the study and analysis of our payroll practices and procedures prepared by a representative of IBM was received during the month of April. The report is being studied and analyzed and a meeting will be arranged with the IBM representative in May for discussion of his proposals.

1196304

Military Duty Allowance equivalent to one month's salary was paid during April to 9 weekly paid employees who entered the Armed Forces. The gross payment to these 9 weekly paid employees amounted to $2,826.56. A total of $14,308.08 has been paid to 45 weekly paid employees and 2 monthly paid employees for Military Duty Allowance as of April 30, 1951.

There were 151 employees as of April 30, 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	9	3	12
Enlisted Reserve	34	6	40
National Guard	6	-0-	6
Selective Service	35	58	93
Total	84	67	151

New authorization cards for check-off of Union Dues were received for 31 employee members of 7 unions affiliated with Hanford Atomic Metal Trades Council.

Check-off of union dues is in effect for 873 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.

There were 39 time cards received late in payroll during the month of April, as follows:

Week Ended	Number
4- 1-51	7
4- 8-51	6
4-15-51	20
4-22-51	6
Total	39

These late time cards caused considerable extra work in preparation of payroll, statistical reports, and related payroll work.

Considerable progress was made during April on drafts of revised H. W. Instructions Letters which are necessary due to recent changes in employee benefit plans under the "Security Package".

Preliminary work was begun in revising several sections of proposed "Appendix C" due to changes in personnel policies, benefit plans and payment practices.

In addition to regular payroll addressograph work, approximately 129,200 items were addressographed for other divisions. Due to the increased work load in addressograph, an automatic feeder was procured from surplus for use with present addressograph equipment in addressographing instructions letters, organization announcements, office letters, etc. The use of this automatic feeder will reduce the machine operating time and thereby provide machine time for other addressograph work.

1196305

During the month of April, 1,072 U. S. Savings Bonds having a maturity value of $62,465 were withdrawn from the G. E. Employees Savings and Stock Bonus Plan by 119 employees. U. S. Savings Bonds and Custody Receipts having a maturity value of $174,100 covering purchases by employees through payroll deductions in March were delivered to employees on April 27, 1951. There were 850 U. S. Savings Bonds and 2,737 Custody Receipts delivered.

Replacements were requested for 4 Custody Receipts which were reported lost by 4 Nucleonics Department employees during the month.

Checks representing income for the years 1949 and 1950 on General Electric common stock credited to their accounts were delivered to 50 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.

Authorizations for deductions from payroll for the purchase of safety shoes were received from 114 weekly paid employees in April.

Rent and telephone charges were deducted from salaries of weekly paid employees in April as follows:

House Rents	3 144
Dormitory Rents	700
Trailer Rents	108
Barracks Rents	59
Telephone Accounts	2 162
Total	6 173

At the request of Division Managers or their representatives, approximately 450 salary checks were held in Payroll Division. These checks were delivered by Payroll representatives to individual employees who were scheduled off on Thursday and Friday and who called at the Payroll Division for their checks.

There were no garnishment cases pending at March 31, 1951. Eight garnishments were served on the Company during April. Five of these cases were dismissed during April by Court Order, one with payment to the Court, and four without payment to the Court. There were three garnishment cases pending at April 30, 1951.

There was one lost salary check not reissued as of March 31, 1951. Three salary checks were reported lost during the month of April. There were 4 lost salary checks not reissued as of April 30, 1951.

During April, preferential rates were eliminated in 20 cases where employees were transferred or reclassified. As of April 30, 1951, there were approximately 1,050 employees having preferential rates. Approximately 4,550 employees were assigned preferential rates in July, 1948.

A total of 401 employees were scheduled to begin their 1951 vacation in April. Division Managers or their authorized representatives approved deferment of one week of the 1951 vacation to 1952 for 23 weekly paid employees and 22 monthly paid employees. As of April 30, 1951, 188 weekly paid employees and 76 monthly paid employees had deferred one week of their 1951 vacation to 1952.

Under the G. E. Pension Plan, 54 weekly paid employees became eligible for participation in April. Enrollment cards were received from 39 of these employees and 13 elected not to participate in the Plan. Two of the newly eligible employees have not returned either an enrollment card or a "waiver card".

During April, 977 claims for disability benefits, surgical benefits and hospital benefits under the Insurance Plan were processed and forwarded to Metropolitan Life Insurance Company. This is the largest number of claims submitted to the insurance company in any one month since the G. E. Insurance Plans became effective September 1, 1946. In April, 1,451 checks totaling $96, 130 for 1,179 claims were received from the insurance company and forwarded to employees or to hospitals and surgeons in accordance with authorizations of the employees.

Bank reconciliations completed:

Weekly Salary through #241, week ended April 8, 1951
Weekly Salary Vacation #241, week ended April 8, 1951
Bonds Accounts - March
Monthly Payroll #55, March 1951

1196307

PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - APRIL 1951

SUMMARY

There was one major injury during the month, making a total of two for the year to date, and a frequency rate of 0.38.

There were four minor fires in the industrial areas. Loss was $3.00.

Laundry volume continues at near capacity for a five-day week. Tentative plans are being made to place the 200-West Laundry on a two shift operation depending upon the opening dates of the Redox Area, 241-W, 241-E and 224-U Buildings.

Additional equipment has been received in the Printing Plant which should aid in cutting down the large backlog of work now in existance.

A procedure was established whereby certain employees in the Community, Medical, Engineering and Construction and Transportation Divisions would only be processed for formal "P" clearance, thereby effecting a substantial reduction in the number of "Q" cleared personnel in the future.

1196308

PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - APRIL 1951

ORGANIZATION AND PERSONNEL

Number of employees on payroll:

	Beginning of Month	End of Month	Increase	Decrease
Staff	3	3		
Patrol and Security	630	640	10 (a)	
Safety & Fire Protection	148	148		
Office Services (General Services, Clerical Services, Records Control and Office Methods)	250	256	6 (b)	
TOTALS	1,031	1,047	16	

NET INCREASE: 16

(a) - Patrol and Security

23 - New Hires
1 - Returned from Leave of Absence
1 - Removed from Roll due to Leave of Absence
4 - Transferred to other Divisions
9 - Terminations

(b) - General Services

6 - New Hires
2 - Returned from Leave of Absence
1 - Transferred to Municipal Division
5 - Terminations

Clerical Services

7 - New Hires
4 - Transferred to other Divisions
1 - Termination

Office Methods

2 - New Hires

1196309

Plant Security and Services Divisions

SAFETY AND FIRE PROTECTION

Injury Statistics

Days since last Major Injury	20
Accumulated Exposure Hours since last Major Injury	915,996
Major Injury Frequency Rate (1-1-44 through 4-30-51)	0.80

	March	April	Year to Date	Comparative Period, 1950
Major Injuries	0	1	2	2
Sub-Major Injuries	4	2	7	11
Minor Injuries	278	343	1,167	1,262
Exposure Hours	1,376,057	1,373,996	5,301,033	4,905,617
Major Injury F/R	0.00	0.73	0.38	0.41
Major Injury S/R	0.00	0.11	0.08	0.003
Penalty Days	0	150	450	0
Actual Days Lost	0	20	20	15
Minor Injury F/R	2.02	2.50	2.20	2.57

Major Injury No. 74

On Tuesday, April 10, at approximately 2:00 P.M., an employee of the General Services Division lost the end joints of his left little and ring fingers and sustained a bruised elbow, trauma left third finger, and a bilateral hernia. He lost his balance when he attempted to leave the attic space after servicing an air conditioning unit, and grabbed the jamb of the louver door for support. In falling position, his body pushed the louver door open, pinching off the ends of his two fingers. This accident occurred on the west side of the No. 1 wing south, 760 Building.

Sub Major Injury No. 198

On April 13, at approximately 8:30 A.M., an employee of the Municipal Fire Department was preparing, with an assistant, to recharge carbon dioxide fire extinguishers inside fire departmental warehouse. Preparation included fastening a cylinder of CO_2 to a rack that was built for the purpose of inverting compressed gas cylinders so liquid CO_2 could be drawn off for transfer to fire extinguishers. During inverting operation, cylinder did not slip or move in the rack, and the injured took off the valve cover with his left hand, assuming that the cylinder was secure. It slipped on the rack and caught his left middle finger between the cap and the floor, resulting in a fracture of the left middle finger.

Sub Major Injury No. 199

On April 23, at 3:10 P.M., an employee of a sub-contractor, working in the 200 Areas, apparently disregarded the presence of an electrical line and the fact that the "A" frame on his truck was 36' high and drove his truck under the line to avoid having to turn around at the salvage yard, thereby striking the line. An employee of the Electrical Division sustained first and second degree burns of the face, neck, and both forearms, and contusion of the left shoulder when flash-off occurred while he was racking down a circuit breaker that he felt was in trouble from the short circuit caused by the above accident.

Plant Security and Services Divisions

Safety Activities

All of the industrial areas are reviewing the lock and tag procedures and house safety rules for possible defects that were shown in the report of the investigation on the recent fatality at the Knolls Laboratory. In some cases correction was made to some deviations from standard safe practices, but in no case was there any evidence of unsafe practice or equipment involving fresh air supply to employees.

Area inspection is now being conducted with the industrial physicians; many helpful recommendations have been submitted as a result of these joint inspections.

The 200-W Area completed the second consecutive year without a disabling injury on April 4. This makes a total of five years without a lost time injury since start-up.

The 100-H Area completed its first year without a lost time injury on April 19. The Area was awarded the regulation flag, plaque and standard publicity.

The 100-D Area Maintenance Division received first place award in the annual Maintenance Safety Derby.

Progress of the completion of new buildings in the 200-W Area is being closely followed.

A survey of the safety coverage required by the various construction activities (including sub-contractors) was conducted and recommendations made to effect adequate safety coverage and promotion of the safety program, this becoming the responsibility of the Safety and Fire Protection Division. This recommendation was submitted for the approval of the Engineering and Construction Divisions. Final decision on this matter is still pending.

A representative of the Safety Division presented a paper on "Safety in the Laboratory" to the American Chemical Society at their annual meeting in Boston.

A special leaflet was designed and printed covering off-the-plant safety. Four-hundred copies were given to management of Purchasing and Stores Division who will distribute to all personnel leaving the plant on company business.

A new design of the Safety Topic of the Month was released in April and has been favorably received. The entire topic is now on one sheet of paper which constitutes a considerable saving each month.

There was one major injury during the month of April. An employee of the Municipal Divisions sustained the loss of two finger tips.

Fire Protection Activities

Fire Protection surveys were completed on Buildings 185 and 190 in 100-B Area and on Buildings 271-B and 221-B in 200-E Area. The survey of 3745 was reviewed and a fire detector system recommended.

Plant Security and Services Divisions

Fire Protection Activities (Contin)

Fire extinguisher lectures and demonstrations were conducted on the new dry chemical fire extinguisher to the Power Division, B and C shifts in the 100-D Area, "P" and Power Divisions in the 100-B Area and Power in the 100-H Area.

A fire alarm drill was held in the 108-F Building to test the new building evacuation procedure. The drill was satisfactory.

Tests were made of the vapor smoke from the smoke generation being used by the meteorology group. The vapors were found to be non-explosive.

Aid was given to the construction and operation divisions in the initial filling of the propane storage tanks in the 200-S Area.

Orientation on plant fire procedures was given to new employees of the "S" Division.

Training on fire practices and procedures was given to "S" Division supervisor trainees.

In the 200 Areas Maintenance Building, provisions are being made to install welding gas cylinders outside the building and pipe the gas into the welding booths. This is also a problem in the 234-5 Building and would involve extensive piping. A study of this problem is being made.

New patrolmen are being given training on fire procedures and the operation of first aid fire fighting equipment.

The changeover from vaporizing liquid to the dry chemical type extinguisher in the outer plant area is 95% complete.

Industrial Fires

Division	Area	No. of Fires	Cause	Loss
Transportation	100-D	1	Welder burning hole in gate, spark fell onto rubbish.	None
Technical	200-W	1	Overheating of ether while evaporating caused vapors to flash.	None
Patrol	100-H	1	Ignition wire to car starter wore through insulation and shorted on frame of car.	None
Patrol	200-W	1	Generator rectifier bolted to motor with "U" bolt became loose and fell onto oil filter, causing a short circuit.	$3.00
TOTAL INDUSTRIAL FIRES		4	TOTAL LOSS	$3.00

1196312

Plant Security and Services Divisions

OFFICE SERVICES DIVISIONS

General Services

Plant Laundry (Building 2723)

	March	April
Coveralls - Pieces	36,357	38,252
Towels - Pieces	7,120	7,910
Miscellaneous - Pieces	94,487	94,538
Total Pieces	137,964	140,700
Total Dry Weight - Lbs.	194,938	203,058

Richland Laundry (Building 723)

Flatwork - Pounds	58,331½	57,619
Rough Dry - Pounds	19,097½	18,628
Finished - Pounds	2,502	2,488
Estimated Pieces	104,709	102,943
Total Dry Weight - Lbs.	79,931	78,735

Monitoring Section (Plant Laundry)

Poppy Check - Pieces	114,364	104,166
Scaler Check - Pieces	129,593	135,941
Total Pieces	243,957	240,107

The 200-W Process Laundry is operating at near maximum capacity on a one shift schedule, five days a week. Requisitions for additional personnel have been placed with the Employment Division and tentative plans are now being made to schedule the operation of this laundry on two shifts, five days a week, in June or July, depending on the opening dates of the Redox Area and 241-E, 241-W and 224-U Buildings.

The 700 Area night janitor force, consisting of twenty-eight employees, was divided and one additional foreman was added to this shift the first of April. The purpose for this change is to give better supervisory coverage to this large group of employees whose janitorial assignments cover all office buildings in the 700 Area and certain portions of the 1100 Area including the A.E.C. Airport.

Plant Security and Services Divisions

Clerical Services

Mail Room

	March	April
Pieces of internal mail handled	596,034	608,670
Pieces of postal mail handled	96,364	79,080
Pieces of registered mail handled	1,163	1,185
Pieces of insured mail handled	353	325
Pieces of special delivery mail handled	322	295
Total Mail Handled	694,236	689,555
Total amount of postage used	$ 2,368.73	$ 2,114.06
Total Teletypes handled	8,760	9,380

Office Equipment

Advice was received that the office equipment budget had been cut approximately 30% and the process of revising the budget to meet the lowered quantities is under way. Each Division will be informed of this cut and asked to re-submit their requirements based on the 30% deduction.

	March	April
Office Machines repaired in shop	291	277
Office Machines service calls	510	459
Total Machines Services	719	801

Printing

The new Webendorffer machine has arrived, but had many broken parts which must be replaced before the machine can be put in operation. It is planned to have this machine working by May 11, 1951.

The addition of the new equipment should enable us to cut the backlog down considerably.

	March	April
Multilith orders received	368	352
Multilith orders completed	316	364
Multilith orders on hand	131	119

Stenographic Service

Work in this unit has become so heavy that it has become necessary to schedule ten stenographers for Saturday work.

1196314

Plant Security and Services Divisions

Stenographic Service (Contin)

The stenographers now being received are not fully trained and as a result more time is required to properly instruct the stenographer, which has resulted in lighter output of work.

	March	April
Dictation and transcription	28:45	:00
Machine Transcription	99:15	31:00
Letters	142:15	47:25
Manuals and Procedures	112:45	335:50
Duplicating - Stencils, Ditto	266:50	291:00
Special	544:55	384:35
Meeting Time	2:00	31:00
Training	95:15	39:20
Absentee Time	24:00	:00
Holiday and Vacation	:00	:00
Unassigned Time	23:00	56:00
Total	1,339:00	1,216:10
Employees loaned to other divisions	1,044:30	919:00
Total Hours Available	2,383:30	2,135:10

Duplicating

The volume of duplicating work has been so heavy that there is a backlog of work. A six-day work week is scheduled by this group. Personnel is being secured for the addition of a second shift until such time as additional space and equipment can be secured. At that time, they will return to a straight day schedule.

	April
Stencil and fluid duplicating orders received	1,106
Stencil and fluid duplicating orders completed	1,101
Stencil and fluid duplicating orders on hand	67
Number of copies	625,248
Number of stencils	5,431
Collated orders	33
Collated copies	143,855

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Plant Security and Services Divisions

Records Control

Quantity of records received, processed and stored:

Electrical	4	Standard	Storage	Cartons
Employee and Community Relations	4	"	"	"
Engineering and Construction Divisions	305	"	"	"
General Accounting Division	37	"	"	"
Industrial Engineering Division	7	"	"	"
Instrument Division	1	"	"	"
Manufacturing Accounting Division	8	"	"	"
Municipal, Real Estate & General Services	48	"	"	"
"P" Division	5	"	"	"
Plant Security and Services	6	"	"	"
Power Division	2	"	"	"
Purchasing Division	57	"	"	"
Sub-contractor: Chas. T. Main, Inc.	5	"	"	"
"S" Division	25	"	"	"
Technical Services Division	6	"	"	"
Technical Separations Division	8	"	"	"
TOTAL	528	Standard	Storage	Cartons

Persons provided records service:	701	
Records cartons issued:	852	
Records destroyed:	36	linear feet of duplicate non-record material.
Filing service provided:	306	pieces filed in with records already in storage.

The survey of yellow file coverage was completed and a preliminary report made to the Records Committee

Arrangements were completed with the Atomic Energy Commission Security Division for storage of Top Secret material in the General Electric vault in the Records Service Center.

The survey of file material of all vital records to be microfilmed was completed and is ready for review by the Records Committee.

Filing procedures were requested by the Instrument Division and the "S" Division, 200-W Area, during the month of April. Procedures were furnished these offices and they are now in the process of setting up their files.

The issuance and control of file cabinets for the project was delegated to the Records Control Division on April 17, 1951. On this date, the Office Equipment Section turned over to the Records Control Division 83 requests for metal file cabinets, and 34 requests for combination file cabinets. There were no cabinets on hand or available to fill these requests.

Plant Security and Services Divisions

Records Control (Contin)

Through the process of retiring records to the Records Service Center, combining of files and investigating the needs for file cabinets, the number of requests for file cabinets has been reduced by the Records Control Division from 83 to 28 for metal cabinets and from 34 to 31 on combination file cabinets. This figure also includes the number of file cabinet requests received since April 17, 1951.

Office Methods

	March	April
Printing orders received	438	424
Printing orders cancelled	36	29
New numbers assigned	121	110
Forms designed	39	29

Preparatory to the start-up of MJ-1 and MJ-4, Office Methods has been called upon to assist in setting up clerical procedures to be followed in both of these areas. This work is now well under way. One analyst will be assigned to this work until approximately July 1, 1951. Because both of these areas are new, a lack of comparison will not permit an evaluation of savings to be effected.

Resulting from a review of correspondence produced by the Employment Section, it was found that during March 1951, 2005 letters were dictated and typed, all of which were adaptable to automatic typing. A letter was written by the manager in this division requesting the purchase of an automatic typewriter. When installed, this will represent an annual saving of approximately $9000.

Samples of ditto reproductions made during the past 30 days have been obtained. This material will be reviewed, and a report submitted within the next ten days. The purpose of this study is to improve reproduction service to the areas, supply a more permanent type of reproduction and reduce costs through control.

Forms Control has, during the month of April, been responsible for creating $2,940 in savings, $2,383 of which will be on a recurring annual basis.

PATROL AND SECURITY

There were 297 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 281 security meetings held and attended by 3,764 General Electric employees during the month.

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Plant Security and Services Divisions

Patrol and Security (Contin)

The following security education items were issued during the month:

Eight articles appeared in the WORKS NEWS concerning the subject of security.

Eleven thousand "A-B-C" security bulletins were distributed to the residences of General Electric personnel during the month. There were two types of bulletin, one entitled "If You Don't Know a Saboteur from a Hole in the Ground" and the other "Grandma Was Too Smart".

On April 16, 250 large posters were posted in all plant areas and 100 bus card posters were posted in the industrial busses, each bearing the slogan "Demand Positive Identification".

A representative of the Security Division showed the following security films during the month:

"On Guard" at nine security meetings to 225 employees.
"Fitting U Into Security" at three meetings to 75 employees.
"Sabotage" at fourteen meetings to 350 employees.

The Security film entitled "Sabotage" made by the General Electric and Atomic Energy Commission Security Divisions at Hanford Works was completed during this month for use at group security meetings and security education material.

Sixty-nine employees of the General Electric Company received a "Q" orientation talk from a representative of the Security Division during the month.

The following emergency plans were placed into effect during the month throughout the plant areas:

Number of practice evacuations held	1
Number of practice blackouts held	24
Number of practice mobilizations held	22

A classified document was issued by the Security Division on March 22, 1951 as a "Classification Guide for the Design, Procurement and Construction of Project C-341", outlining Atomic Energy Commission regulations concerning the construction of this project.

Section XXVIII, H. W. Instructions Letter No. 135, was issued April 1 regarding travel to foreign countries by employees presently at Hanford Works or by personnel who have terminated.

On April 2, arrangements were made for the storage of top secret material in the Records Center.

The closure of the 202-S Canyon, 200-W Area, was postponed on April 5 until a later date.

Effective April 8, a Non-Technical Review Board was established for the purpose of reviewing all documents issued by the General Electric Company and the du Pont Company and their affiliates.

The post at the 105-DR Badge House and the 105 DR Rover were combined on April 9 and will be known as the 105-DR Badge House Rover. This change in post operation will allow one extra man per shift to be assigned as rover through the Power Division Buildings in the 100-D Area

Instructions were issued April 9 in the 100-D Area, for the 105-DR exclusion area badge house, which is now operated at shift change time only on the night shifts, to be opened on the No. 2 shift Monday through Friday.

A memorandum was issued April 6 by the Security Division downgrading the security classification of the 3706-321 exclusion area to the classification "Limited" to be effective April 11. At 12:01 A.M., April 11, the 3706-321 badge house was discontinued. This was a one-man post on the No. 1 and No. 3 shifts and a two man post on the No. 2 shift. At 7:30 A.M. daily, the North door to the 3707-C Building will be opened, and it will serve as the main entrance door to the 3706 Building. At 6:00 P.M. daily, Patrol will lock this 3707-C Building door and open same on request by personnel for admittance into the building. At midnight, Patrol will lock exit door No. 5, which will be used by swing shift employees in the building. Patrol will also check the files as usual and check all doors as well as certain designated rooms containing "SF" material.

On April 20, the Project Engineering Divisions were authorized to remove certain security fencing relative to the downgrading of the 3706-321 exclusion area.

Operations Order No. I-251 was issued April 12 covering obstruction lights in the plant areas. Due to airspace restrictions, it is no longer deemed necessary to provide or maintain obstruction lights in the outer areas.

On April 12, Operations Order No. I-252 was issued regarding security check at exclusion areas. This order provides that Security Patrol personnel entering exclusion areas on official business will display their "Q" photo identification passes.

Effective April 15, an Administration Sergeant was appointed for the purpose of coordinating administrative records in the 100 and 200 Areas. He will also be responsible for Patrol field inspection.

A letter was issued April 16 by the Security Division to the Employment Division regarding the security personnel requirements in various divisions. This also made arrangements for establishing a procedure whereby certain employees in the Community, Medical, Engineering and Construction and Transportation Divisions would only be processed for Formal "P" clearance, thereby effecting a substantial reduction in the number of "Q" cleared personnel in the future.

On April 16, the P-11 Area suspended operations for a period of approximately four weeks. Security Patrol orders were issued whereby only one man per shift will be assigned to this area during this current construction period. All area clearances must be authorized by either P-11 Operations personnel or Construction foremen. The fence patrol will be discontinued on all shifts during this period.

On April, two top secret vaults were established in the new 234-5 Maintenance Shop, replacing the two vaults previously located in the 272-Z Building.

Effective at 6:00 P.M., April 19, the 224-U exclusion area badge house, 200-W Area, was temporarily discontinued.

A memorandum was issued April 23 to remove the building and area clearance color designation from all health instrument badges in the 300 Area.

On April 23, a memorandum was issued to all Division Heads that all present clearances to the 212-N, P and R Buildings in the 200-N Area would be cancelled as of May 15, 1951 unless requested by them before that date. This survey of clearances for these buildings is to reduce the number of clearances, particularly for those people requiring only periodic entrance.

Effective April 23, a new post was established at Room 205, 234-5 Building, 200-W Area, to control the movement of Operations personnel into the 234-5 Construction Area.

A new post was established April 24 at door No. 243, 234-5 Building, to control the movement of personnel into Room 198 (Maintenance Shop "D").

Effective April 24, the 272-Z Badge House, 200-W Area, was discontinued.

Operations Order No. I-208, Revision No. 5, was issued April 25 providing that visitors in possession of properly authorized tag passes which do not require escort are not to be registered when entering the 700 or 3000 Areas (Administration) during lag business hours.

Instructions were issued to the Patrol Emergency Officer on April 30 establishing the control of keys for the Civil Defense Control Center, 712 Building, 700 Area.

The United States Army unit stationed at Hanford Works conducted anti-aircraft practice firing in the plant areas on April 29. Security Patrol established barricades on several plant roads to prevent traffic from interferring with the firing.

A total of 603 pat searches were made during the month. Escorts handled totalled 466.

The Patrol Division made 14 ambulance runs for the Medical Division during the month.

Patrol Training School Activities

A model radio set was placed in operation at the school on April 3 to provide basic radio instruction to new patrolmen.

On April 5, an army detachment from North Richland used the Army-L Range to familiarize a group of its men with the .30 caliber carbine.

The Federal Bureau of Investigation Agents conducted their regular classes on April 12 and 25 at the Patrol Training School. They covered the relationship between the F.B.I. and the Security Patrol, demonstrating some of the fundamentals of Judo and had the group practice these various holds.

A total of seventeen Security Patrol trainees received their initial instructions including M-8 and machine gun training.

Security Field Inspection Activities:

Number of persons contacted regarding missing documents	220
Physical searches made for missing documents	31
Documents located	88
File combinations changed	26
Persons notified to change their file combinations	43
Classified scrap details handled	3
Reports written on unattended documents, classified scrap, carbons, compromised file combinations, etc.	26

Clearances

There were 3,773 badge transactions completed during April 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 APRIL 30, 1951

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
ENGINEERING AND CONSTRUCTION DIVISIONS							
I. Visitors to this Works							
F. M. Cochrane L. H. Hoffman, Company Portland, Oregon	Visit site of Aquatic Biology Laboratory	B. D. Puckett	4-13-51	4-13-51		X	100-F XXX
D. Doering L. H. Hoffman, Company Portland, Oregon	Visit site of Aquatic Biology Laboratory	B. D. Puckett	4-13-51	4-13-51		X	100-F XXX
F. Garrett Sound Const. & Eng. Seattle, Washington	Visit site of Aquatic Biology Laboratory	B. D. Puckett	4-13-51	4-13-51		X	100-F XXX
R. Baugh Sound Const. & Eng. Seattle, Washington	Visit site of Aquatic Biology Laboratory	B. D. Puckett	4-13-51	4-13-51		X	100-F XXX
K. O. Donelian Kellex Corporation New York, New York	Design consultation	J. R. Wolcott	4-23-51	4-26-51	X		
G. White, Jr. Kellex Corporation New York, New York	Design consultation	V. D. Nixon	4-23-51	4-23-51	X		
B. R. Prentice Knolls Atomic Power Laboratory Schenectady, New York	General administration	V. D. Nixon	4-26-51	4-19-51	X		277-S 234-5 Const.

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
R. J. Schier General Electric Company Nucleonics Department Schenectady, New York	General Administration	V. D. Nixon	4-13-51	4-13-51		X	
D. H. Marquis General Engineering Laboratory Schenectady, New York	Installation and consultation on 432 Project and M-760 Project	W. P. Ingalls G. Thayer	4-3-51	4-21-51	X		234-5 Con. 200-W 234, 235
J. L. Matrone General Engineering Laboratory Schenectady, New York	Installation and consultation on 432 Porject and M-760 Project	W. P. Ingalls G. Thayer	4-3-51	4-21-51	X		234-5 Con. 200-W 234, 235
W. R. Langdon General Engineering Laboratory Schenectady, New York	Installation consultation on 432 Project	G. Thayer	4-9-51	4-14-51	X		234-5 Con 200-W 234, 235
E. J. Hatfield, Jr. General Engineering Laboratory Schenectady, New York	Installation consultation on 432 Project	G. Thayer	4-16-51	5-19-51	X		234-5 Con 200-W 231 234, 235
A. A. Batza General Engineering Laboratory Schenectady, New York	Installation and consultation on Project M-760 and Project 432	G. Thayer	4-2-51	7-31-51	X		234-5 Con 200-W 234, 235
W. A. Hartman General Engineering Laboratory Schenectady, New York	Installation and consultation on Project M-760 and Project 432	G. Thayer	4-2-51	7-31-51	X		234-5 Con 200-W 234, 235
N. H. Wood General Engineering Laboratory Schenectady, New York	Installation and consultation on Project M-760 and Project 432	G. Thayer	4-2-51	7-31-51	X		234-5Con 200-W 234, 235
L. D. Singleton H. A. Hadley Associates, Inc. Schenectady, New York	Balance installation on 432 Project	G. Thayer	4-16-51	5-15-51	X		234-5 Con.

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
W. D. Egnor General Engineering Laboratory Schenectady, New York	Operational work on 432 Project equipment	W. P. Ingalls G. S. Cochrane E. F. Smith	4-17-51	4-28-51	X		200-W 231 234, 235 234-5 Con
R. N. Poole General Engineering Laboratory Schenectady, New York	Installation of 432 Project equipment	W. P. Ingalls	4-30-51	10-1-51	X		234-5 Con 200-W 231 234, 235
E. S. Baker General Electric Company Nucleonics Department Schenectady, New York	Inspection of 432 Project	W. P. Ingalls	4-23-51	4-28-51	X		200-W 231 234, 235
J. E. Brown, Jr. General Engineering Laboratory Schenectady, New York	Consultation on 432 Project	W. P. Ingalls	4-30-51	5-5-51	X		200-W 231 234, 235
II. Visits to other Installations							
G. C. Hopkins to: Southwest Welding & Mfg. Co. Los Angeles, California	Check financial standing	K. Sommers	4-8-51	4-11-51		X	
V. D. Nixon to: Kellex Corporation New York, New York	NPA meeting and AEC meeting on structural requirements	G. White, Jr.	4-10-51	4-13-51	X		
J. R. Wolcott to: Kellex Corporation New York, New York	NPA meeting and AEC meeting on structural requirements	G. White, Jr.	4-9-51	4-12-51	X		
J. F. Nesbitt to: Portland, Oregon	Engineering consultation	Mr. Kirby	4-16-51	4-16-51		X	
V. D. Nixon to: Bremerton Navy Yard Bremerton, Washington	"B" Block fabrication	S. L. Allison	4-23-51	4-24-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
F. Clemson to: Hapman Conveyor Corporation Kalamazoo, Michigan	Contact vendor	- -	4-24-51	4-28-51		X	
H. A. White to: Puget Sound Sheet Metal Wks. Seattle, Washington	Engineering consultation	Mr. Dexter	3-26-51	4-1-51		X	
R. C. Hollinghead to: Stearns-Rogers Denver, Colorado	Design consultation with equipment vendor	Mr. Rosengren	3-27-51	4-5-51		X	
R. C. Hollingshead to: Proportioneers, Inc. Providence, Rhode Island	Design consultation with equipment vendor	Mr. Pickering	3-27-51	4-5-51		X	
T. Williams to: Proportioneers, Inc. Providence, Rhode Island	Engineering consultation	Mr. Lowe	3-30-51	4-6-51		X	
G. E. Halm to: Southwest Welding Alhambra, California	Engineering consultation	Mr. Cutler Mr. Lindmoe	4-3-51	4-12-51		X	
G. C. Gabler to: Southwest Welding Alhambra, California	Discussion conference on extras on purchase order	Mr. Cutler Mr. Lindmoe	4-8-51	4-13-51		X	
G. C. Gabler to: Willamotte Iron & Steel Portland, Oregon	Discussion conference on extras on purchase order	Mr. Powers	4-8-51	4-13-51		X	
R. C. Mann to: Kollox Corporation New York, New York	Consultation on instrumentation for Project C-362	J. S. Atwood J. Shelane G. Vincent	4-10-51	4-14-51	X		
R. C. Mann to: Foxboro Company Foxboro, Massachusetts	Consultation on Project C-362	Mr. Sullivan	4-10-51	4-14-51		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
R. C. Mann to: Hammel-Dahl Company Providence, Rhode Island	Consultation on Project C-362	Mr. Dahl	4-10-51	4-14-51		X	
R. C. Hollingshead to: Johnston Pump Company Los Angeles, California	Design consultation and observation of test work in vendor plant	Mr. Brown	4-16-51	4-20-51		X	
J. S. Parker to: Southwest Welding Co. Los Angeles, California	Check progress of fabricator	R. Cutler M. Lindmoo	4-23-51	4-27-51		X	
H. E. Hanthorn to: Southwest Welding Co. Los Angeles, California	Negotiations on C-187-D vessels	R. Cutler M. Lindmoo	4-23-51	4-27-51		X	
P. M. Murphy to: Southwest Welding Co. Los Angeles, California	Negotiations on C-187-D vessels	R. Cutler	4-23-51	4-27-51		X	
W. R. Folts to: Knolls Atomic Power Lab. Schenectady, New York	Inspect P-10-X (C-142) equipment	M. Marsden	4-5-51	4-5-51	X		
W. R. Folts to: General Engineering Lab. Schenectady, New York	Discuss P-10-X equipment	C. D. Carroll	4-5-51	4-7-51	X		
W. R. Folts to: A. O. Smith Company Milwaukee, Wisconsin	Discuss hydrogen firing and manufacture of furnace pots	T. K. Andrews	4-9-51	4-9-51		X	
L. E. Hoff to: Garett Trucking Company Pendleton, Oregon	Inspection of equipment for C-411	R. Nato	4-4-51	4-4-51		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
O. W. Priebe to: Charles T. Main, Inc. Boston, Massachusetts	Liaison on G-349 sub-contract	C. C. Starratt	4-16-51	4-20-51		X	
W. W. McIntosh to: Electric Steel Foundry Portland, Oregon	Technical consultation with vendor, Project C-361	Mr. Richmond	4-16-51	4-17-51		X	
J. W. Conley to: Charles T. Main, Inc. Boston, Massachusetts	Liaison on sub-contract G-363	W. F. Uhl R. A. Moncrieff	4-23-51	5-1-51		X	
O. H. Pilkey to: Portland, Oregon	Pacific Northwest conference of Engineers	- -	4-27-51	4-28-51		X	
C. W. Buchanan to: Fort Wayne Works Fort Wayne, Indiana	Attend meeting of GRSG	A. H. Rau R. W. Kent	4-30-51	5-3-51		X	
G. H. Hill to: Keitz Company San Francisco, California	Contact possible supplier of drafting furniture	P. Princelau	4-20-51	4-22-51		X	
J. M. Fox, Jr. to: ESCO Foundry Portland, Oregon	Contact vendor on castings for Project C-361	W. DeWeese	4-17-51	4-17-51		X	
J. F. Spease to: Southwest Welding Co. Los Angeles, California	Expedite material on order from vendor	- -	4-9-51	4-13-51		X	
J. F. Spease to: Peerless Pump Company Los Angeles, California	Expedite material on order from vendor	- -	4-9-51	4-13-51		X	
J. F. Spease to: Southwestern Eng. Co. Los Angeles, California	Expedite material on order from vendor	- -	4-9-51	4-13-51		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
J. F. Spease to: Standard Steel Company Los Angeles, California	Expedite material on order from vendor	- -	4-9-51	4-13-51		X	
HEALTH INSTRUMENT DIVISIONS							
I. Visitors to this Works							
J. N. Wilson E. I. du Pont de Nemours & Co. Wilmington, Delaware	Study systems of Health Instrument	F. G. Tabb	4-30-51	5-4-51	X		
F. F. Middleswart E. I. du Pont de Nemours & Co. Wilmington, Delaware	Study systems of Health Instrument	F. G. Tabb	4-30-51	5-4-41	X		
II. Visits to other Installations							
P. L. Eisenacher to: West Lynn River Works West Lynn, Massachusetts	Attend meeting on G.E. Radiation instruments	R. C. Allen	4-11-51	4-11-51	X		
P. L. Eisenacher to: Knolls Atomic Power Lab. Schenectady, New York	Observe KAPL radiation program and discuss radiation instrument needs and performance	L. L. German	4-12-51	4-12-51	X		
P. L. Eisenacher to: General Engineering Lab. Schenectady, New York	Discuss activities of radiation instrument group and discuss development of new instruments	G. W. Dunlap	4-13-51	4-13-51	X		
C. C. Gamertsfelder to: Harwell, England	Tripartite Conference on Radiation Detection Instruments at Harwell	- -	4-25-51	5-16-51	X		
J. Katz to: Oak Ridge National Lab. Oak Ridge, Tennessee	Biology Research Conference and inspect facilities	A. Hollaender	4-11-51	4-14-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
F. E. Adley to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on health physics problems	L. L. German	4-20-51	4-20-51	X		
F. E. Adley to: Atlantic City, New Jersey	Conference of Industrial Health personnel of US - AEC	- -	4-27-51	4-27-51	X		
F. E. Adley to: Army Chemical Center Edgewood, Maryland	Consultation on health physics problems	R. Macy	4-30-51	4-30-51	X		
MANAGEMENT							
I. Visitors to this Works							
B. S. Havens General Electric Company Schenectady, New York	Consultation on technical report	G. R. Prout	4-9-51	4-17-51	X		
W. W. Kuyper Knolls Atomic Power Laboratory Schenectady, New York	Conference on reactor development	W. E. Johnson	4-10-51	4-12-51	X		
II. Visits to other Installations							
W. P. McCue to: Argonne National Lab. Chicago, Illinois	Survey on comparative salary information	J. Schumacher (AEC) C. A. McNeill	4-2-51	4-3-51	X		
POWER DIVISION							
I. Visitors to this Works							
A. H. Y. Hodner Travelor's Insurance Company Seattle, Washington	Boiler inspection	F. P. Britson H. G. Harder A. C. Whiteside	4-10-51	4-11-51	X 200-E XXX 200-W XXX 300 XXX 101		100-B-XXX 100-D XXX 100-F XXX 100-H XXX

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
II. Visits to other Installations							
H. A. Kramer to: Victoria, British Columbia Dominion of Canada	Attend Columbia River Forecast Committee meeting and Western Snow Cover Conference	D. MacLean	4-18-51	4-21-51		X	
"P" DIVISION							
I. Visits to other Installations							
K..T. Perkins to: Kellex Corporation New York, New York	Consultation on Project C-431	G. White, Jr.	4-9-51	4-11-51	X		
"P" Division							
I. Visits to this Works							
M. E. Norby International Bus. Machines Richland, Washington	Repair IBM equipment in 105-H	J. H. Warren	4-11-51	4-12-51		X	100-H 105
PLANT SECURITY AND SERVICES DIVISION							
I. Visits to other Installations							
R. E. Jaynes to: Charles T. Main, Inc. Boston, Massachusetts	Inspect site for off-site contract work	E. A. Barnard	4-17-51	4-20-51	X		
PURCHASING AND STORES DIVISION							
I. Visitors to this Works							
A. J. Luberts Ederer Engineering Company Seattle, Washington	Supervise installation of electric crane on order HWC 9043-AJ	R. T. Gardner G. J. Hayward	4-16-51	4-18-51		X	202-S Bldg.

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
V. E. Glander American Gas Corporation Los Angeles, California	Supervise placing in operation of Propane Storage Plant, HWC-8799-AJ	R. T. Gardner G. J. Hayward	4-10-51	4-11-51		X	200-W
G. E. Moore, Jr. Willamette Iron & Steel Portland, Oregon	Inspect tanks furnished by his firm on HWC 10583 and HWC 11090	A. J. Dolong	4-24-51	4-24-51		X	
J. H. Crumley Willamette Iron & Steel Portland, Oregon	Inspect tanks furnished by his firm on HWC 10583 and HWC 11090	A. J. Dolong	4-24-51	4-24-51		X	
A. R. Daniels Willamette Iron & Steel Portland, Oregon	Inspect tanks furnished by his firm on HWC 10583 and HWC 11090	A. J. Dolong	4-24-51	4-24-51		X	
P. C. Hiefield Willamette Iron & Steel Portland, Oregon	Inspect tanks furnished by his firm on HWC 10583 and HWC 11090	A. J. Dolong	4-24-51	4-24-51		X	
E. D. Povey Willamette Iron & Steel Portland, Oregon	Inspect tanks furnished by his firm on HWC 10583 and HWC 11090	A. J. Dolong	4-24-51	4-24-51		X	
M. Brill Lee & Estes Kennewick, Washington	Deliver material on order HW 77715-M	H. H. Hart	4-2-51	4-2-51		X	100-B 105
E. Abken Standard Oil Kennewick, Washington	Deliver material on order AEC 56834	H. H. Hart	4-3-51	4-3-51		X	300 3706
A. Fruehling United Truck Lines Kennewick, Washington	Deliver material on order AEC 56292-M	H. H. Hart	4-4-51	4-4-51		X	200-W 234

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
W. Fruehling United Truck Lines Kennewick, Washington	Deliver material on order AEC56292-M	H. H. Hart	4-4-51	4-4-51		X	200-W 234
G. Zank Lee & Estes Kennewick, Washington	Deliver material on order HW 80097-M	H. H. Hart	4-10-51	4-10-51		X	100-D 105
G. Zank Lee & Estes Kennewick, Washington	Deliver material on order HW 80097-M	H. H. Hart	4-11-51	4-11-51		X	100- B 105
G. Zank Lee & Estes Kennewick, Washington	Deliver material on order HW 80097-M	H. H. Hart	4-11-51	4-11-51		X	100-D 105
D. A. Westermeyer Consolidated Freightways Kennewick, Washington	Deliver material on order HW 77698-M	H. H. Hart	4-13-51	4-13-51		X	100-F 189
A. Weigand Consolidated Freightways Kennewick, Washington	Deliver material on order HW 77698-M	H. H. Hart	4-13-51	4-13-51		X	100-F 189
R. Thorne Inland Motor Freight Kennewick, Washington	Deliver material on order HW 77689-M	H. H. Hart	4-13-51	4-13-51		X	200-E 275
D. A. Westermeyer Consolidated Freightways Kennewick, Washington	Deliver material on order HW 77698-M	H. H. Hart	4-16-51	4-16-51		X	100-B 189
G. Zank Lee & Estes Kennewick, Washington	Deliver material on order HW 77693-M	H. H. Hart	4-16-51	4-16-51		X	100-B 105
N. Schmitt Inland Motor Freight Kennewick, Washington	Deliver material on order HW 77693-M	H. H. Hart	4-16-51	4-16-51		X	200-W 275

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
G. Zank Lee & Estes Kennewick, Washington	Deliver material on order HW 80097-M	H. H. Hart	4-16-51	4-16-51		X	100-D 105
R. Culberhouse Propane Gas & Equipment Co. Pasco, Washington	Deliver material on order HW 80097-M	H. H. Hart	4-19-51	4-19-51		X	200-W 2726
H. C. DeYarmon Railway Express Company Pasco, Washington	Inspect damaged material on ORC 177	H. H. Hart	4-23-51	4-23-51		X	Hanford
G. Zank Lee & Estes Kennewick, Washington	Deliver material on order HW 80097-M	H. H. Hart	4-30-51	4-30-51		X	100-F 105
H. Woody Lee & Estes Kennewick, Washington	Deliver material on order HW 77275-M	H. H. Hart	4-30-51	4-30-51		X	300 303-J
W. Fruehling United Truck Lines Kennewick, Washington	Deliver material on order HW 77713-M	H. H. Hart	4-30-51	4-30-51		X	200-W 271-t
II. Visits to other Installations							
R. H. Burrell to: Knolls Atomic Power Lab. Schenectady, New York	Interview with H.E. Scott	H. E. Scott	4-23-51	4-26-51		X	
H. H. Burrell to: General Electric Company Schenectady, New York	Consultation	J. T. Jackson	4-23-51	4-26-51		X	
J. A. McSwigan to: U.S. Atomic Energy Commission Washington, D. C.	Attend meeting of Traffic Managers	L. Noble	4-23-51	4-27-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
W. A. Jeffrey to: Southwest Welding Alhambra, California	Settlement of vendor's claim	M. Lindmoe	4-30-51	5-7-51		X	
R. T. Cooke to: Approximately 25 companies	Place order for gun barrels	- -	4-10-51	4-20-51		X	
R. H. Burrell to: Chicago Pump Company Chicago, Illinois	Expedite material on order	L. M. Nochino	4-3-51	4-3-51		X	
R. H. Burrell to: Chicago Metal Hose Co. Chicago, Illinois	Expedite material on order	R. Titus	4-4-51	4-4-51		X	
R. H. Burrell to: Buffalo Forge Company Buffalo, New York	Expedite material on order	G. B. Kellog	4-5-51	4-5-51		X	
W. L. Sapper to: Proportioneers, Inc. Providence, Rhode Island	Negotiate settlement of claims for extras against General Electric	R. P. Lowe	4-2-51	4-3-51		X	
T. Williams to: Proportioneers, Inc. Providence, Rhode Island	Negotiate settlement of claims for extras against General Electric	R. P. Lowe	4-2-51	4-3-51		X	
W. L. Sapper to: Eastern Industries, Inc. E. Norwalk, Connecticut	Obtain information regarding claim for bonus due that firm	Mr. Wilkins	4-4-51	4-4-51		X	
W. L. Sapper to: U.S.Steel Supply Corp. Pittsburgh, Pennsylvania	Improve and observe operation of bulk stainless steel warehouseing activities	Mr. Hovorka	4-5-51	4-5-51		X	
W. W. Koenig to: U.S. Steel Company Pittsburgh, Pennsylvania	Steel procurement	P. F. Voigt	4-9-51	4-9-51		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
W. W. Koenig to: Babcock & Wilcox Tube Co. Beaver Falls, Pennsylvania	Steel procurement	W. Buley	4-10-51	4-10-51		X	
W. W. Koenig to: National Tube Company Elwood City, Pennsylvania	Steel procurement	N. L. Roaric	4-10-51	4-10-51		X	
W. W. Koenig to: Alloghony Ludlum Steel Co. Brackenridge, Pennsylvania	Consultation technical problems andstool procurement	C. H. McKnight	4-11-51	4-11-51		X	
W. W. Koenig to: Pittsburgh Steel Pittsburgh, Pennsylvania	Steel procurement	B. Mueller	4-12-51	4-12-51		X	
W. W. Koenig to: U.S. Steel Pittsburgh, Pennsylvania	Steel procurement	W. Gorr	4-12-51	4-12-51		X	
W. W. Koenig to: U. S. Steel Pittsburhg, Pennsylvania	Technical consultation	D. C. Buck	4-13-51	4-13-51		X	
W. W. Koenig to: Luria brother, Inc. New York, New York	Steel procurement	F. W. Tuuhey	4-16-51	4-16-51		X	
W. W. Koenig to: Columbia tool & Brace Corp. New York, New York	Steel procurement	Blacko	4-16-51	4-16-51		X	
J. C. Hamilton to: Southwest Welding Alhambra, California	Discuss GE fabrication ordors	R. Cutler M. Lindmoo	4-8-51	4-13-51		X	
J. C. Hamilton to: Standard Steel, Los Angeles	Discuss GE fabrication on GE ordors	Mr. Barnhart	4-8-51	4-13-51		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
J. C. Hamilton to: Southwest Welding Alhambra, California	Settlement of claim for extra compensation for fabrication orders	R. Cutler M. Lindmoo	4-22-51	4-30-51		X	
L. G. Jones to: Willamette Iron & Steel Portland, Oregon	Inspection	Mr. Cooker	4-8-51	4-11-51		X	
TECHNICAL DIVISIONS							
I. Visitors to this Works							
D. H. Ahmann Knolls Atomic Power Lab. Schenectady, New York	Liaison work on P-10	D. W. Pearce G. O. McCullough W. M. Harty	4-16-51	4-21-51	X		300 3706, 321 100-B 108
L. M. Dorfman Knolls Atomic Power Lab. Schenectady, New York	Consultation on P-10	D. W. Pearce G. O. McCullough W. M. Harty	4-16-51	4-21-51	X		300 3706, 321 100-B 108
A. F. Gohhart Consolidated Engineering Corp. Pasadena, California	Routine field inspection and adjustment of Consolidated Nier Mass Spectrometer	R. J. Brouns	3-27-51	3-29-51	X		100-B 108
R. E. Hanson International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	4-1-51	4-30-51		X	101
C. G. Kruse International Business Machines Richland, Washington	Service IBM equipment	P. M. Thompson	4-1-51	4-30-51		X	101
R. M. Potter Los Alamos Scientific Lab. Los Alamos, New Mexico	P-10 consultation	W. M. Harty	4-25-51	4-26-51	X		300 XXX 100-B 105,108

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Restricted Data Areas
D. Bowen North American Aviation Downey, California	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area
R. Carter North American Aviation Downey, California	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area
F. Farris North American Aviation Downey, California	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area
J. R. Gilbreath Argonne National Laboratory Chicago, Illinois	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area
G. Honning Argonne National Laboratory Chicago, Illinois	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area
W. L. Primak Argonne National Laboratory Chicago, Illinois	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area
O. C. Simpson Argonne National Laboratory Chicago, Illinois	Graphite conference on radiation damage	L. P.Bupp	4-11-51	4-13-51	X		700 Area
W. W. Taylor Knolls Atomic Power Laboratory Schenectady, New York	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area
H. Z. Schofield Battelle Memorial Institute Cleveland, Ohio	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area
J. Karp Brookhaven National Laboratory Upton, L.I., New York	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Caveats	Areas
B. E. Warren Massachusetts Inst. of Technology Cambridge, Massachusetts	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area
J. S. Koehler University of Illinois Urbana, Illinois	Graphite conference on radiation damage	L. P. Bupp	4-11-51	4-13-51	X		700 Area
R. D. McCrosky E. I. du Pont de Nemours & Co. Wilmington, Delaware	Follow canning of special pieces	E. A. Smith	4-1-51	4-13-51	X		300 3706
F. A. Damewood E. I. du Pont de Nemours & Co. Wilmington, Delaware	Follow canning of special pieces	E. A. Smith	4-1-51	4-13-51	X		300 3706
A. U. Seybolt Knolls Atomic Power Laboratory Schenectady, New York	Liaison on KAPL assistance to Hanford	R. Ward	4-30-51	5-2-51	X		300 3706 100-B 108 200-W 234
W. H. Lanham Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss solvent extractions in Hanford assistance to ORNL Purex studies	R. B. Richards F. W. Woodfield O. F. Hill	4-10-51	4-14-51	X		300 3706 321 200-W 231, 221-T
A. N. Parkes Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss solvent extractions in Hanford assistance to ORNL Purex studies	R. B. Richards F. W. Woodfield O. F. Hill	4-10-51	4-14-51	X		300 3706 321 200-W 231, 221-T
R. B. Lindauer Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss solvent extractions in Hanford assistance to ORNL Purex studies	R. B. Richards F. W. Woodfield O. F. Hill	4-10-51	4-14-51	X		300 3706 321 200-W 231, 221-T
W. D. Egnor Knolls Atomic Power Laboratory Schenectady, New York	Conference on long range bearing program	J. T. Stringer	4-19-51	4-20-51	X		300 3706

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass.	Areas
T. H. Chilton E. I. du Pont de Nemours & Co. Wilmington, Delaware	Inspection of Hanford facilities	A. B. Greninger R. H. Beaton W. K. Woods	4-5-51	4-5-51	X		100-B 105, 108 100-D 105 100-F 105 100-H 105 221-U, 224-U 277-S, 202-S 200-W 221-T, 231, 234, 235 234-5 Const. P-11 300 3706, 321
II. Visits to other Installations							
W. A. Briggs, Jr. to: Radiation Laboratory Berkeley, California	Inspect and discuss decontamination and waste disposal equipment and recent developments in remote handling of equipment	N. B. Garden	4-16-51	4-17-51	X		
J. B. Burnham to: Oak Ridge National Lab. Oak Ridge, Tennessee	Metallurgical information meeting and consultation on design of hot spectrometer	J. H. Frye C. S. Borie	4-16-51	4-19-51	X		
F. Clagett to: Knolls Atomic Power Lab. Schenectady, New York	Separations Process Research Unit consultation	B. V. Coplan	4-11-51	4-13-51	X		
F. Clagett to: Michigan State College Lansing, Michigan	Recruit technical personnel	- -	4-5-51	4-6-51		X	
F. Clagett to: Cleveland, Ohio	Attend ASC Meeting	- -	4-9-51	4-12-51		X	
G. E. Duvall to: Brookhaven Nat'l Lab. Upton, L.I., New York	Discussion on exponential experiments	J. Hughes	4-23-51	5-2-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
G. E. Duvall to: Knolls Atomic Power Lab. Schenectady, New York	Discussion on Hanford problems	H. Hurwitz	4-23-51	5-2-51	X		
J. E. Faulkner to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discussion of absolute counting techniques	A. R. Brosi	4-23-51	4-24-51	X		
J. E. Faulkner to: National Bureau of Standards Washington, D. C.	Discuss nuclear physics problems	C. Blanchard K. K. Darrow	4-25-51	4-27-51	X		
P. F. Gast to: Washington, D. C.	Reactor Physics Planning Committ meeting	U. M. Staebler	4-9-51	4-10-51	X		
P. F. Gast to: E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation on reactor problems	C. W. J. Wende	4-11-51	4-11-51	X		
P. F. Gast to: Knolls Atomic Power Lab. Schenectady, New York	Exchange of technical physics information	L. Tonks	4-12-51	4-13-51	X		
P. F. Gast to: Argonne National Lab. Chicago, Illinois	Technical consultation on test pile	J. M. West	4-16-51	4-16-51	X		
J. F. Gifford to: Radiation Laboratory Berkeley, California	Inspect and discuss decontamination and waste disposal equipment and recent developments in remote handling of equipment	N. B. Garden	4-16-51	4-17-51	X		
E. Hollister to: Radiation Laboratory Berkeley, California	Inspect and discuss decontamination and waste disposal equipment and recent developments in remote handling of equipment	N. B. Garden	4-16-51	4-17-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
W. F. Johnson to: Cleveland, Ohio	Attend ASC meeting	- -	4-9-51	4-12-51		X	
W. F. Johnson to: Oak Ridge National Lab. Oak Ridge, Tennessee	Pulse column consultation	F. L. Steahly	4-12-51	4-13-51	X		
S. S. Jones to: Knolls Atomic Power Lab. Schenectady, New York	Inspect heater facility for Project C-410	E. L. Brundige	4-1-51	4-21-51	X		
S. S. Jones to: General Engineering Lab. Schenectady, New York	Inspect heater facility for Project C-410	C. D. Carroll	4-1-51	4-21-51	X		
G. P. Kerr to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discussion of absolute counting techniques	A. R. Brosi	4-23-51	4-24-51	X		
F. E. Kruesi to: Oak Ridge National Lab. Oak Ridge, Tennessee	Technical consultation on P-11 problems	A. D. Callihan	4-24-51	4-28-51	X		
F. E. Kruesi to: Argonne National Lab. Chicago, Illinois	Discussion on reactor design	J. M. West	4-30-51	5-1-51	X		
M. B. Lobocuf to: Boston, Massachusetts	Attend ACS meeting	- -	4-2-51	4-5-51		X	
M. B. Lobocuf to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on vacuum combustion analyses	J. F. Flagg	4-6-51	4-7-51	X		
C. R. McCully to: Consolidated Eng. Corp. Pasadena, California	Discuss mass spectrometer fur uranium isotope determination	H. W. Wiley	4-9-51	4-10-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
C. R. McCully to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Discuss P-10 analyses	E. S. Robinson	4-11-51	4-15-51	X		
C. R. McCully to: Aerojet Engineering Co. Azusa, California	Inspect GE's mass spectrometer	D. Armstrong T. Usher (GEL-Schenectady)	4-10-51	4-10-51		X	
A. R. Mathoson to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	J. Marsden	4-9-51	4-15-51	X		
G. M. Muller to: Oak Ridge National Lab. Oak Ridge, Tennessee	Technical consultation on P-11 problems	A. D. Callihan	4-24-51	4-28-51	X		
G. M. Muller to: Argonne National Lab. Chicago, Illinois	Discussion on reactor design	J. M. West	4-30-51	5-1-51	X		
C. M. Slansky to: Cleveland, Ohio	Attend ACS meeting	- -	4-9-51	4-12-51		X	
C. M. Slansky to: Oak Ridge National Lab. Oak Ridge, Tennessee	Pulse column consultation	[illegible]. L. Steahly	4-13-51	4-13-51	X		
R. Ward to: Atomic Energy Commission New York, New York	Attend AEC meeting and discussion on rolling mill	F. Stroke	4-6-51	4-6-51	X		
R. Ward to: Oak Ridge National Lab. Oak Ridge, Tennessee	Metallurgical information meeting	J. H. Frye	4-16-51	4-18-51	X		
R. Ward to: Argonne National Lab. Chicago, Illinois	Metallurgical consultation on fabrication of uranium	F. Foote	4-19-51	4-19-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
H. F. Zuhr to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	J. Marsden	4-2-51	4-7-51	X		
H. F. Zuhr to: General Engineering Lab. Schenectady, New York	P-10 consultation	H. W. Bousman D. H. Marquis	4-2-51	4-7-51	X		
E. W. Christopherson to: College of Puget Sound Tacoma, Washington	Recruit technical personnel	- -	4-6-51	4-6-51		X	
E. P. Galbraith to: University of Arizona Tucson, Arizona	Recruit technical personnel	- -	4-2-51	4-3-51		X	
E. P. Galbraith to: Brigham Young University Provo, Utah	Recruit technical personnel	- -	4-5-51	4-6-51		X	
E. P. Galbraith to: Utah State College Logan, Utah	Recruit technical personnel	- -	4-7-51	4-7-51		X	
C. A. Bonnott to: University of Washington Seattle, Washington	Recruit technical personnel	- -	4-12-51	4-15-51		X	
R. B. Socky to; Charles T. Main, Inc. Boston, Massachusetts	Review design criteria for Pilo Tech. Bldg.	C. C. Starrett	4-16-51	4-18-51		X	
W. L. Schalliol to: Research Welding & Eng. Los Angeles, California	Consultation with vendor of vacuum tank	W. Bonnott	4-9-51	4-10-51		X	
E. P. Warekois to: North American Phillips Co. Mount Vernon, New York	Attend conference	- -	4-30-51	4-30-51		X	

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PURCHASING AND STORES DIVISIONS

SUMMARY

APRIL 1951

Personnel of the Purchasing and Stores Divisions showed a net increase of fifteen as indicated by the tabulation below:

	Total Personnel as of 3-31-51	Total Personnel as of 4-30-51	Net Change
Exempt	82	89	↑ 7
Non-Exempt	290	298	↑ 8
Total	372	387	↑15

Although the number of purchase requisitions processed during the month decreased, actual dollar value of orders placed increased about $144,000.

An additional appropriation of funds for Project C-431 will permit purchasing of equipment for another four to six weeks.

The work load in the Expediting and Inspection Sections was extremely heavy. Expediting contacts increased by 20%.

Due to extra costs resulting from design changes and material substitutions, the Southwest Welding & Manufacturing Company, fabricators of vessels, submitted claims for extras. These requests were negotiated and mutually satisfactory payments were allowed.

Field inspectors reported that most of the fabrication shops were still having difficulty meeting the dimensional and welding requirements of our orders. Through the efforts of the Inspection Section, arrangements were made with the appropriate Technical, Engineering & Construction Divisions' Managers to accept welding which conforms to ASTM Code. This decision will appreciably improve completion dates of many vessels.

Five additional bulk stainless steel orders were placed. 871,700 pounds of stainless steel were shipped from the Pittsburgh Warehouse. Shipping instructions for material to be shipped to fabricators are 98% complete.

A contract for Sulphuric Acid for the period April 1, 1951 through March 31, 1952 was awarded to Stauffer Chemical Company.

The placement of orders for some essential materials for Redox and TBP operations is being withheld until a firm completion date for storage facilities is established.

Invitations to bid were mailed on: (1) yearly requirements for Sodium Bismuthate, Potassium Hydroxide and Rock Salt, and (2) a contemplated two-year contract for publishing the Richland Telephone Directory.

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PURCHASING AND STORES DIVISIONS
SUMMARY

Of the 2,709 purchase requisitions processed through screening, 1,942 items were furnished from plant sources. 83 items of stainless steel not immediately available on the open market were furnished to fabricators from plant inventories.

Maintenance materials and supplies valued at $257,127.99 were disbursed from operations inventories.

Material and equipment valued at $404,847.88 were withdrawn from excess inventories for use on the project.

Ten formal excess lists, totaling $1,302,984.96, were submitted to the Commission for disposition. Excess materials and equipment valued at $786,468.35 were shipped from the Project as directed by the Commission.

A letter, dated April 19, 1951, outlining a program for the sale of surplus personal property was received from the Commission.

A contract for a functional study in the preparation of final design drawings for the Central Stores Warehouse was awarded to Moffatt, Nichol & Taylor, Engineers, Portland, Oregon, by the Commission.

Fifty-five representatives of government and private business were escorted through warehouses and scrap yards for the purpose of negotiating the sale of scrap and transfer of excess property.

Negotiations with Traffic and Operating officials of the Great Northern Railway and the Milwaukee Road resulted in an operating agreement between the two lines to interchange all traffic at Tacoma rather than at Chehalis, Washington when destined to Hanford, Washington. This change reduces transit time on carload shipments from California points to Hanford.

As a result of rate reductions obtained from carriers, a total savings of freight rate charges for the month amounting to $27,413.74 was effected.

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PURCHASING AND STORES DIVISIONS

STAFF SECTION

APRIL 1951

GENERAL

The first allocation requests filed direct with the National Production Authority were processed for allocations of tungsten and molybdenum.

The Controlled Materials Plan is being developed and the ground work for formulation of records and methods of operation is being laid.

Price Control Regulations have been clarified and all divisions and persons involved have been informed of their responsibilities. Price control information has been filed with the District Office of the Office of Price Stabilization.

The following material forecasts were completed:

1. Columbium and Columbium/Tantalum Steel
2. Selected items (Lumber, Chemicals, Platinum, and related materials)
3. Electronic items

Two rejections of application for authority to apply DO-43 priority ratings were received from the Atomic Energy Commission.

The physical inventory, audit and reconciliation of Captions 903-6, 13, 20, and 906 were completed. A physical inventory of lumber located in White Bluffs and North Richland was completed.

An audit and reconciliation of Returnable Containers was completed.

A review and audit of Purchasing Division records on bulk stainless steel orders was completed.

Submitted budget of operating costs for Purchasing and Stores Divisions for FY 1953 and revision of budget for FY 1952 to the General Accounting Division. Increases in operating costs, particularly in the Purchasing Division, are the result of present and proposed construction activity.

Budget for FY 1953 and revision of budget for FY 1952--Inventories was submitted to the General Accounting Division. Total inventories will continue to decline through continued excessing activity.

PERSONNEL

	As of 3-31-51			As of 4-30-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Costs & Budgets	1	0	1	2	0	2	+1	0	+1
Inv. & Audit	2	11	13	2	12	14	0	+1	+1
Total	3	11	14	4	12	16	+1	+1	+2

SAFETY AND SECURITY

Safety and Security Meetings scheduled - 1
Number attending ---------- 13

PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION
APRIL, 1951

The number of purchase requisitions processed by the Division decreased during the month of April. This decrease was due primarily to fewer but larger purchases made for maintenance, operating and stores supplies. 3076 purchase requisitions were received and assigned as compared with 3900 in March. Orders and alterations placed totaled 2439 as compared with 2793 the previous month. Requisitions on hand at the end of the month totaled 972 compared to 1119 on March 31.

The dollar value of orders and alterations placed during April amounted to $2,937,566.06 of which $2,211,350.18 was for construction materials. Of the 915 construction purchase orders placed during the month, 11 were for Project C-361, 143 for C-362, 56 for C-187-D and E, and 74 for C-431. The balance of the construction purchase orders placed were for construction MS-Stores and miscellaneous TE&C Projects.

Additional funds were appropriated for Project C-431 which will permit uninterrupted purchasing of equipment for another four to six weeks. Commitments to date applied against this project total $3,141,988.82.

The work load in the Expediting and Inspection Sections was extremely heavy. Expediting contacts increased by 20%. Material deliveries for Project C-187-D stepped up considerably except for vessels out of Southwest Welding & Mfg. Co. and Willamette Iron & Steel Company.

The Order Status Group of the Expediting Section issued Status Reports on all major projects except C-431 and C-198. Material and equipment lists have been received for Project C-431 and the issuance of a semi-monthly status report will begin in May.

A considerable amount of time was consumed by the Inspection Engineers evaluating additional costs submitted by Fabricators resulting from design changes. Requests for additional compensation received from Southwest Welding & Mfg. Co. and Willamette Iron and Steel Company were negotiated and mutually satisfactory payments were allowed.

Field Inspectors reported that most fabrication shops were still having difficulty meeting the dimensional and welding requirements of our orders. Thru the effort of Inspection Supervision arrangements have been made with the appropriate TE&C Manager to accept welding conforming to ASME Code, Paragraph U-36. This will appreciably aid in completing many vessels.

Five additional bulk stainless steel orders were placed in April. Shipments of stainless steel out of the Pittsburgh warehouse totaled 871,700 lbs. Shipping instructions have been issued for all steel scheduled to be shipped to Hanford from the warehouse. Shipping instructions for material to be shipped to fabricators are 98% completed.

PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION

A contract was awarded to Stauffer Chemical Company, covering our requirements for Sulphuric Acid for the period April 1, 1951 thru March 31, 1952.

Invitations to bid are out on our yearly requirement for Sodium Bismuthate, Potassium Hydroxide and Rock Salt. Invitations to bid were also mailed 4-14-51 covering a contempleted two-year contract for the publishing of Richland Telephone Directories.

The placement of orders for some essential materials for Redox and TBP operations is being held up pending receipt of firm completion date of storage facilities.

The Stores Audit Group started an audit of all purchase orders which are to be closed out and forwarded to the Records Center for permanent storage.

803 Purchase Orders issued by Atkinson and Jones were screened, audited and certified for reimbursement.

Representatives of the local office of the General Accounting Office spent a week reviewing the Purchasing Division Manual and Procedures. A written report of the review is expected within the near future.

PERSONNEL

	As of 3-31-51			As of 4-30-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	1	2	3	2	1	3	+1	-1	0
Purchasing	15	27	42	16	24	40	+1	-3	-2
Expediting	14	13	27	15	12	27	+2	-1	+1
Inspection	30	7*	37*	32	6*	38*	+2	-1	+1
Clerical	0	24	24	0	30	30		+6	+6
Priorities	1	4	5	1	6	7		+2	+2
TOTALS	61	77*	138*	66	79*	145*	+6	+2	+8

* The above figures do not include 8 rotational trainees assigned to Inspection.

SAFETY AND SECURITY

Safety and Security Meetings Schedule	1
Number of employees attending	90
Minor Injuries	0

1196348

PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION

STATISTICS

	G	D	TOTAL
Requisitions on hand 4-1-51 (includes 67 assigned to Gov't.)	772	347	1119
Requisitions assigned during April	2212	864	3076
Requisitions placed during April	2408	815	3223
Requisitions on hand 4-30-51 (includes 93 assigned to Gov't.)	576	396	972

		NUMBER	VALUE
HW Orders placed		1482	$789,065.32
HW Alterations Placed		183	62,849.44 Cr.
	Total	1665	$726,215.88
HWC Orders Placed		644	$2,198,277.86
HWC Alterations Placed	Total	130	13,072.32
		774	$2,211,350.18
AEC Orders Placed		165	$ 422,067.27
DC Orders Placed		30	136,953.36

	OR	ORC	Total
Gov't. Transfers	1	0	1

	Number
Return Orders Issued	100

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	$ 1,843,693.97	$ 1,388,986.23	$ 328,260.91	$ 147,256.74
DO-41*	8,775,919.69	1,758,494.31		

* Includes Contract Section, TE&C Divisions

OPEN ORDERS

HW Orders	1895
HWC Orders	1305
Government	95

Number of New Orders requiring inspection during month	61
Number of Orders requiring inspection completed during month	48
Number of Orders outstanding requiring inspection at months end	508
Number of HW Orders expedite (routine)	1000
Number of HW Orders expedited (Special Requests)	500
Number of HWC Orders expedited	1300

PURCHASING AND STORES DIVISIONS
STORES DIVISION
APRIL, 1951

GENERAL

2709 purchase requisitions were processed through screening and 1942 items were furnished from plant sources. 83 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 $257,127.99. The receipts of incoming shipments remained high for the month reflecting a total of 5,280 receiving reports issued.

Material and equipment valued at $198,587.34 involving 16 captions in the 10.20 Account (Construction Held Materials) was disbursed to construction forces during the month. In addition to the foregoing, materials valued at $13,655.17 were withdrawn for use by Operations' forces and materials valued at $61,311.63 were declared excess.

Materials and equipment valued at $192,505.37 were withdrawn from the 10.10 Account (Excess) and returned for use on the Project. Of this amount, construction forces' withdrawals were valued at $154,219.87.

During the month ten formal excess lists totaling $1,302,984.96 were submitted to the Commission for disposition. Excess materials and equipment valued at $786,368.35 were shipped from the Project as directed by the Commission.

The evacuation of certain warehouses and yards in North Richland to facilitate the Army Construction Program has been completed with the exception of certain maintenance necessary on Building 84 which was moved to the North Richland Equipment Yard.

A letter was received from the Commission dated April 19, 1951 outlining a program for the sale of surplus personal property. Under this program, the General Electric Company would handle all details of preparing property for sale but would not actually conduct the sale. The awarding of bids and collecting of revenue will be the sole responsibility of the Commission.

The Commission awarded a contract to the firm of Moffatt, Nichol & Taylor, Engineers, Portland, Oregon for a functional study in the preparation of final design drawings for the Central Stores Warehouse (Project Proposal C-390-R-2).

55 representatives of government and private businesses were escorted through our warehouses and scrap yards for the purpose of negotiating the sale of scrap and transfer of excess property.

1196350

PURCHASING AND STORES DIVISIONS
STORES DIVISION

PERSONNEL

	As of 3-31-51			As of 4-30-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	4		4	4		4			
Construction Mat'l Sect.	2	31	33	2	30	32	-1	-1	
Operations Mat'l Sect.	4	107	111	4	114	118	+7	+7	
Surplus, Salvage & Scrap Materials Section	4	48	52	4	45	49	-3	-3	
TOTALS	14	186	200	14	189	203	+3	+3	

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	8
Number of Employees Attending	158
Minor Injuries	7

STATISTICS

Construction Materials Section

Items in Stores Stock	44,663
Items Added to Stock	2,047
Items Completely Liquidated from Stock	1,162
Store Orders Posted (Items)	4,095
Number of Requisitions Screened - A.J.	663
Number of Items Screened - G.E.	5,429
Number of Items Furnished from Stock	721
Value of Disbursements	$211,263.79*
Inventory Valuation at Month End - Materials	6,969,370.61
Value of Materials Shipped	978.72**
Value of Materials Received	49,143.99
Value of Materials Declared Excess	61,311.63

*Includes $198,587.34 disbursed to Construction & CPFF Subcontractors

**Shipping orders valued at $7,184.86 were returned to be voided and excessed to Account 10.10.

Operations Materials Section

Number of Items Added to Stores Stock	260
Number of Items Deleted from Stores Stock	7
Items in Stores Stock at Month End	47,156
Store Orders Posted	21,511
Number of Requisitions Screened This Month - G.E.	2,046
Number of Items Furnished from Plant Sources This Month	1,221
Inventory Valuation at Month End (903-All Captions, 906 & 912)	$1,419,948.85
Inventory Valuation at Month End (Spare Parts)	1,637,662.00
Inventory Valuation at Month End (Special Materials)	3,142,042.44
Total Value Inventory Accounts	6,199,653.29
Value of Disbursements, not including Cash Sale Items	257,127.99*
Value of Cash Sales	750.87
Value of Sales, Payroll Deduction	1,242.54

PURCHASING AND STORES DIVISIONS
STORES DIVISION

STATISTICS (Continued)

Value of Materials Declared Excess			$5,777.34
Value of Materials Returned to Stores Stock for Credit			5,171.54

*Includes $21,880.13 disbursed to Construction and CPFF Subcontractors

Surplus, Salvage & Scrap Materials Section

Balance of Account 10.10 as of 3-30-51			$5,766,132.23
Receipts 3-30-51 to 4-30-51			
Lumber	224,449.10		
Automotive Equipment	6,523.84		
Office Furniture	409.20		
Material and Supplies	99,293.39		
Miscellaneous Equipment	7,325.72		
Machine Tools & Equipment	1,124.26		
			339,125.51
Adjustments - Classes & Current Market Prices			1,634.87
			6,106,892.61
Disbursements 3-30-51 to 4-30-51			
On Project			
Lumber	10,704.51		
Automotive Equipment	131,421.78		
Machine Tools & Equipment	1,329.72		
Office Furniture	47.00		
Materials and Supplies	16,569.89		
Miscellaneous Equipment	32,532.47		
		192,605.37*	
Transfer to 10.20 Account		2,418.91	
Stores Material Transfers		1,583.63	
Off Project			
Lumber	583,307.70		
Automotive Equipment	116,412.91		
Office Furniture	888.51		
Material and Supplies	49,204.59		
Miscellaneous Equipment	5,015.33		
Household Furniture	29,703.27		
Machine Tools & Equipment	1,936.04		
		786,468.35	983,076.26
Balance of Account 10.10 as of 4-30-51			$5,123,816.35

*Includes Disbursements to Construction - $154,219.87

Total Receipts to Date	$35,109,187.54
Total Disbursements to Date	29,985,371.19

1196352

PURCHASING AND STORES DIVISIONS
STORES DIVISION

STATISTICS (Continued)

Scrap and Salvage Disbursed		
Scrap Sales Completed	10	
Scrap Sales in Process	3	
Scrap Sales Revenue for Month of April		$7,104.16
Total Scrap Sales Revenue to Date		42,494.80

WAREHOUSING, RECEIVING, DISBURSING & SHIPPING SECTIONS

Construction Materials Section	
Store Orders Filled	4,910
Number of Items Received	36
Items Filled for Shipping	15
Items Excessed	30
Operations Materials Section	
Receiving Reports Issued	5,280
Emergency Store Orders Filled	3
Shipments Processed (Containers & Materials)	313
Shipments Received	5,325
Store Orders Registered	22,223
Surplus, Salvage & Scrap Materials Section	
Store Orders Filled	577
Truckloads of Material Shipped	124
Carloads of Material Shipped	83

MINOR CONSTRUCTION STORES

Account 10.16 as of April 30, 1951

Account No.		Balance 3-31-51	Purchases	Disbursements	Balance 4-30-51
10.16-101	Cement	59.50	-0-	29.23	30.27
10.16-102	Sand, Blasting Sand, Gravel	-0-	78.00	-0-	78.00
10.16-103	Plaster, etc.	19.41	-0-	2.43	16.98
10.16-104	Lumber	7,572.41	10,309.14	4,185.65	13,695.90
10.16-105	Reinforced Steel	5,069.05	1,631.81	500.84	6,200.02
10.16-106	Misc. Stores	14,452.86	11,424.56	4,375.88	21,501.54
10.16-107	Plumbing	46,138.38	23,122.56	4,248.17	65,012.77
10.16-108	Electrical	48,225.17	29,512.50	8,149.55	69,588.12
10.16-109	Vitrified Clay Pipe	216.51	-0-	119.75	96.76
10.16-110	Paint, Glass	1,688.83	2,792.21	605.00	3,876.04
10.16-111	Welding Rod	1,709.18	930.37	531.44	2,108.11
10.16-112	Structural Steel	22,735.26	12,470.58	1,701.31	33,504.53
10.16-113	Concrete & Masonry Sup.	(CR)49.84	431.99	816.41	(CR) 434.26
10.16-115	Roofing Supplies	211.40	589.01	316.05	484.36
10.16-116	Transformers	793.56	1,305.20	816.21	1,282.55
10.16-118	Automotive	28,476.32	15,750.62	5,444.58	38,782.36

PURCHASING AND STORES DIVISIONS
STORES DIVISION

STATISTICS (Continued)

Account No.		Balance 3-31-51	Purchases	Disbursements	Balance 4-30-51
10.16-133	Small Tool Repair Parts	740.34	486.47	82.25	1,144.56
10.16-134	Clothing	(Cr) 3,755.39	8,659.69	3,768.98	1,135.22
	TOTAL	174,302.85	119,494.71	35,693.73	258,103.83

1196354

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
APRIL, 1951

GENERAL

The work load of the Traffic Division continued at the high level of the previous month.

Extended negotiations with Traffic and Operating officials of the Great Northern Railway and the Milwaukee Road resulted in an operating agreement between the two lines to interchange all traffic at Tacoma rather than at Chehalis, Washington when destined to Hanford, Washington. This change became effective April 2, 1951, and has resulted in reducing transit time from two to three days on carload shipments from California points to Hanford, thus making this route fairly competitive with the service provided to Richland via either the Northern Pacific or Union Pacific.

The Traffic Manager attended a Traffic Management meeting in Washington, D. C. at which the Traffic Managers from the various Operations Offices and the Prime Contractors of the Atomic Energy Commission were in attendance.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of April amounting to $27,413.74. This makes a total savings from September 1, 1946 to date of $1,515,155.48.

PERSONNEL

	Total Personnel as of 3-31-51	Total Personnel as of 4-30-51	Net Change
Exempt	2	2	0
Non-Exempt	9	8	-1
	11	10	-1

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	1
Meetings Held	1
Minor Injuries	0

STATISTICS

Savings Report

1. Rate reductions obtained from the Carriers:

Commodity	Origin	Savings for April	Savings 9-1-46 thru March 1951	Total Savings 9-1-46 to date
Coal	Kemmerer, Wyo.	$ 4,558.56		
Coal	Roundup, Mont.	15,997.88		
Lime	Evans, Wash.	698.22		
Phosphoric Acid	Newark, Cal.	390.72		
Phosphoric Acid	South Gate, Cal.	2,333.47		

1196355

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
APRIL, 1951

STATISTICS (CONTINUED)

Savings Report (Continued)

1. Rate reductions obtained from the Carriers: (Continued)

Commodity	Origin	Savings for April	Savings 9-1-46 thru March 1951	Total Savings 9-1-46 to date
Caustic Soda	Tacoma, Wash.	$ 1,060.75		
Caustic Soda	Willbridge, Ore.	1,063.64		
Soda Ash	Trona, Cal.	454.50		
Methane Gas	Various	79.27		
Railway Express	Various	692.18		
Trichloroethylene	Various	64.64		
		19.91		
		$27,413.74	$1,487,741.74	$1,515,155.48
2. Freight Bill Audit		2,306.15	61,936.72	64,242.87
3. Loss and Damage and Over-Charge Claims		1,219.79	104,659.64	105,879.43
4. Ticket Refund Claims		799.68	13,307.81	14,107.49
5. Household Goods Claims		201.76	14,498.83	14,700.59
		$31,941.12	$1,682,144.74	$1,714,085.86

Work Volume Report

Reservations Made	Rail	123
	Air	168
	Hotel	180
Expense Accounts Checked		195

Household Goods & Automobiles	Movements Arranged Inbound	6
	Movements Arranged Outbound	1
	Insurance Riders Issued	4
	Furniture Repair Orders	2
	Requests for Claim Billing	1
	Claims Filed	2
	Claims Collected - Number	9
	Claims Collected - Amount	$201.76
Ticket Refund Claims	Filed	18
	Collected - Number	21
	Collected - Amount	$799.68
Freight Claims	Filed	22
	Collected - Number	16
	Collected - Amount	$1,219.79
	Over and Shorts Processed	17
	Damage Reports Processed	8

1196356

PURCHASING AND STORES DIVISIONS
TRAFFIC DIVISION
APRIL, 1951

STATISTICS (CONTINUED)

Freight Bill Audit Savings		$2,306.15
Freight Shipments Traced		95
Quotations	Freight Rates	355
	Routes	347
Bills Approved	Air Freight	2
	Air Express	32
	Boat	3
	Carloading	235
	Express	169
	Rail	630
	Truck	397
Return Orders Processed		41
Carload Shipments	Inbound - GE - AEC	689
	Others	141
	Outbound - GE - AEC	25
	Others	7

Report of Carloads Received

	MILW	N.P.	U.P.	TOTAL
General Electric Company				
Acid, Nitric and Sulphuric	1			1
Aluminum Ingots			1	1
Junior Caves		1		1
Chlorine, Liquid	2	1		3
Coal	272		299	571
Ferric Sulphate	3	3	3	9
Furniture, Metal			1	1
Lead			1	1
Lime	3	3	4	10
Nitric Acid		9	9	18
Nursery Stock		1		1
Oxalic Acid		1		1
Phosphoric Acid		3	3	6
Pipe	1			1
Pipe and Fittings	1			1
Plumbing Goods		1		1
Posts, Steel Fence	1			1
Roofing Cement		1		1
Salt		2	1	3
Caustic Soda	7	4	5	16
Soda Ash	2		1	3
Steel Plates	1		1	2
Steel	1	1		2
Sulphuric Acid		1		1

1196357

STATISTICS (CONTINUED)

Report of Carloads Received (Continued)

	MILW	N.P.	U.P.	TOTAL
General Electric Company (Continued)				
Tanks, Steel	3			3
Towers		1		1
Tubing	2			2
Merchandise	3	5	1	9
Express	6			6
TOTAL	309	38	330	677
A. E. C.				
Cabinets, Steel	1			1
Chairs, Metal		1		1
Chemicals	4			4
Lumber		2	1	3
Plywood		1		1
Roofing, Steel		1		1
Merchandise	1			1
TOTAL	6	5	1	12
Atkinson & Jones Construction Company				
Building Material	1			1
Cement		25		25
Insulation	1			1
Mineral Wool	1			1
Mortar Cement		1		1
Pipe, Steel	0			8
Sewer Pipe	1			1
Sand	1			1
Steel, Reinforcing	2			2
Steel	9		6	15
Steel Plates	1			1
Tile		1		1
Wire		3		3
Merchandise	3	1		4
TOTAL	28	31	6	65
E. F. Hauserman Company				
Merchandise			1	1
TOTAL			1	1
L. E. Baldwin & Associates				
Fluis, Chimney		1		1
Cooling Boxes			8	8
Lumber		4		4
Nails		2		2
Plasterboard			2	2
Plywood		1		1
Wallboard		2	4	6

1196350

STATISTICS (CONTINUED)

Report of Carloads Received (Continued)

		MILW	N.P.	U.P.	TOTAL
L. E. Baldwin & Associates (Continued)					
Stoves, Cooking			3		3
Merchandise				1	1
	TOTAL		13	15	28
Seattle Insulation Company					
Insulation				1	1
	TOTAL			1	1
A. H. Barbour & Sons					
Plasterboard			1		1
	TOTAL		1		1
F. J. Early					
Air Condensers		4			4
Asphalt		1			1
Cement		8			8
Fencing				1	1
Pipe				2	2
Steel, Reinforcing				6	6
Merchandise		1			1
	TOTAL	14		9	23
Sound Construction Company					
Wire Mesh			1	1	2
	TOTAL		1	1	2
Fred Stabbert Company					
Shingles			1	1	2
	TOTAL		1	1	2
Arnold Jeffers Company					
Pipe				1	1
	TOTAL			1	1
S. S. Mullen					
Asphalt			1		1
Lumber			1		1
Merchandise			1		1
	TOTAL		3		3
Electric Smith, Inc.					
Conduit			1		1
	TOTAL		1		1
Waale Complin Company					
Asphalt			3		3
	TOTAL		3		3

1196359

STATISTICS (CONTINUED)

Report of Carloads Received (Continued)

		MILW	N.P.	U.P.	TOTAL
Powell Plumbing & Heating Pipe, Clay	TOTAL	1/1			1/1
Roof Service, Inc. Asbestos Shingles	TOTAL		4/4		4/4
Bay Company Pipe Fittings	TOTAL	1/1			1/1
Washington Electric Company Merchandise	TOTAL	1/1			1/1
Cyclone Fence Company Fencing	TOTAL	1/1			1/1
Taylor Brothers Tile	TOTAL			1/1	1/1
U. S. Army Merchandise	TOTAL		1/1		1/1
TOTAL - SUBCONTRACTORS		46	59	36	141
TOTAL ENTIRE PROJECT		361	102	367	830

1196360

EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

SUMMARY - APRIL, 1951

The number of applicants interviewed decreased from 1,671 in March to 1,221 in April. Of these applicants, 400 were individuals who applied for employment with the General Electric Company for the first time. In addition, 307 new applications were submitted through the mail. Open, nonexempt, nontechnical requisitions decreased from 621 at the beginning of the month to 599 at month end. Total plant roll increased from 8,080 to 8,198. Turnover rate increased from 2.38% in March to 2.51% in April. During April, 63 new requests for transfers to other type of work were received by the Employment Office, and 37 transfers were effected. During April advertisements were placed in six Northwest newspapers for three days for stenographers, I.B.M. and comptometer operators, designers and draftsmen, journeymen electricians, trackmen, journeymen telephone repairmen, plumber-steamfitter helpers, instrument mechanics, production operators and laborers. A representative of the Employment Group conducted two tours of graduating seniors, who have specialized in commercial studies, through the 700-1100 Areas during April. In addition, the commercial classes of the high schools of Grandview, Sunnyside, Prosser and Richland were addressed during the past month. The Employment Office has been formulating the necessary plans and obtaining the required material to assist the Drafting Trainee School in obtaining applicants who are qualified for this school along drawing, mechanical and mathematical lines from local high schools. The local Draft Board was also contacted regarding the possibility of receiving deferments for young boys who may become drafting trainees. Although no official opinion has been received regarding deferment for these men, it appears that favorable consideration will be given such requests for deferment.

No employee deaths occured during April, however, two employees retired. Two hundred and four visits were made to employees confined at Kadlec Hospital, and 66 salary checks were delivered to employees either confined at the hospital or at home. Following a suggestion made to all Departments of the Company, plans have been formulated to adopt an identification card for all employees participating in the Insurance Plan to facilitate admissions to hospitals outside this community during instances of an emergency nature. At month end, participation in the Pension Plan was 95.4%, in the Insurance Plan 96.1%, and in the Employee and Stock Bonus Plan 36.7%. As of the end of April, there were 756 employees registered under the Selective Service Act, and 659 military reservists on the rolls. Since August 1, 190,131 employees have terminated to enter military service.

1196361

Employee and Community Relations Divisions
Summary

Formal certification of the International Guards Union as bargaining representative for Richland and North Richland Police and Plant Security Guards was received from the NLRB on April 3. The NLRB officially dismissed the CIO petition seeking to represent production and maintenance workers. A consent election was scheduled for May 1 and 2 to determine whether or not Richland and North Richland Village Firemen desired to be represented by the HAMTC. On April 25, the NLRB dismissed the petition submitted by the HAMTC covering certain Health Instrument employees. On April 27, an offer was made to the HAMTC and the BSEIU for a nine-cent an hour wage adjustment.

Atkinson-Jones and CPFF subcontractors on six-day workweek effective April 23. Atkinson-Jones and General Electric lump sum subcontractors generally not scheduled for six days at this time. At isolation pay negotiations in Portland April 11, Atkinson-Jones and Union agreed to consider increases of 15 and 20 cents. General Electric to go on Daylight Saving Time June 10 - unions voted to remain on Standard Time. Columbia Basin and Cabinet Gorge Dam Ironworker rates of $2.50 for Structural and $2.31 for Reinforcing were given unfavorable consideration by Wage Stabilization Board. Rates reduced to $2.30 and $2.25 respectively after meeting with Wage and Hour Division. Project Rates: $2.50 Structural and $2.35 Reinforcing. Carpenters' $2.425 rate effective May 1, 1951, decreased one-half cent to assure WSB compliance and maintain uniformity in Tri-City area. Hewes' case claim now at $6,000, Atkinson-Jones deciding whether to appeal or attempt settlement. Operating Engineers eleven men dispute has reached the point where the Federal Mediation and Conciliation Service has been requested to submit a panel of arbiters for selection of a fifth man for the Grievance Committee. A "showdown" is expected soon on the Plumbers' refusal to handle helices for Hot Semi-Works because they were fabricated off the Project. Plumbers Maintenance versus construction dispute continues. This office is giving assistance whenever possible. The Puget Sound Sheet Metal Works dispute from April 3 to April 16 did not seriously affect our construction program.

Upon receipt of confirmation from the AEC stating that a reimbursement request would be granted on the proposed increase for designers and draftsmen upon Wage Stabilization Board approval, an application was made for rate increases for designers and draftsmen on April 27, 1951. The annual Northwest Area Wage Rate Survey was distributed to participating organizations. A special Pacific Coast Survey on design and dratsmen rates was distributed to thirty-six participating architectural engineering concerns.

A total of 95 releases were distributed during the month. Of these, 63 were sent to local newspapers and radio stations. The remainder was sent to newspapers, radio stations, and wire services throughout the Northwest.

Visitors to Richland during the month of April for information on Richland and Hanford Works for news stories were: B. S. Havens, Editor of the G.E. MONOGRAM; J. O. Cobb, Advertising and Publicity Department in Washington, D.C., and Douglas Larson, national correspondent for Scripts-Howard papers; and A. C. Prendergast, editor of WESTERN BUILDING Magazine.

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Employee and Community Relations Divisions
Summary

Journalism students from Columbia High School visited Community and Public Relations one day during April to get information and photographs from which they will prepare two pages of the May 4 issue of the Hanford Works NEWS.

The Community Relations supervisor handled publicity for the annual Cancer Drive for the community and the plant.

During the month seven speeches were delivered by Hanford Works people, four of which were "HOBSO" presentations.

Public Events coordinated the Library Open House during the month. Special Programs assisted in the "open house" by writing and arranging for production of an information booklet, special invitations, and production of a directional sign, name tags for library personnel, and imprinting opening day library cards.

Radio spot announcements were written and placed for the following events: Civilian Defense Auxiliary Policemen Recruitment; Community-Army Variety Show for the Cancer Drive; Cancer Drive Green Leaf Tea; Beta Sigma Phi Polio Benefit; Library Open House.

Advance publicity and preparations for the "More Power to America Special" were arranged for its appearance in Richland.

The Photo House produced 8,206 prints during the month.

Stores Division cost code will be used for all future booklets prepared and distributed as a stores stock item, through an arrangement made with the Stores Division. Revised and edited an article prepared by the Technical Personnel Office for distribution to business administration graduates as a recruitment aid.

In line with Special Programs' responsibility for Medical Division public information, four stories were released through the News Bureau to local media: the rabies epidemic, record number of births per month at Kadlec Hospital, two news stories on the Regional Eye Institute in Richland. Two photos concerning the construction program at Kadlec Hospital were also released.

Six letters were written and distributed to Hanford Works people, one being sent only to supervisors. Display type recruitment advertisements were placed in newspapers in Washington, Idaho and Montana covering 11 different job classifications needed at Hanford Works.

Revised and edited a paper on the Records Management Program at Hanford Works, which will be presented at a meeting in New York during May by the Records Control supervisor.

The Hanford Works NEWS carried publicity on the following subjects: Cancer Drive, Community information, "More Power to America Special" train, new bus

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schedule and routes, library open house, employee benefit plans, housing in private homes for single employees, suggestion system, employment needs, safety, feature stories on employees or employees' activities.

Two twelve-page papers were published during the month.

Three women's pages were published in the Works NEWS during the month. Special features for the Works NEWS and outside release were written by the women's activities feature writer. They included: a double page on the opening of the library in Richland, a story on the 1951 park development program, and a double page spread on the new Records Service Center.

Forty-four supervisors attended the 40-Hour Training Program during the week of April 9. PMS Groups 13, 14, 15 and 16 met during the month of March. HOBSO meetings for nonexempt employees commenced on April 23. During the period April 23 through April 30, a total of 39 meetings were held, with a total of 1,514 people in attendance. A special safety meeting was held for members of the Training Staff on Tuesday, April 17.

On Saturday, April 21, the Assistant Training Supervisor presented the appreciation version of HOBSO to approximately 300 members at the Annual State JayCees Convention in Seattle.

During April, 43 copies of the Supervisor's Handbook on Employee Relations were distributed to supervisors. Orientation was given to two transferred employees and 291 new employees during April. Two copies of the Hanford Works SAGE were prepared and distributed to all supervisors during April.

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EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

APRIL , 1951

ORGANIZATION AND PERSONNEL

Employment and Employee Services

Effective April 5, 1951, a Steno-Typist "B" was engaged and assigned to the Employee Services Group to replace a Steno-Typist "B" who was upgraded and transferred to the Technical Divisions effective April 23, 1951.

Effective April 10, 1951, a General Clerk "D" was engaged and assigned to the Investigation and Files Group.

Effective April 10, 1951, a General Clerk "D" was engaged and assigned to the Employment Group to replace a General Clerk "D" who was upgraded and transferred to the Health Instrument Divisions effective April 23, 1951.

Effective April 16, 1951, a General Clerk "D" was engaged and assigned to the Employment Group.

Effective April 20, 1951, a General Clerk "D" was engaged and assigned to the Employment Group.

Community and Public Relations

Effective April 4, one General Clerk "D" was engaged to train for the position vacated by a General Clerk "D", who transferred to Health Instrument Divisions on April 17.

Union Relations

Effective April 2, one General Clerk "D" transferred to Purchasing & Stores.

Effective April 16, one General Clerk "D" was employed by Insurance, Workmen's Compensation and Suggestion System.

Training & Program Development

No organization changes made.

No. on Roll	April, 1951
Beginning of Month	105
End of Month	108
Net Increase	3

Reason for Increase: Increased work load in Employment & Employee Services.

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Employee and Community Relations Divisions

ACTIVITIES

Employment and Employee Services

Employment:

	March, 1951	April, 1951
Applicants interviewed	1,671	1, 221

400 of the above applicants interviewed during April were individuals who applied for employment with the Company for the first time. In addition, 307 new applications were received through the mail.

Open requisitions	March, 1951	April, 1951
Exempt	4	6
Nonexempt	621	599

Of the 621 open, nonexempt, nontechnical requisitions at the beginning of the month, 481 were covered by interim commitments. Of the 599 open, nonexempt, nontechnical requisitions at month end, 444 were covered by interim commitments. During April, 181 new requisitions were received requesting the employment of 232 nonexempt employees.

	March, 1951	April, 1951
Employees added to the rolls	245	322
Employee removed from the rolls	192	204
Net Gain or Loss	• 53	• 118

Of the 204 employees removed from the rolls, none were removed due to lack of work.

Turnover:	March, 1951		April, 1951	
	Male	Female	Male	Female
Excluding employees laid off for lack of work	1.96%	4.03%	2.13%	4.02%

Over-all Turnover:	March, 1951	April, 1951
Excluding employees laid off for	2.38%	2.51%

During April, 78 employees terminated voluntarily to accept other employment, 24 terminated to leave this vicinity, and 14 terminated to enter military service.

At the end of April there were 39 employees in lack of work status, divided into the following categories:

	March, 1951	April, 1951
Nonbargaining unit employees	17	12
Bargaining unit employees	34	27

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Employee and Community Relations Divisions

Transfer Data

Accummulative total of requests for transfer received since 1-1-51	230
No. of requests for transfer received during April	63
No. interviewed in April, including promotional transfers	60
Transfers effected in April, including promotional transfers	37
Trans. effected to date since 1-1-51, including promotional trans.	169
Transfer requests active at month end	74
Trans. effected in April, for employees given lay off notices	0
Trans. effected since 1-1-51, for employees given lay off notices	0
No. of stenos. transferred out of steno. pool in April	3

During April, 20 people whose continuity of service was broken while in an inactive status were so informed by letter.

During April, the employment recruitment program continued through newspaper advertisements placed in Spokane, Washington; Boise, Twin Falls, Lewiston and Pocatello, Idaho; and Great Falls, Montana, papers for stenographers, I.B.M. and comptometer operators, designers and draftsmen, journeymen electricians, trackmen, journeymen telephone repairmen, plumber-steamfitter helpers, instrument mechanics, production operators and laborers. These advertisements ran on April 28, 29, and 30.

Again in April, employees were asked to recommend possible candidates for employment to the Procurement Group through articles placed in the Works News. As a result 16 replies were received, recommending 21 people.

The Assistant Employment Supervisor-Women addressed the commercial classes of the high schools of Grandview, Sunnyside, Prosser and Richland during the month. On April 12, 26 senior students from the commercial classes of Grandview High School visited Hanford Works and were taken on a tour of the 700-1100 Areas. They were also guests of the Company for a luncheon and shown a technicolor movie entitled "..... by their Works". From the various comments of the visitors it was quite evident that the group was most appreciative of this opportunity to visit the plant and observe the various activities within their fields of interest. On April 26, 22 graduating seniors from Columbia High School of Richland, who have specialized in commercial courses, were taken on a conducted tour through the Employment Building and the Administration Building.

A drafting training school under the direction of D. W. McLenegan, Manager, Technical Personnel Office, is scheduled to commence June 1, 1951, with 12 young men and women to comprise the first class. The Employment Group will be responsible for recruiting these trainees, and for their placement upon completion of the 13 weeks training course. Primary qualifications include those of a high school graduate with aptitudes for drawing, mechanics and mathematics, which will be determined by a series of aptitude tests. During the month of April contact was made with advisors and principals in high schools of Richland, Kennewick, Pasco and Ritzville, Washington, for the purpose of acquainting these people with the proposed training school and to solicit their assistance in recommending suitable candidates, preferrably those who have taken courses in mechanical drawing, to us for consideration. According to a forecast about 28 of these trainees could be absorbed during the balance of 1951. Recognizing the young boys who might enter this type training school would be vulnerable to the draft under Selective Service, an

effort is being made to ascertain from the Draft Board representing Franklin, Benton and Adams Counties, what action they might take on deferment requests for the trainees. While an official opinion had not been received by month end, it would appear that favorable consideration would be given such deferment requests.

Employment Statistics:

	3-31-1951	4-30-1951
Number of employees on rolls		
Exempt		
Male	1,906	1,912
Female	54	54
	1,960	1,966
Nonexempt		
Male	4,525	4,578
Female	1,595	1,654
	6,120	6,232
TOTAL	8,080	8,198

ADDITIONS TO THE ROLLS

	Exempt	Nonexempt	Total
New Hires	14	281	295
Re-engaged	0	0	0
Re-activations	3	22	25
Transfers (from other plants)	2	0	2
Actual additions	19	303	322
Payroll exchanges	3[a]	20[b]	23
GROSS ADDITIONS	22	323	345

TERMINATIONS FROM THE ROLLS

Actual Terminations	28	146	174
Removals from the rolls (deactivations)	2	28	30
Payroll Exchanges	3[c]	20[d]	23
GROSS TERMINATIONS	30	194	227

a Transferred from Weekly Payroll
b Transferred from Monthly Payroll
c Transferred to Weekly Payroll
d Transferred to Monthly Payroll

Employee and Community Relations Divisions

GENERAL

	3-1951	4-1951
Applicants interviewed	1,671	1,221
Photographs taken	371	421
Fingerprint impressions (taken in duplicate)	554	487

ABSENTEEISM STATISTICS
(Weekly Salary Roll)[a]

Male	4.26%	2.80%
Female	6.39	3.86
Total plant average	4.55	3.02

INVESTIGATION STATISTICS

Cases received during the month	816	575
Cases closed	237	363
Cases found satisfactory for employment	767	623
Cases found unsatisfactory for employment	19	24
Special investigations conducted	23	18
Cases closed before investigations completed	16	6

a Statististics 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	204
Salary checks delivered to employees in Kadlec Hospital	54
Salary checks delivered to employees confined at home	11

Two visits were made to this office during March by a representative of the Yakima Social Security Office to assist beneficiaries of deceased employees in obtaining Social Security benefits due them.

During April, one Life Insurance article was prepared for release in the Works News.

As of the end of April, participation in Company Benefit Plans was as follows:

Pension Plan	95.4%
Life and Health Insurance	96.1
Employee and Stock Bonus Plan	36.7

Some progress was made during April toward providing identification cards to all Hanford Works people who are members of the Company Insurance Plan. It is felt that the identification card will assist some of our people in getting hospitalization at locations other than Richland during instances of an emergency nature.

Employee and Community Relations

No employee deaths occurred during April.

In the past month, 13 letters were written to members of deceased employee's families concerning payment of moneys due them from the Company, as well as answering other pertinent questions for them.

Two employees retired during the month, namely:

Blanche A. Kaliher, Real Estate Housing Division; and
J. A. DeVinney, Plant Security and Services Divisions.

A representative of the Employee Services Group contacted six of our retired employees during April to discuss matters pertaining to their personal welfare and retirement. Also at this time pictures were taken which will appear in a future issue of the Works News.

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	756
Employees registered who are veterans	470
Employees registered who are nonveterans	286
Employees classified as 1-A	110
Deferments requested to date	104
Deferments granted	52
Deferments denied and appealed at state levels	7
Deferments denied and appealed at national level	6
Deferments requested, employees later reclassified	18
Deferments pending	21

Statistics with respect to employees who are members of the military reserve are as follows:

Number of reservists on roll	659
Number who returned to active duty to date	60
Number who returned to active duty in April	13
Deferments requested to date	56
Deferments granted	54
Deferments pending	2

Military terminations since 8-1-1950 are as follows:

Reservists recalled	60
Selective Service	69
Female employees enlisted	2
TOTAL	131

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Employee and Community Relations Divisions

During April this Group gave assistance to the Charles T. Main Company, a sub-contractor, in obtaining delay in recall of one of their draftsmen who is a member of the Naval Reserve. It was necessary to carry this deferment to the national level before obtaining favorable action. Also assistance was given to the Kellex Corporation, another sub-contractor, in obtaining delay in recall to active duty to the Washington State Guard for one of their structural draftsmen. This request for delay was refused by the Adjutant General of the Washington State Guard, and the employee was scheduled to report for duty early in May. However, the Air Force, the unit to which he is to be assigned, in Washington, D.C., has indicated to the Atomic Energy Commission that as soon as he is sworn into the Air Force, they will discharge him in order that he may return to work for the Kellex Corporation.

In view of the increasingly short labor market, it was deemed advisable to review the availability lists of our employees with respect to recall to active service and deferments. As a result of this review, recommendation was made to the Manpower Mobilization Committee to reclassify several job positions as follows:

JOB TITLE	FORMER CATEGORY	NEW CATEGORY
Technologists "C"	C	D
H. I. Inspectors "A" and "B"	C	D
Laboratory Assistants "A" and "B"	B	D
Chemical Helpers	B	C
Chemical Trainees	C	D
Metalworkers	B	C
Utility Operators	C	D

These recommended changes have been approved by the Manpower Mobilization Committee, which resulted in 63 reservists currently on the payroll being placed in new categories, and the divisions to which these employees are assigned have been notified. Also extended deferments will be processed for 22 people now on the roll who are subject to call to duty under Selective Service.

Employee and Community Relations Divisions

Union Relations & Wage Rates Division

Union Relations - Operations Personnel:

Formal certification from the National Labor Relations Board was received by the Company on April 3, establishing the International Guards Union of America as bargaining representative for Richland and North Richland Police and Plant Security Guards. It was reported that the Guards Union was preparing to elect its officers who would participate with the Company in executing a contract for that group. Negotiations in this regard had not commenced by month-end.

The NLRB officially dismissed the recent CIO petition seeking a representation election on the grounds of insufficient evidence that a substantial number of employees were desirous of such action.

A hearing had been scheduled between the Company and the NLRB to discuss a petition initiated by the HAMTC who is endeavoring to represent Richland and North Richland Village Firemen. The Company reviewed its position on this question and decided to forego a hearing. As a result, a representation election was agreed to and scheduled for May 1 and 3, 1951.

Several months ago, certain Health Instrument personnel had sought representation by the HAMTC. On April 25, the NLRB dismissed the petition on the grounds that the employees involved should not be included in a bargaining unit together with production and maintenance employees. The decision in this case paralleled a similar situation in the Monsanto Chemical Company which drew the same Board reaction.

On April 27, this office presented to representatives of the HAMTC and the BSEIU the Company's offer of a nine-cent an hour wage adjustment. This was designated as a cost-of-living increase calculated on the same pattern as provided by an escalator clause in other G.E. contracts. The unions were noncommittal even though the Company made it clear that this offer would probably be made to non-unit personnel upon receipt of Wage Stabilization Board approval. The unions stated that the offer would be discussed with their membership and the Company would be advised shortly of their position in this matter.

Grievance Statistics:

Eight grievances were received during the month, bringing the total received this year to 39.

Employee and Community Relations Divisions

Grievances were sent in this month from the following divisions:

HAMTC	1
Mfg. Instrument	1
Mfg. Maintenance	1
Mfg. "S" Division	2
Security & Services	1
Parks & Recreation	1
Public Works	1
Total	8

Employee grievance reports received were regarding the following subjects:

Jurisdiction	2
Hours of Work	1
Overtime Rates	1
Seniority	2
Miscellaneous	2
Total	8

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 April	8	9
Received through April	39	74
Settled satisfactorily, Step I thru April	14	15
Pending Step II through April	22*	34
Settled Step II through April	8	19
At arbitration	1	--

*Includes grievances received in 1950

Ten per cent of the total grievances received this year have been submitted by employees outside the bargaining unit.

Two meetings were held during the month for the purpose of processing grievances at the Step II level.

Union Relations - Subcontractor Personnel:

On April 23, Atkinson-Jones and their CPFF subcontractors with General Electric and Atomic Energy Commission approval began working a regularly scheduled six-day week. Atkinson-Jones and General Electric lump sum subcontractors generally are not scheduled for a six-day workweek at this time. All crafts reported for work; however, the overtime rate for some crafts is still in question.

Employee and Community Relations Divisions

At a meeting in Portland on April 11, Atkinson-Jones and the Unions agreed to consider an increase in isolation pay of 15 cents and 20 cents. No decision has been reached at this time. The Union Negotiating Committee has written a report of the isolation pay negotiations. It is intended for general distribution to all Union members, and presents a rather one-sided view of the history and status of the issue. Atkinson-Jones met with the Union representatives on April 25 in an attempt to correct some inaccuracies appearing in the report prior to publication thereof. We will not know what was accomplished until publication of the report.

Atkinson-Jones was informed that General Electric would go on Daylight Saving Time on June 10. They were told that any construction schedule agreeable to Atkinson-Jones and the Unions would be acceptable to General Electric. The Unions voted unanimously to remain on Standard Time.

The Wage Stabilization Board acted unfavorably on Columbia Basin and Cabinet Gorge Dam Ironworker rates. The former had agreed to a rate of $2.50 for Structural, and $2.31 for Reinforcing, which was reduced to $2.30 and $2.25 respectively after meeting with the Wage and Hour Division. Prevailing on this Project is $2.50 and $2.35.

The negotiated rate of $2.425 for Carpenters effective May 1, 1951, has been decreased one-half cent by Union and Contractor agreement in order to assure compliance with Wage Stabilization Board regulations and to maintain uniformity in the Tri-City Area.

Recent reports on the Hewes' case indicate that he (Hewes) "has run his claim (against Atkinson-Jones) up to $8,000." Atkinson-Jones is presently deciding whether to appeal or attempt a settlement.

The vacancy on the Project Negotiating Committee has been filled by M. F. "Mickey" Cochran, Project Manager for Hoffman Company.

Requests for Reimbursement Authorizations handled during the month:

1. Roofers - Premium Pay for Pitch and Other Irritable Bituminous Material
2. Cement Masons - Wages
3. Painters - Wages
4. Plumbers - Travel Allowance
5. Six-Day Workweek
6. Carpenters - Wages

Reimbursement Authorizations have been received on all of the requests this month with the exception of Carpenters, which has been verbally approved.

Work Stoppages - Actual or Threatened

The dispute between the Operating Engineers and Atkinson-Jones involving the claim of eleven men for pay for approximately one week they were off

is proceeding under the Disputes Article of the Contract. The Grievance Committee has agreed that: (1) no basis for settlement exists at Step 3 of the procedure, and (2) a joint request is to be made to the Federal Mediation and Conciliation Service for a panel of arbiters from which a fifth man can be selected.

A "showdown" in the near future is indicated following delivery to the Project on April 28 of a partial shipment of helices consigned to the Hot Semi-Works. These helices have been the cause of a great deal of controversy due to the Plumbers' refusal to handle because of fabrication off the Project. In a call to this office on April 13 the Plumbers' Business Agent indicated he planned to tie up the job. He further stated, "I imagine we will end up in front of the Davis Committee."

On April 10, North Richland Maintenance Plumbers refused to disconnect six pumps in the 3000 Area which had been excessed to General Electric. Reason: work involved could not be termed maintenance. Another dispute relative to steam lines and pumps has existed for three weeks. This office is assisting in determining a suitable course of action to effect completion of the work.

The threatened Puget Sound Sheet Metal Works strike became a reality on April 3. Work was resumed on April 16. The delay in delivery of Project orders did not seriously affect our construction program.

Wage Rates:

A request for reimbursement authorization was submitted to the Atomic Energy Commission for increased rates for draftsmen and designers. Upon recipt of a confirmation letter from the AEC which stated that a reimbursement request would be granted on the proposed increases for designers and draftsmen upon Wage Stabilization Board approval, an application was made for rate increases for the designers and draftsmen under General Regulation 6, Section 5, of the Wage Stabilization Board Regulation concerning "rare and unusual cases." This application was submitted on April 27, 1951, to the Seattle Office of the Wage and Hour Division of the Department of Labor, who is acting as agent for the Wage Stabilization Board. Under the existing plan, all GE requests must receive Washington, D. C. approval.

An announcement of a nine-cent increase was made on April 23, 1951, for nonexempt employees of the Company. This proposed increase was offered to the HAMTC and the Building Service Employees Union, subject to the approval of the Wage Stabilization Board.

The annual Northwest Area Wage Rate Survey was distributed to participating organizations.

In addition, a special Pacific Coast Survey on design and draftsmen rates was distributed to thirty-six participating architectural engineering concerns.

The division also participated in a wage survey made by the Bureau of Reclamation at Coulee Dam.

Job classification studies were made throughout the month as a part of a continuing wage and job classification analysis. Changes in work assignments, reorganization within divisions, and increased work loads resulted in revisions of job classifications and realignment of duties and work responsibilities.

The division prepared a card file of all union employees eligible to cast ballots in the union shop election to be held May 1 and 2. A card file was set up on employees eligible to vote in the hospital union shop election. This office also prepared a file of all Richland and North Richland Village Firemen eligible to vote in the union representation election.

Insurance, Workmen's Compensation and Suggestion System:

Suggestion System

	March, 1951	April, 1951	Total Since 7-15-47
Suggestions Received	168	140	6555
Investigation Reports Completed	103	121	
Awards granted by Suggestion Committee	22	35	
Cash Awards	220.00	495.00	
Estimated Savings	$ 1,854.12	$ 4,037.42	

The largest single award made during the month of April was to an employee in the Technical Services Division for his suggestion concerning a Special Disc cutter for use on large milling machines to cut stainless steel discs and rings from plate stock instead of carbon arc cutting as previously used. Considerable savings in time and material were realized through adoption of this suggestion.

Life Insurance

Code information which is known only to Home Office Life Underwriters Association has been furnished 34 insurance companies and investigation agencies during the month of April, 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

	March, 1951	April, 1951	Total Since 9-1-46
Claims reported to the Department of Labor and Industries	135	118	4333
Claims reported to Travelers Insurance Co.	5	7 *	490

* Of the above claims reported during April to the Travelers Insurance Company all were property damage claims.

Employee and Community Relations Divisions

Community and Public Relations Division

PUBLIC INFORMATION - News Bureau

Visitors

Barrington S. Havens, editor of the G-E MONOGRAM, during a visit to Richland explained requirements for future MONOGRAM stories and discussed suggested subjects.

A. C. Prendergast, editor of WESTERN INDUSTRY magazine, spent a day in Richland. He was accompanied for interviews with G. R. Prout, C. N. Gross, M. R. Cydell, and M. L. Mickelson. Mr. Mickelson will prepare a draft on radiation protection methods for use in WESTERN INDUSTRY.

J. Q. Cobb, Advertising and Publicity representative in Washington, D.C., and Douglas Larson, national correspondent for Scripts-Howard papers, visited Richland with a group of U.S. Air Force public information officers. Arrangements were made for their plane to land at the A.E.C. airport and the Manager of Community and Public Relations helped them get desired information and escorted them for an interview with Mr. Prout and a tour of Richland.

Meetings

The News Bureau Supervisor was named as a member of the 1951 Flood Control Committee.

Requests

Photographs and considerable information was sent to WESTERN BUILDING magazine where it will be used in an article about Richland's Uptown Business District.

Requests for information and/or photos on the following subjects were received from local media and filled during April: names of employees with 25 or more years of service with G.E.; construction employment figures; G.E. turnover figures; information about the North Richland trailer camp; garbage collection plans; and conformity of pre-fab rehabilitation to County building codes.

Feature Stories

Four long, institutional type feature stories were written and distributed with photographs to daily and weekly newspapers in the Northwest. The stories concerned the Hanford Works Technical Library, the new Hanford Works Record Center, the H. I. Sheep Farm, and the industrial Medical Division.

Special Projects

Postcards were sent to all papers on all mailing lists requesting comments on News Bureau services and to check to see that address-o-graph plates are correct.

Employee and Community Relations Divisions

Arrangements were made with the editor of WESTERN INDUSTRY magazine, to send complimentary subscriptions of the magazine to key Hanford Works people.

Coverage

A total of 95 releases were distributed during the month. 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 - Six news stories were distributed concerning invitations to bid, bid openings and contract awards for such construction jobs as a new aquatic lab, a 600 foot fence, and work on the shelter belt.

Recreation - Twelve releases about G.E.'s recreation program were made including the library open house, the park development program and a tennis clinic for children.

Utilities - Stories were released concerning power outages, a fluorination of Richland's water and a street improvement program.

"More Power to America Special" Train - Four stories and special packets for local papers and radio were distributed concerning the Richland visit of this train.

Housing - Stories were released about renovating the rest of Richland's prefabs, renovating bathrooms in conventional houses and pointing the interiors of prefabs.

Fire and Safety - A safety citation for Richland and the occurence of a lost-time injury were publicized.

Civil Defense - Five stories were released concerning the civil defense program.

Medical - Stories were distributed urging persons to secure rabies shots for dogs and telling of the construction of a new o.b. wing on Kadlec hospital.

Personnel - The possibility of a general wage increase was explained.

Speakers - Speaking engagements of Hanford Works people were publicized through nine releases during the month.

Organiz ation changes - Eight stories on this subject were distributed.

PUBLIC INFORMATION - Community Relations

The Community Relations Supervisor arranged the visit of the Columbia High School journalism class in the Community and Public Relations offices, and joined the Works NEWS staff in serving as host for the event.

Employee and Community Relations Divisions

Plans for the community presentation of HOBSO were discussed at an evening meeting with the "HOBSO Action Committee"--members of Kiwanis, Lions, and Rotary Clubs--the three sponsoring organizations in Richland. The Committee decided to attend HOBSO sessions in the plant, in order to further acquaint themselves with the program. They attended sessions offered during the last week of April.

The presentation of HOBSO on a regional basis was discussed with J. F. Steiner, Western Division Program Advisor for the U.S. Chamber of Commerce. The U. S. Chamber is interested in offering economic programs, such as HOBSO, on state wide bases. Mr. Steiner requested, and will be furnished, further information about HOBSO.

A civil defense publicity program aimed at recruiting 250 volunteers for duty as auxiliary policemen was planned and executed, at the request of the local civil defense director.

Printed material about plant and community civil defense plans, organization, and activities was gathered and furnished to the Manager of the Employee and Community Relations Divisions for forwarding to the New York office.

Community and plant publicity for the annual cancer crusade was handled by the Community Relations Supervisor, who served as publicity director at the request of the local chairman.

The current MONOGRAM was mailed to community leaders, together with a letter that suggested the recipient pass the magazine along to members of his family because the MONOGRAM usually contains articles of interest to mother, father, and children.

H. A. Winne's talk to the Supervisors' Association was publicized through a letter to each supervisor and stories in local newspapers.

Responsibility for writing "Realities," a Works NEWS real estate column, was assumed by the Community Relations Supervisor, in the interest of having the column published on a regular basis.

PUBLIC INFORMATION - Public Events

Papers and Speakers

H. E. Callahan presented "HOBSO" to the Fifth AA Group, North Richland, and to G. E. Foremen's Forum, Portland, Oregon.

G. L. Brown presented "HOBSO" to the delegates of the Bakers" Convention in Portland.

T. A. Purton presented "HOBSO" to the delegates attending the Washington State Junior Chamber of Commerce Convention at Seattle.

C. P. Cabell delivered his lecture, "Eight Hours a Day with the Atom," at Walla Walla College, College Place, Washington before students of the Science Club.

Employee and Community Relations Divisions

F. E. Adley spoke to the industrial health personnel attending the USAEC Conference in Atlantic City, N.J., on "The Use of Air-Supplied Respiratory Devices in Radioactive Atmospheres."

James K. Figenshau gave his "Demonstration and Presentation of Remote Control Tools Used in Atomic Energy" to the Chelminar Grotto, Yakima, Wash., and to two groups at the Library Open House. A total of 400 persons witnessed both events.

A. E. Engler submitted and was given clearance on his paper, "Summary of the Transportation Division Presentation"at the March 1951 Meeting of the Inter-Agency Motor Equipment Advisory Committee of Oregon and Washington.

Films

Two G-E Film Library and two University of Washington films were booked for several showings to local groups.

Radio

Spot announcements to advertise Civilian Defense Auxiliary Policemen Recruitment, and the Cancer Drive. Community-Army Variety Show in Richland were written, recorded and placed for broadcast by this group, over three local radio stations.

Spot announcements to advertise the Beta Sigma Phi Polio Benefit and the Cancer Drive's Green Leaf Tea and Community-Army Variety Show in North Richland prepared and placed for broadcast over local stations also.

News copy on the Library Open House was released to local stations for inclusion in their newscasts. The ceremonies preceding the opening of the Richland Public Library were recorded and broadcast by KPKW and KWIE.

Program Development

The Library Open House was successfully coordinated by the Public Events group with assistance rendered by Special Programs and the News Bureau.

For the "More Power to America Special" train Richland showing, hostesses were recruited, radio coverage promoted and services provided at the train to receive and identify invited guests.

Assistance was given the A.E.C. and G.E. sponsors in planning and executing the visit of a group of University of Idaho Engineering students at Hanford Works.

Photo House

Nine hundred eight more prints were produced this month than last. Approximately 75 colored slides were produced for Public Events slide film projects. Several series of classified subjects were photographed in the areas. Photographs of damaged shipments were made. Copy work, photo work and film processing services are be ng increasingly requested by the Richland Police Department.

Employee and Community Relations Divisions

Increased requests of 35 mm color slides over 3¼" x 4" black and white are considered evidence of the superior results attained in 35 mm color work.

Requests for photographic services continue to exceed the capacity of the Photo House.

A request for one additional employee has been made in order to help handle the overload of identification and the increases in requests for photographic services.

Art Work

Art work for the May '51 telephone directory was finished.
Photo retouching of the front cover, a floor plan sketch and two ink illustrations were executed for the Library Open House booklet.

Artype lettering, photo cropping and retouching and other final work were completed for the Safety Booklet.

Illustrations were revised for the reprint of "You and G.E. at Hanford Works."

Outside front cover art work and eleven two color illustrations were executed for the "Safety Handbook."

Two pages of the security booklet, "A Modern Fable" were revised.

A two -color dummy of a record center folder was completed.

Twenty charts were mounted and air-brushed.

Two photo layouts and four editorial cartoons were executed and two photographs retouched for the Works NEWS.

Speedball lettering was done for a Richland garbage pick-up area map.

Sketches were made for a proposed Richland Community Newsletter letterhead.

EMPLOYEE INFORMATION - Special Programs

Stores Division cost code will be used for all future booklets prepared and distributed as a stores stock item, through an arrangement made with the Stores Division.

Revised and edited an article prepared by the Technical Personnel Office for distribution to Business Administration graduates as a recruitment aid.

A special series of employee relations posters for posting throughout the plant were received during April from the Sheldon-Claire Company.

1196381

Employee and Community Relations Divisions

In line with Special Programs' responsibility for Medical Divisions public information, the following publicity was released to local media through the News Bureau: warning to dog owners of danger of a rabies epidemic; record number of births per month at Kadlec Hospital; Regional Eye Institute held in Richland.

The April Health Bulletin, "Vacations," was written and produced.

Opening of the Richland Public Library was assisted through: writing and arranging for production of a permanent information booklet for distribution to library borrowers; writing and arranging for special invitations to the Open House; and arranging for production of a directional sign, name tags for library personnel, and imprinting opening day library cards.

The new "Security Handbook," which was design and copy revised, was sent to the printer for final production.

Efforts to establish use of the standard G-E identification sign at Hanford Works included assisting in the design of new signs for the Engineering and Construction Divisions, and for the Commercial and Other Property Div.

Letters to Hanford Works employees written, produced and distributed during April were: two Union Shop letters to all employees; three representation election letters to Richland and North Richland Firemen; letter to all supervisors attached to an advance copy of the news release announcing the proposed nine cent per hour wage adjustment.

Display type recruitment advertisements covering 11 different job classifications needed at Hanford Works were placed in nine daily newspapers in eastern Washington, Idaho and western Montana on the week end of April 28-30.

A short biographical sketch was written of each of fifteen employees at Hanford Works who have achieved 25 years of service with G.E., or combined service with G.E. and duPont.

Revision of a paper on the Records Management Program at Hanford Works, which will be presented at a meeting in New York during May by the Records Control supervisor, was revised and edited.

Union Relations news column for the four Works NEWS issues during April was written.

Construction program at Kadlec Hospital was publicized through the release of two newspaper photographs arranged and released via the News Bureau.

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:

Cancer Drive received promotion in each issue for the month. Material for publication included lead stories, an editorial, numerous photos, an editorial cartoon and publicity of the local Army sponsored Cancer show.

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Employee and Community Relations Divisions

Community information of interest to employees was published concerning new park development campaigns, daylight saving time, Spring Clean-up Week, the G.E. "More Power To America Special" train, Kennel Club Dog Show, and the widening of certain city streets.

Special emphasis was placed on the need of housing in private homes for single employees. This was stressed through a front page story and editorial cartoon plus follow-up articles. Civil Defense was promoted through publicity for volunteer firemen by mats and two front page pictures.

A full page was devoted to the new bus schedule and routes. Another line cut was featured for the purpose of acquainting people with the new garbage pick-up routes.

Library open house was publicized through lead stories and photos. A two page feature carrying spotlights of the three librarians plus added information and photos was released.

Benefit Plans information was included on the clarification of the Employee Sales Plan, benefits paid to company pensioners for 1950 and an annual report of the insurance benefits paid to Hanford Works beneficiaries.

Suggestion System report of activities during the past month was included. Photos of high award winners were published.

Employment needs are emphasized each issue. Stories along with an employment recommendation box is included.

Safety news beside the weekly "Lifeline" column, which featured the safety topic of the month, were stories telling of the 300 area First Aid Training Program, the 100-D Maintenance Safety Derby and the P Division Safety Contest; all with follow up articles.

Features of interest to or about plant employees included those on the Little League Baseball Team, Dorm Club Trip to Timberline Lodge, and a two page article on the new Records Service Center, another two page picture layout on the Pluto Bowling League was carried.

Special Services were making arrangements for a senior high school class in journalism to visit the Works NEWS and write two pages for publication. Interviews were arranged, feature stories written, page layouts made and photos taken by the class for the paper.

Two twelve page papers were published during the month.

A new column entitled, "Hoop 'n Holler" for local square dance groups was added.

The monthly reporter letter was sent to the NEWS staff and seven new people were added as regular reporters.

Employee and Community Relations Divisions

EMPLOYEE INFORMATION - Women's Activities

Three women's pages appeared in the Hanford Works NEWS during the month of April. On April 6, a National Dairy Council recipe for cheese cake, and an information article on Yogurt, were featured. How girls decorate their dormitory rooms was the subject of the women's page for April 13. On April 20, patterns for making slipcovers, bedspreads and a vanity cover were offered to readers. About 60 patterns were mailed at the request of readers.

Special features written for the Works NEWS and outside release during April included a double page on the opening of the library in Richland, a story on the 1951 park development program, and a double page spread on the new Records Service Center.

Twelve stories were written publicizing activities sponsored by the Parks and Recreation Division. Promotion on the Minnesingers spring concert, the library open house, and the Wellsian Boat Basin were included.

The last week of April was spent substituting for the Works NEWS editor during the editor's conference in New York City.

Employee and Community Relations Divisions

Hanford Works Photo House

	2" x 2"	2" x 4"	5" x 7"	8" x 10"	11" x 14"	Color Slide 35mm	Hand Prints	Negatives	2" x 2" Color Slides	4" x 5"	8" x 10" Color
ENG. & CONSTRUCTION DIVS.											
Project Engineering				60				9			
Design & Construction				180				11			
Reactor Division				10				13			
EMPLOYEE & COMMUNITY REL.				19							
Employee Relations	5923	562	12					420			
Community Relations			136					23			
News Bureau			122	113	5			66			
Special Programs			22	3				23			
Works NEWS			117	5				84			
Public Functions			41	75		16		60	53		
HEALTH INSTRUMENT											
Instrument Division				8							
Development										21	
MANUFACTURING DIVISIONS											
Maintenance			16					4			
S Division				80				65		68	
Transportation Division				29							
Chemical Reac.				2				4			
MEDICAL DIVISIONS											
Public Health							70				
MUNICIPAL, REAL ESTATE AND GENERAL SERVICES											
Community Safety			48	3				23			
Parks & Recreation Div.			16	12				8			
Community Police Div.			75	24							
Community Fire Division				2							
PLANT SECURITY & SERVICES											
Safety and Fire Division			16	45				12			
STAFF ORGANIZATION											
Rotational Training								10		50	
TECHNICAL DIVISIONS											
Pile Technology			10	37				12			11
MISCELLANEOUS											
A.E.C.				46							
Civil Defense			10	28				6			
G.E. Security										17	
Purchasing and Stores				7				7			
TOTAL	5923	562	641	786	5	16	70	860	53	139	11

	Feb.	March	April
Total Prints	7,698	7,298	8,206
Total Negatives	817	694	860
Total Assignments	136	103	128

1196385

25

Employee and Community Relations Divisions

TRAINING AND PROGRAM DEVELOPMENT

The Supervisors' 40-Hour Training Program was held during the week of April 9-13. A total of 44 members of supervisory-management were enrolled by nine major divisions. An informal luncheon was held at noon on Friday of the program week, at which time members of the group, together with six members of senior management of Hanford Works, met and discussed various subjects. A survey questionnaire completed by participating members of the group indicated that this program had been of definite assistance to them as supervisors. A compilation also showed that a fairly high percentage of these supervisors had not yet been informed of the Salary Determination Plans. This information was referred to the Manager of our divisions for discussion with the Salary Administrator.

PMS Groups 13, 14, 15, and 16, met during the month of April. The supervisors enrolled in these four groups are regularly scheduled to work on shifts. Therefore, each group meets on Friday and Monday mornings of the period when they are on days. Groups 13, 14, and 15 completed PMS sessions 9, 10, 11, and 12, while Group 16 completed sessions 5, 6, 7, and 8. Approximately 15 supervisors are enrolled in each group, or approximately 60 supervisors attending PMS in these conferences. To date, approximately 240 supervisors have completed PMS at Hanford Works. Additional PMS groups will be started for straight day members of supervisory-management as soon as it is determined that a sufficient number have completed vacations to enable quotas to be met for enrollment.

A special schedule was prepared to cover meetings for non-exempt employees to attend a special HOBSO presentation. Sufficient copies of the schedules were sent to all Hanford Works Superintendents and Division Heads for distribution to members of supervision in their divisions. The scheduled meetings began on April 23, and are being held daily throughout all areas of the Hanford Works. During the period April 23 through April 30, a total of 39 meetings were held, with a total attendance estimated at 1,514 people. This program is being disseminated in a uniform manner by members of the Training Staff in a meeting taking approximately 90 minutes. It is a combination presentation of the three-session version and appreciation version, allowing approximately 30 minutes for conference discussion by the group. Many comments have been received, both by participating employees, and supervisors of participating employees, all remarks being favorable regarding this informative as well as thought-provoking program.

A special safety meeting was held for members of Training and Program Development on Tuesday, April 17. The program was designed in the form of a participation program. All members of the Training Staff attended and participated.

On Saturday, April 21, Mr. T. A. Purton of the Training Staff presented the appreciation version of HOBSO to approximately 300 members at the Annual State JayCees Convention in Seattle. In their regular form of business following this presentation, the JayCee's appointed a special committee to investigate the possibility of developing a state-wide

presentation of HOBSO throughout communities by their members. A decision of such action will be referred to the Community Relations Division for follow-up; however, should it be necessary or desirable to formulate an institute to train members in this program, the Training Staff will assume this responsibility.

During the week of May 21, a special HOBSO institute will be conducted in Seattle by a member of the Training Staff. This is to be conducted for the Apparatus Department, at their request, and will be subsequently reported in May.

During the month of April, Division Heads and Superintendents approved the distribution of 43 copies of the Supervisor's Handbook on Employee Relations. These 43 Handbooks were turned in and reissued during the month of April. It appears significant that Handbooks which are being returned have been kept up-to-date. Revisions and additions have been inserted in proper sequence and the books evidentally have been used extensively by supervisors. Many copies of the Handbooks have had Hanford Works form numbers changed, indicating that the users also have adopted the system devised by the Office Methods Section. Of the total of 1,500 copies of Handbooks originally prepared for distribution to supervisors at Hanford Works; 1,471 have been issued to date. Revisions of two sections, 5.31 and 11.2, covering "Rating of Employees - Non-exempt", and "Accidents to Vehicles" have been prepared and approved and are in production. These revisions will be distributed as soon as they are printed.

W. W. Chamberlain of the Training Staff has continued to offer the course in EFFECTIVE PRESENTATION at our G-E School of Nuclear Engineering. During April, the class advanced to Report Writing. It is anticipated at present that the course will be presented at the time of presentation of a total of 17 meetings.

During the month of April, Orientation was given to two transferred and 291 new employees, or a total of 293. Transferred employees indicated 100% participation in the G-E Insurance Plan, and 98.5% of the new employees elected to participate in the Plan. The booklet, "You and G-E at Hanford Works" will be distributed when available to those new employees now joining the organization, or who have joined since stock was depleted in February. Effective April 26, the Pension Plan Booklet will not be distributed to new employees at the time of Orientation. However, the plan will be explained and the General Security Package booklet which is distributed has the Pension Plan well outlined for these new employees. The reason for discontinuing the Pension Plan Booklet itself is because the Accounting Division provides each employee with a personal copy of this booklet shortly prior to his becoming eligible for this plan, which is within one year of joining the organization. This duplication appeared unnecessary and, therefore, copies will be made available through the Accounting Division in this method.

During April, two copies of the Hanford Works SAGE were prepared and distributed to all supervisors. The issue of April 4 included an attachment giving a summary of the Federal Budget for the fiscal year, beginning July 1, 1951. The April 25 issue had an attachment regarding a recommended

TRAINING AND PROGRAM DEVELOPMENT

talk to be given by supervisors to all employees regarding the importance of reporting all injuries, regardless of how slight, to First Aid for treatment.

Fifteen copies of the book, "Men and Volts" were sold during the month of April. The cash for this sale was turned over to the G-E Cashier, and the receipt is maintained in the Training Division files.

On Monday, April 23, the General Electric train, "More Power to America" was visited by the exempt members of the Training Staff. The Apparatus Department has done a wonderful job in preparing this outstanding display, and all members of the Training Staff visiting this train were appreciative of the opportunity to get a closer insight into the operations of the Apparatus Department.

MUNICIPAL, REAL ESTATE AND GENERAL
SERVICES DIVISIONS
SUMMARY-APRIL, 1951

ORGANIZATION AND PERSONNEL

Number of employees on roll:	Beg. of Month	End of Month
Administration	13	12
Accounting	32	33
Engineering & Contracts	34	34
Municipal Divisions (Total 232)		
Public Works	97	100
Parks & Recreation	32	33
Police (Richland)	40	42
Fire (Richland)	54	54
Public Safety	3	3
Real Estate Divisions (Total 226)		
Housing & Real Estate Maintenance	204	213
Commercial & Other Property	13	13
General Services Divisions (Total 126)		
Steam & General Maintenance	77	73
Patrol (North Richland)	20	21
Fire (North Richland)	32	32
	651	663

There was an increase of twelve employees in the Divisions during the month of April, 1951.

GENERAL

Richland was awarded first place of special class cities in the National Traffic Safety Contest.

The Accounting Division completed the FY 1953 operations and construction budgets and the revisions of the FY 1952 operations and construction budgets.

The Columbia Book Store commenced operation during the month, subleasing space in the Richland Investment Company Building.

A barber shop, under management of Mr. Elwood Hamilton, commenced operation in the Richland Recreation Center Building.

Total housing applications pending - 535.

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MUNICIPAL, REAL ESTATE AND GENERAL SERVICES
ACCOUNTING DIVISION
MONTHLY REPORT FOR APRIL, 1951

ORGANIZATION

Employees - Beginning of month	32	Exempt	5	Male	10
Transfers In		Non-Exempt	28	Female	23
Transfers Out			33		33
New Hires	1				
Terminations	—				
Total end of month	33				

RENTS

House Leases Processed	April	March
Total active leases beginning of month	5,689	5,722
New leases	111	85
Cancellations	145	118
Total active house leases end of month	5,655	5,689
Modifications	7	15

Dormitory		
Total occupancy beginning of month	1,045	1,020
New assignments	137	161
Removals	122	136
Total occupancy end of month	1,060	1,045

Rental Revenue was as follows:

Equipment	$ 18.33 cr	$ 18.80
House:		
Basic rent	196,771.91	198,466.98
Electricity	47,682.87	48,300.20
Water	7,901.16	7,986.16
Facility:		
Basic rent	46,619.32	33,445.71
Electricity	3,433.92	3,433.92
Water	490.00	490.00
Dormitory:	14,623.10	14,113.05
Utilities - Electrical	1,439.95	1,808.28
	$318,943.90	$308,063.10

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Municipal, Real Estate and
General Services Accounting Division

TELEPHONE	April	March
Number of work orders processed	406	327
Number of working telephones	5,053	5,028
Revenue including services	$ 18,447.32	$ 18,559.02

MISCELLANEOUS

Invoices prepared during month	261	304
Revenue derived from invoices	$ 3,390.47	$ 6,115.26

GENERAL

Fifty seven collection letters were written resulting in the collection of forty-one delinquent accounts.

Yakima Adjustment Service

Previously submitted 47 accounts	$ 732.65
Submitted in April	133.34
Collected by Yakima Adjustment Service	58.68
Collected by General Electric Company	91.85
Balance Agency Accounts	$ 715.46

Eighty-one of the one hundred and twelve active telephone accounts delinquent thirty days or more as of March 31, 1951, were paid during the month.

ACCOUNTS PAYABLE

Statistics	April	March
Accounts Payable Vouchers	387	372
Freight Bills Processed	22	27
Purchase Orders Received	86	126
Net Amount of Purchase Orders	$ 21,278.66	$ 33,211.17
Receiving Reports Received	175	157
Net Amount Disbursed	$242,132.14	$288,637.22
Number of Checks Issued	288	270

A summary of Active Subcontracts is shown below:

Subcontractor	Subcontract Number	Amount Awarded	Paid This Month	Total Paid	Amount Retained
Newland Cafeteria	------	$ 180.20	$ 9.90	$ 180.20	$ -0-
Richland Maintenance Co.	-----	175,328.70	7,430.52	175,328.70	-0-
Associated Engineers, Inc.	G-305	139,578.94	-0-	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	-0-	5,976.22	664.03
C&E Construction Co.	G-328	173,575.45	-0-	165,644.44	8,678.77

(Subcontracts con't)

Subcontractor	Subcontract Number	Amount Awarded	Paid This Month	Total Paid	Amount Retained
F. O. Repine Co.	G-329	$ 29,263.00	$ -0-	$ 3,950.50	$ 438.95
Erwen, Edmund P.	G-334	16,000.00	-0-	-0-	-0-
Baldwin-Dunham Co.	G-343	1,366,950.00	173,255.80	523,413.52	32,604.00
Roof Service, Inc.	G-350	59,879.00	-0-	3,848.49	427.61
Comm. Paint. & Dec. Co.	G-353	19,600.00	5,242.50	5,242.50	582.50
Witzig Electric	G-358	6,751.00	-0-	-0-	-0-
Patton & Hill	G-360	8,100.00	3,061.80	3,061.80	340.20
Collins & Babcock	G-365	3,147.50	-0-	-0-	-0-
		$2,037,646.38	$189,000.52	$1,045,764.67	$51,509.89

COST

Reports

The March Operating Report was issued April 13, 1951. The Comptroller's Appropriations Report and Supplemental Report was issued April 19, 1951. The Utilities Report was issued April 23, 1951. The Construction Budget Status Report was issued April 20, 1951.

Operations Budget

In addition to the huge burden of completing the F.Y. 1953 Operations Budget and the Revision of the F.Y. 1952 Budget, other normal requirements were met. February and March costs were posted to Budget Items Ledger and Budget figures were applied to the April Operating Report. It must be noted that the entire Division cooperated completely in typing & publishing the budget.

Construction Budget

The F.Y. 1953 Construction Budget and the Revision for F.Y. 1952, including data sheets, an analysis of items Quarterly, and a brief description of new projects under $20,000. were submitted to the Assistant to the Comptroller on April 10, 1951. The Hanford Works A.E.C. Office will submit the budget to the Washington A.E.C. Office and subsequently we will prepare the final budget to the Operating Divisions.

Service Orders

Code	QUANTITY (A) Mar.	QUANTITY (A) Apr.	LABOR COSTS Mar.	LABOR COSTS Apr.	MATERIAL COSTS Mar.	MATERIAL COSTS Apr.	TOTAL COSTS Mar.	TOTAL COSTS Apr.
1	1,272	1,196	$2,489.05	$2,127.23	$2,360.01	$2,274.08	$ 4,849.06	$ 4,401.31
2	2,665	1,826	3,056.42	2,399.85	4,545.10	3,205.36	7,601.52	5,605.21

Municipal, Real Estate and
General Services Accounting Division

Service Orders (Con't)

Code	QUANTITY (A) Mar.	Apr.	LABOR COSTS Mar.	Apr.	MATERIAL COSTS Mar.	Apr.	TOTAL COSTS Mar.	Apr.
3	409	159	$ 724.10	$ 307.65	$ 946.31	$ 303.50	$ 1,670.41	$ 611.15
4	5	37	4.50	147.00	-0-	71.49	4.50	218.49
5	278	212	630.21	392.00	1,081.93	519.43	1,712.14	911.43
6	330	277	1,179.50	896.70	548.52	337.88	1,728.02	1,234.58
9	5	10	31.85	37.10	11.84	28.95	43.69	66.05
	4,964	3,717	$8,115.63	$6,307.53	$9,493.71	$6,740.69	$17,609.34	$13,048.22
Difference (B)	-1,247			$-1,808.10		$-2,753.02		$-4,561.12
Average Cost (C)			$1.63	$1.70	$1.91	$1.81	$3.54	$3.51

(A) Quantity covers the number of Service Charges made since a Service Order includes several charges.
(B) Over (/) or Under (-) Previous month.
(C) Service Order Increase is seasonal. Glazing work was transferred from General Services Division Maintenance, since most glazing work is in Real Estate Division and the small glazing jobs are performed on Service Orders.

1 Plumbing
2 Electrical
3 Heating & Ventilating
4 Glazing
5 Lock & Key
6 Carpentry
9 Sheetmetal

Work Orders

	February	March	April	Net Change
Active Routine	288	286	287	/ 1
Active Normal	2,974	2,610	2,360	- 250
	3,262	2,896	2,647	- 249
W. O. Received	1,578	1,289	1,349	
W. O. Completed	1,521	1,655	1,598	
	/ 57	- 366	- 249	

GENERAL LEDGER

	No.	Debit	Credit
Second Class Invoices Received	94	$659,062.85	$243,231.99
Second Class Invoices Issued	102	$ 96,464.22	$ 775.12

GENERAL

K. G. Grimm attended the Municipal Finance Officers Conference in Dallas, Texas.

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ENGINEERING AND CONTRACTS DIVISION
MONTHLY REPORT
APRIL 1951

ORGANIZATION AND PERSONNEL

Number of employees on payroll	Exempt	Non-Exempt	Total
March 31, 1951	20	14	34
April 30, 1951	20	14	34

GENERAL

The Assistant Designing Engineer's office and the Control Section located in Building 69-X and the Roads and Streets Section located in 1146 Building have moved to the 761 Building with the Buildings and Equipment Section. This move was effected on April 14, 1951, and tends for more efficient operation of the Division as all groups are now in the same building.

ENGINEERING SECTION

Report on extended engineering service requests:

ESR-118-CH	Alteration Permits	3 completed

The following ESRs were completed and closed out:

ESR No.	Title	Completion Date
207-CA	All Community Activities Buildings--Alterations	4-30-51
208-PW	General Work for Public Works Division	4-30-51
423-CF	Richland Laundry & Cleaners Addition	4-23-51
436-PW	Cathodic Protection of Elevated Water Tanks	4-27-51
473-PR	Park Development	4-9-51
492-MF	New Central Fire Station	4-30-51
502-RC	Richland Investment Company Building	4-23-51
509-MS	Fire Prevention Survey, Dorms M-9 to M-14	4-30-51
517-AEC	Survey Control Point--4th Housing Addition	4-30-51
532-PR	Grade Stakes for Drainage, Levee East of Hotel	4-9-51
534-RC	Budget Estimates for Commercial Facilities	4-30-51
536-MU	Record Water & Sewer Details on Permanent Maps	4-10-51
537-MM	Roads and Streets Construction	4-9-51
538-SS	Remodeling 712-A	4-12-51
540-MU	Operational Outline Drawings--Sewage Plant	4-17-51
541-EC	Plan Checking New Bio-Assay Laboratory	4-27-51
542-AEC	Stake Out Bath House--Swimming Pool	4-9-51
543-RC	Removal of Pre-School Nursery Building	4-23-51

Progress report on ESRs that will become projects:

ESR No.	Title and Remarks
112-CH	Study Sagging Floors in M, Q, R, S Houses: Work progressing; 80% complete.
182-CA	First Baptist Church: Lot staked.
314-CH	Rewiring Tract House L-901: Letter requesting information sent to A. I. Moore 3-26-51.

ESR No.	Title and Remarks
341-SS	Roads and Walks--700 Area: Revised project proposal approved by A & B Committee and forwarded to the AEC on 4-25-51.
425-CF Pt. 2	Utilities to Roller Rink: Awaiting completion of leesee's building. 95% complete.
438-CH	Magnesium Anodes for Domestic Water Heaters: Awaiting information. 35% complete.
443-SS	Replacement of Docks & Outside Stairs--Permanent 700 Area Buildings: Project proposal approved by A & B Committee and forwarded to the AEC on 4-24-51. Awaiting final decision on whether work will be done by subcontract or Minor Construction.
458-SS	Floors, Foundations, Load Factors--700 Area Buildings: Work progressing. 30% complete.
468-SS	Lighting Study--703 Building: Project proposal approved by A & B Committee and forwarded to the AEC on 4-25-51.
484-SS	Sprinkler and Fire Alarm System--703 Building: Work order issued and material being ordered. 98% complete.
486-RM	Relocation of Partitions in Housing Office: ESR re-opened; new plans 90% complete.
500-RM	Exterior House Painting--Divisions II, III and Ranch Houses: Work to be done in FY 1952. Specifications will be issued about 6-1-51.
503-PE	300 Area General Improvement: Preliminary study in progress; 85% complete.
514-MM	Replacement of Street Trees: A total of 709 trees have been planted on this work order. 98% complete.
515-MM	Survey and Plot Plan of Richland: Awaiting further instructions from Municipal Divisions. 75% complete.
519-MU	Run Profile on Effluent Ditch--Tie In to New Dike Lift Station: In process of being closed out; 98% complete.
522-SS	Irrigation, Grass Seeding, Drainage of 700 Area: Set aside for more urgent work.
523-SS	Install Parking Lot Where 720 Building, Hutment, and Huts 712 A&B Now Stand: Set aside for more urgent work.
524-SS	Addition to 721 Building: Preparation of project proposal suspended pending further instructions from B. R. Hennigar.
525-SS	Remove Building 720 and 720 Hutment: Letter of recommendation to B. R. Hennigar 4-30-51; 90% complete.

1196395

ESR No.	Title and Remarks
526-SS	Floor Covering of All Permanent Buildings in 700 Area: Project completion scheduled for 6-20-51.
527-SS	Permanent Lighting—700 Area Buildings: Light meter readings taken; report writing and estimating in progress; 60% complete.
528-SS	Replacement of Hutment 705 with Permanent Structure: Awaiting action by using division.
529-SS	Remodeling 722-C Building: Plans in progress; 5% complete.
531-RC	Heating Depot Cafe—Bus Depot: Study scheduled for completion 5-3-51.
545-AEC	Staked Steam Line from Columbia High School to Swimming Pool: In process of being closed out; 98% complete.
548-RH	Moving Pasco-Type Barracks—North Richland to Richland: Letter dated 4-24-51 issued outlining scope of work and a rough cost estimate. Further work suspended pending Management decision.

Private Construction Progress Report (Plans reviewed and regular field inspections were made in compliance with building permit requirements.)

Catholic Church Site: Awaiting information.

Reorganized LDS Church: Work progressing slowly; 77% complete.

Northwest United Protestant Church: Final inspection to be made; 98% complete.

Westside United Protestant Church: Work progressing slowly; 35% complete.

Assembly of God: Work progressing slowly; 9% complete.

First Baptist Church: Work progressing slowly; 5% complete.

Episcopal Church: Awaiting information.

Redeemer Lutheran Church: Work progressing slowly; 92% complete.

Christian Science Society: Awaiting information.

Addition to Masonic Temple: Work progressing; 95% complete.

Free Methodist Church: Awaiting information.

Richland Lutheran Front Addition: Awaiting start of construction.

Desert Inn—Air Conditioning: Duct work progressing. Compressor installation awaiting materials. 10% complete.

1196396

Status of "C" Type Projects (Over $20,000) is as follows:

C-203 Pt. 2 Water Supply and Sewage Facilities--Richland and North Richland Construction Camp: The project completion report was issued 4-13-51.

C-232 Pt. 2 Carmichael Junior High School: Reseeding completed; final inspection scheduled for approximately 5-9-51.

C-282-R Grass Seeding, Columbia Playfield: Columbia Playfield seeding 80% complete. Balance of work will be done first week of May.

C-351 Irrigation of Public Grounds:

(a) Frankfort Playground: Heads to be lowered last part of May. Water pressure erratic. Sand and gravel in water lines causing sprinkler failures.

(b) Riverside Park: Heads lowered and adjusted. System operating well. Ready for final inspection.

(c) Marcus Whitman Grade School: Heads to be lowered last part of May. Water pressure erratic. Considerable soil and gravel in water lines showing here; also causing sprinkler failure.

C-356 Recreational Facilities--Equipment for Schools and Public Parks--Richland:

(a) Restroom--Memorial Park: Construction 42% complete.

(b) Recreation Equipment--Prefabricated: Installation 90% complete; Temporarily held up pending re-seeding of two playlots.

(c) Recreation Equipment--Field Construction: Construction 75% complete. Handball courts out for bids.

(d) Columbia Baseball Field Fence: Bid opening scheduled 5-3-51.

(e) Columbia Playfield Lighting: Equipment ordered by subcontractor. Field Release 2-A issued 4-6-51 for the installation of lighting.

C-357 Sewage Lift Station: Equipment to be supplied by GE on job or shipped. Subcontractor reports 8" x 10" check valves are on four months delivery from 4-23-51.

C-363 Rehabilitation of 633 Prefabs: Directive rescinded in its entirety and combined with Project C-448.

C-372 Exterior Painting of Houses: 19% complete; work progressing.

C-376 Irrigation Laterals--Carmichael Junior High School: Heads to be lowered by 5-11-51. Final inspection scheduled 5-14-51.

C-382-R Well 1100-D, Duke Well Field: Agreement has been reached on the installation of the 2000 gpm pump with the subcontractor. Modification of subcontract is being approved.

C-387 Interior Painting of 16 Dorms: 57% complete; work progressing. Directive modification requested 4-26-51 to extend physical completion date to 6-30-51.

C-400 Re-roofing, Siding, Painting--700 Area Buildings: Work approximately 36% complete.

C-407 Bathtub, Tile and Linoleum Installation: Contract in process of being signed.

C-408 Additional Erosion and Shelterbelt Planting: Planting at sewage disposal plant nearly complete. Irrigation and grading for the other shelterbelts out to contract. Bid opening scheduled 5-17-51.

C-425 1951 Park Development Program: Plans complete on Richland Library site grading and irrigation. Work on Columbia Playfield site grading and irrigation 30% complete.

C-426 Additions and Alterations to Existing Streets and Additional Sidewalk, Curb, and Gutter Construction--Richland (FY 1951):

(a) Van Giesen Street: Complete design in hands of AEC for approval.

(b) Wright Avenue: Complete design in hands of AEC for approval. Minor corrections made as requested by using division and sidewalk added on right side from Symons Street to Thompson Street. Estimated quantities prepared for contract estimate.

(c) Symons Street: Design 50% complete.

(d) George Washington Way--South: Complete design in hands of AEC for approval. Preliminary survey completed. Plan, profile and quantities for contract estimate prepared.

(e) Swift Boulevard: Design of street grade started. 5% complete.

(f) George Washington Way--North: Design not started. Preliminary survey complete. Plan and profile 50% complete.

(g) Chief Joseph Junior High School: Sidewalk and curb design complete. Site plan prepared for this improvement. Estimated quantities prepared for contract estimate.

Estimated quantities for contract estimate, spread sheet for entire proposed work, revised specifications in rough draft and quantities for contract complete on all the above projects.

C-436 Rehabilitation of 380 Prefabs: Directive rescinded in its entirety and combined with C-448.

C-440 Alteration of 712-A Building: Project approved by AEC. Directive HW-231 issued 4-12-51.

C-448 Rehabilitation of 1341 Prefabs: Directive HW-234 issued by AEC 4-11-51. This project combines all 1341 prefabs and is 45% complete.

C-449 Water Service Alterations--1341 Prefabs: Directive HW-235 issued 4-11-51. Field Release #2 held in abeyance pending negotiations of subcontract to include all houses. 50% complete.

The status of "S" projects ($5,000 to $20,000) is as follows:

S-244 Irrigation Ditch Fence--Wright to Van Giesen: Out for bids.

S-255-B Grass Seeding--Frankfort Playground and Marcus Whitman School:

(a) Frankfort Playground: Lawn reseeding has been completed and has been developing slowly with the variable weather and water pressure conditions. Final acceptance has not yet been made.

(b) Marcus Whitman Playground: Site grading and seeding have been completed and no additional construction charges are anticipated. Grass stand not established as of this date.

S-307 8" Water Line--Guthrie to Williams: The informal approval letter submitted to increase funds to $7400 was approved by the AEC on 4-27-51.

S-321 Steam Pits to Dormitories: Revised plans transmitted to Contract Section.

S-333 Air Conditioning in Dormitories: Letter issued 4-25-51 to B. R. Hennigar outlining costs of project applicable to Dorm W-10.

S-350 Improvement of Lighting in 705 Building: Lighting fixtures received were wrong type; awaiting replacement.

S-362 Water Service Alterations to 460 Prefabs: Project to be combined with C-449.

S-366 Painting Kadlec Hospital, Municipal Building, and Medical-Dental Building: 20% complete; work progressing. Subcontractor received notice to proceed 4-13-51.

S-379 Interior Painting of Prefabs: Bids opened 4-24-51. Work to begin 5-1.

S-394 Relocation of Hutment 1125-1: Negotiations being made for disposal of the incompleted contract.

S-405-B Additional Erosion Control: Directive modification requested 4-27-51 to extend physical completion date to 5-1-52. Only nine new trees were planted on the project this month, bringing the total number of trees planted to 1069. Work has been stopped on the plantings because of the advanced season. Plant material is on hand to complete the work this Fall and in the Spring of 1952.

S-415 Hospital Soft Water System: Informal approval letter approved by AEC 4-27-51.

S-450 Fencing Riverside Park: Plans and specifications complete. Fence staked.

S-469 Site Preparation--703 Building: Preparing plans and specifications.

S-477 Relocation Access Panels U and V Houses: Plans and specifications reviewed and approved.

S-479 Fire Protection Facilities--Chief Joseph School: AEC approval received 4-9-51.

S-485 Exterior Painting--243 Houses: Contract awarded 4-26-51. Work to begin 5-7-51.

The status of "L" projects ($2000 to $5000) is as follows:

L-017 Tract House NN-1040: Specifications in rough draft; plans complete.

L-262 Water and Sewer Facilities--Assembly of God Church: Funds approved by Division Manager's Appropriation No. 28 on 4-6-51. Plan and profile ready for signatures. Specifications in rough draft.

L-330 Heating T Type Houses: Approved plans and specifications transmitted to Contract Section.

L-406 Installation of Cyclone Fence Around Barth Playlot: Out for bids.

L-550 Double Surface Treatment--Three Parking Lots: Funds approved by issuance of three separate work orders by C. R. Bergdahl on 4-24-51.

The status of "K" projects (under $2000) is as follows:

K-480 Service Drive--Uptown Theater: Project completion report issued 4-11-51.

K-535 Surface Treatment--Goethals Drive, Gillespie to Knight: This project being processed for contract.

CONTRACT SECTION

C-356 Fence and Backstop--Columbia Playfield: Bid opening scheduled 5-8-51.

C-356-R Columbia Playfield Lighting System: Notice to proceed given Witzig Electric 3-27-51. Wrote them 4-20 requesting evidence of ordering materials to substantiate work started under the subcontract.

C-372 Exterior Painting of 243 Houses: Subcontract awarded to F. O. Repine Co., Portland. Contractor notified contract approval expected by 5-1 and the work to officially start 5-2.

C-382 Well 1100-D: Negotiations completed. Modification to subcontract being prepared by Construction Division.

C-407 Bathtub, Tileboard, and Linoleum Installation: Subcontract approved by AEC 4/27, and subcontractor, Weston Plumbing, Spokane, given notice to proceed 4-30-51.

S-244 Fencing--Wright to Van Giesen: Invitations to bid sent out 4-20-51. Bids will be received until 2 p.m., 5-8-51.

S-299 Radio Communication System: Awaiting return of signed contracts submitted to Motorola 3-12-51. Talked with Northwest manager, Mr. Cummins, in Portland and requested that contracts be returned as soon as possible.

S-321 Steam Pits to Dorms: Bids expected to be received approximately 4-22-51.

S-356 Recreational Facilities--Handball Court: Plans received 4-25 and work expected to be under contract approximately 6-1-51.

S-366 Exterior Painting Hospital, Medical-Dental Building, Municipal Building: Subcontractor, Collins & Babcock of Prosser, Washington, given notice to proceed 4-13-51.

S-379 Interior Painting--676 Prefabs: Subcontract awarded to R. A. Neuman & Son, McMinnville, Oregon. Notice to proceed expected to be given 5-1. 60 days allowed to complete work.

S-477 Service Access Panels U and V Type Houses: Plans and specifications expected 5-1 and will prepare to invite bids by 5-14.

K-430 Exterior Painting--Two Churches: Subcontract awarded to Collins and Babcock, Prosser, Washington. Notice to proceed given 4-13-51.

L-312 Humphries 8" Water Main--Wright to Van Giesen: Associated Engineers' subcontract being modified to complete this work.

L-353 Resurface Tennis Courts: Plans and specifications received 4-25. Work expected to be under contract the first week in June.

L-404 Fencing Barth Playlot: Bids to be opened 5-8-51.

L-483 Fire Damage--1313 Potter: Drawings and specifications for subject work received 4-25. It is expected to have the work under contract during the month of June.

Fourteen active contracts were in process during the month of April, and payments to subcontractors during the month totalled $181,560.10.

119401

MUNICIPAL DIVISIONS

SUMMARY

APRIL, 1951

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
Fire	53	1	53	1
Parks & Recreation	13	19	13	20
Police	16	24	16	26
Public Works	16	81	16	84
Public Safety	2	1	2	1
	100	126	100	132

W. R. Atterbury, Staff Assistant to the Municipal Manager was recalled as a Lt. Colonel to the Air Corps. Mr. Atterbury terminated on April 20, 1951.

Richland was awarded first place of special class cities in the National Traffic Safety Contest.

R. H. Hopkins, C. R. Bergdahl and J. R. Goggin attended a conference on Radiological Defense held at the University of Washington on April 11,12, and 13. The effects of radiation on municipal utilities and decontamination procedures were discussed.

H. N. Petty and R. H. Hopkins attended a conference on Fluoridation of Water held at the University of Washington on April 27, 1951.

1196402

MUNICIPAL DIVISIONS
PUBLIC WORKS DIVISION
APRIL, 1951

ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt
Employees - Beginning of Month	16	81
Transfers In	-	14
Transfers Out	-	12
New Hires	-	2
Terminations	-	1
Total - End of Month	16	84

GENERAL

A conference on Radiological Defense, held at the University of Washington on April 11, 12, and 13, was attended by C. R. Bergdahl and J. R. Goggin. The subject matter dealt specifically with the affects of radiation on municipal utilities and decontamination procedures.

H. N. Petty attended lectures on Flouridation of Water held at the University of Washington on April 27, 1951.

A group of senior students from the University of Idaho were conducted on a tour of Public Works facilities on April 30, 1951.

SANITATION

Collection and disposal of garbage and trash has been continued according to schedule and without incident.

Total weight of waste material collected during April was 996 tons as compared to 890 tons in March.

Publicity of the schedule on twice-weekly residential collections, which will be effective from April 30 through September 30, was carried in the Hanford Works News and other local news media.

1196803

SANITATION (CONTINUED)

During "Clean-Up" week, April 30 through May 4, this section will assign special crews to collect all types of trash placed at the curb line by residents.

EROSION CONTROL

Burning of weeds along drainage ditches and recharge basins for mosquito control purposes has been completed, and spraying of mosquito larvae is scheduled to start about the tenth of May.

The setting of evergreen trees at the Sewage Treatment Plant, a part of Project C-408, was completed in the latter part of April.

All shelterbelts and grassed or planted areas assigned to the Public Works Division are now under irrigation and routine care and mowing is in progress.

The area along Symons Street directly north of the Uptown Commercial District, which had been used for disposal of spoil earth and was in an unsightly condition, was leveled and cleaned up and will be planted to rye grass.

ROADS AND STREETS

Routine maintenance of streets, sidewalks, and storm and surface drainage, and street sweeping was continued according to schedules.

A concentrated program of patching pot-holes and sealing of pavement checks was carried on throughout the month.

The throat at the intersection of Swift Boulevard and the By-Pass Highway was widened to facilitate entrance of large trucks, and guide posts were installed to protect the pavement edge.

A total of 32 traffic signs were installed this month.

A request for installation or revision of street lights at several locations has been forwarded to the Electrical Division. These locations are presently inadequately lighted and are hazardous to pedestrian and automotive traffic.

1196104

ROADS AND STREETS (CONTINUED)

Plans and specifications for the 1951 Street Improvement Program are progressing satisfactorily, and it is anticipated that construction will commence on July 1, 1951.

DOMESTIC WATER

Normal operations were continued throughout April, and water consumption averaged 10.5 million gallons per day, an average increase of 5.11 million gallons per day over March figures.

The Columbia reservoir was cleaned and a 10" overflow was installed to eliminate the possibility of washing out the fill around this facility. The reservoir was placed in service on April 6. The Columbia River pump which recharges this percolation basin was moved to its high water base on April 25.

The Duke Well-Field percolation basin was flooded on April 2, 1951, and the water table at Well 1100-8 has risen six feet to date as a result of this recharging.

Well 3000-E is out of service due to a burnt-out rotor. Replacement has been ordered on a priority basis and delivery is expected by the end of May.

Two water mains, one east of Columbia High School and the other on Guthrie Avenue, were broken by contractors working in the areas, and repairs were made at the cost of responsible parties.

Check boards and concrete abutments were installed at two drain lines from the Wellsian Way percolation basin for the purpose of maintaining a constant water level.

Several tie-ins to water and sewer mains have been made to provide service for new facilities. The costs of such work are charged to the projects covering the new installations.

1196405

DOMESTIC WATER (CONTINUED)

Domestic Water System

	Well Production Million Gallons	Avg. Daily Production	Total Consumption Million Gallons	Avg. Daily Consumption
Richland	125.9202	4.7973	239.6402	7.9880
No. Richland	110.8750	3.6958	48.0637	1.6021
Columbia Field	78.8434	2.6281		
300 Area			26.9045	0.8968
Totals	315.6386	10.5212	314.6084	10.4869

SEWERAGE SYSTEM

Routine operation of the Treatment Plants was continued during April.

It was necessary to isolate No. 2 plant for one-half day on April 4, 1951, so that a leak in the effluent line which passes through the dike could be repaired by the contractor who is responsible for this line.

Delivery of necessary equipment for additional pumping capacity at the Lift Station is expected in July and installation is anticipated to be made during August of this year.

Sewerage

	Total Sewage Flow Million Gallons	Average Daily Flow Million G. P. D.	Average Rate Flow Gals. Per Min.
Plant No. 1	29.230	0.974	677
Plant No. 2	54.871	1.829	1,270
Totals	84.101	2.803	1,947

IRRIGATION SYSTEM

The six irrigation pressure systems were in service by the end of April. Considerable repair work was necessitated by broken or plugged lines and broken risers. The contractor on the housing addition had ruptured the irrigation main on Perkins Avenue in several places and repairs were made at the cost of the housing project.

1196406

IRRIGATION SYSTEM (CONTINUED)

Water is now flowing through the entire canal system and gravity flow pipes. It was necessary to repair a construction break in the 28" wooden feeder line to No. 3 pumphouse, and a leak on Lee Boulevard in the 16" feeder line to No. 1 pumphouse.

Sprockets and chains on the fish screens near Horn Rapids Dam were repaired or replaced to place the fish screens in operation in accordance with State Fish and Game regulations.

Canal banks from Lee Boulevard to Wright Avenue were sprayed with weed killer to control weed growth and facilitate the flow of water.

1196407

MONTHLY REPORT
PARKS AND RECREATION DIVISION
April, 1951

ORGANIZATION AND PERSONNEL:

	Exempt	Non-Exempt
EMPLOYEES - BEGINNING OF MONTH	13	19
New Hires	0	2
Terminations	0	2
Transfers - IN	0	3
" - OUT	0	2
Total - End of Month	13	20

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of April 30, 1951:

Administration	6
Principals & Supervisors	15
Clerical	24
Teachers	243
Health Audiometer	1
Building Custodians	38
Cooks	39
Nursery School & Extended Day Care	11
Bus Drivers	2
Farm Manager	1
	380

CLUBS AND ORGANIZATIONS

As of April 30, 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
Girl Scouts	2
Hi-Spot Club	2
Justice of the Peace	1
Y.W.C.A.	2
	11

The Parks and Recreation Board held its monthly meeting for April on March 28, 1951, as reported in the March monthly report.

On April 28, 1951, the Richland Kennel Club sponsored a dog show which was held on the park area just east of the Desert Inn Hotel.

1196408

Parks and Recreation Division

The Little League Baseball Association of Richland completed the installation of the fence, backstop, and scoreboard on the baseball diamond at the Jefferson Playground.

[redacted]

Parks and Recreation Division

Attendance figures for the Month of April were as follows:

Community House	Days	Boys	Girls	Total	Sub-Total
Games Room	25	2,349	486	2,835	
Photography	4	65	20	85	
Leathercraft	2	9	3	12	
Painting	1	9	2	11	
Open Craft	4	47	28	75	
Fly Tying	3	45	1	46	
Dramatics	2	7	10	17	
		2,531	550	3,081	3,081
Servicemen's Center	4	599 (Men)	91 (Women)		690

Columbia Playfield

	Participants		Spectators	
Archery Tourney	10	1	16	27

Columbia High School

	Participants		Spectators	
	72	5	750	827

Other scheduled bookings at the Community House for the Month of April showed the following useage:

Bookings made	Attendance	
40	2,740	2,740
	GRAND RECREATION TOTAL	7,365

MAINTENANCE

During April, 32 loads of top soil were hauled and rough-graded on Project C-282-R, regrading and re-seeding of Columbia Playfield.

All park areas needing spraying for dandelions and weed control were covered during the month.

Tennis net posts on five of the park's tennis courts were replaced and new copper wire tennis nets are being installed on the courts.

Twenty (20) work orders were issued during the Month of April.

1196410

Parks and Recreation Division

PARK DEVELOPMENT

Proposed Work:

	Percentage Complete
1. Site Development	
a. Columbia Playfield (Project L-255)	100%
b. Marcus Whitman Playground (Project S-255-B)	98%
2. Irrigation Installation	
a. Riverside Park (Project C-351)	98%
b. Columbia Playfield (Project C-351)	95%
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. Carmichael Playground (Project 332)	90%
b. Frankfort Playground (Project 255-B)	90%
c. Columbia Playfield (Project S-255)	90%
4. Parking Lot	
a. Columbia Playfield (Project 255-D)	92%
5. Playground Equipment	
a. Equipment installed (Project 356-R)	25%
6. Layout Plans - Total 31 - 10 Complete	
a. Riverside Park	15%

PUBLIC LIBRARY

One clerical vacancy on the staff was filled during the Month of April. The library is still without the Order-Catalog Librarian.

The Library Board met at its regular time but failed to produce a quorum due to the absence of three members who were out of town. The two members present discussed the by-laws presented by Miss Loman for their consideration and also discussed details of the Open House. A special meeting of the Board was called on Sunday, April 29, prior to the opening of the Library at which time the Board made several motions but postponed the major portion of the business to the May 4, meeting.

With the help of many members of the community the Library staff completed the processing of approximately 9,000 volumes for the opening of the Library. Approximately half of these 9,000 volumes were in the juvenile collection.

| | 9544 | |

Parks and Recreation Division

The Maintenance Division of the Parks and Recreation Division changed all of the requested changes in building and equipment in good time for the Library opening. Also shorthanded for the maintenance work, they delegated extra help to the Library to assist in the last minute preparations of the opening.

The Library Open House was held Sunday, April 29, with brief ceremonies at which time Mr. D. F. Shaw turned over the Library to the Community of Richland. It is estimated that approximately 2,000 people attended the Open House. There were special lectures on Atomic Energy in the course of the three hours and Tony The Clown donated his services from 3:00 to 4:00 PM in the Children's Room. Mrs. Bates had arranged a fine musical program for the entire afternoon. Mrs. Shaw and her hospitality committee did an excellent job of arranging and providing for the refreshments. In the course of the three hours approximately 1,300 people registered for cards. Out of town visitors came from Spokane, Walla Walla, Yakima, Seattle, Olympia, Portland, Pendleton, Pasco, and Kennewick. Flowers were received from other libraries and the Chamber of Commerce.

The first day the Library was open for circulation, Monday, April 30, there were two class visits to the Library, 600 people registered, and 1,877 books were circulated. This response to the Library opening indicates the community's avid interest in reading and if the same high peak is retained it will be absolutely necessary to increase the Library staff.

MAJOR ACTIVITIES DURING THE MONTH

April	16	Minnesingers Spring Concert	Carmichael Jr. High
	28	Dog Show	Desert Inn Hotel
	29	Richland Public Library "Open House"	Library
	30	Tennis Clinic	Carmichael Jr. High
	30	Rotary Tennis Exhibition	Columbia High School
	11	High School Band Concert	" " "
	17	Town Hall "J. A. Michener	Carmichael Jr. High
	27	Concert Assn. St. Louis Sinfonietta	" " "
28 -	27	Players	Columbia High School

1196412

MUNICIPAL DIVISIONS

RICHLAND FIRE DIVISION

April 1951

Organization and Personnel	Exempt	Non-Exempt
Employees - Beginning of Month	53	1
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminations	0	0
Total End of Month	53	1

Fire Protection

Response To Alarms		11
Fire Loss (Estimated)	Hanford Works	$ 0.00
	Personal	46.00
Investigation of Minor Fires and Incidents		17
Safety Meetings		8
Security Meetings		4
Inside Drills and Schools		45
Outside Drills		62
Fire Alarm Boxes Tested		184

Three fire hydrants were inspected for operation and leaks.

Inventoried all fire hose in both stations.

Repaired and tested eight lengths of 2½ inch hose.

Cleaned seven gas masks and installed new cannisters for the Municipal Utilities Division.

Fire apparatus stood by fourteen times during the month for aircraft landings and take-offs at the AEC Airport.

On April 24th twelve Cub Scouts and two adult sponsors made a conducted tour of No. 1 Fire Station.

Fire Prevention

Fire Inspections:

700 Area Buildings	40
1100 Area Buildings	27
Real Estate Buildings	20
Municipal Buildings	38
AEC Airport Buildings	6
Schools	3
Hospital	3
Churches	4
Uptown Business Area	1
Residential Area	1
Total	143

Fire Extinguishers:

Inspected	403
Refilled	7
Installed	11
Removed	6
Excessed	44

Standpipe Fire Hose:

Inspected	56

1196413

RICHLAND FIRE DIVISION April 1951

Inspection Reports Submitted:

Real Estate	1
1100 Area	3
700 Area	2
Municipal	1
Hospital	2

Manhours and Material Cost Backcharges:

Backcharges to other divisions totalled $429 for manhours and $26.98 for materials.

Lectures and Demonstrations:

Fire extinguisher demonstration conducted for six employees of Employee and Community Relations Division.

Fire prevention lecture given to Girl Scout leaders at Burlin Camp.

Fire prevention lecture on fire extinguishers, fire alarm and sprinkler systems, evacuation procedure given to 28 Kadlec Hospital nurses.

Meeting held with B. E. Miller and L. R. Riggs on reported fire hazards in office building at 500 Thayer.

Investigations:

Investigated hot light switch in Room 104 of 761 Building. Inspection revealed single switch carried heavy overload (2000 watts). L. R. Riggs of Plant Safety and Fire Division indicated inspection will be made of circuits in other 700 Area buildings.

Evacuation Drill:

Conducted an evacuation drill at Kadlec Hospital on April 25th. Alarm buzzers were not audible in several locations. Hospital officials agreed to have a study made of the system.

Miscellaneous Activities:

Air pressure in Kadlec Hospital Sprinkler systems lowered to 25 pounds to offset lower water pressure during summer months.

Excessed 44 damaged fire extinguishers.

Overflowing vehicle gasoline tanks due to warm weather expansion referred to Transportation Division.

1196414

Inspection of Kadlec Hospital revealed three major exits completely blocked by construction work and another blocked by occupied beds. Two other exits were partially blocked by gas cylinders and office equipment in corridors. Hospital, AEC Safety, G. E. Safety and Municipal Safety officials advised of the situation.

Assisted Engineering Division on final acceptance inspections of Richland Laundry boiler room and the McKay Building.

Arrangements being made to replace all 700 and 1100 Area foam fire extinguishers in accordance with a request by Plant Safety and Fire Protection Division.

MUNICIPAL DIVISIONS

RICHLAND POLICE DEPARTMENT

APRIL 1951

ORGANIZATION AND PERSONNEL

	Exempt	Non-Exempt
EMPLOYEES - BEGINNING OF MONTH	16	24
Transfers In		1
Transfers to Exempt		1
Transfers Out		
Transfers from Non-Exempt	1	
New Hires		2
Terminations	1	
Total - End of Month	16	26

GENERAL

Capt. J. S. Johnson of the Crime Prevention and Investigation Section participated in a round table discussion about check cashing over radio station KWIE on April 11. Others participating in the discussion were Maloy Sensney, Prosecuting Attorney, and Ray W. Clark of the Exeter Hotel in Seattle.

Eighteen Blue Birds were escorted on a tour of Police Headquarters on April 18.

On April 19, 1951, crime statistics for 1947 through 1950 were forwarded to R. J. Schier, Nucleonics Department, Schenectady, at his request, for use in a history summary.

Capt. J. S. Johnson of the Crime Prevention and Investigation Section attended an Arson Seminar at Purdue University, Lafayette, Indiana, from April 23 through 27.

During the month, efforts were made to recruit additional members for Civil Defense Auxiliary Police. Schedules for meetings were adopted and will be sent to all members at a later date. Meetings will be held each Monday evening in the Community House beginning May 14. Meetings are now scheduled up to September, 1951.

A survey was made of streets in Richland to determine if additional street lighting was needed. A list of needed street lights was forwarded to the Municipal Manager.

During the month, 194 traffic violation reports were received. These consisted mainly of illegal parking and speeding. A total of 120 other reports were received. These consisted mainly of larceny, public intoxication and vandalism cases.

During the month, a total of 223 letters were received, compared to 225 last month. These consisted of 214 inquiries on arrests and 9 requests for assistance.

1196416

During the month, 31 prisoners were processed through the Richland Jail. Eleven of these were from North Richland and one was a Security Patrol prisoner.

During the month, 33 gun registrations were recorded.

During the month, 93 bicycle registrations were recorded.

TRAFFIC

Sgt. E. E. Miller of the Traffic Control Section will visit the Oak Ridge, Tennessee, Police Department the week of April 30 to study its traffic activities. Sergeant Miller is attending the traffic police administration course at the Traffic Institue, Northwestern University and is making a field study of the Oak Ridge Department as a part of his training.

A traffic safety campaign was conducted during the month of April in connection with the national observance of Child, Pedestrian and Bicycle Safety Month. Articles were published in local newspapers urging parents and motorists to join in the safety campaign by training and cautioning youngsters and by driving cautiously through residential areas and especially past parked cars. The Police Department assisted in the campaign by stopping all bicyclists who were found riding in unsafe manners or in violation of any laws pertaining to bicycle riding. A letter was sent to the parents of these children calling their attention to the violation and asking their cooperation in eliminating a recurrence.

Richland has been awarded a special citation for achieving the highest grade in the nation in the 1950 traffic safety contest sponsored by the National Safety Council. Richland also received a special citation for winning first place among government owned cities.

There were 15 reportable accidents in Richland for the month of April. This amount shows a decrease of 10 over the preceding month and an increase of five over the same month last year. No traffic fatalities occurred within the community limits, however, there were two major injuries and two minor injuries. One of the minor injuries was suffered by a bicyclist, and one was suffered by a motorcyclist. During the preceding month there were two major injuries and three minor. For the same month last year there were only three minor injuries.

Causes of the 15 above accidents were as follows: three negligent driving, six failure to yield right of way, one driver fell asleep, three improper backing, two following too closely.

Property damage caused by traffic accidents increased from an average of $141.00 per accident last month to $250.00 per accident this month.

Traffic safety lectures were conducted during the month by Ptm. D. F. Metz at the Village Labor offices, the General Electric Maintenance Room and the H. I. Division at 200-E Area.

Meetings with the School Boy Patrol were also conducted by Ptm. D. F. Metz at the following grade schools: Carmichael, Spalding and Marcus Whitman. The purpose of the meetings was to inspect the Patrol boys equipment and issue new equipment where needed. New caps and belts were issued to many of the Patrol members at the above mentioned schools. Also at the meetings the boys were further instructed regarding the patrol work.

Spot checks of traffic conditions around the Columbia High School were made during the month.

There were 95 crosswalks repainted throughout the city during the month, and 40 new signs were installed in the residential areas on narrow streets where parking is being prohibited.

Seven other traffic signs were repaired and replaced.

One traffic count was taken at the entrance to the parking lot just north of the Post Office. The count showed 1,236 cars entering the lot during a 24 hour period.

A "Loading Zone" was established on George Washington Way in front of the Recreation Hall for loading and unloading purposes. Also a "Loading Zone" was set up in front of Launderland.

TRAINING

A new training program was adopted effective April 20 and is handled on a rotating weekly basis whereby all police personnel receive Range firearms training and classroom instruction one day every four weeks. Training is always given on Fridays of each week under the direction of training officer Capt. W. A. Ziegler. Subjects covered during the month were as follows:

Review of Operations Orders, General Orders and Motor Patrol Orders
General Conduct of Police Officers
Basic Police Procedures

Advance training at the small arms range for the period in field instruction was as follows:

Pistol	2 hours
Machine gun	1½ hours

Qualifications on the F. B. I. course were as follows:

Score	No. Men	Per Cent
Sharpshooter	4	33 1/3 %
Marksman	4	33 1/3 %
Unqualified	4	33 1/3 %

Qualifications on the Machine Gun course were as follows:

Score	No. Men	Per Cent
Expert	10	83%
Sharpshooter	2	17%

A total of 12 men reported for police training.

1196418

Richland Police Department - Continued

ACTIVITIES AND SERVICES

	February	March	April
Doors & windows found open	27	92	37
Children lost or found	6	19	23
Ambulance runs assisted	30	31	18
Ambulance driver provided	2	4	2
Dogs, cats reported lost or found	9	22	19
Dog, cat, loose stock complaints	15	25	26
Persons injured by dogs	11	20	14
Bank escorts and details	19	12	4
Fires investigated	20	19	19
Miscellaneous escorts	21	16	11
Complaints investigated	48	44	50
Deaths reported	1	0	0
Articles lost or found	39	30	32
Records inquiries	280	312	250
Law enforcement agencies assisted	6	16	17
Private individuals assisted	16	10	4
Plant divisions assisted	14	20	29
Emergency messages delivered	67	31	43
Totals	631	723	598

1195419

MONTHLY REPORT
RICHLAND POLICE DEPARTMENT
APRIL, 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—Break & Ent.	2	1	1	0
6. Larceny—Over $50.00	12	0	2	3
Larceny—Under $50.00	17	2	2	4
Bike Theft	19	0	0	19
7. Auto Theft	1	0	0	1
TOTAL PART I CASES	51	3	5	27
PART II				
8. Other Assaults	2	0	2	0
9. Forgery & Counterfeit.	0	0	0	0
10. Embezzlement & Fraud	4	0	3	1
11. Stolen Prop:Buy:Rec:Poss:	0	0	0	0
12. Weapons:Carry:Poss:	2	0	2	0
13. Prostitution	0	0	0	0
14. Sex Offense	0	0	0	0
15. Off.Ag.Fam. & Child.	7	0	1	6
16. Narcotics—Drug Laws	0	0	0	0
17. Liquor Laws	1	0	0	1
18. Drunkenness	8	0	6	2
19. Disorderly Conduct	6	0	1	5
20. Vagrancy	2	0	2	0
21. Gambling	0	0	0	0
22. Driving While Intox.	2	0	2	0
23. Violation Rd. & Dr. Laws:				
Speeding	42	0	42	0
Stop Sign	11	0	11	0
Reckless Driving	4	0	4	0
Right of Way	1	0	1	0
Negligent Driving	12	0	12	0
Defective Equipment	2	0	1	1
24. Parking	89	0	89	0
25. All Other Traffic	30	0	30	0
26. All Other Offenses:				
Public Nuisance	10	0	10	0
Dest. of Pers. Prop.	1	0	0	1
Dest. of Govt. Prop.	1	0	0	0
Vandalism	14	0	0	2
Dog Nuisance	1	0	0	1
Prowlers	4	0	0	3
Illegal Use of Firearms	1	0	0	1
Investigation	2	0	0	2
27. Suspicion	1	0	0	1
TOTAL PART II CASES	260	0	219	27

(Continued on Page Two)

119820

PAGE TWO MONTHLY REPORT RICHLAND POLICE DEPARTMENT, APRIL, 1951

OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
PART III				
28. Missing Persons	2	0	0	2
Lost Persons	15	0	0	15
Lost Animals	6	0	0	6
Lost Property	7	0	0	7
29. Found Persons	3	0	0	3
Found Animals	5	0	0	5
Found Property	23	0	0	23
TOTAL PART III CASES	61	0	0	61
PART IV				
30. Fatal Mot.Veh. Traf. Acc.	0			
31. Pers.Inj.Mot.Veh.Traf.Acc.	4			
32. Prop.Dam.Mot.Veh.Acc.	11			
33. Other Traffic Acc.	0			
34. Public Accidents	No Accurate Statistics Kept			
35. Home Accidents				
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	2	0	0	2
43. Mental Cases	1	0	0	1
TOTAL PART IV CASES	31	0	0	16
COMPOSITE TOTALS PARTS I,II,III,IV CASES	403	3	224	131

*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 in that there were no arrests.

Property Reported Stolen During Month $3,117.85 (Bikes $570.00)
Property Recovered During Month 2,611.15 (Bikes $570.00)

SEE PAGE THREE FOR JUVENILES INVOLVED

119642

PAGE THREE RICHLAND POLICE DEPARTMENT MONTHLY REPORT, APRIL, 1951

OFFENSES	NO.	JUVENILES	SEX	JUVENILES INVOLVED 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
Breaking & Entering	1	2	M								2									2
			F																	
Petit Larceny	3	9	M														2	3	4	9
			F																	
Disorderly Conduct	4	6	M														1	3	2	6
			F																	
Investigation	1	2	M															1	1	1
			F																	
TOTALS.....	9	19									2						3	7	7	19

11964 22

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 March 1951	Richland April 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	4	1
Larceny	269.6	44.9	223	17	25
Auto Theft	37.3	6.2	4	1	1
Bike Theft			85	20	19

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 March 1951	Richland April 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	4	1
Larceny	236.1	39.3	223	17	25
Auto Theft	30.9	5.1	4	1	1
Bike Theft			85	20	19

The portion of offenses committed by persons under the age of 25 yrs. is shown:

	National Average(Percentage of Cases) (Jan-June 1950)	Wash.Oregon,Cal.(Actual Cases) (Jan-June 1950)	Richland (Jan-June 1950)	Richland March 1951	Richland April 1951
Robbery	55.4	7.9	0	0	0
Burglary	63.0	57.0	2	1	1
Larceny	46.7	125.9	57	2	3
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."

1196423

POLICE DIVISION - TRAFFIC CONTROL STATISTICS
April, 1951

MOTOR VEHICLE ACCIDENTS:

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	March	April	March	April	March	April	March	April
Richland	25	15	0	0	2	2	3	2

ACCIDENT CAUSES:

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Causes	
	March	April	March	April	March	April	March	April
Richland	7	3	8	6	0	0	10	6

PLANT WARNING TRAFFIC TICKETS ISSUED:

	Speeding		"Stop" Sign		Parking		Imp. License		Def. Equipment		Other Violations		Totals	
	Mar.	Apr.	March	April	Mar.	Apr.	March	April	March	April	March	April	Mar.	Apr
Richland	0	0	0	0	67	0	0	0	0	1	0	0	67	1

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	
	Mar.	Apr.	March	April	March	Apr.	March	April	March	April	Mar.	Apr.	Mar.	Apr.	Mar.	Apr.	Mar.	Ap
Richland	17	43	7	13	2	3	5	2	5	3	16	13	175	85	28	30	255	19

TRAFFIC VOLUME: Average 24-hour Traffic Volume Count for week ending on April 19, 1951, at entrance of Parking Lot north of Richland Post Office - 1,236 Motor Vehicles.

NOTE: Traffic Control Statistics show ORIGINAL CHARGES ONLY.

119424

RICHLAND POLICE DEPARTMENT
RICHLAND JUSTICE COURT CASES
APRIL 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.	25	12	6	4		3					4	10	$ 22.50	$ 35.00	$ 30.00
Def. Equip.	2	1		1							1	1			
Drunken Dr.	1	1								1				52.50	
F.T.S.&.I.	1		1										10.00		
F.T.Y.R.O.W.	2		2								1		22.50		
Ill. Parking	95	34	48	1		1	11				7		171.50	119.00	87.50
Ill. Passing	2		2										15.00		
Ill. U Turn	1		1										5.00		
Negligent Dr.	19	13	3	2		1				1	5		72.50	252.50	50.00
Reckless Dr.	4	2		1		1				1	3			35.00	17.50
Speeding	43	24	12	4		2	1				1		150.00	236.00	
Stop Sign	13	5	5	1			2				1		37.50	23.50	
No Registration	2	2										2			
Ill. use of one way street	1			1											
Lic. Plates	2	1		1							1			10.00	
Carrying Concealed Weapon	2	2						2	1						
Disorderly Conduct	5	2				3					3	2			
Grand Larceny	1			1											
Larceny by Check	3	2				1								18.50	
Public Intox.	6	3	3										42.50	37.50	
Public Nuis.	10	6	2		1	1		3	2				35.00	47.50	
Third Deg. Assault	2	2						2	2						
Vagrancy	2	1				1		1	1						
TOTALS:	244	113	85	17	1	14	14	8	6	3	27	15	$584.00	$867.00	$185.00

NOTE: One Larceny by Check taken to Superior Court.
Two Drunken Driving cases amended to Negligent Driving.
Three Reckless Driving cases amended to Negligent Driving
One F.T,S.&.I. case amended to Negligent Driving.

1196425

MUNICIPAL DIVISIONS

PUBLIC SAFETY DIVISION

April 1951

Organization and Personnel:	Exempt	Non-Exempt
EMPLOYEES - BEGINNING OF MONTH	2	1
Transfers In	0	0
Transfers Out	0	0
New Hires	0	0
Terminations	0	0
Total - End of month	2	1

*One exempt employee charging full time to Civil Defense

Statistical and General:

The Public Safety Division assisted the Student-Parent Council in conducting a very comprehensive Child Pedestrian and Bicycle Safety campaign this month, which included radio programs, safety skits and demonstrations during school assemblies, spot announcements, traffic safety films, making of safety posters and signing of the Good Driving Agreements. Photographs and items of interest pertaining to this campaign were published in the local newspapers. This campaign was climaxed by a Bicycle Parade and Rodeo at the end of the month, at which time finalists in various bicycle riding contests from each school vied for top honors. Several films from the Public Safety office pertaining to bicycle and traffic safety have been shown extensively in the schools during the course of this safety campaign.

This office has cooperated with the Public Works Division in organizing and publicizing the annual Clean-Up Week campaign. A proclamation was issued to the press along with various data regarding fire hazards and trash pick-up.

Because of the excavations and machinery surrounding the construction work on prefabs, it was deemed necessary to send letters to the residents warning them to keep children away from these hazards.

The Traffic Control Committee met the 18th of April, at which time it was decided to restrict parking on several streets in the city because of the accident frequency rate on those streets. Letters were sent to the residents affected by this restriction asking for their opinions on the subject; and all replies were taken into consideration.

During the month, nine traffic safety motion pictures were available in this office along with one dealing with swimming. These films were used extensively by the public schools and the Army situated in North Richland and also by clubs, organizations and other various groups, which resulted in an attendance of approximately 7500 for these safety films.

1196426

Column inches of newspaper publicity for the month is 264. A total of thirteen articles and photographs were published in local newspapers pertaining to traffic safety, the child safety theme in particular, and the clean-up week campaign.

This month Richland received the highest score of any city in the nation in the Traffic Safety Contest sponsored by the National Safety Council.

1196427

REAL ESTATE DIVISIONS

SUMMARY

APRIL

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
Commercial & Other Property Divisions	7	6	7	6
Housing & Real Estate Maintenance Division	23	181	22	191
	30	187	29	197

Net increase of employees for the month of April 11

GENERAL

The Columbia Book Store commenced operation in the month of April, subleasing space in the Richland Investment Company building.

A barber shop, under the management of Elwood Hamilton, commenced operation in the Richland Recreation Center.

Association of U. S. Employees, Inc. (Castle Club) cancelled its lease as of April 1, 1951.

1196428

HOUSING AND REAL ESTATE MAINTENANCE DIVISION

April, 1951

ORGANIZATION AND PERSONNEL

			April
Number of employees on payroll			
Beginning of month	23	exempt employees	
	181	non-exempt employees	
	204		204
End of month	22	exempt employees	
	191	non-exempt employees	
	213		213

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	2208	258	8	378	824	1135	55	38	4904
Commercial Facilities	90	9	2	28	73	66	5	5	278
Community Activities	9	—	-	1	7	3	—	1	21
Medical Facilities	5	14	—	2	—	1	—	—	22
Post Office	7	—	—	1	3	10	—	4	25
A.E.C. and Other Government	98	29	-	15	40	20	3	4	209
School District	43	—	..	5	12	50	1	--	111
Kellex Corporation	7	5	-	5	7	4	1	-	29
Atkinson-Jones	9	13	-	4	10	4	2	-	42
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				1	1		2		4
Urban-Smythe and Warren	—	1	—	—	1	—	1	—	3
Total Houses Occupied	2479	330	10	441	981	1294	71	56	5662
Houses Assigned - Leases written	5	2		3	—	5	1	—	16
Houses Assigned - Leases not written	12	1		6	6	17	2		44
Houses available for assignment	4	—	—	—	13	26	—	—	43
Total Houses	2500	333	10	450	1000	1342	74	56	5765

1.

1196429

Housing and Real Estate Maintenance Division

	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2467	49	37	2479	Plus 12
Block Type	332	3	5	330	Minus 2
"T" Type	10	—	—	10	—
Precut Type	441	15	15	441	—
Ranch Type	979	30	28	981	Plus 2
Prefab Type	1306	50	62	1294	Minus 12
Apartments	70	5	4	71	Plus 1
Tract	55	1	—	56	Plus 1
Total	5660	153	151	5662	Plus 2

DORMITORY STATISTICS

Dormitories		Occupants	Vacancies	Total Beds
Men Occupied	14	616	—	616
Men Unoccupied				
Women Occupied	12	470 *	11	481

Women's Dormitories Occupied by:

G. E. Office	2
Education	1
Apartments	1
	30

* This includes space of 4 beds in W-9 used for supply rooms and dormitory offices.

There are 79 men employees waiting for dormitory rooms in Richland.

GENERAL

		Allocation Section Statistics	
Houses Allocated to new tenants	96	Voluntary Terminations	52
Exchanged houses	19	R. O. F.	—
Moves (Within the Village)	36	Discharge	1
Turnovers	15	Transfers	3
Total Leases Signed	153	Retirement	—
Terminations	52	Houses Assigned "As Is"	14
Total Cancellations	151	Move Off Project	22
Applications Pending	535	Houses sent to renovation	84

1196430

TENANT RELATIONS WORK ORDER AND PROGRESS REPORT FOR THE MONTH OF APRIL, 1951

Processing of Service Orders, Work Orders and Service Charges

	Orders Incomplete As of March 31,1951	Orders Issued March 31 to April 30	Total Orders Incomplete as of 4-30-51
Service Orders	220	2377	152
Work Orders	3233	703	3334
Service Charges	18	174	17

Principal Work Order Load

	Incomplete as of March 31, 1951	Incomplete as of April 30, 1951
Laundry tup replacement	152	146
Bathroom Renovation(Tub-Lino-Tile)	341	335(sub cont 206)
Tileboard Only (Bathroom)	14	13
Kitchen Cabinet Linoleum	304	325
Kitchen Floor Linoelum	106	112

WORK ORDERS COMPLETED DURING THE MONTH OF April

90 Bathtubs were installed
85 Prefab shower stalls and valves were installed
4 Blacktop sidewalks were replaced
16 Hot water heaters were replaced
4 Parking compounds were graded and filled with gravel
117 Touch up paint jobs (interior) were completed
25 Loads of tumble weeds were picked up and disposed of
38 Loads of top soil were delivered
46 Houses were completed on interior paint program.

Alteration Permits Issued during the Month of April totaled 129 compared to 100 in March

Grape Arbor	1	Playhouse	1
Fences	42	Change Coal Bin	1
Air Conditioner	22	Water Softener	3
Driveway	6	Automatic Washer	16
Laundry Chute	2	Basement Excavation	3
Back Door in Prefab	8	Move Clothes Poles	4
Tool Shed	1	Trash Burner	1
Electrical Wiring	2	Door to Utility Room	1
Clothes Dryer	3	Fireplace	3
Refinish floors	1	Dishwasher	2
Cooling Pads	1	Remove Broom Closet	1
Change Water Heater	1	Patio	1
Garbage Disposal	1	Aerial	1

3.

1196431

TENANT RELATIONS (continued)

1358 Inspections were made during the month of April compared to 1644 made during March

Alteration Permits	2	Bathtubs	53
Cupboards	12	Drainage	9
Driving on Grass	1	Floor Boards	6
Grass Seed	46	Hose & Sprinkler	82
House Siding	3	Jack & Shim	10
Leaking Basements	5	Linoleum	149
Lot Lines	22	Paint	113
Porch & Steps	11	Screen Doors	59
Shades	27	Shower Stalls	45
Sidewalks	44	Sinks	9
Tileboard	55	Toilet Seats	8
Top Soil	37	New Tenants	107
Cancellations	95	Renovations	108
Walls	14	Windows	11
Miscellaneous	215		

REAL ESTATE MAINTENANCE

The following report indicates the progress made by the Housing and Real Estate Maintenance Division for the month of April along with miscellaneous comments on various job progress.

The folbwing is a progress report for the plumbing section. Installed 90 bath tubs, 24 laundry tubs, 16 hot water tanks, and 83 prefab shower valves. Completed 195 linoleum repair work orders consisting of removing and replacing toilets, kitchen faucets, and sinks for the linoleum men. Completed 11 work orders for sewers clogged with roots, installed 1 yard catch basin for drainage purposes. Completed 27 miscellaneous plumbing work orders for repairing broken water lines, installing new plumbing fixtures, repairing leaks and etc. Installed 4 irrigation outlets on Gowan Street and Kimball Street. Completed 37 work orders on bath faucet repair consisting of replacing escutcheons and repacking valves. Reconditioned 9 hot water tanks at hangar. Completed 32 miscellaneous work orders on steam such as replacing leaking pipes, valves, and condensate lines. Three dorms were completely overhauled including the replacing of radiator valves and traps, removing and replacing coil from hot water tank for the purpose of cleaning and repairing end line traps, and replacing radiator risers where corrosion has begun. Weekly inspection of dorms was completed, and weekly inspection of commercial buildings for steam leaks was completed.

The following is a Progress Report for the Service Order Section. A total of 2309 service orders were completed by the service order crew druing the month of April. Approximately 92.7% of these orders were for Housing, 3.5% for Dorms., 2% for Commercial Facilities, and the remainder for various other Divisions.

The following is a status report of service orders

On hand at beginning of the month	220
Orders received during the month	2377
Orders completed during the month	2309
On hand at end of the month	152

1196432

REAL ESTATE MAINTENANCE (continued)

The following is a Progress Report for the Renovation Section. Fifty permanent type houses were completly painted, 7 were partially painted, and 2 were cleaned only. Twenty-five prefabs were completely painted, 5 were partially painted, and 1 was cleaned only. A total of 99 permanent type houses and prefab type houses were renovated during the month of April. Cleaned and sealed floors in 2 of the 99 houses which were renovated. All houses renovated were in accordance with renovation inspection sheet, except where obvious errors were noted. All necessary carpentry, electrical, sheetmetal, plumbing, trash pick ups, filling of holes, showere stall replacements, linoleum work, tile board installations, and tub replacements were completed. Forty-three houses are now in renovation.

Trash was picked up at 102 vacant houses. Waste oil was picked up and disposed semi-monthly from six service stations. Ashes were hauled from the 784 Building weekly. Settlings were pumped from the basins at the 784 Building weekly. Three grease traps were pumped at the Mart weekly. Grease traps were cleaned at Thrifty Drug(down town), Bus Depot, Desert Inn, Village Pharmacy, and necessary clean ups were made around the hangar.

Blow sand was removed from 10 lawns, sod was raised and walks were backfilled at 7 residences. Tumbleweeds were picked up at 25 locations, 4 trees were removed and lawns were repaired, 4 bumper logs and parking compounds were repaired, repairs were made to 11 lawns on Casey and Goethals, 38 top soil deliveries were made, excavated and backfilled 3 irrigation risers on Gowen, excavated and backfilled 3 water service repairs and 2 sewers. Removed debris as requiested on Project C-3630-46201. Four black top walks were repaired and replaced. Miscellaneous hauling of materials and equipment to salvage totaled 6. Distributed hose and sprinklers to all inner block residential areas, apartment and dormitory areas, down town and other commercial areas, and watered and mowed the above mentioned areas.

The following is a backlog of work orders in man hours. Approximately 500 man hours to raise sod and back fill walks that have been raised. Approximately 2000 man hours are required to repair or replace black top walks, compounds, and etc.

General notes on experimental work. During the month of April three laundry tubs were fabricated by the maintenance shops for experimental purposes. Two of these tubs were fabricated from galvanized sheetmetal. One laundry tub was fabricated of 20 gauge stainless steel. The first tub installed was a galvanized tub, and after installation of approximately one month, failure due to concentrated alkaline solution consisting of water softener chemicals resulted. the 300 Area metallurgist were contacted and aided in a field survey. Their conclusion was, "Not to use galvanized material for laundry tubs due to the chemical action when coming in contact with the alkaline solution." It is noted that the installation of the stainless steel tub is very successful, however, cost and material shortage limits the use of this material.

5

1196433

REAL ESTATE MAINTENANCE (continued)

The following is a Progress Report for the Millwright and Sheetmetal Section. Coolers in all Dorms, with the exception of W-10 and W-20, have been serviced and repacked. The coolers in the Hangar, Clinic, Bank, Municipal Building and both theatres have been serviced. Three men have been on routine furnace inspection and service orders leaving only one man for work order assignment.

The Sheetmetal Section has made and installed 85 shower stalls and has completed a number of small assignments for other groups including the installation of ducts for coolers, making signs, sample laundry tubs, smoke pipes, and repair on coolers.

The following is a Progress Report for the Paint Section. Sixteen kitchens were completely enameled, 117 bathrooms were enameled partially or completely, 136 miscellaneous paint jobs were completed, and 46 houses were painted on the interior paint program.

The following is a Progress Report for the Carpenter and Upholstery Shop. One K.V. chair was reupholstered, 6 K.V. charis were repaired, 13 K.C. chairs were reupholstered, 16 cushions were reupholstered. Repairs were made to 2 office chairs, 1 tarp, 1 canvas cover, and 100 flags were made. Two davenos were repaired.

The following is a Progress Report for the Carpenter Linoleum Section. Ninety bath tubs were replaced, linoleum was replaced on 175 floors, 79 table top linoleum was repaired, and tileboard was installed in 11 bathrooms. Sinks were chempointed in 279 houses, Twelve A & J houses were jacked and shimmed.

Saws and various other tools for the 700 and 1100 Area were sharpened. Necessary repairs were made to ladders in the 700 and 1100 Area and an inventory was taken of these ladders. All power tools were sharpened for the 700 Area carpenter shop.

The following is a Progress Report for the Field Carpenter Section. Twenty-eight prefab foundations were repaired. Windows and door screens were repaired on 197 prefabs as per instructions given on work orders A-23119; A-23118, and A-23120. Thirty-five screen doors were repaired or replaced. The following is a list of houses which were repaired for painting: 30 "E" houses, 37 "B" houses, 38 "A" houses, and 1 "L" house. Twenty prefabs were also repaired for painting. Sliding doors were replaced on 5 cupboards, sidewalks were raised at 12 residences, porches and steps were repaired at 14 houses. Cupboards were lagged to the wall in 45 two and three bedroom prefabs. Twenty conventional windows were repaired, 15 roofs were repaired, 4 sash balances were replaced, 4 rear door slabs were raised, 3 rear thresholds were replaced, 5 asbestos shakes were repaired, 4 cedar shakes were repaired, and 40 miscellaneous repairs were made throughout the village.

1196434

REAL ESTATE MAINTENACE (continued)

Applying waterpel paint to Klopfenstein's basement with the intent of sealing a leaking condition which has occurred for the past eight years. The application has been completed and the observations seemed to be successful, however during the week ending April 28 and 29, the manufacturers product failed and water came through. The failure was not 100 per-cent failure, and it is believed that another chance should be given the manufacturer to make further study of this problem. The manufacturer has been contacted and will report to the job Monday, May 7, 1951.

Various other experimental data was made during the month of April on roof coating and experimental paints. This information is compiled and on file at the 722 Hangar Building.

During the month of April a general consolidation of forces was made by this division eliminating one General Foreman and one Foreman. It is to be noted that operations were a complete success so far and further study of consolidation is being conducted.

1.

1196435

MAINTENANCE (HOUSING AND REAL ESTATE) FOR MONTH OF APRIL, 1951

HEAVY MAINTENANCE STATISTICS

Man-Hour Backlog Non-Routine		Man-Hour Backlog Routine	Craft	Non-Exempt Manpower	Crew Days
19,519		—	Carpenters, Upholsterers, Trainees and Drivers	59	43
		40	Millwright	4	1
3,159			Painter, Hlpr. and Driver	24	18
5,564			Plumbers, Fitters Helpbr	12	59
96.4			Servicemen and Truck Drivers	13	10
1,261		—	Sheetmetal and Trainee	4	40
30,467	Sub-Total	40		116	

RENOVATION STATISTICS

			Carpenters	1	
			Painters	14	
			Truck Drivers	1	
			Janitress	3	19
3,184	Sub-Total			21	

SERVICE ORDER STATISTICS

			Glazier	1	
			Carpenters	2	
			Electricians	6	
			Locksmith	1	
			Plumbers	4	3
295	Sub-Total			14	
33,946	Grand Total	40		151	193

8.

1196436

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DORMITORY REPORT FOR March 23, thru April 25, 1951

55	MINOR REPAIRS TO FUSES, PLUMBING, ETC.
27	WORK ORDERS STEAM, GLASS, EQUIPMENT, ETC.
64	PIECES OF FURNITURE REPAIRED
50	HOUSEKEEPING CONTACTS
473	LIGHT GLOBES REPLACED
34	ROOMS VACATED

LINENS LAUNDERED

8,189	SHEETS
4,189	PILLOW CASES
452	BED SPREADS
47	BED PADS
186	SHOWER CURTAINS
108	PAIRS DRAPES

REMARKS

The inside painting program is approximately 50% complete.

A large number of tenants were ill last month, thirty were assisted by housemothers.

1196437

M. S. WAREHOUSE SUMMARY FOR March 23, 1951 thru April 25, 1951

TOTAL INV. $102.916.92

INVENTORY ITEMS AMOUNT $60.544.16

RECEIVED IN INVENTORY	CODE	AMOUNT
ON STORE ORDERS		$8.748.45
WORK ORDER 21886		52.46
ON PURCHASE ORDERS		888.18
FROM HOUSING	61-20	139.22
FROM DORMS	64-20	30.18
FROM HOUSING FURNITURE	61-20	149.30
FROM DORMS FURNITURE	64-20	1.439.90

TOTAL RECEIPTS $11.447.69

INVENTORY DISBURSED		
MISC. CHG.		836.07
FREE ISSUE	61-20	1.767.14
CASH ITEMS	61-20	103.05
DORM SUPPLIES	64-20	771.65
DORM LINENS	64-20	493.38
DORM SHADES & REFLECTORS	64-20	18.20
DORM FURNITURE	64-20	149.42
WHSE SUPPLIES	63-20	85.13

TOTAL DISBURSED $4.224.04

INVENTORY ITEMS BALANCE $67.767.81

PLANT ITEMS AMOUNT $42.372.76

	CODE	AMOUNT
RECEIVED		$2,950.40
DISBURSED		2,097.76

PLANT ITEMS BALANCE $43.225.40

GRAND TOTAL INVENTORY $110.993.21

	PIECES
DORM FURNITURE EXCHANGED	100
RANGES EXCHANGED	13
REFRIGERATORS EXCHANGED	5
PREFAB HEATERS EX.	31
SENT TO MAINTENANCE	70

	PIECES
RECEIVED FROM MAINT	102

1196438

COMMERCIAL AND OTHER PROPERTY DIVISION

APRIL, 1951

DIVISIONAL PERSONNEL:

Number of Employees on Payroll:	April
Beginning of month	13
End of month	13
Net difference	0

COMMERCIAL AND NONCOMMERCIAL PERSONNEL:

Number of Employees on Payrolls:

	Commercial	Noncommercial	Total
March	1,085	87	1,172
April	1,144	87	1,231
Net increase			59

SUMMARY OF ROUTINE ITEMS PROCESSED:

Work Orders	35	3	38
Back Charges	4	1	5
Service Orders	29	1	30

CONTRACTS AND NEGOTIATIONS:

A. Commercial:

1. Leases:

(a) Drs. M. R. Petersen, R. R. DeNicola and P. E. Kendall, jointly and severally, covering the practice of private medicine in the Medical Arts Building.

(b) Drs. Bjorn Lih, R. E. Chase and A. G. Corrado, jointly and severally, covering the practice of private medicine in the Medical Arts Building.

(c) Drs. T. J. Albertowicz, J. O. Baugher, L. F. Hulsman, C. E. Liddington, F. H. Love, N. C. Petersen, J. H. Sawtell, G. C. Sutch, R. C. McCartney and L. L. Davis, individually, covering the practices of private medicine or dentistry in the Medical Arts Building.

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2. Supplemental Agreement:

Hanson Enterprises, Inc., amending the basic lease to provide for subleasing in the Facility and excluding the gross receipts of radio station KALE.

3. Letters of Authorization:

(a) Richland Investment Company was authorized to sublet space in its new building to Patricia H. Cochrane and Anna L. Peck for the operation of a book store.

(b) Amusement Enterprises, Inc. was authorized to enter into a sublease agreement with Mrs. Mary S. Thompson for the continued operation of Playland Park.

B. Noncommercial:

1. Supplemental Agreement:

Church of Jesus Christ of Latter Day Saints - amending the basic lease to include the addition of Parcel #2 in the legal description of the leased premises.

2. Assignment of Lease:

Youth Council assigned its lease to Richland Community Chest.

3. Termination of Lease:

Association of U. S. Employees, Inc. - effective April 1, 1951, by mutual agreement of the parties.

4. Property Inventories:

(a) Final inventories were taken of the Government-owned property located in the following noncommercial facilities, preparatory to the sale of such property to the respective Lessees:

South Side United Protestant Church
Richland Players, Inc.
Richland Masonic Temple Association
Co-Ordinate Club
American Legion Post #71
Civil Air Patrol
Marine Corps League

(b) Contracts of Sale executed on Government-owned equipment: -

Richland Baptist Church

1196440

COMMERCIAL AND OTHER PROPERTY DIVISION APRIL, 1951

SUMMARY OF OCCUPANCY AND EXPANSION STATUS:

		March	April
A.	Commercial:		
	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	14
	(c) Total businesses operating in Government-owned buildings	54	55
	2. Number of privately-owned buildings	40	40
	(a) Number of businesses operated by prime lessees	37	37
	(b) Number of businesses operated by sublessees	30	31
	(c) Total businesses operating in privately-owned buildings	67	68
	3. Total number of businesses in operation	121	123
	4. Doctors and dentists in private practice, leasing space in Government-owned buildings	21	21
	5. Privately-owned buildings under construction	1	1
B.	Noncommercial:		
	1. Government-owned buildings		
	(a) Churches	4	4
	(b) Clubs and organizations	10	10
	(c) Government agencies	3	3
	Total	17	17
	2. Privately-owned buildings		
	(a) Completed and in use	5	5
	(b) Under construction	6	6
	(c) Sites tentatively allocated or leases in process of negotiation	8	8
	Total	19	19
	3. Pasture Land Assignments	39	39

GENERAL:

Commercial:

1. A barber shop, under sublease with L. C. Foisy, opened for business in the Richland Recreation Center, under the management of Elwood Hamilton.

2. The Columbia Book Store opened for business in the Richland Investment Company building, under the joint management of Patricia H. Cochrane and Anna L. Peck.

1196441

COMMERCIAL PROSPECTS:

A number of applicants expressed an interest during the month in establishing and operating businesses in Richland. Inquiries were received concerning the following types of commercial enterprises:

Automobile Club	Investment building
Confectionery	Pre-Mix concrete
Dry Cleaning	Service Station
Ice cream vending	

It has been determined, through the media of advertising and letters of inquiry, that the majority of prospective business applicants is not interested in constructing privately-owned buildings.

1196442

GENERAL SERVICES DIVISIONS
MONTHLY REPORT
APRIL, 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	5	15	20	5	16	21
North Richland Fire Division	32		32	32		32
Maintenance & Operation Division	9	68	77	9	64	73
TOTAL	46	83	129	46	80	126

Personnel Changes During Month:	Non-exempt
Transfers to Real Estate Divisions	5
Transfers to Municipal Divisions	3
Transfers to Power Division	2
Transfers to "S" Division	1
Transfers from Plant Security & Services Division	1
New Hires	8
Terminations	1

STEAM AND GENERAL MAINTENANCE DIVISION

General Maintenance:

Requisitions are pending for one electrician journeyman, and one serviceman to replace a termination.

One glazier and 4 painters were transferred to Real Estate.

Excessing work for Stores Division has now declined to an average of one man per month. Treated timber base work for 761 and 762 Buildings is completed and 760 Building is approximately 50% complete. Major portion of carpentry work during the month consisted of small miscellaneous jobs.

Interior painting of 700 Area offices is completed in all but 770 Building, which is 50% complete, with expected completion early in May. The night shift for painters ended April 27; work remaining will be completed on the regular day shift.

Approximately 126 crosswalks were painted for Municipal Divisions.

Desert cooler reconditioning is 90% complete. A considerable amount of sheetmetal work was necessary to replace rusted drain pans and damaged pad holders on desert coolers. Installation of safety bars at desert cooler louver openings is approximately 25% complete.

The electrical group repaired 14 household refrigerators, overhauled 7 irrigation motors and 12 fluorescent fixtures, plus other miscellaneous work. Installation of Tele-Talk at 760 Building is 80% complete.

1196443

General Maintenance Cont'd.:

Routine work consisted of watering, mowing and clean-up of cemetery, hospital, Public Health and all 700 Area grounds; steam and plumbing maintenance of 700 Area buildings; maintenance of boilers and main steam lines.

Steam Operation:

Two boilers were in operation for the entire month at 784 Power House, and operations were normal.

The mild weather has allowed a cut-back in operations at 1131 and 784 Power Houses and five operators were transferred as a result.

Annual overhaul of boilers and equipment has been started.

It was necessary to use the emergency diesel generator several times during the month because of electrical power outages. The equipment performed satisfactorily.

Steam generated - 18,192.5 M. lbs.: steam leaving plant - 15,463.6 M. lbs.: steam delivered - 13,886.8 M. lbs.; coal consumed - 1,399.40 net tons; water softened - 2,439,300 gallons.

NORTH RICHLAND FIRE DIVISION

Miscellaneous Activities:

There were 3 Safety and Security meetings held during the month.

Five inside drills and 43 outside drills were conducted.

Seventy-four fire alarm boxes were tested; one fire extinguisher was refilled; and five First Aid classes were held.

Fire fighting equipment for Civilian Defense fire truck was obtained from White Bluffs. The truck was also loaded with 850 ft. of 2½" hose, 100 ft. of 1½" hose and other firefighting equipment.

Stand-by fire protection at various locations was provided for controlled burning.

Cub Scout troops visited the fire station.

Twelve firemen attended "HOBSO" class in Richland.

All members of "A" Shift completed Standard First Aid Course.

All fire personnel received a copy of "Post Fire Regulations For United States Army Troops at North Richland" and "Manual of Standard Practices for General Services Divisions".

North Richland Fire Division was represented at Civilian Defense meeting on April 23.

Work Order was written to repaint doors of Chief's car with correct title.

1196444

Response to Alarms:

Alarm No.	Location of Alarm	Cause for Alarm	Type of Alarm
33	H. W. barracks, 1st & "Q"	False Alarm	Box
34	Trash and weeds, 8th & "I"	Unknown	Box
35	Emergency water tank, 2nd & "Q"	Cutting torch ignited frame	Phone
36	Pasco barracks 161	Accidental Alarm	Box
37	Trash and weeds, 1201 "G"	Controlled burning	Phone
38	H. W. barracks, 3rd & Stevens Drive	False Alarm	Box
39	Pasco barracks	Accidental Alarm	Box
40	H. W. barracks, 4th & "W"	Accidental Alarm	Box
41	House, 917 "B"	Overheated oil stove	Phone
42	Trailer, 7th & "C"	False Alarm	Box
43	Automobile at 226 " "	Collision, gasoline spilled	Phone
44	Trailer, 1013 "C"	Improper operation of stove	Box

No personal or Project monetary loss was involved.

Investigations:

Date	Location
4-4-51	Stevens Drive north or railroad crossing. Automobile accident.
4-7-51	Building 101 south of 1st on Stevens Drive. Improper operation of electrical equipment.
4-10-51	Army Gas Station. Puncture in 2000 gallon tank truck.
4-11-51	House at 920 "B", improperly operated oil stove.

NORTH RICHLAND PATROL DIVISION

Miscellaneous Activities:

One requisition is pending for replacement of patrolman.

Twenty-nine inquiries regarding formerly employed personnel were answered by Patrol. These inquiries came from the U. S. Navy, U. S. Army, Civil Service Commission and du Pont Company.

Five traffic violation reports were received during the month. Three of these were for running stop signs, one for negligent driving and one for no operator's license.

One hundred and thirty-two traffic warning tickets were issued. These 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 No. 1 and No. 3 shifts, and on all shifts on Sundays.

Twenty-four weekly payroll hours and eight monthly payroll hours were spent on special escort service.

All fire, safety and traffic hazards observed by Patrol were reported to the proper authorities.

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Miscellaneous Patrol Activities Cont'd.:

An Appearance Officer was assigned to Judge E. W. Brown's court each Thursday during the month to appear against persons cited to court by North Richland Patrol.

Fifteen persons were incarcerated in the Richland jail - ten for public intoxication, two for drunken driving, one for vagrancy and two for automobile theft.

The population of North Richland increased 184 during the month, bringing the total to 5,279. This figure does not include Army Engineers' subcontractor personnel or U. S. Army personnel. At present there are 629 occupants in the Bremerton Houses, 3,183 in Trailer Camp, 1,451 in Men's Barracks and 42 in Women's Barracks. Total occupied lots in Trailer Camp - 1,137; occupied Bremerton Houses - 183.

A police school covering "In Service Training" instructions was held in Pasco during April. Four members of supervision and four non-exempt employees attended these instructions.

A Staff Meeting was held on April 3.

Escort service was provided for 2 wide and high loads coming from the Richland Barricade to North Richland.

Ambulance drivers were assisted on two occasions.

Seven soldiers who were causing disturbances in the North Richland area were picked up and turned over to the M. P. Detachment for disposition.

Three firearms were registered with the Arsenal Officer in Richland. These firearms were registered through the North Richland Patrol, and belong to persons living in North Richland.

A total of 51 courtesy cards were issued during the month with a view to bring about more cooperation between the Patrol and people living in North Richland. Cards were used only in cases where the parking violations were not too flagrant.

All traffic control points were covered during the hours of heaviest traffic.

On April 12, Robert White, charged with grand larceny in connection with burglary of Mess Hall #2, was escorted to Prosser and placed in jail to await trial in Superior Court.

On April 23, with properly executed warrants issued by Judge E. W. Brown, Alvin E. Alexander and C. W. Whitney were picked up at the Pasco jail and escorted to Prosser. These men were charged with auto theft on criminal complaints signed by Ralph E. Williams, Timekeeper for Washington Electric Company. A third man, John E. Bacon, who had been held in jail in Pasco in connection with the case, was brought to Richland and released after making a statement.

Unusual Incident Reports:

Public Intoxication	10	Reckless Driving	1
Vagrancy	1	Operating Vehicle While Intoxicated	1
Public Intoxication & Vagrancy	1	No Operator's License, Stop Sign Violation, Possible Driver's License Rev.	1
Burglary	1	Injured Person	1
Drunken Driving	1		

1196446

Unusual Incident Reports Cont'd.:

Argument over Ownership of Fence——1
Runaway Girls (Juveniles)——1
Reported theft of Two-wheel trailer——1
Shooting Firecrackers in Trailer Camp——1
Negligent Driving, Auto Accident (1 Private Car)——1
Auto Accident (1 Private Car)——1
Auto Accident (3 Private Cars)——1
Investigation of Burglary & Apprehension of perpetrator——1

Special Services Performed:

Emergency Messages Delivered——39
Emergency Long Distance Telephone Calls-89
Western Union Telegrams——1
Pacific Telegraph Telegrams——4
Fires (Sig. 12)——7
False Fire Alarms——5
Unusual Conditions Reported to Maint.——4
Escorts to First Aid——4
Bicycles Found——2
Bicycles Returned to Owners——5
Bicycles Reported Stolen——7
Children Lost——2
Children Returned to Parents——2
Children Bitten by Dogs——2
Personnel Locked out of Rooms——12
Autos Impounded at Headquarters——3
Children Struck by Autos——2
Dogs Reported Lost——2
Dogs Found and Returned to Owners——2
Complaints on Dogs in Trailer Camp——2
Billfolds Turned in to Patrol——3
Billfolds Returned to Owners——3
Escort for Public Health Nurse——2
Disturbances Investigated——2
Suspicious Persons Investigated——6

Complaints:

Petit Larceny—— 7
Grand Larceny—— 2
Miscellaneous—— 5
Cases Cleared—— 2

1196447

NORTH RICHLAND PATROL
COURT CASES
APRIL, 1951

VIOLATION	NO. OF CASES	NO. OF CONV.	NO. OF FORF.	CASES CONT'D.	CASES PEND.	CASES DISM.	WARR. ISSU.	SENT. JAIL	SENT. SUSP.	LIC. REVK.	TOTAL FINES	TOTAL SUSP.	TOTAL BAIL FORF.
Ran Stop Sign	5	1	4								$ 5.00		$25.00
No Operator's License	3	1	2								5.00		12.50
Reckless Driv.	1		1										17.50
Negligent Driv.	3	3									55.00	$17.50	
Larceny of Auto	2	2					2	2			105.00		
Vagrancy	*1								*1				
Public Intox.	10	6	3	1	1						80.00		37.50
Drunken Driv.	**1	1								**1	52.50		
TOTALS	26	14	10	1	1		2	2	1	1	$302.50	$17.50	$92.50

* Sentenced to 30 days in County jail at Prosser, suspended by special order of the court on leaving Benton County for a period of one year.

** Driver's license revoked for one year.

1196448

DECLASSIFIED

ENGINEERING AND CONSTRUCTION DIVISIONS

I. SUMMARY

A. DIVISIONAL ORGANIZATION

Effective, April 2nd, there were established the Technical, Engineering and Construction Divisions with Dr. A. B. Greninger appointed Manager. These Divisions are made up of the presently constituted Technical Divisions and the Engineering and Construction Divisions. Messrs Ralph Davison and J. S. McMahon continue as Manager and Assistant Manager, respectively, of the Engineering and Construction Divisions. Organizational changes during the month were; J. L. Boyd appointed Project Engineer, vice W. C. Royce, resigned, Power and Mechanical Division. W. P. Ingalls appointed Project Engineer, vice George Thayer, resigned, Separations Division. L. Pihlfeldt transferred from Minor Construction Division to Reactor Division and appointed Construction Engineer in charge of Construction of C-431 Project.

B. FUNCTIONS

The Engineering and Construction Divisions are currently working on sixty-two Design and Construction projects, having a total estimated cost of approximately $303,195,000 of which some $57,700,000 has been spent, plus commitments of $30,545,000, leaving a balance to be expended of $214,950,000. Other types of work, estimated to cost $10,152,000, are also being worked on.

Seventeen contract items showing an increase of $2,840,682.16 and three contract items showing a decrease of $4,019,974.00 and two other contract items not involving money, were also completed in April.

C. ACHIEVEMENT

Efficiency and cost of execution of this Construction program compares very favorably with jobs of similar characteristics, i.e., magnitude, intricate type of production facilities, security requirements, location and the like. Schedules are formulated to follow a pattern of continuity of execution based on required completion dates. Currently, schedules are being met within material and fabrication limitations.

Xerography equipment was demonstrated to members of the Reproduction Section and to Management of the Technical, Engineering and Construction Divisions. Negotiations are underway to obtain this equipment for use with offset-printing processes. This will enable the Reproduction Section to make a substantial savings to our customers and handle a greater volume of work. A larger offset press was also requisitioned to provide additional capacity for this type of work.

D. MATERIAL PROCUREMENT AND FABRICATION

Completion of projects is primarily hampered by delays in procurement and fabrication, which have become increasingly acute during the past nine months. Currently, fabrication of specialized items of equipment by various vendors is the principal problem. Principal items delayed are connectors, filter

canopies and sinks, and bubble cap tower, T.A.-1. Material items that are in short supply are "B" Block and Gun Barrel Steel. Promised delivery dates of these two items are about six months later than required on basis of construction schedule.

There has been established a new section in this Division known as "Critical Materials Control" - H. H. Jones, Supervisor. This Section has undertaken the functions related to forecasting, allocating, scheduling and procuring critical or government-controlled construction material and assisting the Purchasing Division in an expediting capacity as required on special situations.

Supervision of all work being performed by the Construction CPFF Service Subcontractor Force has been consolidated by delegating this responsibility to the Minor Construction Division. A portion of this supervision was formerly assigned to the Project Engineering Division.

E. CRAFT LABOR

The current trend indicates a slight improvement in craft labor procurement, notwithstanding the competition offered by jobs in other sections of the country and in Alaska.

The six-day work week recently adopted for certain construction jobs at Hanford Works has apparently had an encouraging influence on workmen to remain here. The major open requisitions for craft labor are for plumbers and fitter-welders. A few requisitions remain open for iron workers and common laborers. Procurement of all other crafts is satisfactory.

F. SAFETY

The outstanding safety record established by construction workers at Hanford Works continues. Although the number of minor injuries materially increased this month, the frequency rate here is 6.20 as compared to the National rate of 19.00 for construction workers. Our severity rate of 2.00, as compared to a former rate of 4.00, reflects the results of good planning and execution of the safety program in effect on this project.

Errors in judgment and inattention to their work by Craft workmen account for practically all mishaps resulting in injuries to workmen and damage to equipment.

MONTHLY REPORT OF INVENTIONS OR DISCOVERIES

All persons in Engineering and Construction Divisions engaged in work that might reasonably be expected to result in inventions or discoveries advise that, to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during the period covered by this report except as listed below. Such persons further advise that, for the

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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	SUBJECT	REPORT OF INVENTION (DATE)
JG Carriere	Non-stain device for handling dittos	April 19, 1951

No Others

PERIOD COVERED BY THIS REPORT: April 2 thru 30, 1951

RALPH DAVISON (Date)

MANAGER, E&C DIVISIONS

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II. STATISTICAL AND GENERAL

A. STATISTICAL

C-187-D - Redox Production Plant

Separations Division - It was decided to install the silver reactors initially (in place of caustic scrubbers) in the dissolver cells in the 202-S Building. Procurement of engineered items has been developed to the point where it is believed safe to plan for its initial installation in the plant. Drawings are being issued to the field for construction.

The balance of the major equipment items are scheduled for May and June delivery. The last three extraction towers for the silo will be received in May.

The installation of process equipment in the cells is scheduled to be started May 14. Seventeen vessels were completed through mock-up operations and accepted.

The hot tunnel piping is complete, and is now being tested.

The Propane Storage Facility - 27[illegible]-S is complete and accepted.

Construction completion as of April 30 is scheduled 88.84% - actual 76.24%. It is expected that progress will accelerate in May.

C-187-E - Redox Analytical and Plant Assistance Laboratory & Associated Waste Disposal Facilities

Separations Division - Construction is 97.2 complete. Shipment of filter canopies, hoods, sinks, and pedal valves promised June 15. Balancing of ventilation system awaiting installation of hoods.

222-S Building and facilities to be transferred to Technical Division on May 1, with above noted exceptions.

One tank for Waste Disposal Facilities remains on order; no definite promised date of shipment by fabricator.

C-199 - Expansion of 300 Area Sanitary Sewage Disposal System

Power & Mechanical Division - Design is approximately 10% complete, and is progressing slowly because of higher priority accorded to other work.

C-204-A,B. - Public Health Unit & Addition to Hospital & Medical Arts Bldg.

Power & Mechanical Division - Completion date extended to December 31, 1951, by Modification No. 3. Project Proposal for six additional rooms to Kadlec Hospital submitted to A & B Committee in April. No additional funds requested. Construction progress somewhat more satisfactory. Scheduled 32.3% - actual 17.5%.

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C-257 - H. I. Control and Development Laboratory
Power & Mechanical Division - Wall and pier footings poured. Structural steel expected to arrive May 10. Construction completion scheduled 10% - actual 6%.

~~C-284~~ & M-811 - Consolidation of Transportation Facilities
Project Engineering Division - This project awaiting action by the A & B Committee.

C-295 - Enlarging 251 Substation and Additional 13.8 KV Feeders to 200-E and W Areas
Power & Mechanical Division - Grading, excavation and pouring footings in switch-yard. Construction completion 10%.

C-337 & C-378 - Dissolver Off-Gas Filter for Buildings 221-T & B
Project Engineering Division - Authorization has been received for the fabrication of the fifth unit, and material is being ordered.

C-339 - Engineering Design for Rolling Mill
Project LEngineering Division - A final report is being assembled and will be issued on schedule. The project is now closed.

C-341 - Additions to Richland Village Electrical Distribution System
Project Engineering Division - The electrical subcontractor has started the work of setting poles. Plant forces have completed replacement of existing lines with heavier copper lines except for final hot tie-ins. Overall construction completion 18%.

C-349 - Hot Semiworks - Parts 1 & 2
Project Engineering Division - Foundations and slabs are being poured. Work progressing satisfactorily.

C-353 - Richland Water Study
Power & Mechanical Division - No comments received from Using Division or A.E.C. on Architect-Engineer's Report.

C-361 - UO_3 Plant (Metal Sweetening and Conversion Facilities)
Principal Electrical Engineer - Acceptance tests reviewed.
Separations Division - Work to provide for segregation of feed solutions will be designated as Part "B". Part "A" is the Metal Conversion Facility. Completion as follows overall design 98% - detail plans 87% - construction 21%.

An overrun of $266,000 is indicated on a basis of six-day work week, corrosion problems part "B", and increase of labor estimate and scope of Part "A". Details are covered in Project Proposal, Part II which is in preparation and will be completed May 5.

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C-361 - UO_3 Plant (Metal Sweetening and Conversion Facilities)(Cont'd.)
Major equipment delivery dates estimated to be from one to four and one-half months later than required by schedule. Efforts to expedite, including authorization of premium payments, are being made.

C-362 - Waste Metal Recovery Facilities (TBP)
Minor Construction Division - Work in the 241-UR Tank Farm is being concentrated on the first cascade structures and piping, delayed delivery of connectors. Shortage of fitter-welders is delaying this phase of work.

Work is progressing on the CR, BXR, and BYR Tank Farms for the first cascade.

Separations Division - Completion percentages are; scoping 100% - design 94% - construction 18%. Project Proposal, Part II is in preparation and should be ready to submit in May.

Principal Electrical Engineer - Acceptance tests were reviewed.

C-364 - Aquatic Biology Laboratory
Minor Construction Division - Work completed on temporary fences and sanitary water lines. Work completed on 2" pre-pile water line.

Power & Mechanical Division - Bids for construction opened and found in excess of funds in Project Proposal. Job being re-scoped for submission to bidders.

C-369 - Evaporation Facilities for Waste Solutions - 200-W Area
Project Engineering Division - This project completed and accepted by "S" Division, with minor exceptions.

Initial test runs at designed capacity of 500 gallons per hours, successfully conducted, with the exception that it now appears that stainless steel tubes may be required in the condensor because of the presence of ammonium compounds.

C-371 - Metrological Field Stations
Minor Construction Division - Fabrication of structures to start as soon as material is received - delivery promised May 25.

C-380 - Electricity Metering - Village of Richland
Project Engineering Division - All meters purchased, delivery promised during June, July and August. Invitations to bid sent to contractors, bid openings set for May 1.

C-381 - Radiochemistry Building for Hanford Works Laboratory Area
Power and Mechanical Division - Detail plans complete, bid assemblies issued to contractors, bid opening set for May 29.

Principal Mechanical Engineer - Reviewed design re. prevention of contamination of potable water system.

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C-385 - Radiometallurgy Building for Hanford Works Laboratory Area
Power and Mechanical Division - Detail plans 85% complete. Completed plans and specifications promised by Architect-Engineer June 2. Cost estimate, scope of work and completion schedule submitted to Technical Divisions for preparation of Project proposal requesting construction funds.

C-390 and M-770 - Central Stores Warehouse
Project Engineering Division - Preliminary design and scoping will be closed out. AEC to handle job direct.

C-394 - Plot Plan and Utilities for Hanford Works Laboratory Area
Power and Mechanical Division - Preliminary plans and specifications returned to Architect-Engineer with our comments. Design 90% complete. Cost estimate, description of work and schedule submitted to Technical Divisions for preparation of Project Proposal requesting construction funds.

C-399 - P - 10 - C&D
Minor Construction Division - Metal line handling facilities complete. Other work in progress on schedule.

Project Engineering Division - AEC approval received for Part II funds. Certain revisions made in the planning to convert all glass lines to production usage, which will still allow "hot" development work to be accomplished in the basic glass line equipment and work area.

C-403 - New Fences for Distribution and 230 KV Substations
Project Engineering Division - One carload material received. Subcontractor has not started work.

C-404 - Primary Electric Power Lines for Hanford Works Laboratory Area
Project Engineering Division - Design complete. Aerial cable delivery scheduled June 1.

C-406 - Mechanical Development Building Hanford Works Laboratory Area
Power and Mechanical Division - Phase II Design sufficient for negotiation of Lump Sum Subcontract for design and construction of the interior of the building. Estimate expected from Dix Steel Building Company May 21. Structural steel for Phase I, Building Shell, expected May 18. Construction of Phase I approximately on schedule.

C-411 - P - 10 - X "J" - Slug Handling
Project Engineering Division - Design work released for fabrication except drawing for fastening the casks to vendor trucks. Certain items in process of fabrication.

Cask radiation and heat transfer tests are planned, data requested as of August 1. Approval by AEC necessary before cask can be used. Use should start September 1 provided casks are acceptable to A.E.C.

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C-412 - P - 10 - X - Extraction Facilities
Project Engineering Division - Design 50% complete, exclusive of the metallurgical facility. Materials being ordered for the later item.

AEC approval received concerning the start of construction. Preparation of Project Proposal in progress.

C-413 - Expansion of 234-5 Facilities
Separations Division - Completion as follows: Basic Design (Richland) - 30.3%; Overall Design (Richland) - 27.7%; Construction (Richland) - 3.0%; Construction (Schenectady) - 52.0%.

The recommendation to add sectioning and chip handling facilities to the scope of Project - C-413 has been approved by the Scope Committee.

C-414 - Pile Technology Building
Power and Mechanical Division - Plans and specifications 92% complete. Completion expected by May 17.

C-416 - Minor Construction Division Fabrication Shops
Minor Construction Division - Work progressing on craft shops and service Station. Equipment installations being made in machine and craft shops.

C-418 - Additional Waste Storage Facilities - 241-TY
Minor Construction Division - Work progressing on T.C. facilities, fence, steam, water, 13.8 KV electric lines and transformer bank.

Separations Division - Overall design 90% complete.

Larger overflow lines requested by "S" Division.

Revised Project Proposal prepared, requesting total funds of $2,117,500, transmitted to Manufacturing Division.

C-419 - Induction Heating - Building 3732
Project Engineering Division - Equipment purchased. Delivery promised in about thirty weeks.

C-421 - Library and Files Building - Hanford Works Laboratory Area
Power & Mechanical Division - Final plans, and specifications received and being reviewed.

The design by Chas. T. Main, Inc. is 98% complete as scheduled.

C-422 - Skull Recovery, Building 234-5
Project Engineering Division - Plywood mockings of Hood. No. 40 being constructed for use by the "S" Division in developing the necessary facilities for this work.

C-423 - Evaporation Facilities, 200-E Area
Project Engineering Division - Project Proposal being reviewed by AEC Designs

C-423 - Evaporation Facilities 200-E Area cont'd
are almost complete and specifications are being written for a lump sum contract.

C-424 - Water Quality Experimental Program - 105-D
Minor Construction Division - Pipe and tank installations in Flow Laboratory and fabrications of equipment are in progress.

C-431 - New Reactor - C Plant
Minor Construction Division - The Charging Machine Test in 189-D Building is complete except for testing and minor alterations. Other requests from the Reactor Division for test work are in progress or completed.

Installation of the 69 KV line is in progress.

Principal Mechanical and Electrical Engineers - Recommendations were made relative to the design of certain mechanical and electrical components.

Water Plant - Power and Mechanical Division - Overall design by Chas. T. Main Co. is approximately 10% complete.

Requisitioning and Purchasing of Materials are progressing.

Reactor - Reactor Division - Scope Design Criteria 85% - GE Detail Design 15% - Kellex total work 5% complete.

Requisitioning and Purchasing of Materials are progressing.

Process Tube Heat Transfer - Several heat transfer tests were run at 550 KW on four different pigtail sizes to determine the effect of pigtail size on maximum process tube inlet pressure (boiling curve peak) for the standard annulus. From anaylsis of the data, it was concluded that critical pressure did not occur in the case of the larger pigtails. Several tests were run to determine the effect of replacing solid dummies with perforated dummies.

Vertical Rods - We have completed a proposed design of a vertical winch. The proposed overall winch arrangement drawing was transmitted to Kellex for their design purposes.

Ball Third Safety System - Our proposal was approved in principle by the Working Committee and our design efforts are continuing.

Moderator - The tentative approval was obtained from the Working Committee on the proposed coring and graphite zoning. Our work is continuing on the basis of our proposals.

Experimental Test Hole Facilities - A thorough study revealed that we can incorporate 14 of the 17 test holes and a large shielding test plug as

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C-431 - New Reactor - C Plant - cont'd
requested by the Technical Division. This design work is being carried out by the Kellex Assistance Group.

Graphite Thermocouples - The final number and pattern of thermocouples has been established after several discussions with the Technical Divisions. The design can now be completed and procurement initiated.

Process Tube "O" Ring Seal Assembly - This seal, which replaces the van stone flange, has been operated on a process tube in the "F" Reactor for four months without any leaks or other signs of malfunctioning.

Tool Dolly - The necessary specification was completed and transmitted to the General Engineering Laboratory for the cost estimate required for placing the order.

C-433 - Expansion of 300 Area Power House and Pumping Station Facilities
Power & Mechanical Division - Plans and specifications sufficient for the negotiation of a lump sum Subcontract for the detail design and construction of this facility were issued to a selected list of four bidders. Bids to be opened May 21.

C-434-R - Bio-Assay Laboratory
Project Engineering Division - Awaiting AEC authorization. Alternate site being considered adjacent to Public Health Unit.

C-441 - Solvent Storage and Studies Building
Project Engineering Division - This project has been approved by the A & B Committee, and is awaiting action by the Atomic Energy Commission.

C-442 - X-Ray Machine - Building 3745-A
Project Engineering Division - This project calls for an Electrostatic Particle Accelerator (VanDeGraf) which will be used as a controlled source of radiation in place of the X-Ray Machine returned to the U. S. Army in 1949. This particular type of equipment will give a greater range of radiation energies than is possible with a conventional X-Ray Machine. The purchase order is being placed immediately for items of critical equipment.

C-444 - Coating Unit for Hood 26, Building 235
Project Engineering Division - Authorization has been received from the Atomic Energy Commission and work will be started immediately.

C-445 - B-Y Telephone Exchange Additions and Changes
Project Engineering Division - Project Proposal is awaiting approval by the Atomic Energy Commission. Design is nearly finished.

C-446 - Additional Effluent Disposal Facilities for Building 234-5
Project Engineering Division - The Project Proposal is being routed for approval of the A & B Committee.

C-447 - Portable Meteorological Mast

C-452 - Meteorology Tower Elevator
Project Engineering Division - These two projects have recently been approved by the A & B Committee for facilities to be utilized by H.I. Division. The portable mast will permit an urgently needed study of contaminated particle pick-up in various wind conditions and the tower elevator will assist in the diffusion studies to be carried out in the vicinity of the 200 Areas.

C-448 - Rehabilitation of 1341 Prefabs - Richland
Minor Construction Division - Replacement of rotted wood posts and box sills progressing on 377 units.

C-451 - Extension of 300 Area Underground Electrical Power Distribution System
Project Engineering Division - The Project Proposal was submitted to the AEC for approval on April 25, 1951. Design is about 75% completed.

M-831 - Emergency Repairs to 107 DR & H Basins
ER 1149 - 107 B, D, F, H & DR Basin Permanent Repairs
Project Engineering Division - A decision has been reached to proceed towards developing a flat, flexible membrane type of expansion joint for the 100 Area effluent basins. The initial project proposal will cover funds to carry out the necessary testing, development and engineering.

The emergency repairs of 107 DR and H basins have been completed and the informal request has been closed.

M-832 - Ball Type Third Safety System
Project Engineering Division - The control circuit for dumping the third safety balls has been scoped and the design is now considered to be firm. The system will embody a time delay switch and a rod integrator to eliminate the possibility of dumping the balls when the vertical rods are effective. A by-pass circuit receiving a signal from the front face risers will dump the balls immediately if the water pressure drops to a value determined to be critical.

A decision has been reached that a nickel-plated mild steel boron alloy ball will be used in this system.

Purchase requisitions are being prepared for vertical rod steel and for balls.

ER A-1161 - Pile Building Downcomer Study
Project Engineering Division - Study of the 105 Pile Building Downcomers has been completed and a report will be issued during the week of May 7. It is our recommendation that the 105 B, D and F Downcomers be strengthened

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ER A-1161 - Pile Building Downcomer Study - cont'd
and braced and that the 105 F Downcomer be replaced within a maximum period of eighteen months.

General - Project description of proposed work and estimates have been completed for ER A-1159, Power Calculating Systems, and ER A-1162, Thermocouple Equipped VSR Thimbles, 105 B and D Area. Design work is progressing on installation of Panelite Gauges with sufficient range to accommodate the increase of water pressure to 400 lbs. per sq. in. and the insertion of magnesium dummies.

ER 2577 - Additional Casting Unit for Hood 13, Building 234-5
Project Engineering Division - Every effort is being made to use certain equipment which is available on the plant in this design in order to expedite completion of the project.

ER E-460 - Telephone Line-Benton Switching Station
Project Engineering Division - Informal request is being prepared. The design is approximately 50% complete.

ER E-461 - Plant-wide Storage Battery Replacement Program - FY 1952
Project Engineering Division - Project Proposal is in preparation. Very little design work will be required.

ER E-457 - Telephone Cable, White Bluffs to Minor Construction Division Shop Area
Project Engineering Division - Informal request to the A.E.C. Design 100% complete.

ER 6001 - E and C Vehicle Survey
Project Engineering Division - Questionnaires have been answered giving pertinent facts of usage and need for each unit. Information received is being correlated and analyzed for proper presentation of facts and recommendations to management.

ER 6002 - Contract Labor Controls and Escalation Clause Study
Project Engineering Division - Letters, opinions and other material bearing on whether or not controls and escalation clauses should be removed from lump sum contracts in the future have been gathered from individuals directly concerned with the problem. A summarization is being prepared.

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B. GENERAL

ENGINEERING AND CONSTRUCTION SERVICES DIVISION

Safety - Twelve inspections were made by the Senior Safety Committee. Normal spot checking was carried on with particular attention being given to hazardous conditions. Construction injuries - Sub-Major 8; Minor 719. The regular program of fire inspection and prevention in the Construction Camp was carried on.

Security - The Audit and Inventory Unit was expanded this month to keep current with this work and to make a complete search of the contents of all combination files as requested by the Security Division. 390 Security Meetings were held, attended by 11,000 employees. Two Security bulletins were issued.

Construction Camp Activities - Fifteen commercial facilities are in operation. A Project Proposal is being prepared to cover the repair of trailer shelters.

There were 73 social and 81 religious meetings held. Playgrounds, baseball, softball, square dancing, scouting activities, and other educational and recreational requirements of the camp population are being carried on.

Camp population 5,305 - an increase of 221 this month.

Health of the population continues on a high level, influenza and measles are the chief offenders, neither of which are of epidemic proportions. The Public Health Division provides, and maintains, a complete health program.

Crime frequency rates among the civilian population in North Richland are not in excess of those in normal established communities despite the fact that our population is made up largely of transient construction people who are required to live under somewhat crowded conditions.

Steam Generating Plant

Steam Generated, M ths.	-	40,151.00
Oil consumed, gallons	-	12,094.00
Coal consumed, tons	-	2,785.45
Boiler efficiency, average %	-	74.97

Water consumption for the month was 47,132,000 gallons, or an average daily consumption of 1,520,393 gallons.

Drafting Section

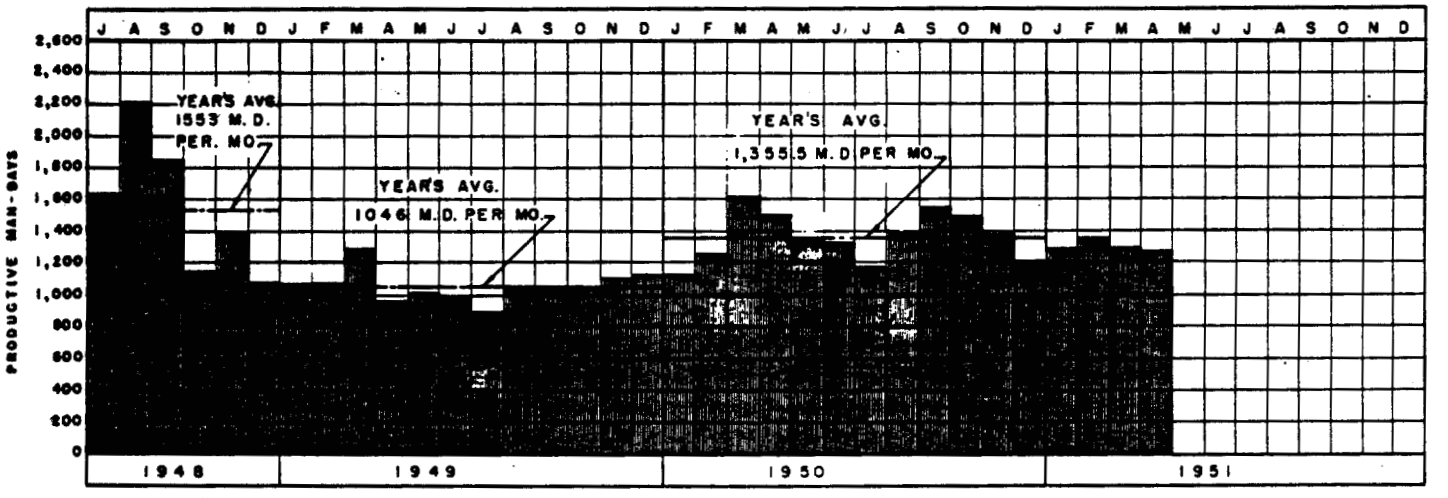
Drafting Production

New Drawings	-	266
Miscellaneous	-	15
Drawing Revisions	-	150
Drawings efficiency index, man-days/drawings	-	4.5

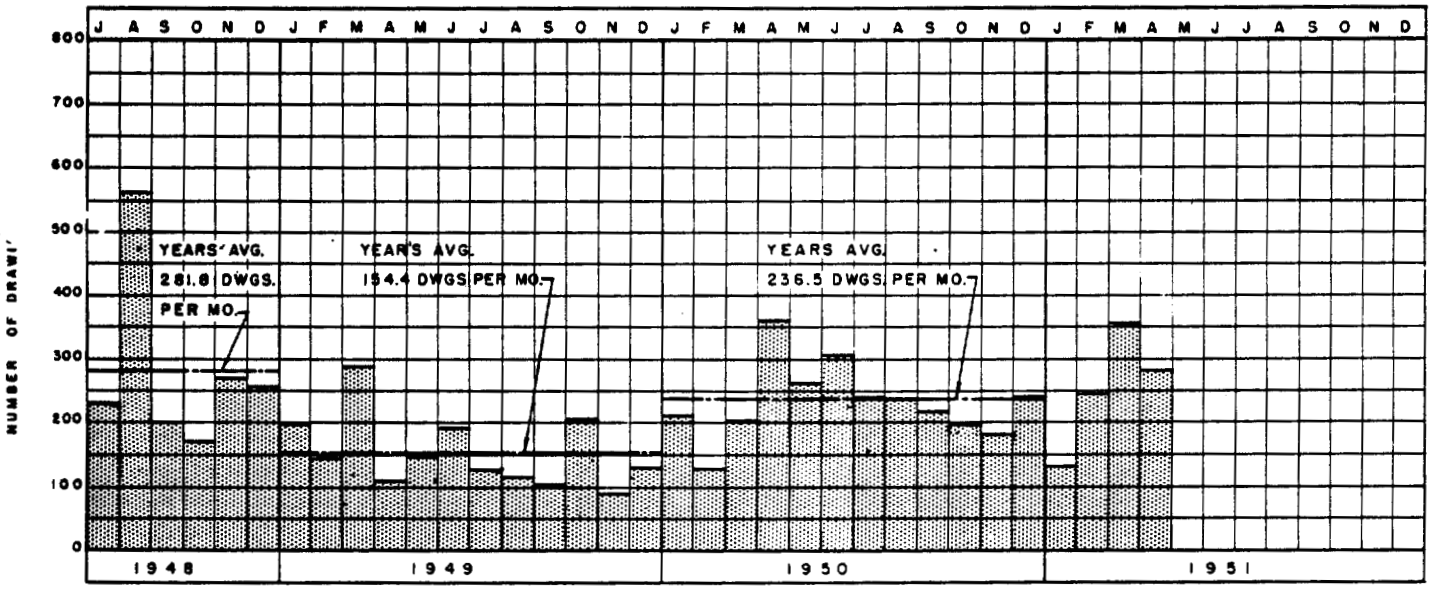
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ENGINEERING & CONSTRUCTION SERVICES DIVISION

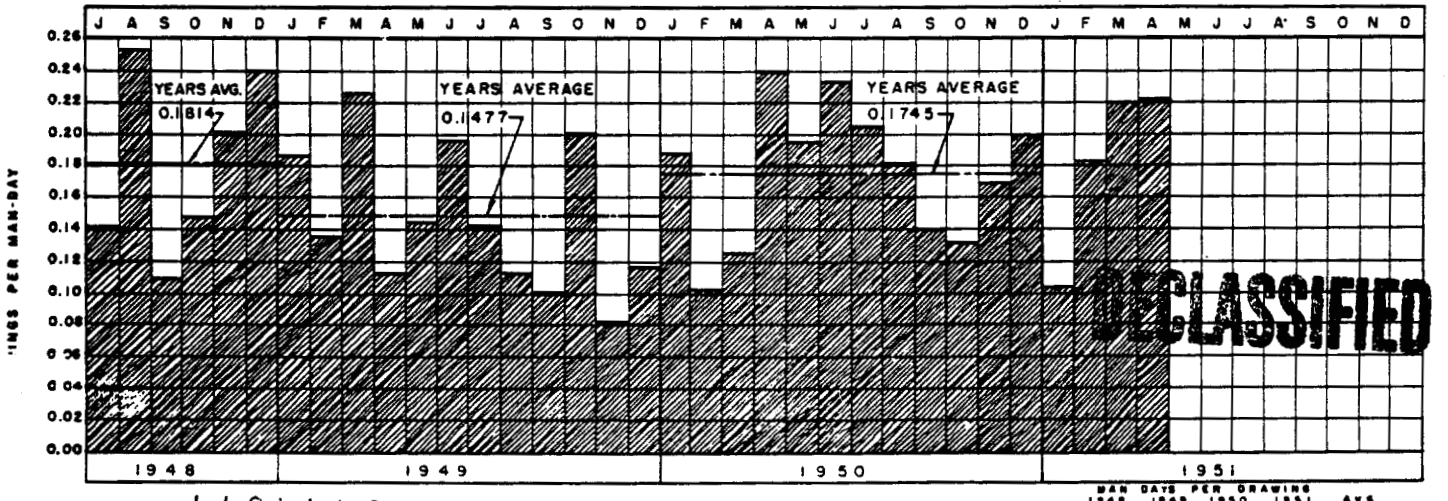
Drafting Section



MAN POWER



DRAWINGS PRODUCED



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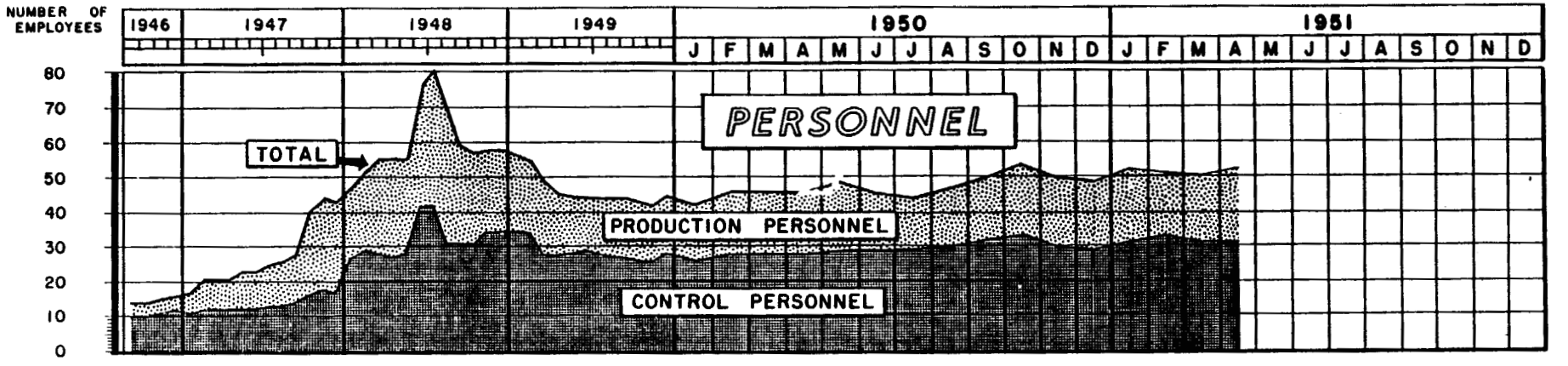
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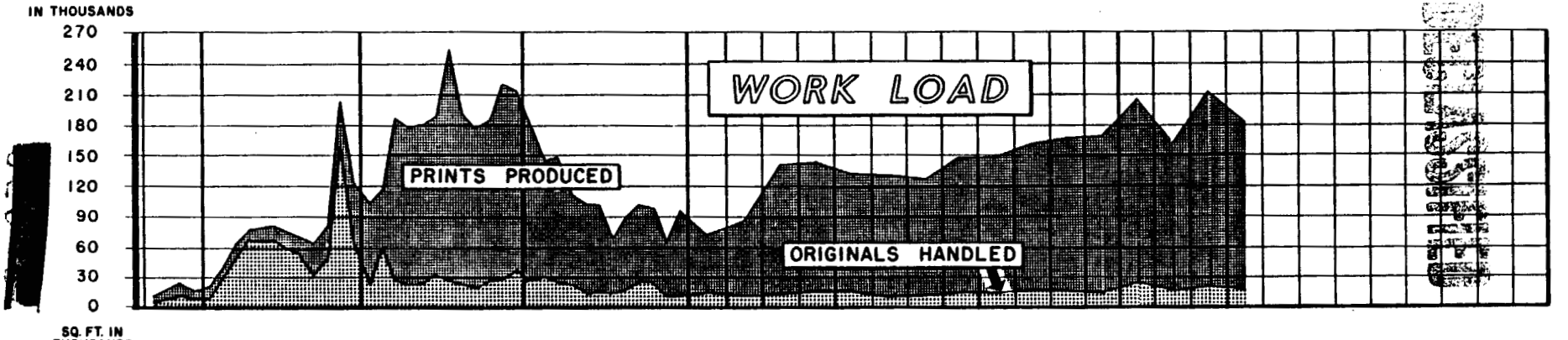
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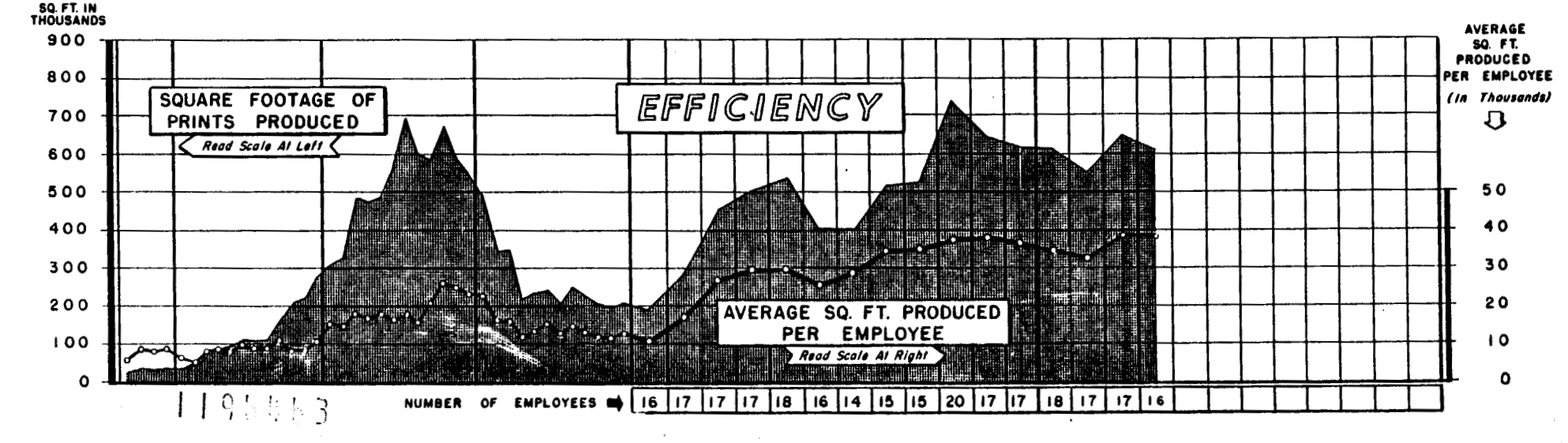
MAN DAYS PER DRAWING	1948	1949	1950	1951	AVG.
BATES	4.48	8.48	6.33		5.83
DEWSNER	8.04	7.74	4.99		5.73
NICHOLS	5.46	6.91	6.11		6.22
WILLIAMSON	6.33	5.95	5.70		5.66
DR. ROOM	5.81	5.77	5.75		5.91

ENGINEERING & CONSTRUCTION SERVICES DIVISION

REPRODUCTION SECTION STATISTICS•







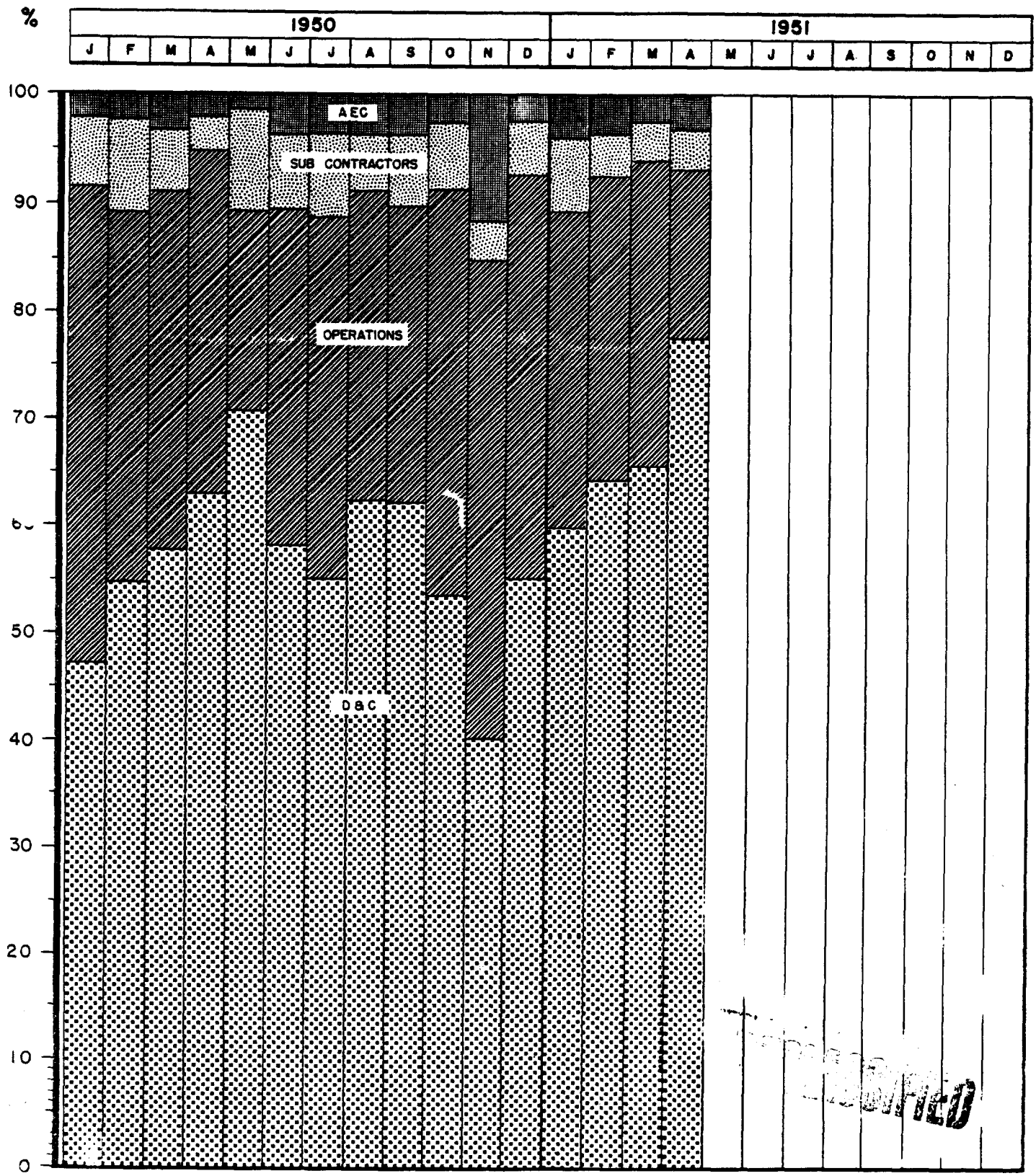
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ENGINEERING & CONSTRUCTION SERVICES DIVISION

REPRODUCTION SECTION

DISTRIBUTION OF WORK LOAD



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Estimating and Unit Cost Section

Estimating -

Estimates scheduled	-	48
Estimates completed	-	28
Estimates cancelled	-	3
Estimates to be completed	-	17
Total estimated value	-	$30,000,000.00

Unit Costs

Studies continued on C.P.F.F., Lump Sum and Minor Construction work.

Reproduction Section

Production Group Activity		April
Originals Handled	-	17,547
Prints Produced	-	182,234
Square foot of Paper	-	608,785
Average Square Feet Per Employee	-	38,049

Personnel, Records and History Section

Security Clearances Processed

Requests for Area Badges, Cancellations, Access Authorizations and Material and Package Passes	-	213

E&C Payroll Additions, Terminations and Transfers

Additions	-	43
Terminations	-	26
Transfers within E&C Divisions	-	40
Transfers out of E&C Divisions	-	12

Secret and Confidential Documents Processed

Documents Issued, Routed or Destroyed	-	2533

Procedures Issued

E&C Insturction Issued	-	21

Status of Histories

Histories Issued	-	5
Ready for Issue	-	20
Other in Process	-	95
Total to be issued	-	120

Office Services

Number of Teletypes Sent	-	370
Number of Teletypes Received	-	618
Number of Copies of Ditto Reproduced	-	62,881
Number of Copies of Stencils Reproduced		126,994
Number of Pieces of Incoming Mail	-	208,518
Number of Pieces of Registered and Insured Mail (Outgoing)		69

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Office Services - cont'd

Amount of Postage Used	-	$1,359.83
Number of Store Orders Written (Stationery)	-	205
Number of Special Messenger Deliveries		200

Reports Issued - Nine, covering Weekly and Monthly Forces, Visitors, Destroyed and Classified Documents.

Project Cost and Progress Analysis Section - Forecasts, charts, analysis and reports were developed and issued to show status of E & C Progress. Completed preparation of 1951, 52, 53 Budget Organization Write-up for Engineering Services. All in accordance with AEC request and instructions.

Minor Construction Division - This Division is currently working on 11 projects and 28 active work assignments. 13 work assignments were completed in April. New work received during April, 9 projects and 14 work assignments.

Safety	April	Total to-date
Lost Time Injuries	1	1
Minor Injuries	46	157
Accidents (Automative)	0	2
Injury Frequency	-	2.00

Personnel Subcontractor	Beginning of Month	End of Month	Net Change
Non Manual	48	49	/ 1
Manual	588	690	/ 102

III. ORGANIZATION AND PERSONNEL

Certain intra-divisional transfers of personnel was effected. This will make for greater efficiency of operation on basis of current and new construction work.

A Drafting School for instruction of student draftsmen has been established in 760 Bldg. This school will run in sequency of thirteen weeks each. A class of twelve for the initial cause is expected. Five aptitude tests will be given candidates before admission to the school. Mr. D. I. Bates has been chosen as class room instructor with Specialists in Mechanical, Electrical, piping and other crafts to be used during the progress of instruction.

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Organization and Personnel - cont'd

Employees on Payroll

	Beginning	April End	Net Change
	893	902	+ 9
Employees on Loan			
Purchasing & Stores	1	2	
Separations Tech.	0	1	
Instrument	9	10	
Schenectady	4	4	
Technical	0	1	
	14	18	
Total - E&C Divisions	907	920	

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Richland, Washington
April 30, 1951

REPORT OF PROGRESS
HANFORD DISTRICT CIVIL DEFENSE
RICHLAND AND NORTH RICHLAND UNITS

I. Organization

A. Organizations are functioning well. Recruitment of volunteers is proceeding slowly. Ten percent of the quota of 250 auxiliary police have volunteered.

B. Warning System: The present system of alert signals has not been changed to conform with the Army Air Force directive, due to advice of the State Civil Defense Director. It is hoped that permission will be granted to retain the Yellow Alert Warning.

The Air raid sirens (Chrysler-Bell Victory) have been delivered and tested. The sites have been located for their installation, in Richland and one in North Richland.

The 40' towers for the sirens have been designed and it is anticipated that the contract for their fabrication and erection will be let in early May.

C. Control Centers: The temporary control center for Richland is complete save for installation of communication facilities.

The site for a permanent Central Control Center is yet to be determined. Several locations have been considered, including (a) Line Crew Headquarters proposed site at the corner of Stevens Drive and Spangler Road. (b) Proposed Patrol Headquarters Building to be located 1½ miles from Stevens Drive on the Horn Rapids Road. A study is being made on the cost of utilities if an isolated site should be selected.

D. Alternate Emergency Medical Centers:

Approval has been granted the North Richland Unit to utilize the John Ball School and Cafeteria #2, as alternate emergency medical centers.

E. Fire Truck:

A 300-gallon tanker-pumper truck has been provided for the North Richland Civil Defense Auxiliary Fire Department.

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F. Official Car:

The Coordinator of the Hanford Area Civil Defense has been provided with an official car, suitably painted with civil defense insignia. It is equipped for emergency use with two-way radio and siren.

G. Medical:

A small safe has been provided for storage of medicinal supplies. It is located in the North Richland Hospital.

H. Air Raid Shelters:

Preliminary sketches have been made for three types of air raid shelters. All are based on the use of prefabricated reinforced concrete pipe in units of 100-person capacity. These sketches have been submitted to the Disaster Planning Coordinator in Washington, D. C., where they have received favorable consideration. The design of the shelters is based on the assumption of a high level atomic explosion at approximately 2000 feet elevation.

I. Plant Defense:

A Plant Defense Council, consisting of the Managers of Technical, Health Instrument, Plant Security and Services, and Medical Divisions, held its formation meeting under the Chairmanship of the Assistant Deputy Director - Plant Defense on February 27.

As a result of discussions within the Plant Defense Council, a Planning Committee was appointed. This committee is charged with the responsibility for developing the overall phases of the Plant Defense plans, including the integration of area plans, control functions and administrative patterns.

J. Technical Defense:

A seminar on Technical Defense was held at the University of Washington on 10, 11 and 12 of April. A representative group from the Richland and North Richland units attended. This seminar was initiated by the State Director of Civil Defense and sponsored by the State Board of Public Health.

R. E. Davison, Coordinator
Hanford District Civil Defense

Prepared by
L.H.Hewett
Ass't. to Coordinator

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PROJECT & RELATED PERSONNEL — APRIL 1951

	3-30-51		4-30-51	
GOVERNMENT EMPLOYEES				
Civilian Personnel-Atomic Energy Comm.	346		343	
Civilian Personnel- G. A. O.	7		7	
Total		353		350
RICHLAND VILLAGE PERSONNEL				
Comm. Facilities (Inc. No. Richland)	1085		1144	
Govn. Agency, Churches, Clubs, etc.	87		87	
Schools	383		380	
Organizations	11		11	
Total		1566		1622
CONSTRUCTION SUB CONTRACTORS				
Atkinson & Jones	3981		4044	
Newberry Neon	423		430	
Urban, Smyth, Warren Co.	367		392	
Hanley & Co.	705		619	
Kellex Corp.	295		315	600
No. Elect. Mfg. Co.	2		2	
J. Gordon Turnbull	4		4	
Edmond P. Erwin	19		26	
J. P. Head	6		7	
Royal Co. Inc.	25		17	
Fred J. Early, Jr.	102		138	
Steel Const. Co. & Gilmore Fab. Inc.	32		31	
V. S. Jenkins	22		23	
Empire Electric Co.	5		3	
Morrison & Knudsen Co. Inc.	62		47	
Associated Engrs. Inc.	6		11	
Johnson Service	2		3	
Monterey Co. Plumbins Co.	24		14	
Thorgaard Plumbing & Heating Co.	2		2	
L. E. Baldwin & Frank Dunham Co.	78		79	
Hauserman	15		4	
X-Ray Products	1		2	
Judd Co. Inc.	5		3	
Chicago Bridge & Iron	13		8	
Valley Roofing Co.	5		0	
A J. Patton & Cecil C. Hill	2		9	
Cement Gun Const. Co.	3		0	
Malarkey & Moore	11		17	
Dix Steel Bldg. Co.	8		0	
Montgomery Electric Co.	3		12	
Commercial Painting & Dec. Co.	8		21	
Sound Const. & Engr. Co.	20		18	
Montgomery Elevator	4		4	
J. G. Shotwell	9		8	
Custodis Const. Co.	4		8	
Martin Fireproofing Co.	11		0	
Lewis & Queen	3		9	
J. C. Whitacre Decorating Co.	10		16	
West Coast Heating & Plumbing Co.	1		3	
Electric Smith Inc.	1		2	

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Roof Service Inc.	3	9
L. H. Hoffman	13	30
Stier, Shelton & Schick	5	2
Leland S. Rosener	33	35
Alvord, Burdick, & Howson	1	0
Barrett & Logan	3	0
Charles T. Main	76	128
Twin City Const. Co.	2	0
Minneapolis Honeywell Regulator Co.	0	2
Chem. Proof Const. Co.	0	4
F. O. Repine	0	19
E. J. Bartell	0	2
Andersons Decorating Studio	0	6
The Bay Co.	0	7
Mosco Elect.	0	5
Soule Steel Co.	0	2
Acme Elect. Co. Inc.	0	2
Paul Berg	0	1
Fox Metal Products	0	2
Taylor Brothers	0	8
K. C. Dack Const. Co.	0	3
R. M. Robson Const. Co.	0	14
Collins & Babcock	0	4
Total	6435	6636
General Electric Total	8080	8198
GRAND TOTAL	16,434	16,806

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